



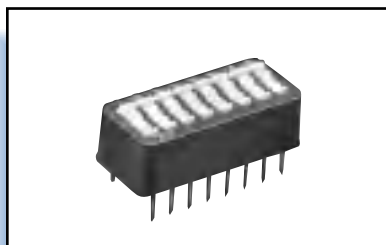
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GDH Series - Page A5



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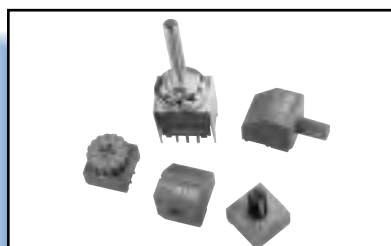
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DIP Switches

A

DIP Switches

DIP Switch Part Number Index

A

DIP Switches

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ADE03	A7	ADF07SAT	A8	ADPA06S	A9	GDR04S	A5
ADE03S	A7	ADF07ST	A8	ADPA06SA	A9	GDR06	A5
ADE03SA	A7	ADF07STTR	A8	ADPA07	A9	GDR06S	A5
ADE04	A7	ADF07T	A8	ADPA07S	A9	GDR08	A5
ADE04S	A7	ADF08	A8	ADPA07SA	A9	GDR08S	A5
ADE04SA	A7	ADF08S	A8	ADPA08	A9	GDR10	A5
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ADE05S	A7	ADF08SAT	A8	ADPA08SA	A9	GDS02	A3
ADE05SA	A7	ADF08ST	A8	ADPA09	A9	GDS02NTS	A3
ADE06	A7	ADF08STTR	A8	ADPA09S	A9	GDS02S	A3
ADE06S	A7	ADF08T	A8	ADPA09SA	A9	GDS02STR	A3
ADE06SA	A7	ADF09	A8	ADPA10	A9	GDS04	A3
ADE07	A7	ADF09S	A8	ADPA10S	A9	GDS04NTS	A3
ADE07S	A7	ADF09SA	A8	ADPA10SA	A9	GDS04S	A3
ADE07SA	A7	ADF09SAT	A8	APD10SA	A9	GDS04STR	A3
ADE08	A7	ADF09ST	A8	DRD*RAE	A25	GDS06	A3
ADE08S	A7	ADF09STTR	A8	DRD10CE	A23	GDS06NTS	A3
ADE08SA	A7	ADF09T	A8	DRD10CES	A23	GDS06S	A3
ADE09	A7	ADF10	A8	DRD10E	A23	GDS06STR	A3
ADE09S	A7	ADF10S	A8	DRD10ES	A23	GDS08	A3
ADE09SA	A7	ADF10SA	A8	DRD16CE	A23	GDS08NTS	A3
ADE10	A7	ADF10SAT	A8	DRD16CES	A23	GDS08S	A3
ADE10S	A7	ADF10ST	A8	DRD16E	A23	GDS08STR	A3
ADE10SA	A7	ADF10STTR	A8	DRD16ES	A23	GDS10	A3
ADE12	A7	ADF10T	A8	DRM	A25	GDS10S	A3
ADE12S	A7	ADF12	A8	DRS	A25	GDS10STR	A3
ADE12SA	A7	ADF12S	A8	DRW	A25	MGDH04	A6
ADF02	A8	ADF12SA	A8	GDB02	A4	MRD10	A21
ADF02S	A8	ADF12SAT	A8	GDB02S	A4	MRD10S	A21
ADF02SA	A8	ADF12ST	A8	GDB04	A4	MRD16C	A21
ADF02SAT	A8	ADF12STTR	A8	GDB04S	A4	MRD16S	A21
ADF02ST	A8	ADF12T	A8	GDB06	A4	SLV04	A18
ADF02STTR	A8	ADP02	A9	GDB06S	A4	SLV06	A18
ADF02T	A8	ADP02S	A9	GDB08	A4	SSH02	A18
ADF03	A8	ADP02SA	A9	GDB08S	A4	SSH04	A18
ADF03S	A8	ADP04	A9	GDB10	A4	SSH06	A18
ADF03SA	A8	ADP04S	A9	GDB10S	A4	SSH08	A18
ADF03SAT	A8	ADP04SA	A9	GDH02S	A5	SSH10	A18
ADF03ST	A8	ADP05	A9	GDH02STR	A5	SSV02	A18
ADF03STTR	A8	ADP05S	A9	GDH04S	A5	SSV04	A18
ADF03T	A8	ADP05SA	A9	GDH04STR	A5	SSV06	A18
ADF04	A8	ADP06	A9	GDH06S	A5	SSV08	A18
ADF04S	A8	ADP06S	A9	GDH06STR	A5	SSV10	A18
ADF04SA	A8	ADP06SA	A9	GDH08S	A5	435166	A15
ADF04SAT	A8	ADP07	A9	GDH08STR	A5	435469	A14
ADF04ST	A8	ADP07S	A9	GDH10S	A5	435470	A13
ADF04STTR	A8	ADP07SA	A9	GDH10STR	A5	435626	A15
ADF04T	A8	ADP08	A9	GDP02	A4	435640	A17
ADF05	A8	ADP08S	A9	GDP02NTS	A4	435668	A17
ADF05S	A8	ADP08SA	A9	GDP02S	A4	435704	A20
ADF05SA	A8	ADP09	A9	GDP02STR	A4	435802	A12
ADF05SAT	A8	ADP09S	A9	GDP04	A4	436860	A20
ADF05ST	A8	ADP09SA	A9	GDP04NTS	A4		
ADF05STTR	A8	ADP10	A9	GDP04S	A4		
ADF05T	A8	ADP10S	A9	GDP06	A4		
ADF06	A8	ADPA02	A9	GDP06S	A4		
ADF06S	A8	ADPA02S	A9	GDP08	A4		
ADF06SA	A8	ADPA02SA	A9	GDP08S	A4		
ADF06SAT	A8	ADPA04	A9	GDP08STR	A4		
ADF06ST	A8	ADPA04S	A9	GDP10	A4		
ADF06STTR	A8	ADPA04SA	A9	GDP10S	A4		
ADF06T	A8	ADPA05	A9	GDP10STR	A4		

DIP Switches, Low Profile, Slide Actuator, Through Hole and Surface Mount

FEATURES:

- Conventional gold wiping contact system
- Available in PC and surface mount configurations
- Traditional tape seal standard
- 95% Minimum solder coverage (90/10 tin lead)
- Withstands wave soldering temperature of 245°C for 3-5 seconds
- Heat deflection temperature of 260°C for surface mount compatibility
- End stackable (GDS version)
- Auto-insertable (GDS and GDB version)
- Vacuum pick and place compatible (GDS, GDB and GDH)
- Half pitch .050" terminal spacing (GDH version)
- Available in optional tape & reel packaging
- Shipped in the off position

MATERIAL SPECIFICATIONS:

Moving Contact		Gold over nickel over copper alloy
Fixed Contact		Gold over nickel over copper alloy
Base Material		PPS UL94V-0
Cover Material		PPS UL94V-0
Actuator Material		High temperature polyester/polyamide
Terminal		Tin lead plated over nickel over copper alloy

TYPICAL PERFORMANCE CHARACTERISTICS:

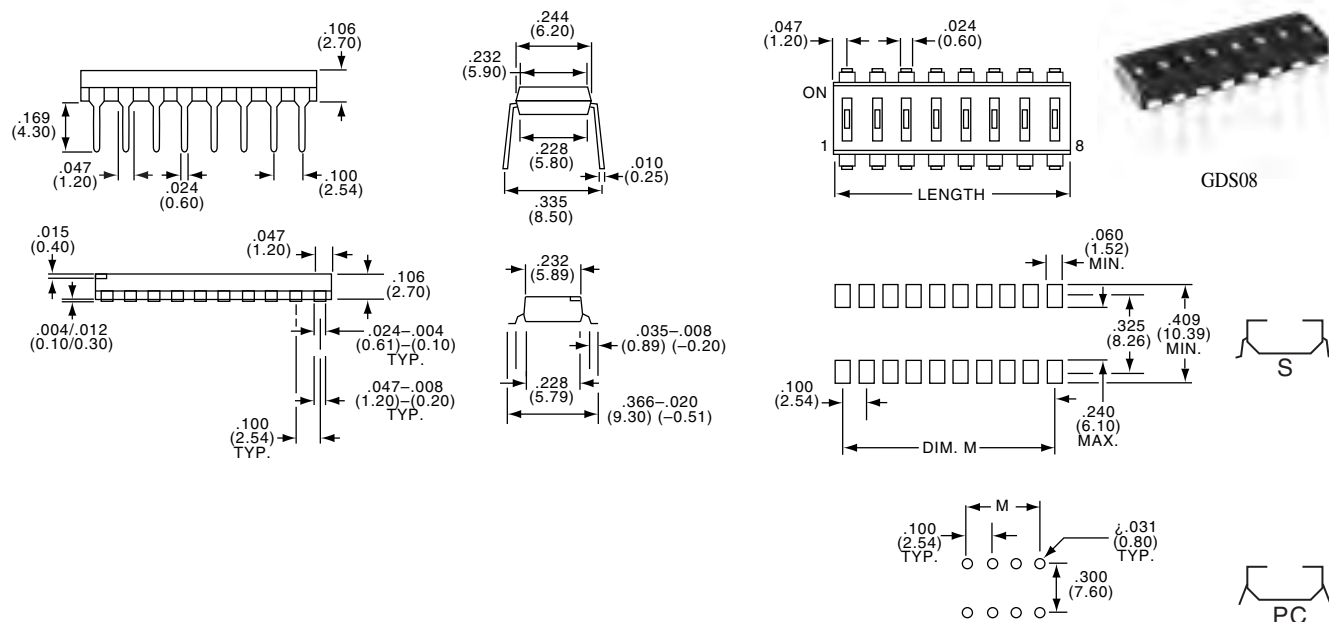
Contact Rating	0.4 VA @ 24 VDC
Initial Contact Resistance	100 Milliohms max.
Insulation Resistance	100 Megohms min. @ 250 VDC
Dielectric Strength	300 VAC
Life Expectancy	1,000 Cycles
Operating Force	60-600 Grams

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-30°C to +85°C
Storage Temperature.....-45°C to +100°C
Solder Heat ResistanceSee page M3-4

End to End Stackable!

GDS
Low Profile Slide Actuator



Part Number								Poles	Length	Dim. M
PC Model		S Model		Tape & Reel		S Model No Tape				
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
5-1437590-5	GDS02	5-1437590-7	GDS02S	5-1437590-8	GDS02STR	5-1437590-6	GDS02NTS	2	.194(4.94)	.100(2.54)
5-1437590-9	GDS04	6-1437590-1	GDS04S	6-1437590-2	GDS04STR	6-1437590-0	GDS04NTS	4	.394(10.02)	.300(7.62)
6-1437590-3	GDS06	6-1437590-5	GDS06S	6-1437590-6	GDS06STR	6-1437590-4	GDS06NTS	6	.594(15.10)	.500(12.7)
6-1437590-7	GDS08	6-1437590-9	GDS08S	7-1437590-0	GDS08STR	6-1437590-8	GDS08NTS	8	.794(20.18)	.700(17.78)
7-1437590-1	GDS10	7-1437590-2	GDS10S	7-1437590-3	GDS10STR	—	—	10	.994(25.26)	.900(22.86)

DIP Switches, Piano Actuator, Through Hole and Surface Mount

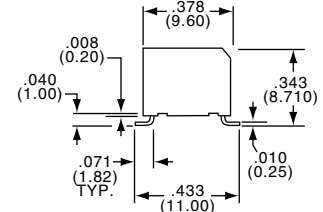
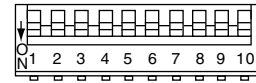
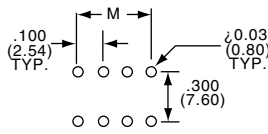
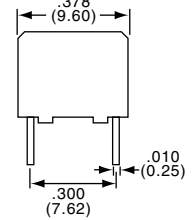
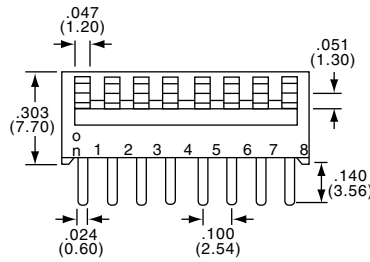
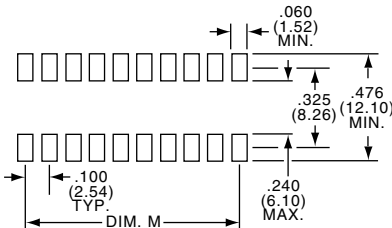
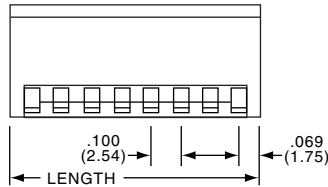
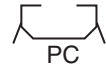
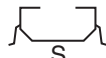
SEE PAGE A3 FOR PRODUCT SPECIFICATIONS

GDP

Classic Profile Piano Actuator



GDP08



Part Number										Poles	Length	Dim. M
PC Model		S Model		Tape and Reel		S Model No Tape						
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch					
3-1437590-2	GDP02	3-1437590-4	GDP02S	1571668-1	GDP02STR	3-1437590-3	GDP02NTS	2	.238(6.04)	.100(2.54)		
3-1437590-5	GDP04	3-1437590-7	GDP04S	—	—	3-1437590-6	GDP04NTS	4	.438(11.12)	.300(7.62)		
3-1437590-8	GDP06	3-1437590-9	GDP06S	—	—	—	—	6	.638(16.20)	.500(12.7)		
4-1437590-0	GDP08	4-1437590-1	GDP08S	4-1437590-2	GDP08STR	—	—	8	.838(21.28)	.700(17.78)		
4-1437590-3	GDP10	4-1437590-4	GDP10S	4-1437590-5	GDP10STR	—	—	10	1.038(26.36)	.900(22.86)		

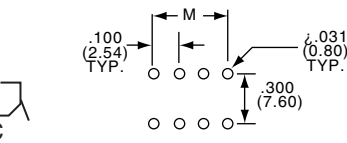
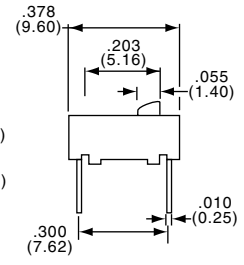
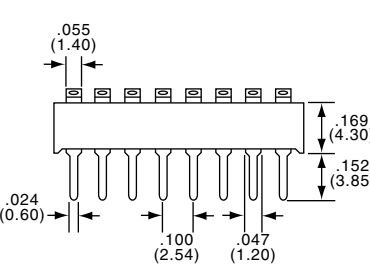
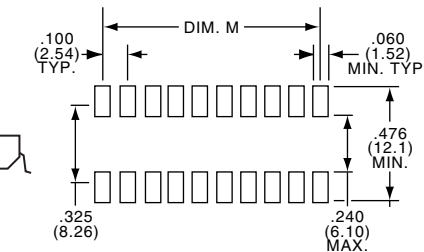
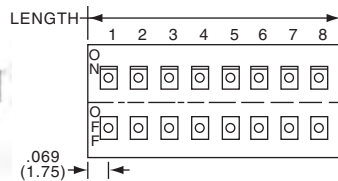
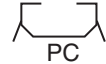
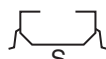
DIP Switches, Flush Rocker Actuator, Through Hole and Surface Mount

GDB

Flush Rocker Actuator



GDB08



Part Number				Poles	Length	Dim. M
PC Model		S Model				
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
1437590-1	GDB02	—	GDB02S	2	.238(6.04)	.100(2.54)
1437590-2	GDB04	1437590-3	GDB04S	4	.438(11.12)	.300(7.62)
1437590-4	GDB06	1437590-5	GDB06S	6	.638(16.20)	.500(12.7)
1437590-6	GDB08	1437590-7	GDB08S	8	.838(21.28)	.700(17.78)
1437590-8	GDB10	1437590-9	GDB10S	10	1.038(26.36)	.900(22.86)

DIP Switches, Recessed Rocker, Through Hole and Surface Mount

SEE PAGE A3 FOR PRODUCT SPECIFICATIONS

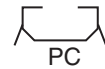
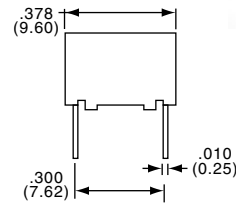
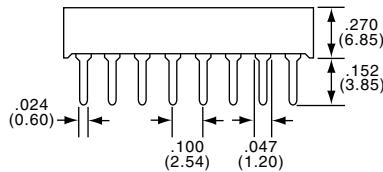
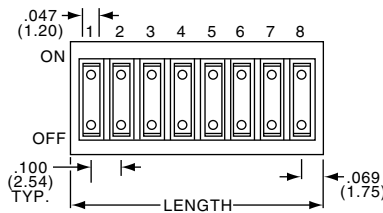
Part Number				Poles	Length	Dim. M
PC Model		S Model				
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
4-1437590-6	GDR02	4-1437590-7	GDR02S	2	.238(6.04)	.100(2.54)
4-1437590-8	GDR04	4-1437590-9	GDR04S	4	.438(11.12)	.300(7.62)
5-1437590-0	GDR06	5-1437590-1	GDR06S	6	.638(16.20)	.500(12.7)
5-1437590-2	GDR08	5-1437590-3	GDR08S	8	.838(21.28)	.700(17.78)
5-1437590-4	GDR10	—	GDR10S	10	1.038(26.36)	.900(22.86)

GDR

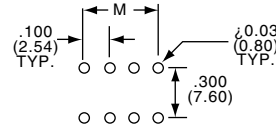
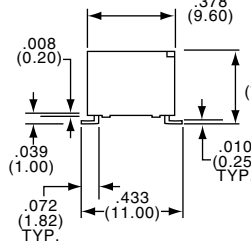
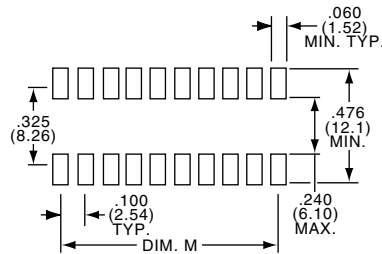
Classic Profile
Recessed Rocker Actuator



GDR08



S

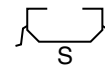
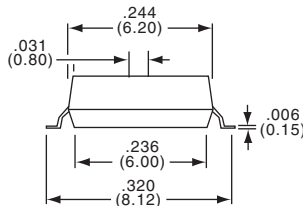
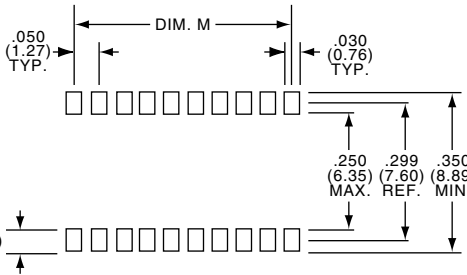
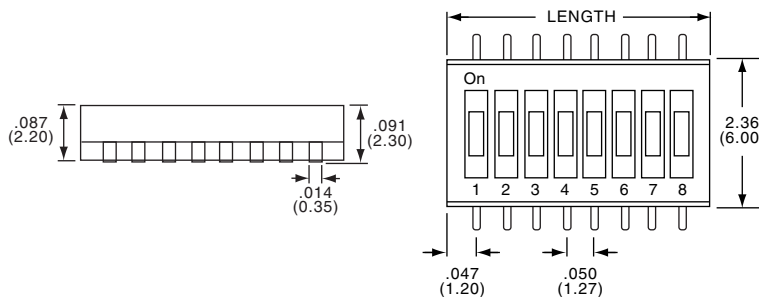


DIP Switches, Half Pitch, Low Profile

GDH
Half Pitch .050" Terminal Spacing



GDH08S



Part Number				Poles	Length	Dim. M
PC Model		S Model				
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
1-1437590-0	GDH02S	1-1437590-3	GDH02STR	2	.144(3.66)	.050(1.27)
1-1437590-4	GDH04S	1-1437590-6	GDH04STR	4	.244(6.20)	.150(3.81)
1-1437590-9	GDH06S	2-1437590-1	GDH06STR	6	.344(8.75)	.250(6.35)
2-1437590-2	GDH08S	2-1437590-4	GDH08STR	8	.444(11.29)	.350(8.89)
2-1437590-6	GDH10S	2-1437590-8	GDH10STR	10	.544(13.82)	.450(11.43)

DIP Switches, Half Pitch, Ultra Low Profile, .067" High

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, gold plate over nickel
Case MaterialHigh temperature polyamide, UL 94V-0
Actuator MaterialHigh temperature polyester, 94V-0
Moving ContactCopper alloy, gold plate over nickel
Fixed ContactCopper alloy, gold plate over nickel
TerminalsCopper alloy, gold flash over nickel

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-30°C to +85°C (-22°F to +185°F)
Storage Temperature.....-45°C to +100°C (-49°F to +212°F)

TYPICAL PERFORMANCE CHARACTERISTICS:

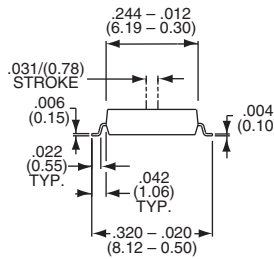
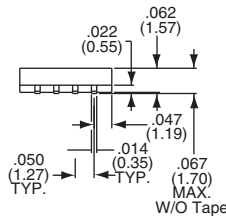
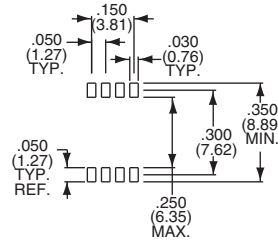
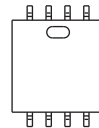
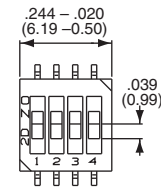
Contact RatingNon-switching: 100 Milliamps @ 50 VDC
Switching: 25 Milliamps @ 24 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength300 VAC, 1 minute
Actuation Force60 - 600 Grams max.
Life Expectancy1,000 Cycles min.

MGDH

Half Pitch .050" Terminal Spacing, .067" High



MGDH04



Part Number	
Tyco Electronics	Alcoswitch
7-1437590-5	MGDH04

DIP Switches, Extended Actuator, Auto Insertable, Through Hole and Surface Mount

FEATURES:

- Available in PC or surface mount termination.
- High pressure wiping contact allows aqueous or solvent cleaning without tape seal.
- Auto-insertable
- Tape Seal version available for vacuum pick-n-place
- Unique design can withstand vapor phase reflow or wave soldering conditions.
- Gas tight contacts
- Shipped in the off position

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-30°C to + 85°C
 Storage Temperature-45°C to + 100°C
 Solder Heat Resistance.....245°C ± 5°C with switch in "off" position 30 seconds when mounted on a .060" thick PCB per MIL-STD202, Method 210
 Cleaning.....Aqueous solution or solvent

MATERIAL SPECIFICATIONS:

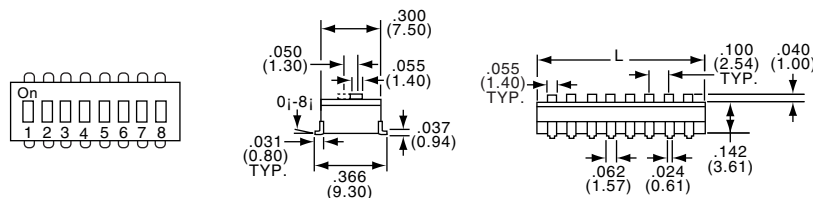
Base and CoverPPS-UL94V-0, (Black)
 Actuator.....PA6T-UL94V-0, (White)
 Fixed Contact/TerminalCopper alloy plate-solder/copper
 Moving ContactCopper alloy plate-gold/nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

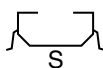
Contact Rating0.4 VA @ 20 VDC max.
 Max Rating Switching-100 Milliamp @ 24VDC
 Min Rating Switching-1 Microamp @ 1 Millivolt
 Max Rating Non Switching-1 Amp @ 5VDC
 Initial Contact Resistance50 Milliohms max.
 Insulation Resistance1,000 Megohms min. @ 100 VDC
 Dielectric Strength500 VAC
 Operating ForceLess than 800 grams
 Actuator TravelAD/R Series 1.30mm/.050" piano style 25°
 Life Expectancy1,000 Cycles



ADE



S Termination Shown



PC Term.		"S" Term.		"SA" Term.		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
1437586-2	ADE02	1437586-4	ADE02S	1437586-5	ADE02SA	2	Slide	.278(7.06)
1437586-7	ADE03	1437586-8	ADE03S	—	ADE03SA	3	Slide	.378(9.60)
1-1437586-0	ADE04	1-1437586-2	ADE04S	1-1437586-3	ADE04SA	4	Slide	.478(12.14)
1-1437586-5	ADE05	1-1437586-7	ADE05S	—	ADE05SA	5	Slide	.578(14.68)
1-1437586-8	ADE06	2-1437586-0	ADE06S	2-1437586-1	ADE06SA	6	Slide	.678(17.22)
2-1437586-3	ADE07	2-1437586-5	ADE07S	—	ADE07SA	7	Slide	.778(19.76)
2-1437586-6	ADE08	2-1437586-8	ADE08S	2-1437586-9	ADE08SA	8	Slide	.878(22.30)
3-1437586-0	ADE09	—	ADE09S	—	ADE09SA	9	Slide	.978(24.84)
3-1437586-2	ADE10	3-1437586-7	ADE10S	—	ADE10SA	10	Slide	1.078(27.38)
3-1437586-8	ADE12	1571337-1	ADE12S	—	ADE12SA	12	Slide	1.278(32.51)

See Page A9 for PC Pad Layout.

DIP Switches, Flush Acuator, Auto Insertable, Through Hole, and Surface Mount

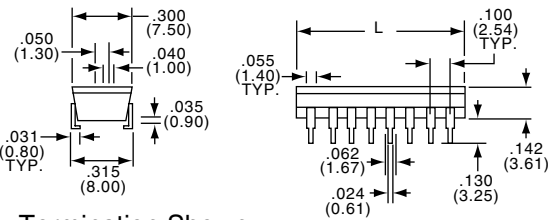
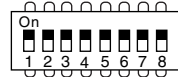
SEE PAGE A7 FOR PRODUCT SPECIFICATIONS

ADF

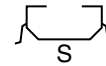
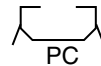


ADF08S
Flush Actuator

See Page A9 for PC Pad Layout.



SA Termination Shown



PC Term.		PC Term. w/Tape		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
4-1437586-2	ADF02	5-1437586-0	ADF02T	2	Slide	.278(7.06)
5-1437586-1	ADF03	5-1437586-6	ADF03T	3	Slide	.378(9.60)
5-1437586-7	ADF04	6-1437586-4	ADF04T	4	Slide	.478(12.14)
6-1437586-5	ADF05	7-1437586-0	ADF05T	5	Slide	.578(14.68)
7-1437586-1	ADF06	8-1437586-0	ADF06T	6	Slide	.678(17.22)
8-1437586-1	ADF07	8-1437586-5	ADF07T	7	Slide	.778(19.76)
8-1437586-6	ADF08	9-1437586-5	ADF08T	8	Slide	.878(22.30)
9-1437586-6	ADF09	—	ADF09T	9	Slide	.978(24.84)
1437587-1	ADF10	1437587-7	ADF10T	10	Slide	1.078(27.38)
—	ADF12	1571336-1	ADF12T	12	Slide	1.278(32.51)

"S" Term.		"S" Term. w/Tape Seal		Tape & Reel		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
4-1437586-4	ADF02S	4-1437586-8	ADF02ST	4-1437586-9	ADF02STTR	2	Slide	.278(7.06)
5-1437586-2	ADF03S	5-1437586-4	ADF03ST	5-1437586-5	ADF03STTR	3	Slide	.378(9.60)
5-1437586-9	ADF04S	6-1437586-3	ADF04ST	1437583-6	ADF04STTR	4	Slide	.478(12.14)
6-1437586-6	ADF05S	6-1437586-8	ADF05ST	6-1437586-9	ADF05STTR	5	Slide	.578(14.68)
7-1437586-5	ADF06S	7-1437586-8	ADF06ST	7-1437586-9	ADF06STTR	6	Slide	.678(17.22)
8-1437586-2	ADF07S	8-1437586-3	ADF07ST	8-1437586-4	ADF07STTR	7	Slide	.778(19.76)
8-1437586-8	ADF08S	9-1437586-1	ADF08ST	9-1437586-2	ADF08STTR	8	Slide	.878(22.30)
9-1437586-7	ADF09S	9-1437586-8	ADF09ST	9-1437586-9	ADF09STTR	9	Slide	.978(24.84)
1437587-3	ADF10S	1437587-5	ADF10ST	1437587-6	ADF10STTR	10	Slide	1.078(27.38)
1437587-8	ADF12S	—	ADF12ST	1437587-9	ADF12STTR	12	Slide	1.278(32.51)

"SA" Term.		"SA" Term. w/Tape Seal		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
4-1437586-5	ADF02SA	4-1437586-6	ADF02SAT	2	Slide	.278(7.06)
5-1437586-3	ADF03SA	—	ADF03SAT	3	Slide	.378(9.60)
6-1437586-0	ADF04SA	6-1437586-1	ADF04SAT	4	Slide	.478(12.14)
—	ADF05SA	—	ADF05SAT	5	Slide	.578(14.68)
7-1437586-6	ADF06SA	7-1437586-7	ADF06SAT	6	Slide	.678(17.22)
—	ADF07SA	—	ADF07SAT	7	Slide	.778(19.76)
8-1437586-9	ADF08SA	9-1437586-0	ADF08SAT	8	Slide	.878(22.30)
—	ADF09SA	—	ADF09SAT	9	Slide	.978(24.84)
—	ADF10SA	1437587-4	ADF10SAT	10	Slide	1.078(27.38)
—	ADF12SA	—	ADF12SAT	12	Slide	1.278(32.51)

DIP Switches, Piano Acuator, Auto Insertable, Through Hole, and Surface Mount

ADP

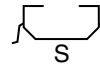
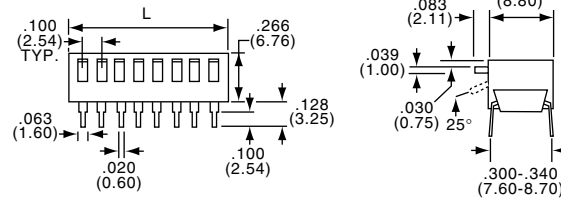


ADP04S

Piano Actuator

"PC" Termination Shown

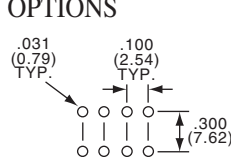
SEE PAGE A7 FOR PRODUCT SPECIFICATIONS



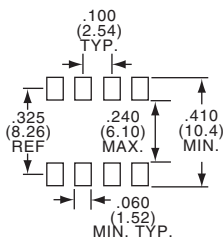
Lever Down "On"		"S" Term		"SA" Term.		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
1-1437587-1	ADP02	1-1437587-2	ADP02S	1-1437587-3	ADP02SA	2	Piano	.278(7.06)
1-1437587-5	ADP04	1-1437587-7	ADP04S	1-1437587-8	ADP04SA	4	Piano	.478(12.14)
2-1437587-0	ADP05	2-1437587-1	ADP05S	—	ADP05SA	5	Piano	.578(14.68)
2-1437587-2	ADP06	2-1437587-3	ADP06S	2-1437587-4	ADP06SA	6	Piano	.678(17.22)
2-1437587-5	ADP07	—	ADP07S	—	ADP07SA	7	Piano	.778(19.76)
2-1437587-6	ADP08	2-1437587-8	ADP08S	2-1437587-9	ADP08SA	8	Piano	.878(22.30)
3-1437587-0	ADP09	—	ADP09S	3-1437587-1	ADP09SA	9	Piano	.978(24.84)
3-1437587-3	ADP10	3-1437587-6	ADP10S	—	ADP10SA	10	Piano	1.078(27.38)

Lever Up "On"		"S" Term		"SA" Term.		No. of Positions	Actuator Style	Dim. L
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			
4-1437587-7	ADPA02	—	ADPA02S	—	ADPA02SA	2	Piano	.278(7.06)
4-1437587-8	ADPA04	5-1437587-0	ADPA04S	5-1437587-1	ADPA04SA	4	Piano	.478(12.14)
5-1437587-2	ADPA05	5-1437587-3	ADPA05S	—	ADPA05SA	5	Piano	.578(14.68)
5-1437587-4	ADPA06	5-1437587-5	ADPA06S	5-1437587-6	ADPA06SA	6	Piano	.678(17.22)
5-1437587-7	ADPA07	—	ADPA07S	—	ADPA07SA	7	Piano	.778(19.76)
5-1437587-8	ADPA08	6-1437587-0	ADPA08S	—	ADPA08SA	8	Piano	.878(22.30)
—	ADPA09	—	ADPA09S	—	ADPA09SA	9	Piano	.978(24.84)
6-1437587-1	ADPA10	—	ADPA10S	—	ADPA10SA	10	Piano	1.078(27.38)

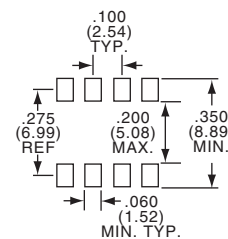
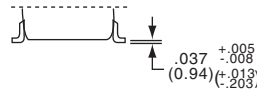
TERMINATION OPTIONS



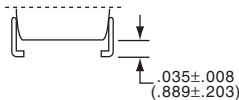
PC Termination



S Termination



SA Termination



Hybrid DIP Switches, Through Hole and Surface Mount

AUTO-INSERTABLE* DIP SWITCH WITH INTEGRAL RESISTORS

* Flush actuator versions are auto-insertable

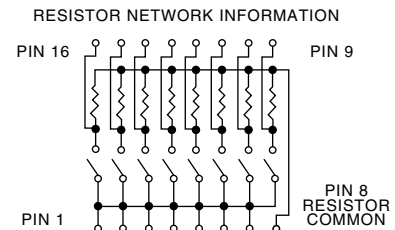
FEATURES:

All the features of the AD SERIES - PLUS

- Thick film pull-up resistors molded into the base of the switch.
- Replaces discrete resistor network plus DIP Switch with one component.
- Available with 3.3K ohms or 10K ohms resistors.
- Ceramic substrate allows wave soldering temperatures of 245°C for up to 30 seconds per MIL-STD 202, Method 210.
- Custom resistor values available.
- Shipped in off position.

SEE PAGE A7 FOR PRODUCT SPECIFICATIONS

Rated Pwr.	Resistance	Tolerance	Max. Voltage
125 mW	3.3K Ohms (red)	±5% at 85°C	24V
125 mW	10K Ohms (green)	±5% at 85°C	24V



Actuator Style		Series		No. of Positions		Terminations		Seal Type		HOW TO ORDER
E = Extended		Auto-Dip with Resistors		02, 04, 06, 08, 10		Blank = PC		Blank = No seal		
F = Flush Auto-Insertable						S = Outside "L" (SMT)		T = Tape (flush actuator only)		
P = Piano (On Down)						SA - Inside "L" (SMT)				
PA = Piano (On Up)										

See Pages A7-A9 for dimensional info.

3.3K Ohms (Red case)
10K Ohms (Green case)
Custom values are available on special order

See Page A9 for board layout.

Example: ARF 06 10KST = Auto-Dip

Flush actuator
06 positions
10K ohms resistors
Outside "L" terminations & tape seal



Alcoswitch 7000 Series DIP switches are available in standard single pole, single throw; side actuated, single pole, single throw and multiple series versions. Contacts are made of high strength copper alloy with .000030 [0.00076] gold over .000050 [0.00127] nickel plating in contact area and legs plated to meet Tyco Electronics Solderability Specification 109-11-3.

The multiple series switches offer the unique feature of single pole switches coupled mechanically to provide switching of various poles simultaneously. This allows flexibility in programming.

Multipole switches are available with or without lever-actuated rockers and in a variety of configurations in addition to those listed. The maximum number of poles that can be ganged is six.

DIP Switches

Performance Characteristics

Current and Voltage Rating:

Nonswitching — 1.5 amperes max. at 50 VDC
Switching — 100 milliamperes max at 5 VDC (resistive load);
25 milliamperes max. at 24 VDC (resistive load)

Contact Resistance, Dry Circuit:

100 milliohms max. (end of life) and 50 milliohms (initial) at 50 mV open circuit, 50 milliamperes

Insulation Resistance:

1 x 10⁹ ohms min. at 100 VDC (initial)

Dielectric Withstanding Voltage:

500 VDC min. at standard atmospheric conditions

Capacitance:

5 picofarads max.

Temperature Rating:

Nonoperating — -73.3°C to +105°C
Operating — -55°C to +105°C

Vibration:

Discontinuities shall not exceed 10 microseconds when subjected to 10-2000-10 Hz transversing for 20 minutes at .060 [1.52] inches total excursion

Shock:

No physical damage or discontinuities greater than 10 microseconds when tested with .10 ampere current applied per Tyco Electronics Specification 109-26, Condition A

Humidity:

Withstands an environment of +40°C and 95% RH for 96 hours

Durability:

No physical damage or contact resistance greater than 100 milliohms up to 7000 cycles of actuation with a resistive load of 24 VDC and 25 milliamperes max. current applied

Terminal Strength (Bend Test):

Two (2) 45° bend cycles per MIL-STD-202, Method 211, Condition B

Materials

Housing:

Glass-filled polyester, 94V-0 rated, black

Rocker:

Thermoplastic, 94V-0 rated, white

Spring Contacts and Leads:

Copper alloy with .000030 [0.00076] gold over .000050 [0.00127] nickel in contact area and .000150 [0.00381] tin-lead over .000050 [0.00127] nickel on solder legs, plated to meet Tyco Electronics Solderability Specification 109-11-3.

Technical Documents

Product Specification:

108-7519

Instruction Sheet:

408-07779

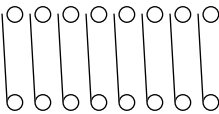
Application Specification:

114-1056

**Single Pole
Single Throw
Side Actuated
Low Profile**

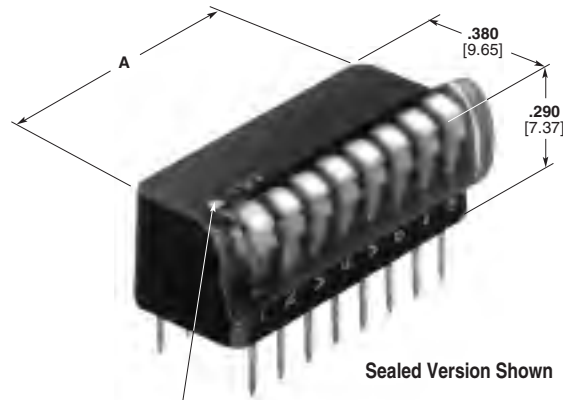
Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
below mounting surface

Contact Arrangement



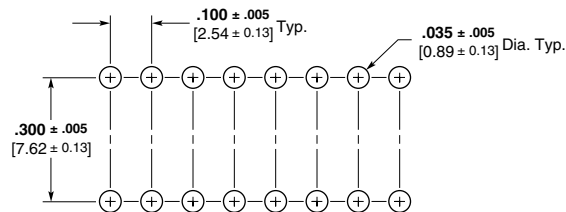
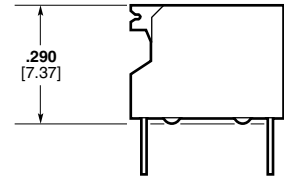
Pin 1

Note: Switches shown in open position



Sealed Version Shown

White Dot Identifies Pin 1



Recommended PC Board Hole Pattern

No. of Switches	Dim. A		SPST Side Actuated Part No.		
	inch	mm	Unsealed ¹	Sealed	Tape Sealed
2	.280	7.11	1-435802-0	—	—
3	.380	9.65	435802-2	—	—
4	.480	12.19	435802-3	1-435802-5	—
5	.580	14.73	435802-4	1-435802-6	—
6	.680	17.27	435802-5	1-435802-7	—
7	.780	19.81	435802-6	1-435802-8	—
8	.880	22.35	435802-1	435802-9	3-435802-8
9	.980	24.89	435802-7	1-435802-9	—
10	1.080	27.43	435802-8	2-435802-0	—
11	1.180	29.97	—	2-435802-1	—
12	1.280	32.51	—	2-435802-2	—

¹ All switches are bottom sealed.

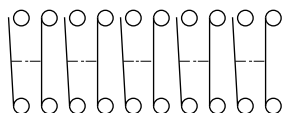
DIP Switches, Extended Actuator, Single or Double Pole, Double Throw

Multiple Single Pole Double Throw

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]

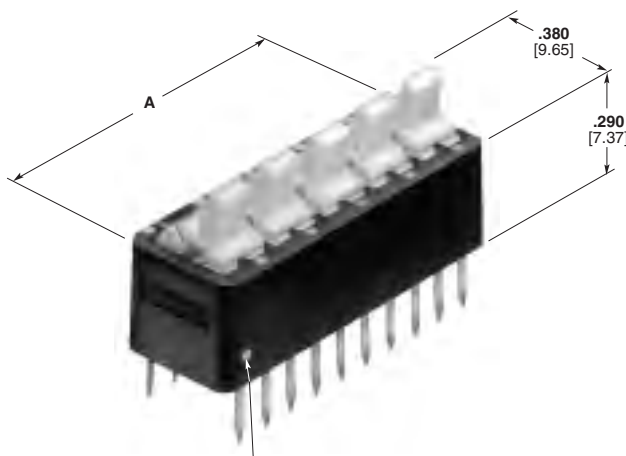
Lead Length — .140 [3.56]
below mounting surface

Contact Arrangement

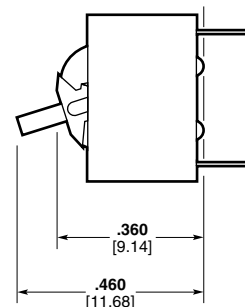


Pin 1

Note: Switch positions are closed when rockers are down toward white dots. Switches have make-before-break circuit design.



White Dot Identifies Pin 1



Extended Lever Actuator Shown

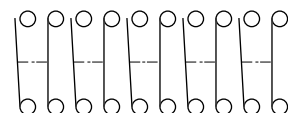
No. of Switches	Dim. A		SPDT Part No.	
	inch	mm	Low Profile Actuator	Extended Lever Actuator
1	.280	7.11	435470-7	2-435470-1
2	.480	12.19	435470-1	2-435470-2
3	.680	17.27	435470-2	—
4	.880	22.35	435470-3	2-435470-4
5	1.080	27.43	—	2-435470-5
6	1.280	32.51	—	2-435470-6

Double Pole Double Throw

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]

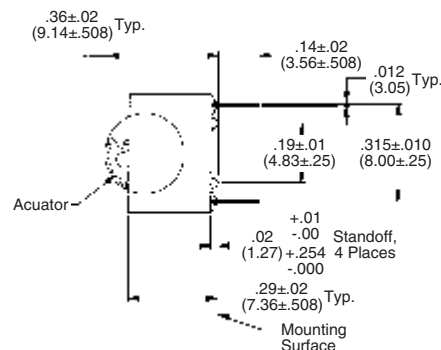
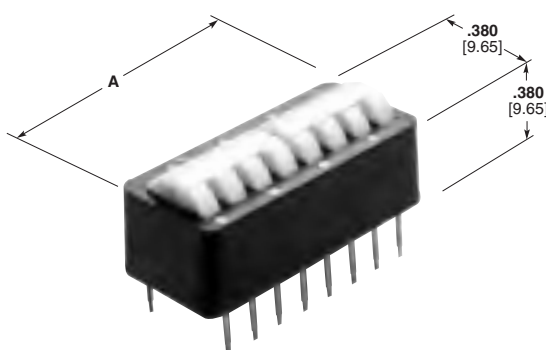
Lead Length — .140 [3.56]
below mounting surface

Contact Arrangement



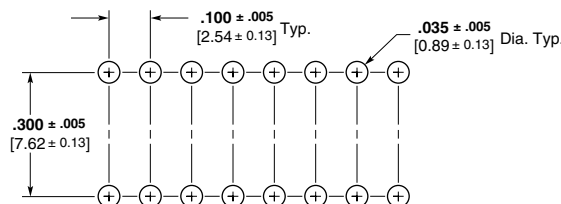
Pin 1

Note: Switch positions are closed when rockers are down toward white dots. Switches have make-before-break circuit design.



Low Profile Lever Actuator Shown

No. of Switches	Dim. A		DPDT Part No.	
	inch	mm	Low Profile Actuator	Extended Lever Actuator
1	.480	12.19	435470-5	3-435470-1
2	.880	22.35	435470-9	—



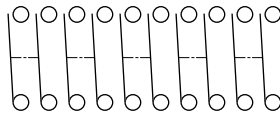
Recommended PC Board Hole Pattern

DIP Switches, Extended Actuator, Multiple Pole, Single Throw

Multiple Double Pole Single Throw

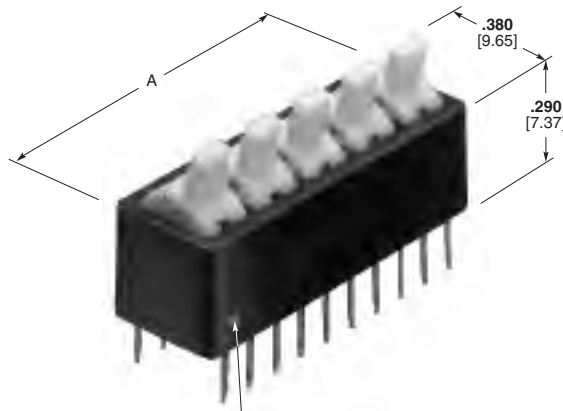
Contact Lead Spacing —
 .100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
 below mounting surface

Contact Arrangement

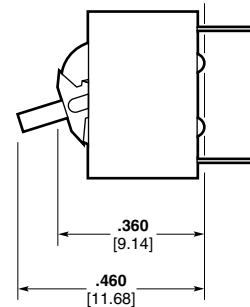


Pin 1

Note: Switches shown in open position.



White Dot Identifies Pin 1



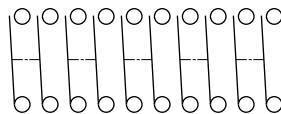
Extended Lever Actuator Shown

No. of Switches	Dim. A		DPST Part No.	
	inch	mm	Low Profile Actuator	Extended Lever Actuator
1	.280	7.11	435469-9	2-435469-1
2	.480	12.19	—	2-435469-2
4	.880	22.35	435469-3	2-435469-4
5	1.080	27.43	—	2-435469-5
6	1.280	32.51	—	2-435469-6

4-Pole Single Throw

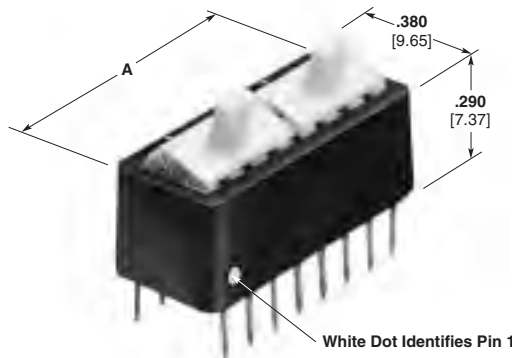
Contact Lead Spacing —
 .100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
 below mounting surface

Contact Arrangement

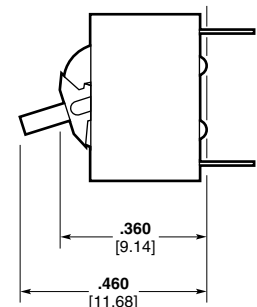


Pin 1

Note: Switches shown in open position.

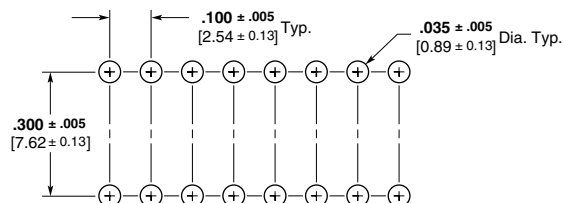


White Dot Identifies Pin 1



Extended Lever Actuator Shown

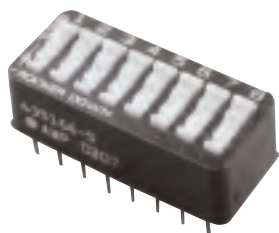
No. of Switches	Dim. A		4PST Part No.	
	inch	mm	Low Profile Actuator	Extended Lever Actuator
1	.480	12.19	435469-7	3-435469-1



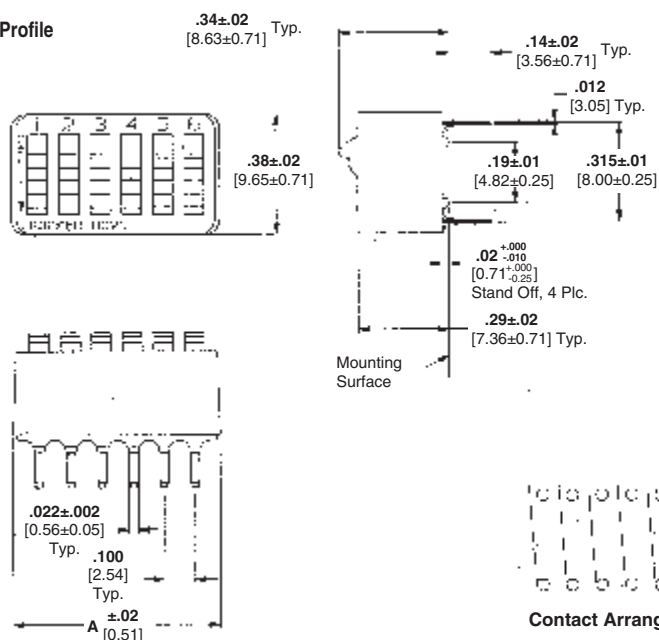
Recommended PC Board Hole Pattern

DIP Switches, Rocker Style Actuator

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
below mounting surface



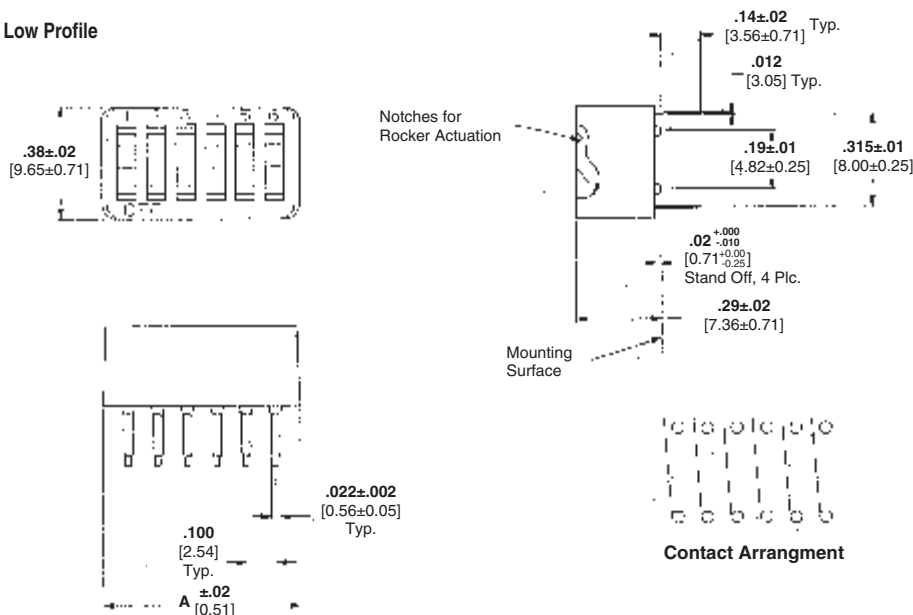
Standard Profile



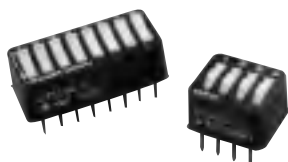
Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
below mounting surface



Low Profile



Number of Switches	SPST Standard Profile		SPST Low Profile	
	Unsealed	Sealed	Unsealed	Tape Sealed
2	2-435166-9	—	—	3-435626-6
3	—	—	—	3-435626-7
4	435166-2	4-435166-9	435626-1	3-435626-8
5	—	5-435166-0	435626-2	—
6	435166-4	5-435166-1	—	4-435626-0
7	435166-1	5-435166-2	—	4-435626-1
8	435166-5	5-435166-3	435626-5	4-435626-2
9	435166-6	—	—	—
10	435166-7	5-435166-5	—	4-435626-4



Alcoswitch 7100 Series DIP Switches are recommended for programming applications where the number of cycles per pole is limited. These single pole, single throw switches have been designed for a life of up to 2000 cycles per pole and feature contacts of copper alloy with .000030 [0.00076] gold over nickel plating in the contact area and legs plated to meet Tyco Electronics Solderability Specification 109-11-3. In addition, the SPST standard and low profile switches are also available with a top seal to provide protection during soldering and cleaning processes.

DIP Switches

Performance Characteristics

Current and Voltage Rating:

Nonswitching — 1.0 amperes max. at 40 VDC
Switching — 60 milliamperes max at 5 VDC (resistive load);
15 milliamperes max. at 24 VDC (resistive load)

Contact Resistance, Dry Circuit:

100 milliohms max. (end of life) and 50 milliohms (initial) at 50 mV open circuit, 50 milliamperes

Insulation Resistance:

1×10^9 ohms min. at 100 VDC (initial)

Dielectric Withstanding Voltage:

500 VDC min. at standard atmospheric conditions

Capacitance:

5 picofarads max.

Temperature Rating:

Nonoperating — -73°C to +105°C
Operating — -55°C to +105°C

Vibration:

Discontinuities shall not exceed 10 microseconds when subjected to 10-2000-10 Hz transversing for 20 minutes at .060 [1.52] inches total excursion

Shock:

No physical damage or discontinuities greater than 10 microseconds when tested with .10 ampere current applied per Tyco Electronics Specification 109-26, Condition A

Humidity:

Withstands an environment of +40°C and 95% RH for 96 hours

Durability:

No physical damage or contact resistance greater than 100 milliohms after 2000 cycles of actuation with a resistive load of 24 VDC and 25 milliamperes max. current applied

Terminal Strength (Bend Test):

Two (2) 45° bend cycles per MIL-STD-202, Method 211, Condition B

Materials

Housing:

Glass-filled polyester, 94V-0 rated, blue

Rocker:

Thermoplastic, 94V-0 rated, white

Spring Contacts and Leads:

Copper alloy with .000030 [0.00076] gold over .000050 [0.00127] nickel in contact area and .000150 [0.00381] tin-lead over .000050 [0.00127] nickel on solder legs, plated to meet Tyco Electronics Solderability Specification 109-11-3.

Technical Documents

Product Specification:

108-7532

Instruction Sheet:

408-07779

Application Specification:

114-1056

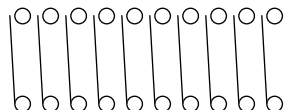
DIP Switches, Rocker Style Actuator

Single Pole Single Throw

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]

Lead Length — .140 [3.56]
below mounting surface

Contact Arrangement



Pin 1

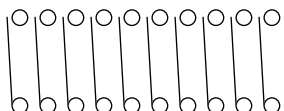
Note: Switches shown in open position.

Single Pole Single Throw Low Profile

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]

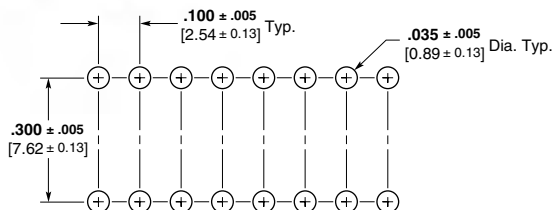
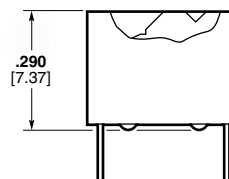
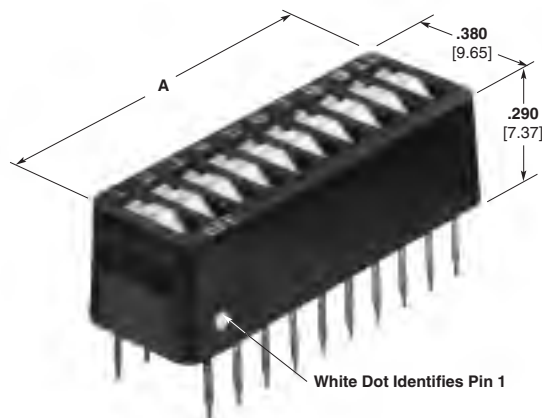
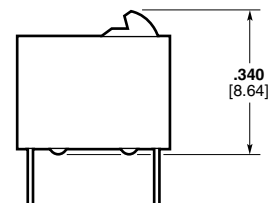
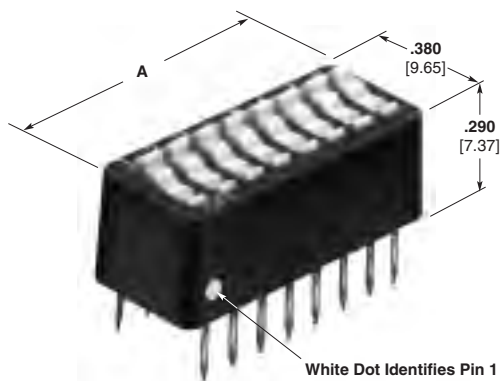
Lead Length — .140 [3.56]
below mounting surface

Contact Arrangement



Pin 1

Note: Switches shown in open position.



Recommended PC Board Hole Pattern

No. of Switches	Dim. A		SPST Standard Profile		SPST Low Profile	
	inch	mm	Unsealed ¹ Part No.	Sealed Part No.	Unsealed ¹ Part No.	Tape Sealed Part No.
2	.280	7.11	2-435640-9	—	435668-1	2-435668-6
3	.380	9.65	3-435640-0	—	—	3-435668-3
4	.480	12.19	435640-2	3-435640-5	435668-3	3-435668-4
5	.580	14.73	435640-3	3-435640-6	435668-4	3-435668-5
6	.680	17.27	435640-4	3-435640-7	435668-5	2-435668-5
7	.780	19.81	435640-1	3-435640-8	—	2-435668-7
8	.880	22.35	435640-5	3-435640-9	435668-7	2-435668-8
9	.980	24.89	435640-6	4-435640-0	—	2-435668-9
10	1.080	27.43	435640-7	4-435640-1	435668-9	3-435668-0
11	1.180	29.97	—	—	—	3-435668-1
12	1.280	32.51	3-435640-2	4-435640-3	—	3-435668-2

¹ All switches are bottom sealed.

Sip Switches, Low Profile, Vertical and Right Angle

FEATURES:

- End-to-end stackable in .100" center (SSV/SLV) versions
- High pressure wiping contacts allows aqueous or solvent cleaning
- Gas tight contacts (280,000 PSI)
- Ceramic substrate allows wave soldering temperature of 245° for up to 10 seconds (SLV Version)
- 2 SIP switches take up less board space than 1 DIP switch

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-30°C to +85°C
 Storage Temperature-45°C to +100°C
 Solder Heat ResistanceWave soldering temperatures of 245°C ± 5°C with switch in off position 30 seconds when mounting on a .060" thick PCB per MIL-STD 202, Method 210

MATERIAL SPECIFICATIONS:

BasePPS 94V-0/Encapsulated Ceramic (SLV/SLH)
 CoverPBT 94V-0
 ContactsGold flashed Beryllium copper
 Actuator MaterialPolyamide
 Terminals/Fixed ContactsSolder coated copper alloy
 Terminal SealInsert molded
 Process SealGas tight contacts

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC max.
 Initial Contact Resistance50 Milliohms max.
 Insulation Resistance100 Megohms min. @ 100 VDC
 Dielectric Strength500 VAC
 Actuation Force800 Grams max.
 Actuator Travel50°
 Life Expectancy1,000 Cycles

SSV

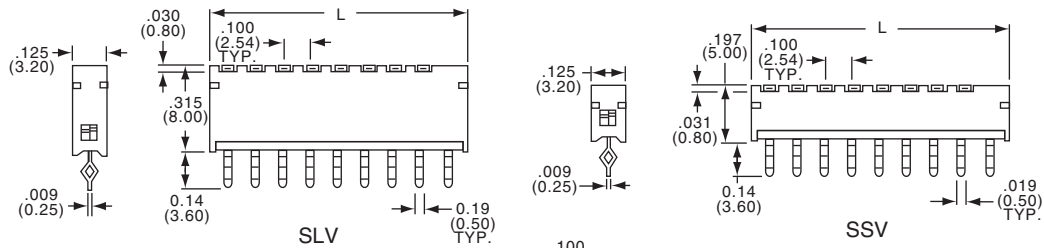


SSV08

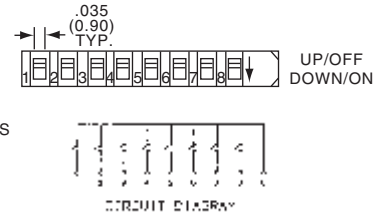
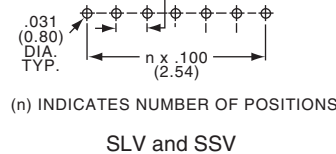
SLV



SLV08



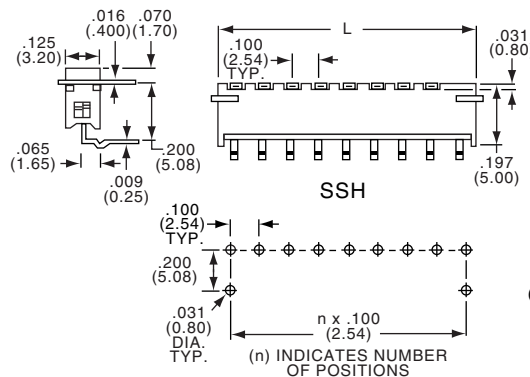
Model		No. of Positions	Dim. L
Tyco Electronics	Alcoswitch		
2-1437589-2	SSV02	2	0.298
2-1437589-3	SSV04	4	0.498
2-1437589-4	SSV06	6	0.698
2-1437589-6	SSV08	8	0.898
2-1437589-7	SSV10	10	1.098
1-1437589-5	SLV04	4	0.498
1-1437589-6	SLV08	8	0.898



SSH

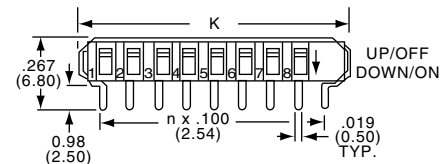


SSH06



SSH

Model		No. of Positions	Dim. L	Dim. K
Tyco Electronics	Alcoswitch			
1-1437589-7	SSH02	2	0.298	0.338
1-1437589-8	SSH04	4	0.498	0.538
1-1437589-9	SSH06	6	0.699	0.738
2-1437589-0	SSH08	8	0.898	0.938
2-1437589-1	SSH10	10	1.098	1.138



Alcoswitch DIP Shunts are a highly reliable, low cost means of manually programming various types of electrical/electronic equipment. The shunt consists of a series of conductive straps packaged in a DIP configuration. The straps can be retained intact for a closed circuit or broken with a hand tool to produce an open circuit.

DIP shunts are available in 4- through 12-position configurations. All shunts can be supplied either unprogrammed or preprogrammed.



Performance Characteristics

Current Rating:

Standard Pressure — 2 amperes for +20°C rise above ambient (one conductor per shunt)
Machine Insertable — 1 ampere for +20°C rise above ambient (one conductor per shunt)

Insulation Resistance:

1 x 10¹⁰ ohms min. at 100 VDC

Dielectric Withstanding Voltage:

500 VDC min.

Capacitance:

2 picofarads max. between adjacent straps
5 picofarads max. across cut straps

Temperature Rating:

-55°C to +105°C

Humidity:

Withstands an environment of +40°C and 95% RH for 96 hours

Terminal Strength (Bend Test):

Two 45° bend cycles per MIL-STD-202, Method 211, Condition B
Resistance to Soldering Heat: EIA-364-56A Condition C

Reconnection Option

Cut straps can be reconnected by soldering bridging. Solder bridging recommendations are:

- Use low temperature solder
- Use solder tip approximately 1/32 [0.79] in diameter
- Do not let solder tip come in contact with plastic material

Materials

Housing:

Glass-filled thermoplastic, 94V-0 rated

Metal Parts:

Copper alloy with electroplated tin finish (gold plated I/O legs are optional)

Technical Documents

Product Specifications:

108-7533 Through Hole

Instruction Sheets:

408-07768 Through Hole

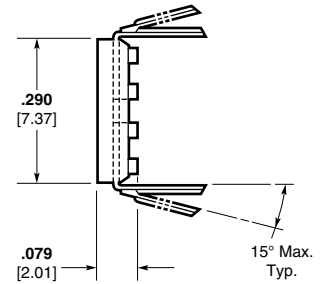
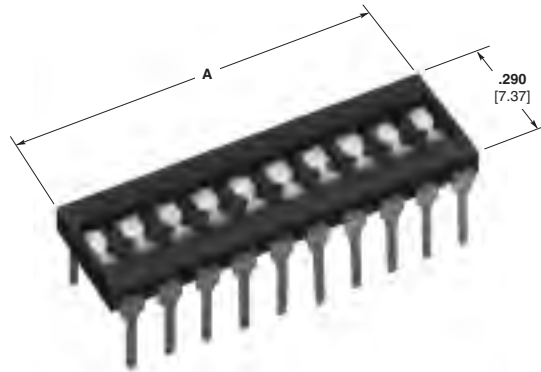
Application Specifications:

114-1054 Through Hole

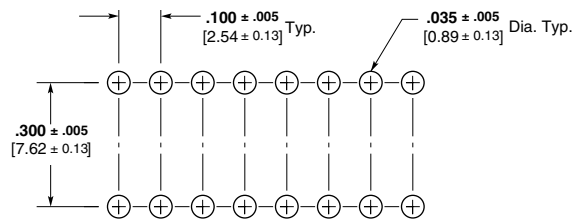
Standard Shunt Standard Pressure

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
below mounting surface
Housing Color — Black
Programming Tool — See below

Programming
Hand Tool
Part No. 435862-1



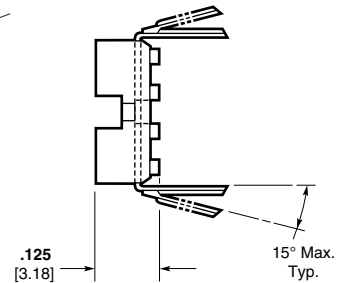
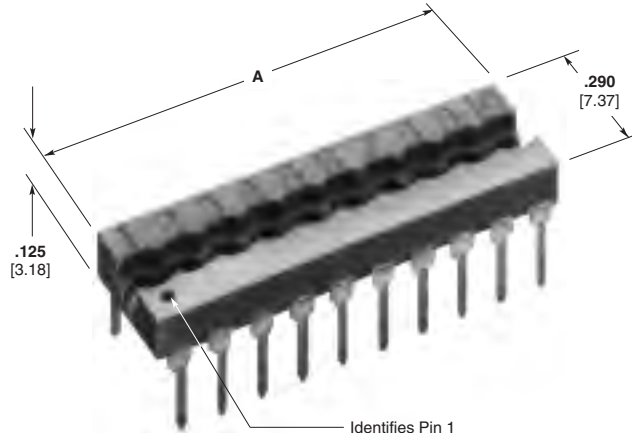
This tool provides a reliable means of programming DIP shunts. It is rugged, lightweight and dependable. No special skills are required to use this tool.



Recommended PC Board Hole Pattern

Machine Insertable Shunt (Compatible with commercially available IC insertion equipment)

Contact Lead Spacing —
.100 x .300 [2.54 x 7.62]
Lead Length — .140 [3.56]
below mounting surface
Housing Color — Gray
Programming Tool — None required
(5 to 10 lbs. [22.2 to 44.4 N] required to manually program each shunt position)



No. of Positions	Dim. A		Standard Shunt Standard Pressure	Machine Insertable Shunt
	inch	mm		
4	.400	10.16	435704-4	—
6	.600	15.24	435704-6	—
7	.700	17.78	435704-7	—
8	.800	20.32	435704-8	436860-7
9	.900	22.86	435704-9	—
10	1.000	25.40	1-435704-0	—
12	1.200	30.48	1-435704-2	—

Rotary DIP Switches, Low Profile, Process Sealed, 7MM, Through Hole and Surface Mount

FEATURES:

- 40% PCB area space savings over standard rotary dips
- 50% Lower in profile than standard rotary dips
- Hexadecimal or binary code, complement available
- Deflection temperature of 250°C for SMT reflow soldering
- Gold contacts, tin/lead terminals
- Sealed "O" ring design

MATERIAL SPECIFICATIONS:

Fixed Contacts/Terminals.....Brass, gold plated / tin/lead
 Moving Contacts.....BeCu, gold plated
 Case MaterialPPS UL94V-0
 RotorNylon UL94V-0
 Cover MaterialPPS UL94V-0
 O-RingFluoro Rubber

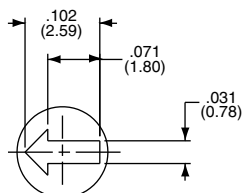
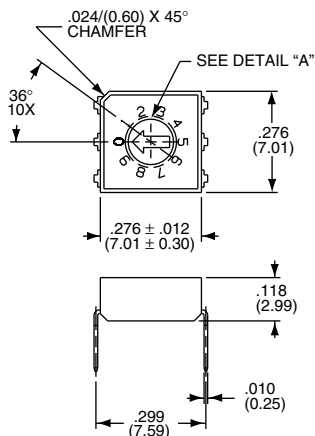
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-10°C to +85°C
 Storage Temperature.....-45°C to +100°C
 Solder Heat ResistanceMIL-STD 202F, Method 210
 IR Process CapabilityEIA-364-56 Level II (250°C peak)

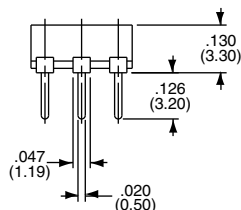
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC
 Initial Contact Resistance.....50m Max. @ 2 VDC 10mA
 Insulation Resistance1,000 Megohms max.
 Dielectric Strength300 VAC for 1 minute
 Actuator Travel.....36° 10 Position, 22.5° 16 position
 Operating Force200 Grams avg.
 Life Expectancy20,000 Steps, mechanical

P.C. MOUNT



DETAIL "A"
SCALE 8:1



DETAIL "B"
SCALE 8:1



MRD10



MRD10S

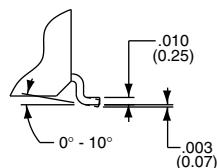
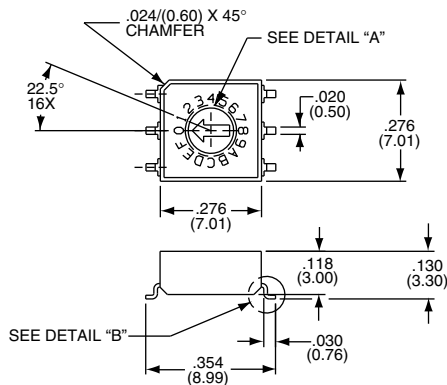


MRD16C



MRD16S

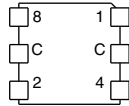
SURFACE MOUNT



Rotary DIP Switches, Low Profile, Process Sealed, 7MM, Through Hole and Surface Mount

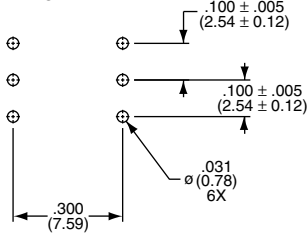
TERMINAL IDENTIFICATION

VIEWED FROM BOTTOM SWITCH



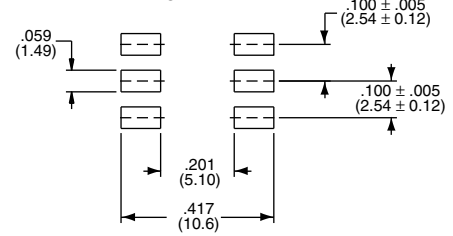
P.C. LAYOUT (THRU HOLE)

TOP VIEW



P.C. LAYOUT (SURFACE MOUNT)

TOP VIEW



TRUTH TABLES

10-Position, BCD (red actuator)

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X
2			X	X		X	X			
4					X	X	X	X		
8									X	X

16-Position, Hexadecimal (green actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X		X		X		X
2			X	X		X	X			X	X			X	X	
4					X	X	X	X					X	X	X	X
8									X	X	X	X	X	X	X	X

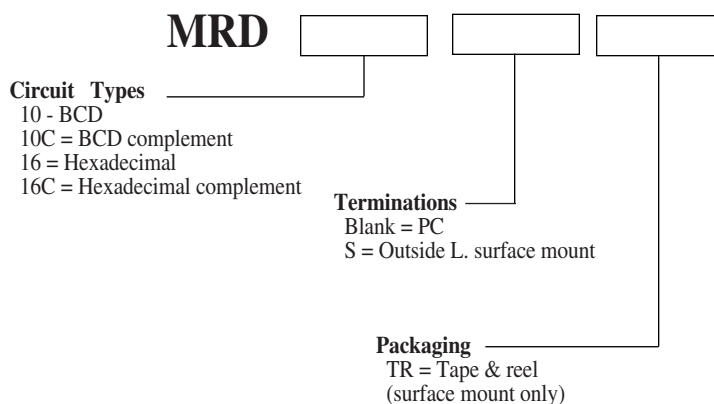
10-Position, BCD Complement (orange actuator)

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X	
2	X	X			X	X			X	X
4	X	X	X	X					X	X
8	X	X	X	X	X	X	X	X		

16-Position Hexadecimal Complement (white actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X		X		X		X	
2	X	X			X	X			X	X			X	X		
4	X	X	X	X					X	X	X	X				
8	X	X	X	X	X	X	X	X								

HOW TO ORDER



Color Code	
Circuit Type	Actuator Color
10	Red
10C	Orange
16	Green
16C	White

Rotary Dip Switches, Process Sealed, Through Hole and Surface Mount

MATERIAL SPECIFICATIONS:

Contacts	Gold flashed copper alloy
Terminals	Tin lead plated brass
Base, Rotor, Case	PC, Glass filled PBT resin (blue case) SMT, Polyimide (white case)
Movable Contact.....	Gold flashed copper alloy
Ball Support Plate	Copper alloy
Detent Spring	Stainless steel (spring)

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....	-22°F to +185°F (-30°C to +85°C)
Storage Temperature.....	-49°F to 212°F (-45°C to +100°C)
Vibration Resistance.....	Subjected to vibration of 10-55hz per second with a total amplitude of .06 in. in 3 mutually perpendicular directions for 2 hours each
Shock Resistance	Will withstand 50G acceleration in 3 different planes for a period of 11 milliseconds
Salt Spray Test	Withstands an atmosphere of 5% salt water at temperature of 50°C
Hydrogen Sulfide Test	Withstands an atmosphere of 15-20 PPM hydrogen sulfide gas at temperature of 40°C for 240 hours
Atmospheric Test	Withstands an atmosphere of 30-50 PPM sulfite gas at a temperature of 40°C for 240 hours
Solder Heat Resistance	Withstands 5 sec. flow solder bath of 260°C when mounted on a .06" thick PC board per MIL-STD 202, Method 210
Bubble Test.....	Withstands submersion in 60°C Fluorinert for 1 min. without leakage

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	0.4 VA @ 20 VDC max.
Initial Contact Resistance	50 Milliohms max. @ 2 VDC
Insulation Resistance	1,000 Megohms min. @ 100 VDC
Dielectric Strength	300 VAC RMS @ sea level
Operating Force	.6 Oz.-in. nom.
SMT Operating Force.....	.3 Oz.-in. nom.
Life Expectancy	20,000 Steps



DRD10E



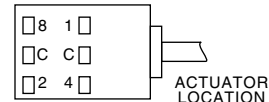
DRD16CE

TRUTH TABLES

Terminal Identification
(view from bottom of the switch)



VIEW FROM BOTTOM
OF THE SWITCH



NOTE: COMMON TERMINALS ARE CONNECTED INTERNALLY.

10-Position, BCD (red actuator)										
Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X
2			X	X			X	X		
4					X	X	X	X		
8									X	X

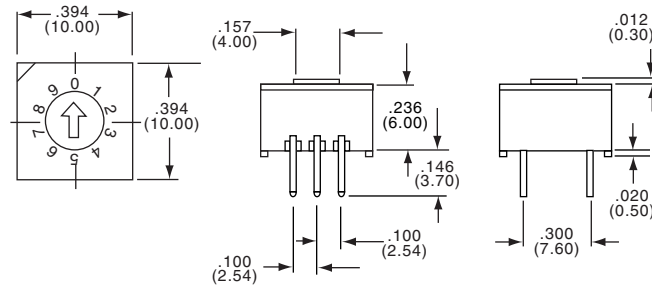
16-Position, Hexadecimal (black actuator)																
Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X		X		X		X
2			X	X			X	X			X	X			X	X
4					X	X	X	X					X	X	X	X
8									X	X	X	X	X	X	X	X

10-Position, BCD Complement (orange actuator)										
Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X	
2	X	X			X	X			X	X
4	X	X	X	X					X	X
8	X	X	X	X	X	X	X	X		

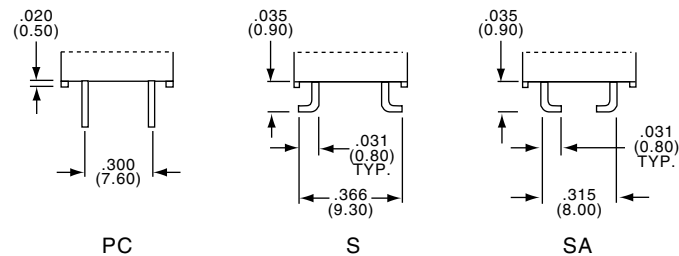
16-Position Hexadecimal Complement (white actuator)																
Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X		X		X		X	
2	X	X			X	X			X	X			X	X		
4	X	X	X	X					X	X	X	X				
8	X	X	X	X	X	X	X	X								

Rotary DIP Switches, Process Sealed, Through Hole and Surface Mount

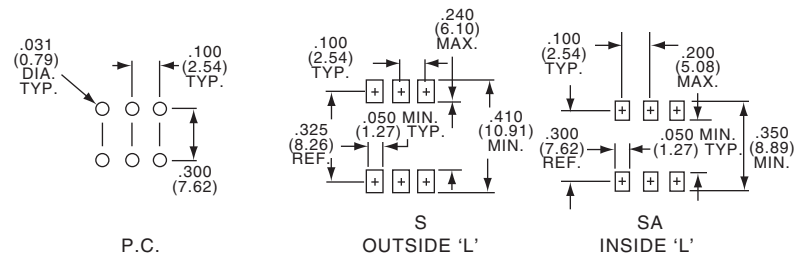
"D" FLUSH ACTUATOR



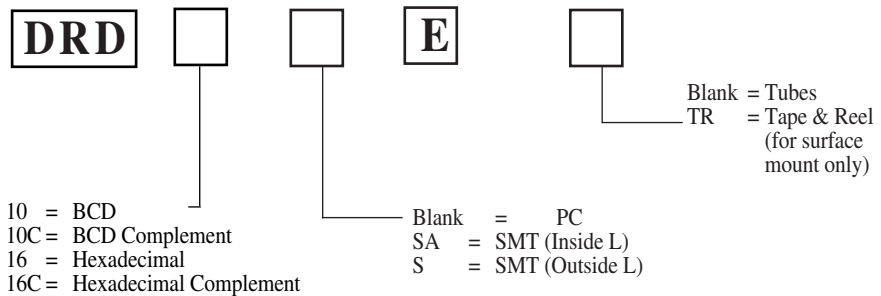
TERMINATIONS



LAYOUTS



HOW TO ORDER



Rotary DIP Switches, Unsealed, Through Hole, Straight and Right-Angle

FEATURES:

- High pressure contacts (140K PSI) provide 20,000 Steps.
- Unique design utilizes high pressure pin-point sliding contacts to penetrate contaminants on contact surface.
- Terminals insert molded into base.

- Screwdriver, knob and shaft (plastic and steel) type actuators available in both upright and right angle versions.

- 10 And 16 position versions with both real and complement codes.

Note: Common terminals connected internally.

MATERIAL SPECIFICATIONS:

ContactsGold flashed copper alloy

TerminalsTin Lead Plated

Base, Rotor, CasePolyester

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC

Initial Contact Resistance50 Milliohms max. @ 2 VDC

Insulation Resistance1,000 Megohms min. @ 100 VDC

Dielectric Strength300 VAC RMS @ sea level

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-22°F to +185°F (-30°C to +85°C)

Storage Temperature.....-49°F to +212°F (-45°C to + 100°C)

Vibration Resistance.....Subjected to vibration of 10-55hz per second with a total amplitude of .06 in. in 3 mutually perpendicular directions for 2 hours each

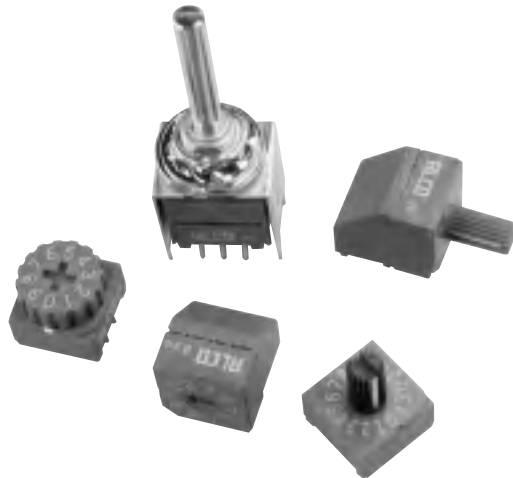
Shock ResistanceWill withstand 50G acceleration in 3 different planes for a period of 11 milliseconds

Salt Spray TestWithstands an atmosphere of 5% salt water at temperature of 50°C

Hydrogen Sulfide TestWithstands an atmosphere of 15-20 PPM hydrogen sulfide gas at temperature of 40°C for 240 hours

Atmosphere Test.....Withstands an atmosphere of 30-50 PPM sulfide gas at a temperature of 40°C for 240 hours

Solder Heat ResistanceWithstands 5 sec. flow solder bath of 260°C when mounted on a .06" thick PC board per MIL-STD 202, Method 210



Example: DRW 10RA = Rotary Dip with
Wheel actuator
BDC -10 position
Right angle PC terminations

Series

Rotary Dips (blue case)

Actuator Style

- *D = Flush
- M = Mini plastic shaft
- W = Wheel
- S = Metal shaft

Circuit Type

- 10 = BCD
- 10C = BCD complement
- 16 = Hexadecimal
- 16C = Hexadecimal complement

HOW TO ORDER

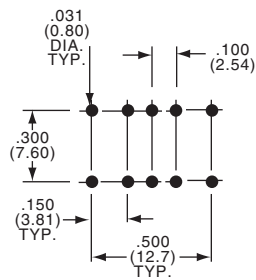
Terminations

- Blank = PC
- RA = Right angle for DRM, DRW, DRS only
- RAE = Right angle, Auto Assembly Compatible for DRD type only

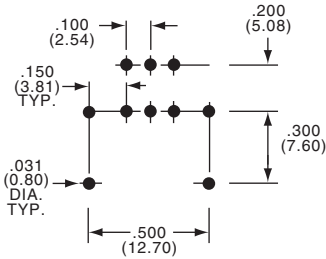
*DRD Available in RAE version only. For PC or SMT versions, see Pg. A24 DRD "E" Process Sealed Product.

Rotary DIP Switches, Unsealed, Through Hole, Straight and Right-Angle

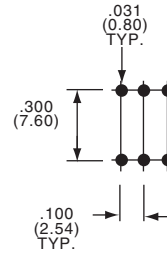
FOOTPRINTS



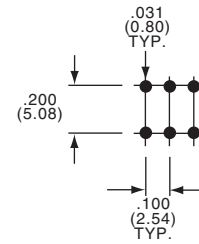
S STYLE VERTICAL
(METAL SHAFT)



S STYLE RA
(METAL SHAFT)



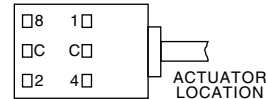
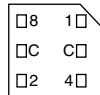
PC



PC
RIGHT ANGLE

TRUTH TABLES

Terminal Identification
(view from bottom of the switch)



10-Position, BCD (red actuator)

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X
2			X	X			X	X		
4					X	X	X	X		
8									X	X

16-Position, Hexadecimal (black actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X		X		X		X
2			X	X			X	X			X	X			X	X
4					X	X	X	X					X	X	X	X
8									X	X	X	X	X	X	X	X

10-Position, BCD Complement (orange actuator)

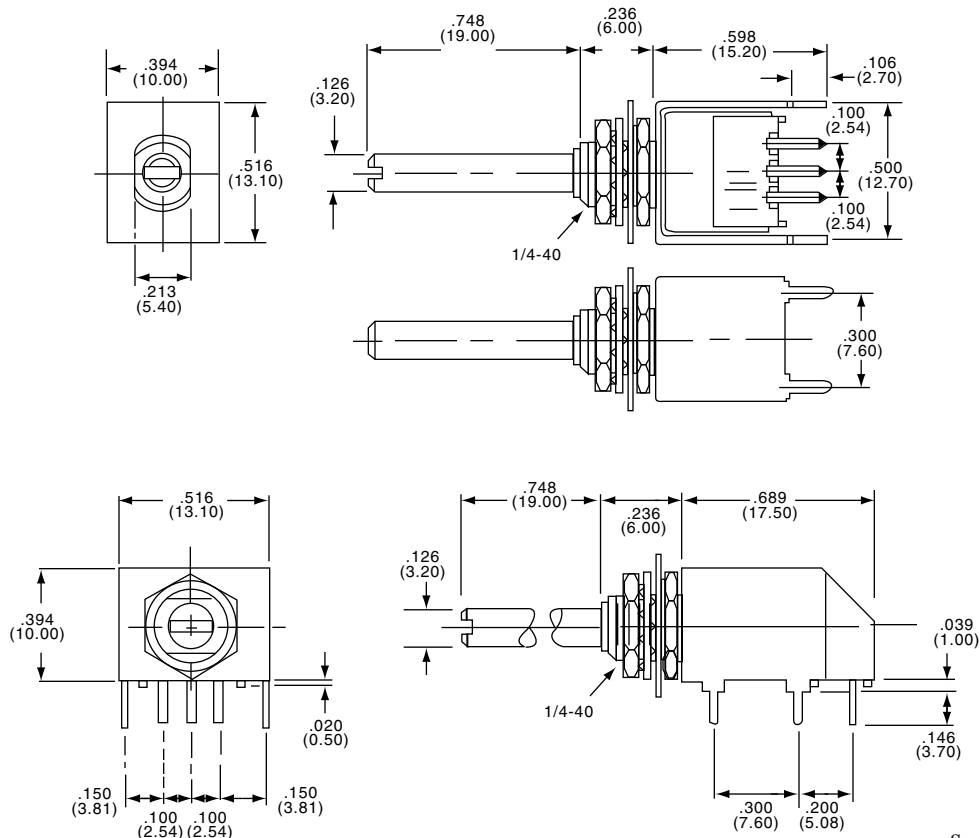
Pos.	0	1	2	3	4	5	6	7	8	9
$\overline{C}$	X	X	X	X	X	X	X	X	X	X
$\overline{1}$	X		X		X		X		X	
$\overline{2}$	X	X			X	X			X	X
$\overline{4}$	X	X	X	X					X	X
$\overline{8}$	X	X	X	X	X	X	X	X		

16-Position Hexadecimal Complement (white actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
$\overline{C}$	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
$\overline{1}$	X		X		X		X		X		X		X		X	
$\overline{2}$	X	X			X	X			X	X			X	X		
$\overline{4}$	X	X	X	X					X	X	X	X				
$\overline{8}$	X	X	X	X	X	X	X	X								

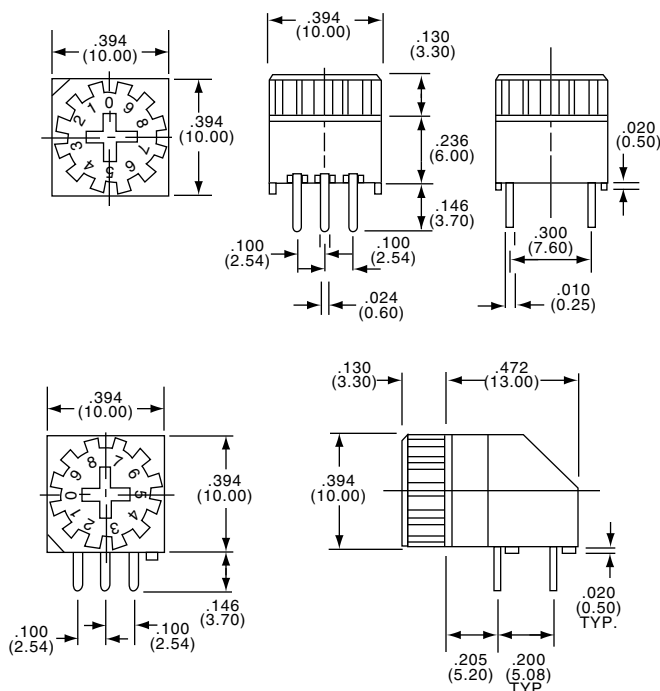
Rotary DIP Switches, Unsealed, Through Hole, Metal Shaft or Wheel Actuator

“S” METAL SHAFT ACTUATOR



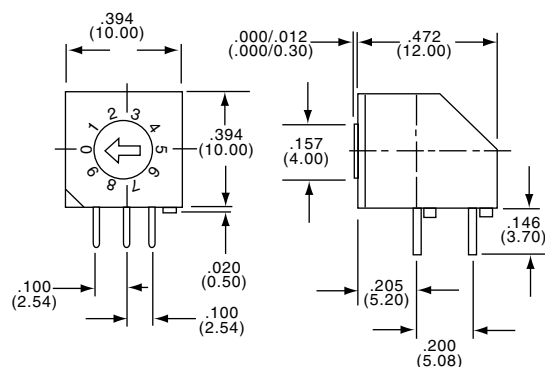
See Section K for knob selection

“W” WHEEL ACTUATOR



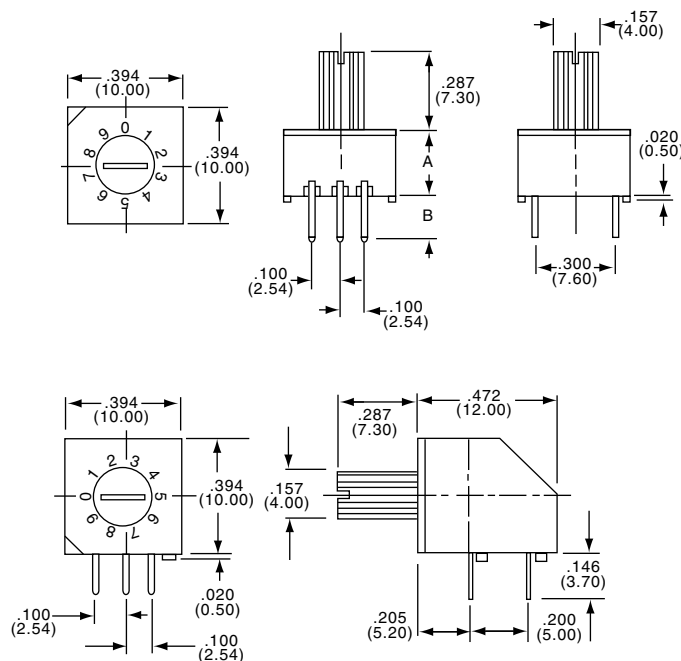
Rotary DIP Switches, Unsealed, Through-Hole, Flush and Mini Shaft Actuator

"D" FLUSH ACTUATOR



DIM.	DR	RC, *RA, RR
A	.236 (6.00)	.256 (6.50)
B	.146 (3.70)	.126 (3.20)

"M" MINI-SHAFT ACTUATOR



DIM.	DR	RR
A	.236 (6.00)	.256 (6.50)
B	.146 (3.70)	.126 (3.20)



ASE/F Series - Page B5



SE Series - Page B9



STS Series - Page B11



TSS Series - Page B16



MSS Series - Page B18



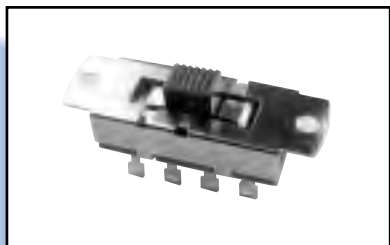
MSSA Series - Page B24



MHS Series - Page B31



SSJ Series - Page B33



AC Power Slide Switches - Page B48



Slide Switch Selection Guide

PRODUCT LINE FEATURES

- One of the broadest lines in the industry.
- One to six pole configurations.
- Current ratings from 0.4V @ 20VDC to 3A @ 115VAC.
- Miniature and sub-miniature case sizes.
- Gold or silver plating available in most series.
- Wave solderable, washable, and surface mount versions.
- Rocker (butt), shoe and bifurcated contact mechanisms.
- Vertical and RA actuator styles.

CIRCUITRY	SERIES	TERMINATION	CONTACT RATING/PLATING	ACTION	LIFE EXPECTANCY
SPST	TSS	P.C.	.4VA/GOLD	STANDARD/FLUSH	80K CYCLES
SPDT	MHS	P.C./RIGHT ANGLE	.4VA/GOLD:300mA/SILVER	STANDARD/BATON	15K CYCLES
	MLL	SURFACE MOUNT	0.3A @ 4 VDC/SILVER	RIGHT ANGLE	10K CYCLES
	MMS	P.C.	100mA/SILVER	STANDARD	10K CYCLES
	MSS	P.C./RIGHT ANGLE	.4VA/GOLD:300MA/SILVER	STANDARD	15K CYCLES
	MSSA ^H H1	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD	30K CYCLES
	MSSA ^H H4	P.C./RIGHT ANGLE	3A/SILVER	STANDARD	30K CYCLES
	SDS	P.C./RIGHT ANGLE	300mA @ 125VAC/SILVER	STANDARD	10K CYCLES
	SE, S	P.C./RIGHT ANGLE/SMT	.4VA/GOLD	STANDARD	6K CYCLES
	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
	SLS	P.C./RIGHT ANGLE	250mA/SILVER	STANDARD	6K CYCLES
	SLS/A	P.C.	500mA/SILVER	STANDARD	10K CYCLES
	SSA	P.C.	100mA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES
	SSB	P.C./RIGHT ANGLE	100MA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES
	SSJ	P.C./RIGHT ANGLE	100mA/SILVER	STANDARD	10K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES
	TSS	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD/FLUSH	60-80K CYCLES
SP3T	MHS	P.C./RIGHT ANGLE	300MA/SILVER:.4VA/GOLD	STANDARD/BATON	15K CYCLES
	MLL	SURFACE MOUNT	0.3A @ 4 VDC/SILVER	RIGHT ANGLE	10K CYCLES
	MSS	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
	MSSA	P.C./RIGHT ANGLE	300MA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
	SDS	P.C./RIGHT ANGLE	300mA @ 125VAC/SILVER	STANDARD	10K CYCLES
	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
	SLS	P.C./RIGHT ANGLE	250MA/SILVER	STANDARD	6K CYCLES
	SSJ	P.C.	100mA/SILVER	STANDARD	10K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES
SP4T	MSS	P.C.	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
	MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
	SLS	P.C./RIGHT ANGLE	250mA/SILVER	STANDARD	6K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES
SP5T	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
	SLS	P.C./RIGHT ANGLE	250mA/SILVER	STANDARD	6K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES
SP6T	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES
SP7T	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
SP8T	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
SP10T	SL	P.C.	250mA/SILVER	STANDARD	6K CYCLES
DPST	TSS	P.C.	.4VA/GOLD	STANDARD/FLUSH	80K CYCLES
DPDT	ASE/F	P.C./RIGHT ANGLE/SMT	.4VA/GOLD:300mA SILVER	STANDARD/FLUSH	10K CYCLES
	CSS	P.C.	300mA/SILVER	BATON	15K CYCLES
	CST	P.C.	300mA/SILVER	BATON	15K CYCLES
	MHS	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD/BATON	15K CYCLES
	MMS	P.C./RIGHT ANGLE	100mA/SILVER	STANDARD	10K CYCLES
	MSS	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
	MSSA21	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD	30K CYCLES

Slide Switch Selection Guide

CIRCUITRY	SERIES	TERMINATION	CONTACT RATING/PLATING	ACTUATION	LIFE EXPECTANCY	
DPDT	1571491	PANEL	6A/SILVER	STANDARD	5K CYCLES	
	MSSA2H4	P.C./RIGHT ANGLE	3A/SILVER	STANDARD/FLUSH	30K CYCLES	
	SDS	P.C./RIGHT ANGLE	300mA @ 125 VAC/SILVER	STANDARD	10K CYCLES	
	SE, S	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD	10K CYCLES	
	SLS	P.C.	250mA/SILVER	STANDARD	6K CYCLES	
	SLS/A	P.C.	500mA/SILVER	STANDARD	10K CYCLES	
	SSA	P.C.	100mA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES	
	SSB	P.C./RIGHT ANGLE	100mA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES	
	STS	P.C./RIGHT ANGLE	300 mA/SILVER	STANDARD	10K CYCLE	
	TSS	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD/FLUSH	60-80K CYCLES	
	DP3T	1571490	PANEL	13A/SILVER	STANDARD	5K CYCLES
CST		P.C.	300mA/SILVER	BATON	10K CYCLES	
MHS		P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD/BATON	15KCYCLES	
MMS		P.C./RIGHT ANGLE	100mA/SILVER	STANDARD	10K CYCLES	
MSSA		P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
SDS		P.C./RIGHT ANGLE	300mA @ 125 VAC	STANDARD	10K CYCLES	
SLS		P.C.	250mA/SILVER	STANDARD	6K CYCLES	
STS		P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES	
DP4T		MSS	P.C.	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
		MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES
		SLS	P.C.	250mA/SILVER	STANDARD	6K CYCLES
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES	
DP5T	SLS	P.C.	250mA/SILVER	STANDARD	6K CYCLES	
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES	
DP6T	SLS	P.C.	250mA/SILVER	STANDARD	6K CYCLES	
	STS	P.C./RIGHT ANGLE	300mA/SILVER	STANDARD	10K CYCLES	
3P3T	MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
	SSB	P.C.	100mA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES	
3P4T	MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
4PDT	ASE/F	P.C./RIGHT ANGLE/SMT	300mA/SILVER:.4VA/GOLD	STANDARD/FLUSH	10K CYCLES	
	CST	P.C.	300mA/SILVER	BATON	10K CYCLES	
	MMS	P.C./RIGHT ANGLE	100mA/SILVER	STANDARD	10K CYCLES	
	MSS	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
	SSB	P.C.	100mA/SILVER:.4VA/GOLD	STANDARD	10K CYCLES	
4P3T	TSS	P.C./RIGHT ANGLE	.4VA/GOLD	STANDARD	80K CYCLES	
	ASE/F	P.C./RIGHT ANGLE/SMT	300mA/SILVER	STANDARD/FLUSH	10K CYCLES	
	CST	P.C.	300mA/SILVER	BATON	10K CYCLES	
	MHS	P.C.	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
	MMS	P.C./RIGHT ANGLE	100mA/SILVER	STANDARD	10K CYCLES	
4P4T	MSS/MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15L CYCLES	
	MSSA	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
6PDT	ASE/F	P.C./RIGHT ANGLE/SMT	300mA/SILVER:.4VA/GOLD	STANDARD/FLUSH	10K CYCLES	
	CST	P.C.	300mA/SILVER:.4VA/GOLD	BATON	10K CYCLES	
	MSS	P.C.	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	
6P3T	MSS	P.C./RIGHT ANGLE	300mA/SILVER:.4VA/GOLD	STANDARD	15K CYCLES	

Slide Switches, Auto-insertable, Through Hole and Surface Mount

FEATURES:

- Unique design allows ASE/F to withstand aqueous or solvent cleaning processes.
- High temperature anti-static plastic construction will withstand most surface mount, vapor phase reflow or wave soldering conditions.
- Three standard types:
ASF – DIP package with flush actuator allows auto insertion on standard IC equipment. Standard tape seal and closed case construction provide process seal.

- ASFO–Open ended flush actuator without tape seal.
- ASE–extended actuator open-ended case allows washout after process cleaning.
- 2, 4 and 6 pole versions available with top or side actuator.
- Bifurcated double wipe contacts provide dependable, telecom grade switching.
- Industry standard .100 x .300 pin spacing

MATERIAL SPECIFICATIONS:

ContactsGold over nickel or
Silver over nickel flash
Case MaterialPET
Actuator MaterialNylon
Terminal.....Copper alloy, terminals tin lead plate
(90/10) over nickel

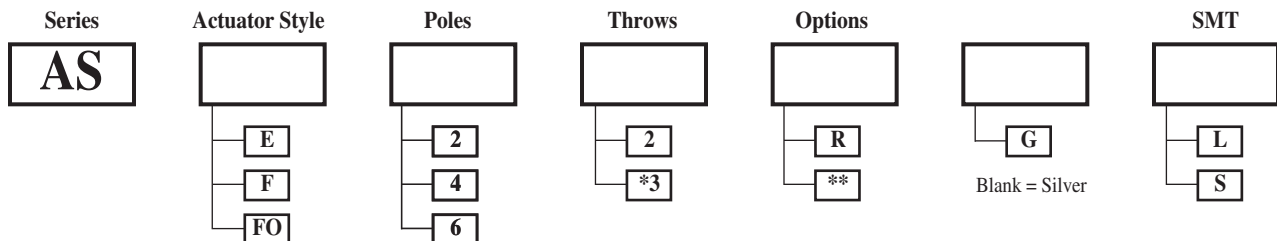
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-40°F to +176°F (-40°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)
Solder Heat ResistanceSee page M3-M4
Movable ContactCopper alloy
Terminal SealInsert molded

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 VDC or peak AC shorting type
Silver: 300mA @ 115 VAC 28 VDC
Initial Contact Resistance40 Milliohms max.
Insulation Resistance1,000 Megohms @ 500 VDC min.
Dielectric Strength1,000 Volts RMS @ sea level
Contact Timing.....Shorting
Life Expectancy10,000 Cycles
Actuation Force850g±150grams
Travel100 ±.010 [2.54±.25]

PART NUMBERING



ASF: Tape seal, closed (sealed) case, flush top actuator.

ASE: Open ended case, extended top or side actuator.

ASFO: Open ended case, flush top or side actuator.

Standard actuator color is white.

E= Extended actuator

F= Flush actuator

FO= Open ended without tape seal

G= Gold contacts

R= Side actuator

*3= Throw available in 4 pole only

L= SMT terminal configuration

S= SMT terminal reverse L configuration (Refer to page B10 for pad layout)

**Flush side actuator "R" versions are supplied with open ended case and without tape seal.

Note: For SPDT requirements, order DPDT version and use either set of contacts for SPDT switching.



ASE22R



ASE62G

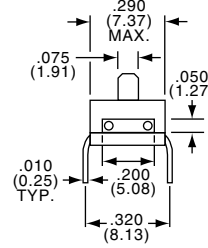
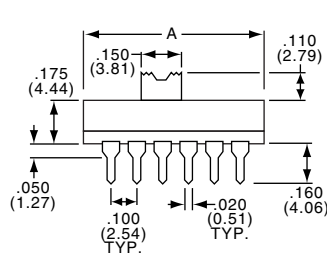
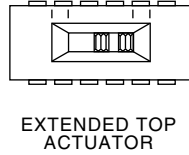


ASF22



ASF22R

Slide Switches, Extended Actuator, Through Hole and Surface Mount

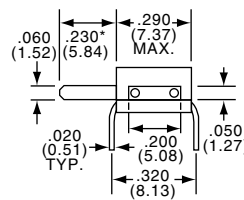
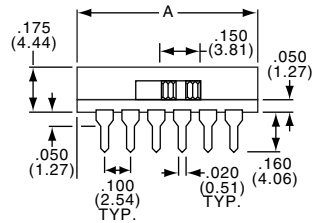
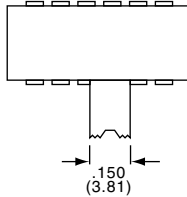


NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Upright, Through Hole, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
1437581-2	ASE22	DPDT	Silver	.400/10.2
1437581-4	ASE22G	DPDT	Gold	.400/10.2
1-1437581-4	ASE42	4PDT	Silver	.700/17.8
1-1437581-6	ASE42G	4PDT	Gold	.700/17.8
2-1437581-5	ASE43	4P3T	Silver	1.10/27.9
2-1437581-6	ASE43G	4P3T	Gold	1.10/27.9
3-1437581-1	ASE62	6PDT	Silver	1.00/25.4
3-1437581-3	ASE62G	6PDT	Gold	1.00/25.4

EXTENDED SIDE ACTUATOR

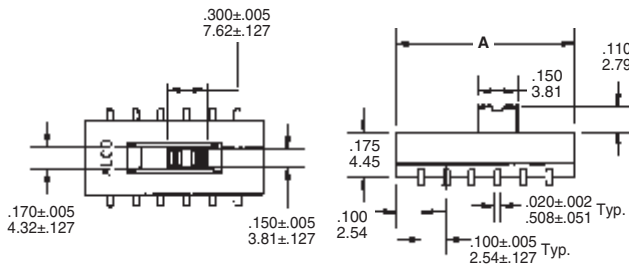


*.105 (2.67) ASE22R, ASE22RG

NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

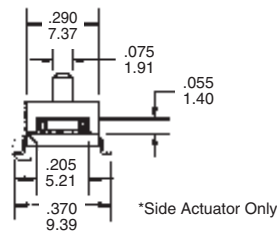
Right Angle, Through Hole, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
1437581-8	ASE22R	DPDT	Silver	.400/10.2
1437581-9	ASE22RG	DPDT	Gold	.400/10.2
1-1437581-9	ASE42R	4PDT	Silver	.700/17.8
2-1437581-0	ASE42RG	4PDT	Gold	.700/17.8
2-1437581-9	ASE43R	4P3T	Silver	1.10/27.9
3-1437581-0	ASE43RG	4P3T	Gold	1.10/27.9
3-1437581-6	ASE62R	6PDT	Silver	1.00/25.4
3-1437581-7	ASE62RG	6PDT	Gold	1.00/25.4



L Type Surface Mount

NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.



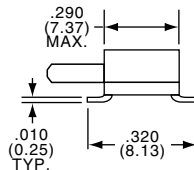
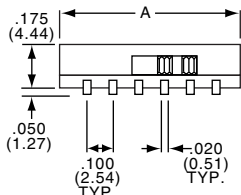
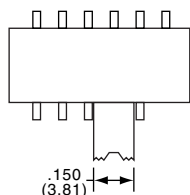
Upright, Surface Mount "L" Type, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
1437581-5	ASE22GL	DPDT	Gold	.400/10.2
1437581-7	ASE22L	DPDT	Silver	.400/10.2
1-1437581-7	ASE42GL	4PDT	Gold	.700/17.8
1-1437581-8	ASE42L	4PDT	Silver	.700/17.8
2-1437581-7	ASE43GL	4P3T	Gold	1.10/27.9
2-1437581-8	ASE43L	4P3T	Silver	1.10/27.9
3-1437581-4	ASE62GL	6PDT	Gold	1.00/25.4
3-1437581-5	ASE62L	6PDT	Silver	1.00/25.4

Slide Switches, Extended Actuator, Through Hole and Surface Mount

B

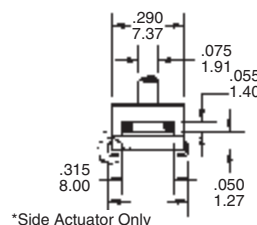
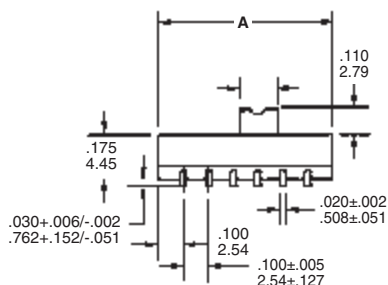
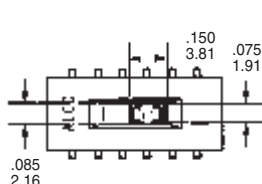
ASE/F Series



NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Right Angle, Surface Mount "L" Type, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
—	ASE22RGL	DPDT	Gold	.400/10.2
1-1437581-1	ASE22RL	DPDT	Silver	.400/10.2
2-1437581-1	ASE42RGL	4PDT	Gold	.700/17.8
2-1437581-2	ASE42RL	4PDT	Silver	.700/17.8
—	ASE43RGL	4P3T	Gold	1.10/27.9
—	ASE43RL	4P3T	Silver	1.10/27.9
3-1437581-8	ASE62RGL	6PDT	Gold	1.00/25.4
3-1437581-9	ASE62RL	6PDT	Silver	1.00/25.4

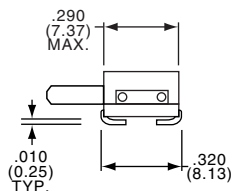
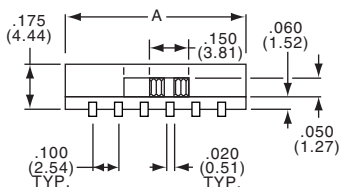
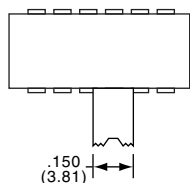


S Type Surface Mount

NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Upright, Surface Mount "S" Type, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
1437581-6	ASE22GS	DPDT	Gold	.400/10.2
1-1437581-3	ASE22S	DPDT	Silver	.400/10.2
—	ASE42GS	4PDT	Gold	.700/17.8
2-1437581-4	ASE42S	4PDT	Silver	.700/17.8
—	ASE43GS	4P3T	Gold	1.10/27.9
—	ASE43S	4P3T	Silver	1.10/27.9
—	ASE62GS	6PDT	Gold	1.00/25.4
—	ASE62S	6PDT	Silver	1.00/25.4

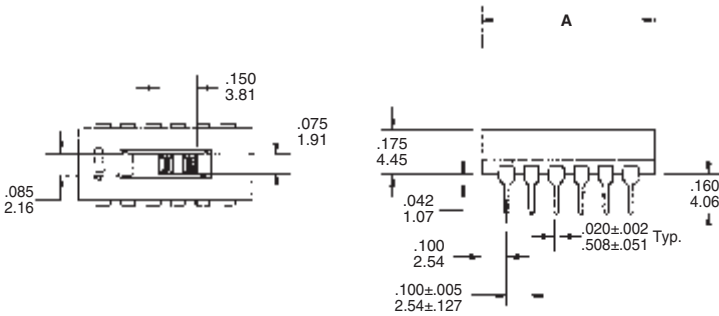


NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

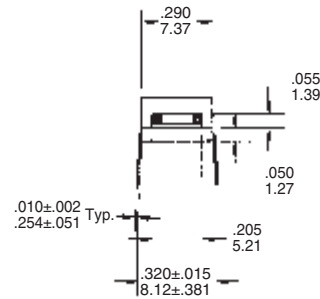
Right Angle, Surface Mount "S" Type, Extended Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
1-1437581-0	ASE22RGS	DPDT	Gold	.400/10.2
1-1437581-2	ASE22RS	DPDT	Silver	.400/10.2
—	ASE42RGS	4PDT	Gold	.700/17.8
2-1437581-3	ASE42RS	4PDT	Silver	.700/17.8
—	ASE43RGS	4P3T	Gold	1.10/27.9
—	ASE43RS	4P3T	Silver	1.10/27.9
—	ASE62RGS	6PDT	Gold	1.00/25.4
—	ASE62RS	6PDT	Silver	1.00/25.4

Slide Switches, Flush Actuator, Through Hole and Surface Mount

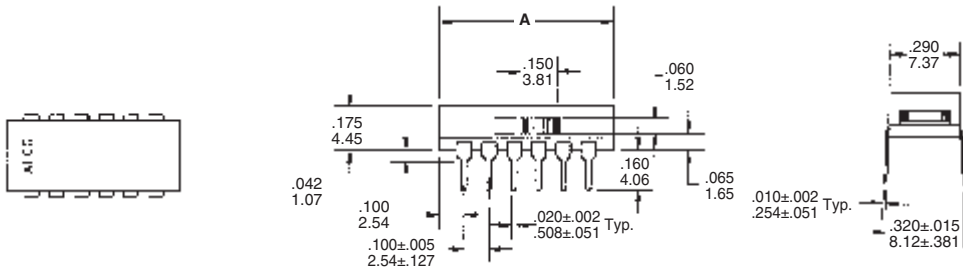


NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.



Upright, Through Hole, Flush Actuator

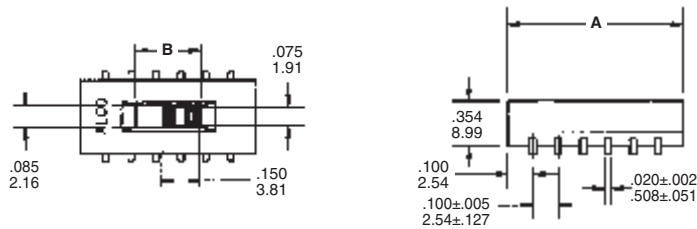
Tyco Electronics	Alcoswitch	Type	Contact	Dim A
5-1437581-6	ASF22	DPDT	Silver	.400/10.2
5-1437581-8	ASF22G	DPDT	Gold	.400/10.2
6-1437581-8	ASF42	4PDT	Silver	.700/17.8
7-1437581-0	ASF42G	4PDT	Gold	.700/17.8
7-1437581-8	ASF43	4P3T	Silver	1.10/27.9
7-1437581-9	ASF43G	4P3T	Gold	1.10/27.9
8-1437581-4	ASF62	6PDT	Silver	1.00/25.4
8-1437581-6	ASF62G	6PDT	Gold	1.00/25.4



NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Right Angle, Through Hole, Flush Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
6-1437581-2	ASF22R	DPDT	Silver	.400/10.2
6-1437581-3	ASF22RG	DPDT	Gold	.400/10.2
7-1437581-3	ASF42R	4PDT	Silver	.700/17.8
7-1437581-4	ASF42RG	4PDT	Gold	.700/17.8
	ASF43R	4P3T	Silver	1.10/27.9
8-1437581-2	ASF43RG	4P3T	Gold	1.10/27.9
8-1437581-9	ASF62R	6PDT	Silver	1.00/25.4
9-1437581-1	ASF62RG	6PDT	Gold	1.00/25.4



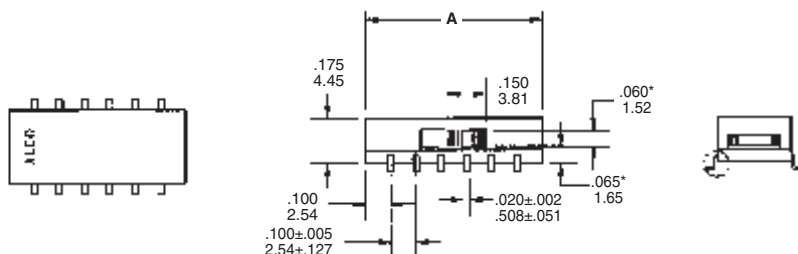
L Type Surface Mount

NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Upright, Surface Mount "L" Type, Flush Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
5-1437581-9	ASF22GL	DPDT	Gold	.400/10.2
6-1437581-1	ASF22L	DPDT	Silver	.400/10.2
7-1437581-1	ASF42GL	4PDT	Gold	.700/17.8
7-1437581-2	ASF42L	4PDT	Silver	.700/17.8
8-1437581-0	ASF43GL	4P3T	Gold	1.10/27.9
8-1437581-1	ASF43L	4P3T	Silver	1.10/27.9
8-1437581-7	ASF62GL	6PDT	Gold	1.00/25.4
8-1437581-8	ASF62L	6PDT	Silver	1.00/25.4

Slide Switches, Flush Actuator, Through Hole and Surface Mount

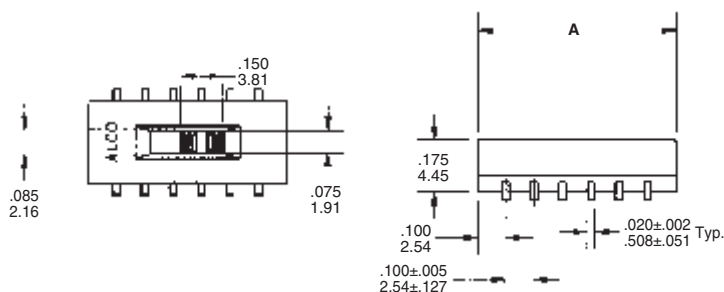


L Type Surface Mount

NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Right Angle, Surface Mount "L" Type, Flush Actuator

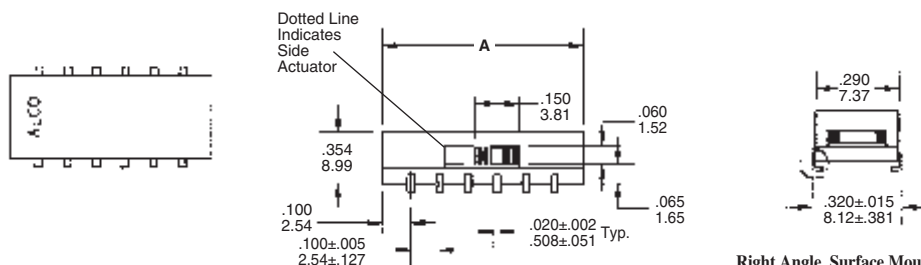
Tyco Electronics	Alcoswitch	Type	Contact	Dim A
6-1437581-4	ASF22RGL	DPDT	Gold	.400/10.2
—	ASF22RL	DPDT	Silver	.400/10.2
7-1437581-5	ASF42RGL	4PDT	Gold	.700/17.8
7-1437581-6	ASF42RL	4PDT	Silver	.700/17.8
—	ASF43RGL	4P3T	Gold	1.10/27.9
—	ASF43RL	4P3T	Silver	1.10/27.9
9-1437581-2	ASF62RGL	6PDT	Gold	1.00/25.4
—	ASF62RL	6PDT	Silver	1.00/25.4



NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Upright, Surface Mount "S" Type, Flush Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
6-1437581-0	ASF22GS	DPDT	Gold	.400/10.2
6-1437581-7	ASF22S	DPDT	Silver	.400/10.2
—	ASF42GS	4PDT	Gold	.700/17.8
7-1437581-7	ASF42S	4PDT	Silver	.700/17.8
—	ASF43GS	4P3T	Gold	1.10/27.9
8-1437581-3	ASF43S	4P3T	Silver	1.10/27.9
—	ASF62GS	6PDT	Gold	1.00/25.4
9-1437581-4	ASF62S	6PDT	Silver	1.00/25.4



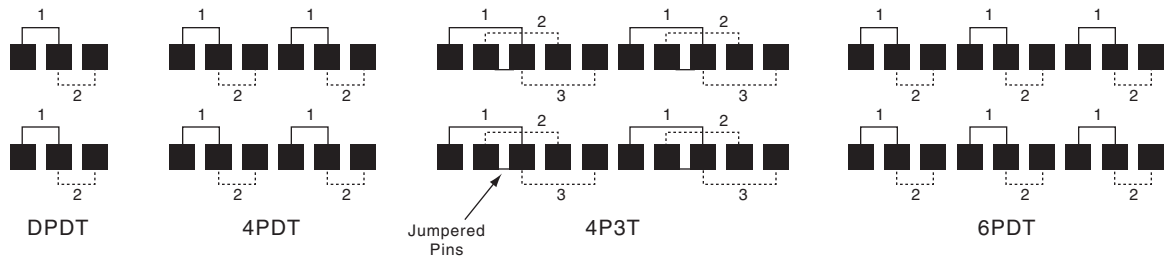
NOTE: See Page B10 for Circuit Diagram and Recommended PC Board Layout.

Right Angle, Surface Mount "S" Type, Flush Actuator

Tyco Electronics	Alcoswitch	Type	Contact	Dim A
6-1437581-5	ASF22RGS	DPDT	Gold	.400/10.2
6-1437581-6	ASF22RS	DPDT	Silver	.400/10.2
—	ASF42RGS	4PDT	Gold	.700/17.8
—	ASF42RS	4PDT	Silver	.700/17.8
—	ASF43RGS	4P3T	Gold	1.10/27.9
—	ASF43RS	4P3T	Silver	1.10/27.9
9-1437581-3	ASF62RGS	6PDT	Gold	1.00/25.4
—	ASF62RS	6PDT	Silver	1.00/25.4

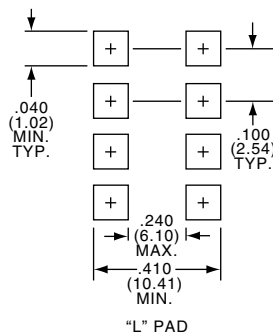
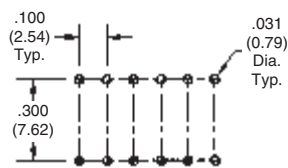
Slide Switches, Auto-insertable, Through Hole and Surface Mount

CIRCUIT DIAGRAMS

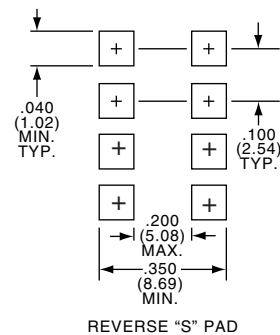


NOTE: For SPDT requirements order DPDT version and use either set of contacts for SPDT switching.

PC LAYOUT



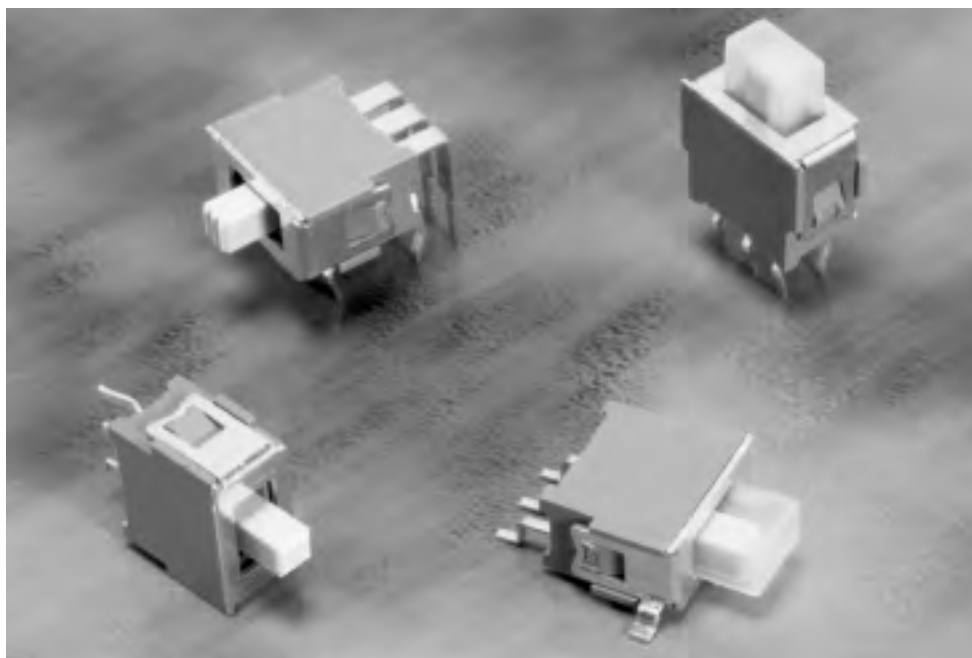
PAD LAYOUT



S Series Unsealed, SE Series Sealed, Through-Hole and Surface Mount

Product Facts

- ▮ Sealed or Unsealed
- ▮ Straight or Right-Angle
- ▮ Through-hole or Surface-mount
- ▮ Bulk or Tape-and-Reel packaged
- ▮ Compact size
- ▮ Double-pole function in a single-pole body
- ▮ PC retention feature
- ▮ High reliability contact system
- ▮ Epoxy sealed base
- ▮ Robust actuator for easy actuation
- ▮ Non-shorting (break-before-make)



Switch, Slide, Surface Mount - SE1 SMT (Shown w/Boot)

Electrical Characteristics

Contact rating: .4 VA @ 20 VDC Max.

50mA 48V AC/DC

Min. 1 micro A 20 mV AC/DC

Initial Contact Resistance: less than 50 milliohms

Final Contact Resistance: 100 milliohms max.

Insulation Resistance: 500 Megaohms @ 250 VDC

Dielectric Strength: 500 VAC between terminals and ground

Mechanical

Mechanical Life: Up to 10,000 cycles @ max. load

Actuation Force: 70 to 500 grams

Materials and Finish

Terminals: Tin-lead over nickel-plated phosphor bronze

Contacts: Gold over nickel plated phosphor bronze

Frame: Tin over nickel plated brass

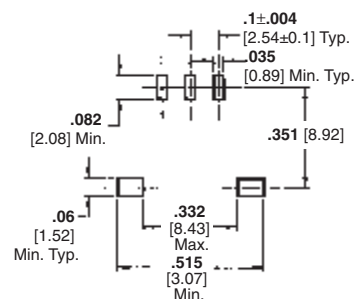
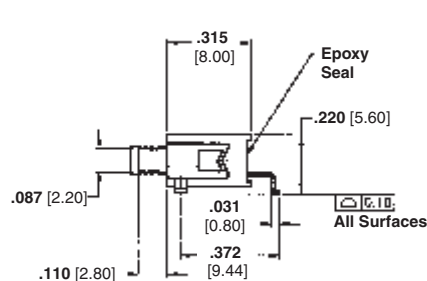
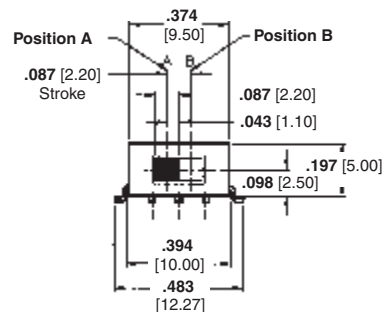
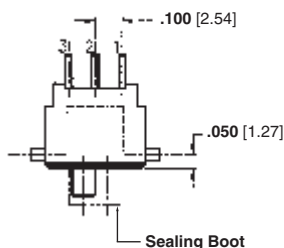
Case, Actuator, Plunger, Terminal

Board: UL 94V-0 glass-filled Polyamide

Actuator Boot: Silicon Rubber

Standards & Specs

Sealed switch per IP 67



Recommended P.C.B. Pad Layout

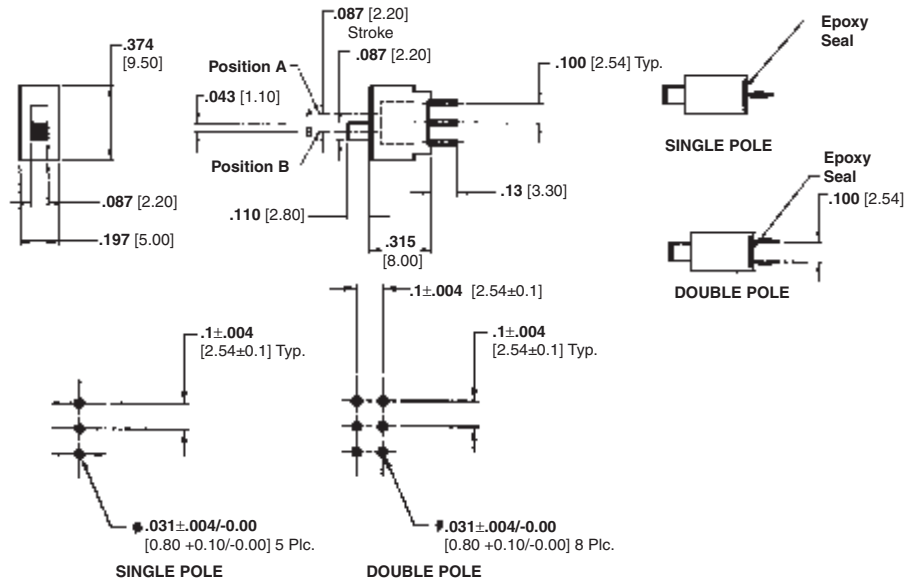
SMT-Sealed Part Numbers

Tyco Electronics	Alcoswitch	Function
1571004-1	SE1GSMT	On-Off
1571004-2	SE1EGSMT	On-Off-On
1571004-3	SE1DGSMT	On-None-On

Tape & Reel Package

Tyco Electronics	Alcoswitch	Function
1571004-4	SE1GSMTTR	On-Off
1571004-5	SE1EGSMTTR	On-Off-On
1571004-6	SE1DGSMTTR	On-None-On

Switch, Slide, PC Tail, S/SE GPC (Shown w/o Boot)



Recommended P.C.B. Hole Layout

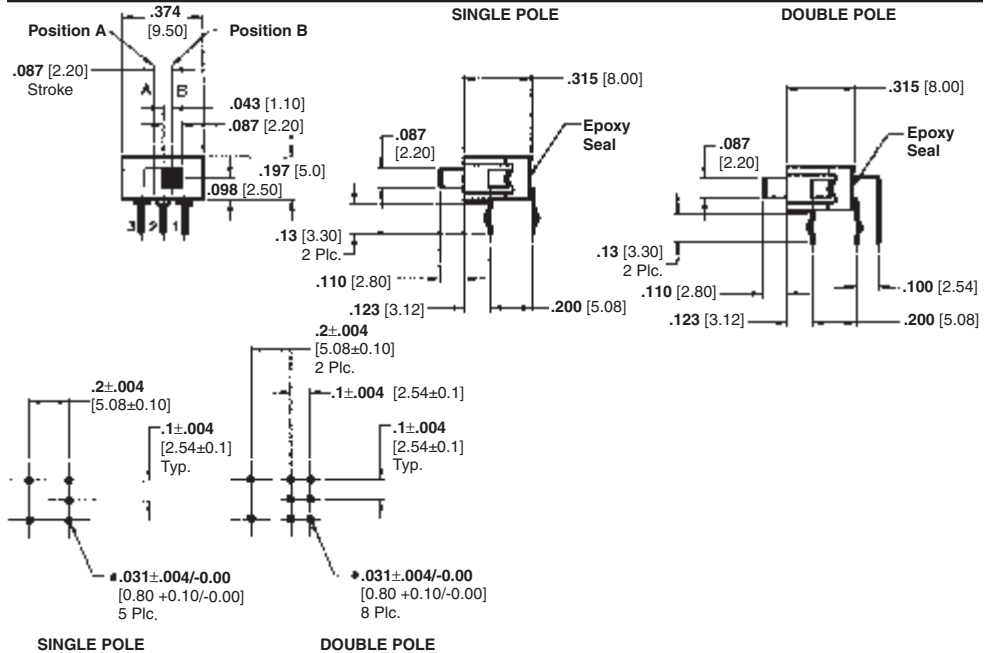
Sealed Part Numbers w/Boot

Tyco Electronics	Alcoswitch	Function
1437574-9	SE1DGPC	On-None-On
1-1437574-4	SE1EGPC	On-Off-On
1-1437574-6	SE2DGPC	On-None-On
2-1437574-0	SE2EGPC	On-Off-On

Unsealed Part Numbers w/o Boot

Tyco Electronics	Alcoswitch	Function
1571005-1	S1DGPC	On-None-On
1571005-2	S1EGPC	On-Off-On
1571005-3	S2DGPC	On-None-On
1571005-4	S2EGPC	On-Off-On

Switch, Slide, Right Angle, S/SE GRA (Shown w/o Boot)



Recommended P.C.B. Hole Layout

Sealed Part Numbers w/Boot

Tyco Electronics	Alcoswitch	Function
1-1437574-1	SE1DGRA	On-None-On
1-1437574-5	SE1EGRA	On-Off-On
1-1437574-8	SE2DGRA	On-None-On
2-1437574-1	SE2EGRA	On-Off-On

Unsealed Part Numbers w/o Boot

Tyco Electronics	Alcoswitch	Function
1571006-1	S1DGRA	On-None-On
1571006-2	S1EGRA	On-Off-On
1571006-3	S2DGRA	On-None-On
1571006-4	S2EGRA	On-Off-On

Slide Switches, Miniature, Low Profile, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver clad copper alloy
Case MaterialSteel zinc plated
Actuator MaterialPolyester (UL 94HB)
Terminal SealEpoxy
Terminals/Fixed ContactsSilver plate copper alloy

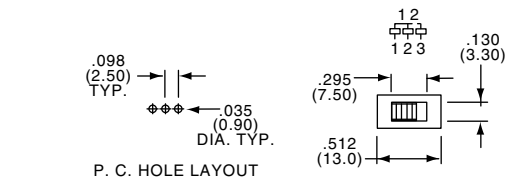
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-5°F to 140°F (-15°C to +60°C)
Storage Temperature.....-4°F to +158°F (-20°C to +70°C)
Solder Heat ResistanceMIL-STD-202, Method 210

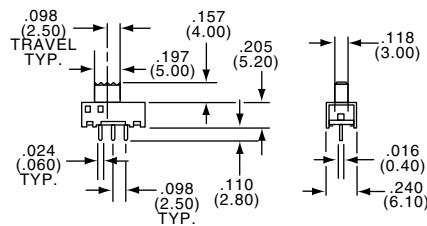
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating300 mA @ 125 VAC
Initial Contact Resistance20 Milliohms max.
Contact TimingMake-before-break
Insulation Resistance100 Megohms min. @ 500 VDC
Dielectric Strength500 VAC
Actuation Force250 Grams, +150 Grams, -100 Grams
Actuator Travel.....0.098" (2.49)
Life ExpectancyUp to 10,000 Cycles

NOTICE: Bifurcated contact produces double wiping, self-cleaning contacts.



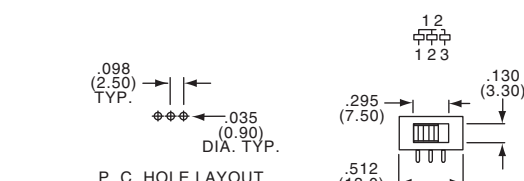
Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437577-8	STS121PC	Silver	Upright



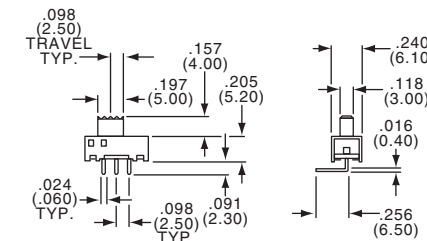
SPDT



STS121PC



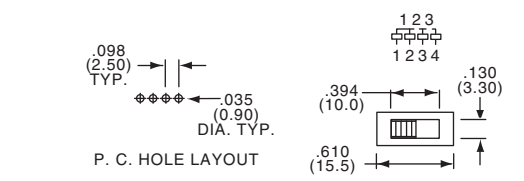
Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437577-9	STS121RA	Silver	Right Angle



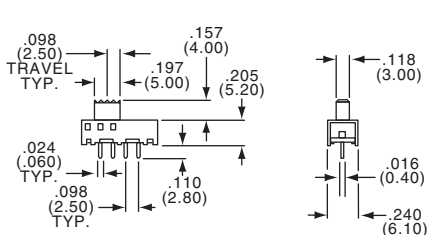
SPDT



STS121RA



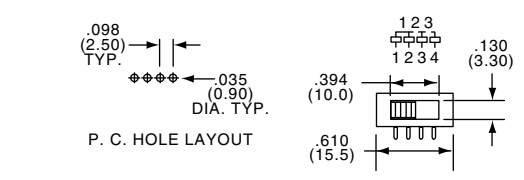
Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437577-2	STS131PC	Silver	Upright



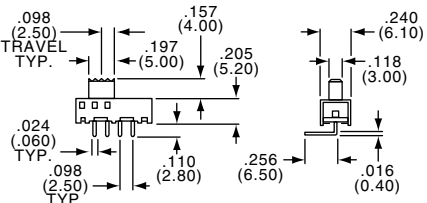
SP3T



STS131PC



Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437577-3	STS131RA	Silver	Right Angle



SP3T



STS131RA

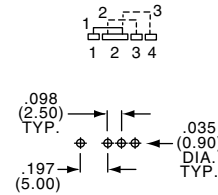
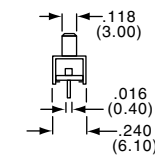
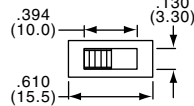
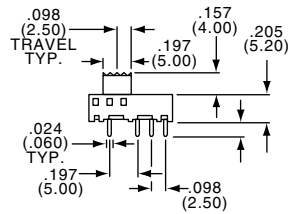
Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE B13 FOR PRODUCT SPECIFICATIONS

SP3T



STS1300PC

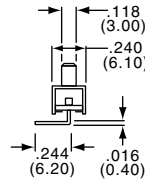
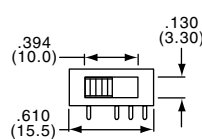


P. C. HOLE LAYOUT

SP3T



STS1300RA

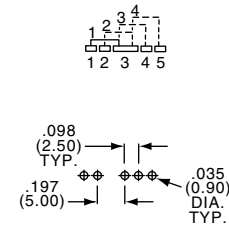
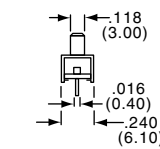
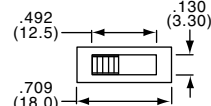
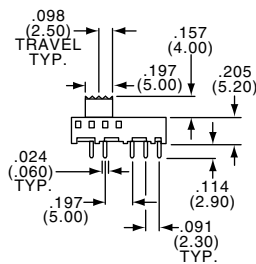


Part Number		Plating	Mounting Style
Tyco Electronics	Alcoswitch		
6-1437577-0	STS1300PC	Silver	Upright
6-1437577-1	STS1300RA	Silver	Right Angle

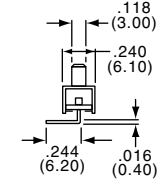
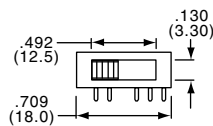
SP4T



STS1400PC



P. C. HOLE LAYOUT

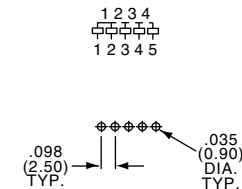
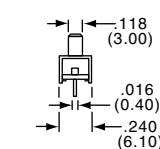
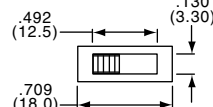
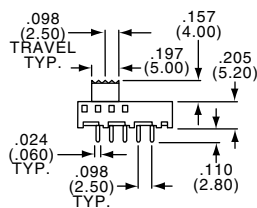


Part Number		Plating	Mounting Style
Tyco Electronics	Alcoswitch		
6-1437577-5	STS1400PC	Silver	Upright
6-1437577-6	STS1400RA	Silver	Right Angle

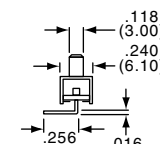
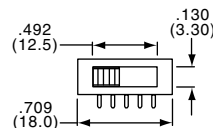
SP4T



STS141RA



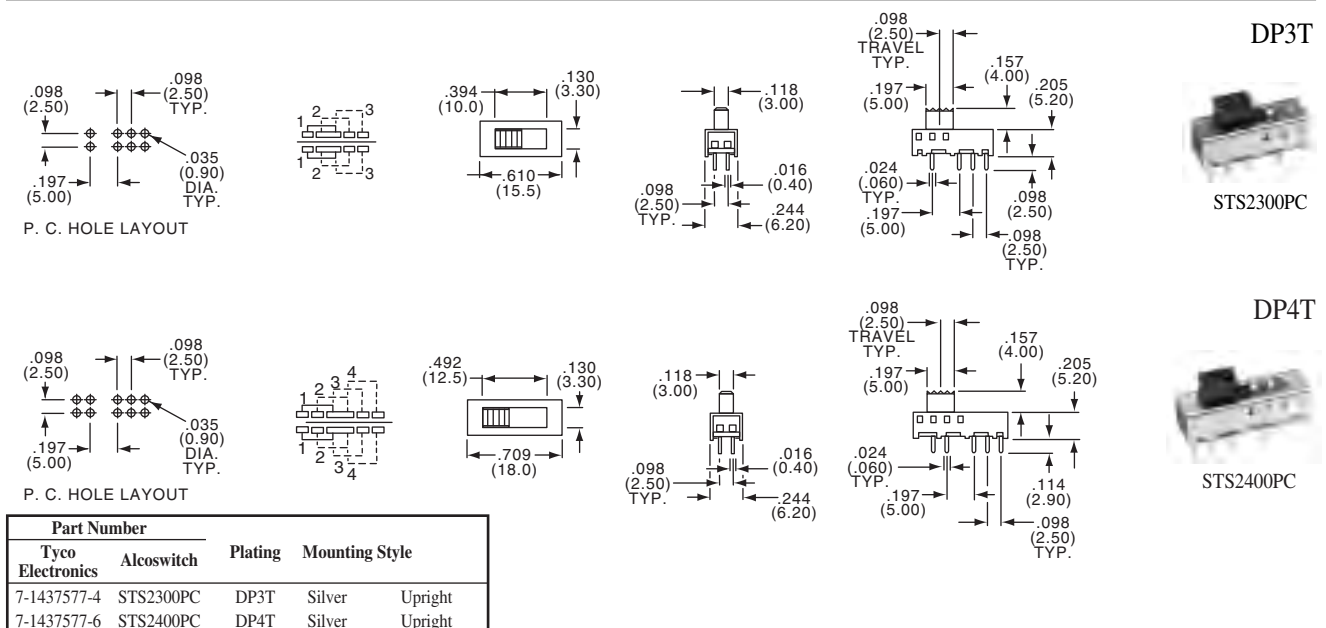
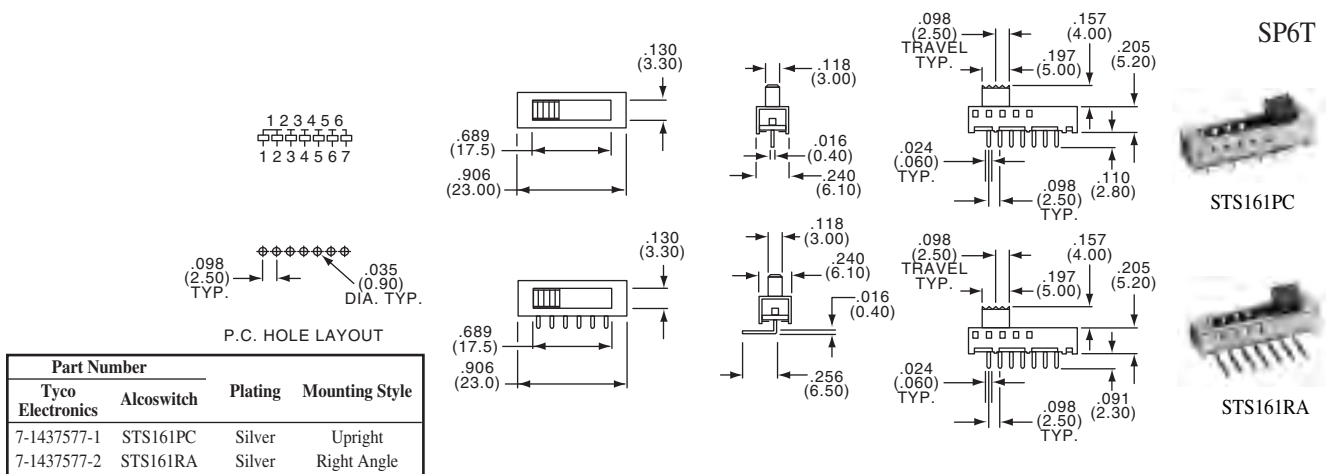
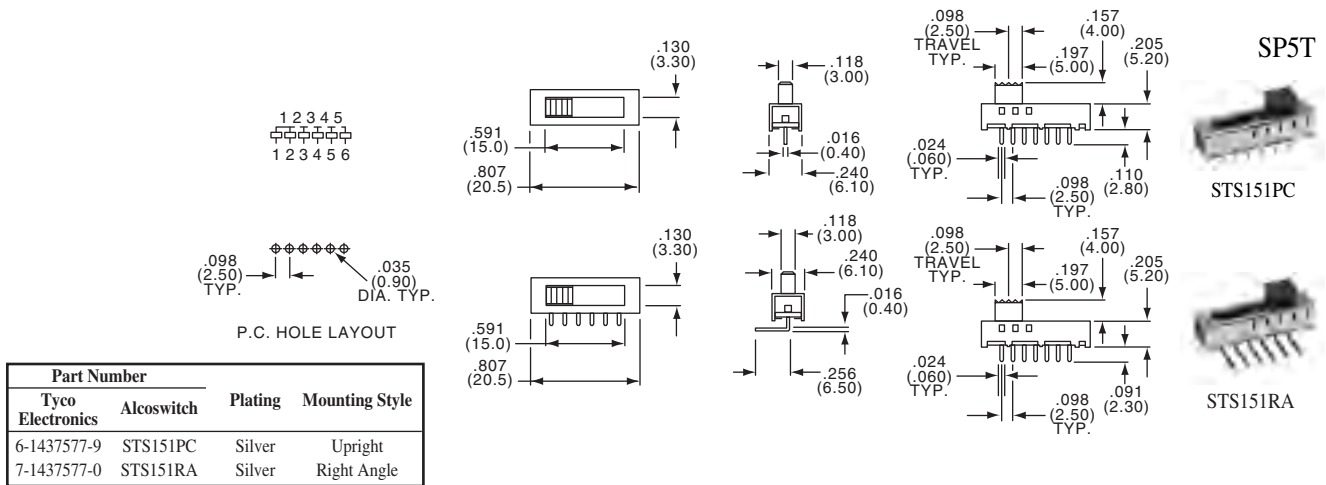
P. C. HOLE LAYOUT



Part Number		Plating	Mounting Style
Tyco Electronics	Alcoswitch		
6-1437577-7	STS141PC	Silver	Upright
6-1437577-8	STS141RA	Silver	Right Angle

Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE B13 FOR PRODUCT SPECIFICATIONS



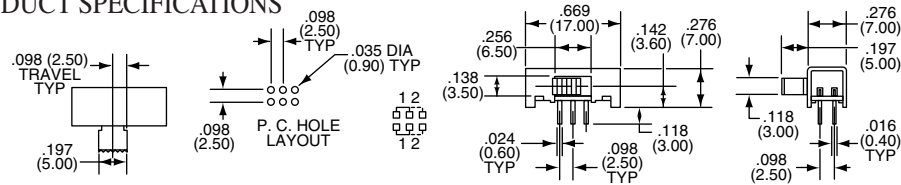
Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE B13 FOR PRODUCT SPECIFICATIONS

DPDT



STSA220RA

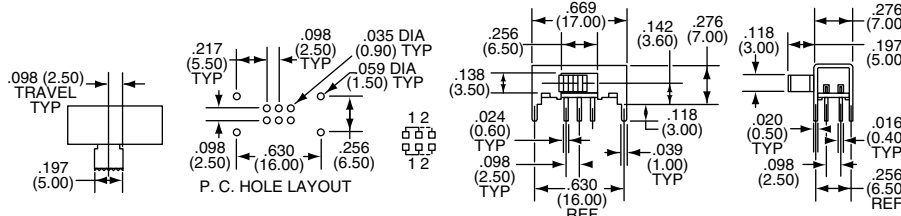


Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
8-1437577-0	STSA220RA	Silver	Right Angle

DPDT



STSA220RA1

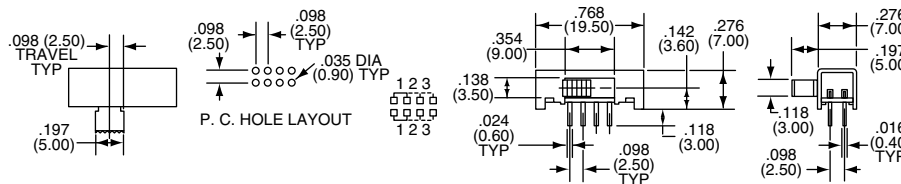


Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
8-1437577-1	STSA220RA1	Silver	Right Angle

DP3T



STSA230RA

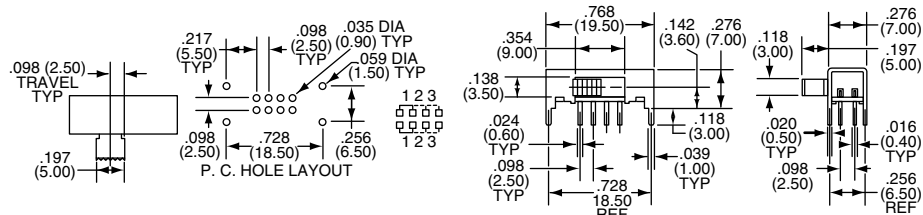


Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
8-1437577-2	STSA230RA	Silver	Right Angle

DP3T



STSA230RA1

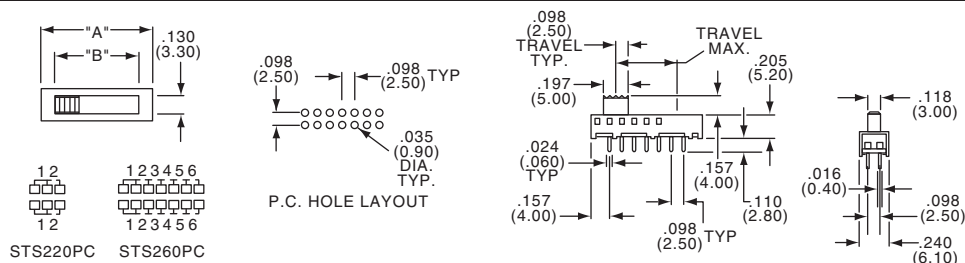


Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
8-1437577-3	STSA230RA1	Silver	Right Angle

DP6T/DP5T/DP4T/
DP3T/DP2T



STS220PC



Part Number						Part Number					
Tyco Electronics	Alcoswitch	Type	Dim.A	Dim.B	Travel Max.	Pin Holes	Tyco Electronics	Alcoswitch	Type	Dim.A	Dim.B
7-1437577-3	STS220PC	DP2T	.512(13.0)	.295(7.50)	.098(2.50)	6	7-1437577-8	STS250PC	DP5T	.807(20.5)	.591(15.0)
7-1437577-5	STS230PC	DP3T	.610(15.5)	.394(10.0)	.197(5.00)	8	7-1437577-9	STS260PC	DP6T	.906(23.0)	.689(17.5)
7-1437577-7	STS240PC	DP4T	.709(18.0)	.492(12.5)	.295(7.50)	10					

Slide Switches, Instrument Grade, Decorative

MATERIAL SPECIFICATIONS:

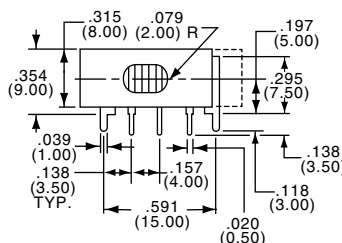
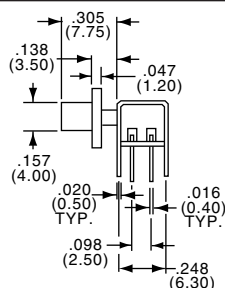
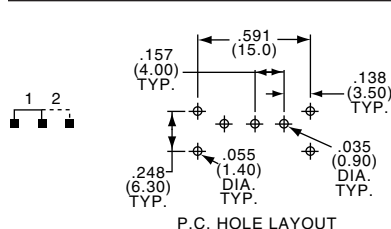
ContactsSilver clad copper alloy
Case MaterialSteel, tin plated
Actuator MaterialPolycarbonate
Terminals/Fixed ContactsSilver over nickel
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-14°F to +140°F (-10°C to +60°C)
Storage Temperature.....-14°F to +140°F (-10°C to +60°C)
Solder Heat Resistance.....MIL-STD-202, Method 210

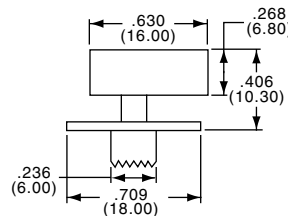
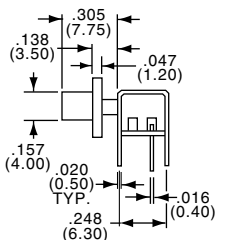
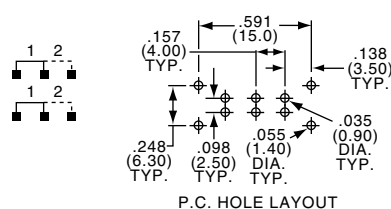
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating300 mA @ 125 VAC
Initial Contact Resistance20 Milliohms max.
Insulation Resistance1,000 Megohms min. @ 500 VDC
Dielectric Strength500 VAC
Actuation Force0.250 Grams, +200/-150
Plunger/Actuator Travel0.079" (2.01)
Life ExpectancyUp to 10,000 Cycles

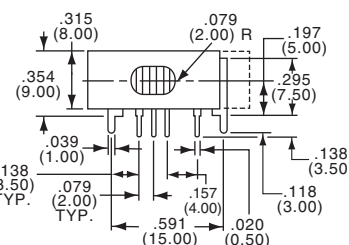
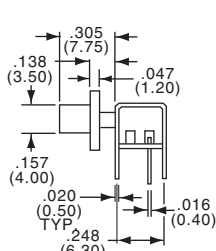
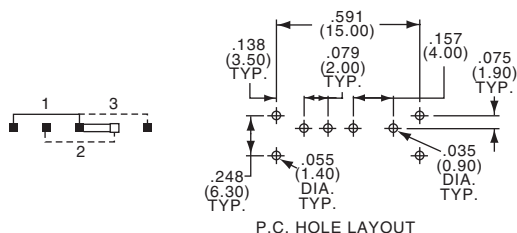


SPDT/DPDT

SDS2240RA0

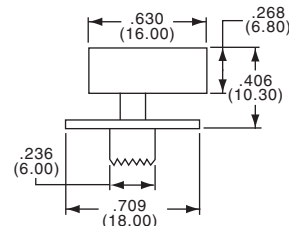
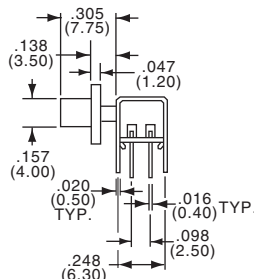
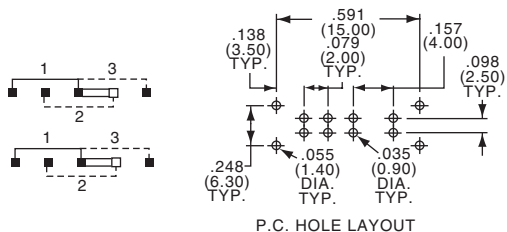


Part Number							Part Number						
Tyco Electronics	Alcoswitch	Type				Actuator Color	Tyco Electronics	Alcoswitch	Type				Actuator Color
1437577-2	SDS1240RA0	SPDT	On	None	On	Black	1437577-6	SDS2240RA0	DPDT	On	None	On	Black
1437577-3	SDS1240RA8	SPDT	On	None	On	Gray	—	SDS2240RA8	DPDT	On	None	On	Gray



SP3T/DP3T

SDS1340RA8



Part Number							Part Number						
Tyco Electronics	Alcoswitch	Type				Actuator Color	Tyco Electronics	Alcoswitch	Type				Actuator Color
1437577-4	SDS1340RA0	SP3T	On	On	On	Black	1437577-7	SDS2340RA0	DP3T	On	On	On	Black
1437577-5	SDS1340RA8	SP3T	On	On	On	Gray	—	SDS2340RA8	DP3T	On	On	On	Gray

Slide Switches, Vertical, Single or Dual Actuator

MATERIAL SPECIFICATIONS:

ContactsCopper w/gold plate over nickel
Case MaterialHigh temperature polyester (94-VO)
Actuator MaterialPolyester (94-VO)
TerminalsCopper alloy tin/lead/nickel or gold/nickel
Terminal SealEpoxy standard: single pole, optional: double pole

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4°F to +176°F (-20°C to +80°C)
Storage Temperature-4°F to +176°F (-20°C to +80°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA max. @ 20 VDC or peak AC
Initial Contact Resistance20 Milliohms max.
Contact TimingNon-shorting
Insulation Resistance1,000 Megohms min. @ 500 VDC
Dielectric Strength1,000 Volts RMS @ sea level
Plunger/Actuator Travel0.120" (3.05)
Life ExpectancyUp to 60,000-80,000 Cycles

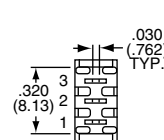
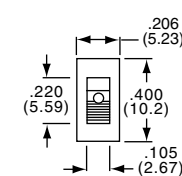
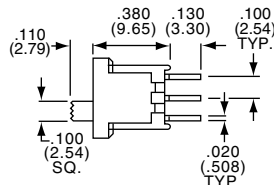
SPST/SPDT



TSS11DGPC



TSS11DG1PC



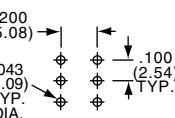
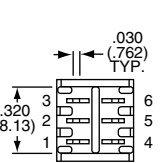
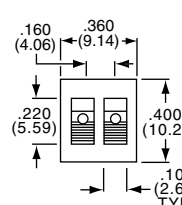
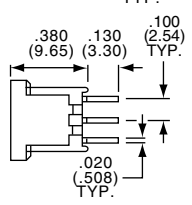
SPST/SPDT (DUAL)



TSD21AAGPC



TSD21DDG1PC



Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	On	None	Off	Extended Dual Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	On	None	Off
1437578-3	TSS11AGPC	SPST	A	On	None	Off	—	TSD21AAGPC	2 x SPST	A	On	None	Off
1-1437589-0	TSS11DGPC	SPDT	D	On	None	On	1437579-5	TSD21DDGPC	2 x SPDT	D	On	None	On
1-1437579-4	TSS11EGPC	SPDT	E	On	Off	On	Flush Dual Actuator						
1437579-8	TSS11AG1PC	SPST	A	On	None	Off	—	TSD21DDG1PC	2 x SPDT	D	On	None	On
1-1437579-2	TSS11DG1PC	SPDT	D	On	None	On							
	TSS11EG1PC	SPDT	E	On	Off	On							

Note: No center terminals on "A" action switches.

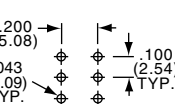
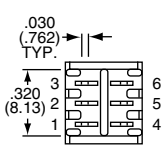
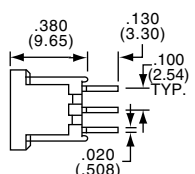
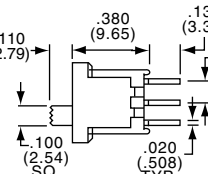
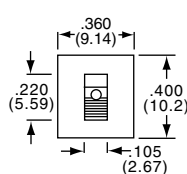
DPST/DPDT



TSS21NGPC



TSS21PGPC



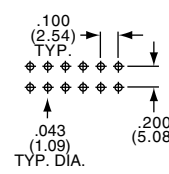
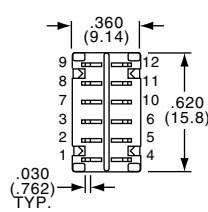
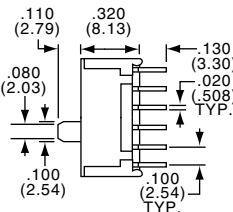
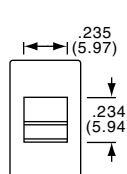
Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	On	None	Off	Flush Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	On	None	Off
1-1437579-6	TSS21KGPC	DPST	K	On	None	Off	—	TSS21KG1PC	DPST	K	On	None	Off
1-1437579-9	TSS21NGPC	DPDT	N	On	None	On	1-1437579-7	TSS21NG1PC	DPDT	N	On	None	On
2-1437579-3	TSS21PGPC	DPDT	P	On	Off	On	2-1437579-1	TSD21RG1PC	DPDT	P	On	Off	On

Note: No center terminals on "K" action switches.

4PDT



TSS41NGPC

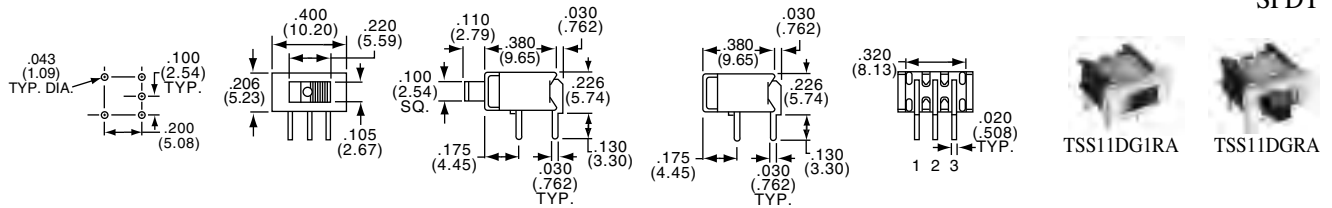


Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	On	None	Off
2-1437579-5	TSS41NGPC	4PDT	N	On	None	On

Slide Switches, Right Angle, Single or Dual Actuator

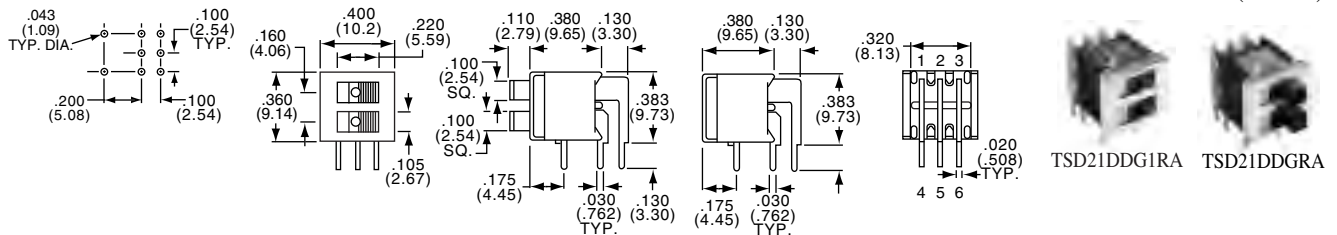
SEE PAGE B18 FOR PRODUCT SPECIFICATIONS

SPDT



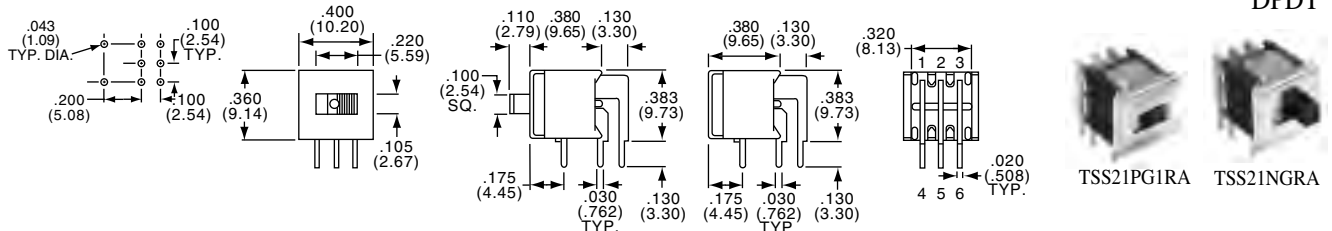
Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6				Flush Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6			
1-1437579-1	TSS11DGRA	SPDT	D	On	None	On	1437579-9	TSS11DG1RA	SPDT	D	On	None	On
1-1437579-5	TSS11EGRA	SPDT	E	On	Off	On	1-1437579-3	TSS11EG1RA	SPDT	E	On	Off	On

SPDT (DUAL)



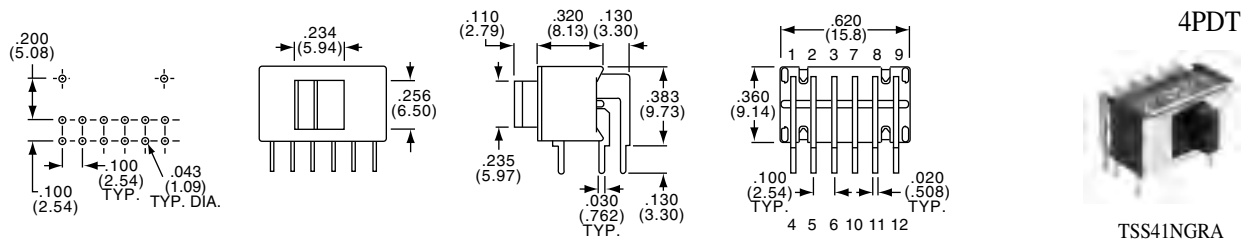
Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6				Flush Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6			
1437579-6	TSD21DDGRA	2 x SPDT	D	On	None	On	1437579-4	TSD21DDG1RA	2 x SPDT	D	On	None	On
1437579-7	TSD21EEGRA	2 x SPDT	E	On	Off	On	—	TSD21EEG1RA	2 x SPDT	E	On	Off	On

DPDT



Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6				Flush Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6			
—	TSS21PAGRA	SP3T	PA	On	On	On	—	TSS21NG1RA	DPDT	N	On	None	On
2-1437579-0	TSS21NGRA	DPDT	N	On	None	On	—	TSS21PG1RA	DPDT	P	On	Off	On
2-1437579-4	TSS21PGRA	DPDT	P	On	Off	On							

4PDT



Extended Actuator Tyco Electronics	Alcoswitch	Type	Act. Code P. M6			
2-1437579-7	TSS41NGRA	4PDT	N	On	None	On

Slide Switches, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsGold or silver over nickel/copper alloy
 Frame MaterialTin plated steel
 Terminals/Fixed Contacts.....Gold or silver over nickel/over copper alloy
 Terminal SealEpoxy
 Actuator MaterialPOM-UL94HB

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
 Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
 Solder Heat ResistanceSee page M3-4

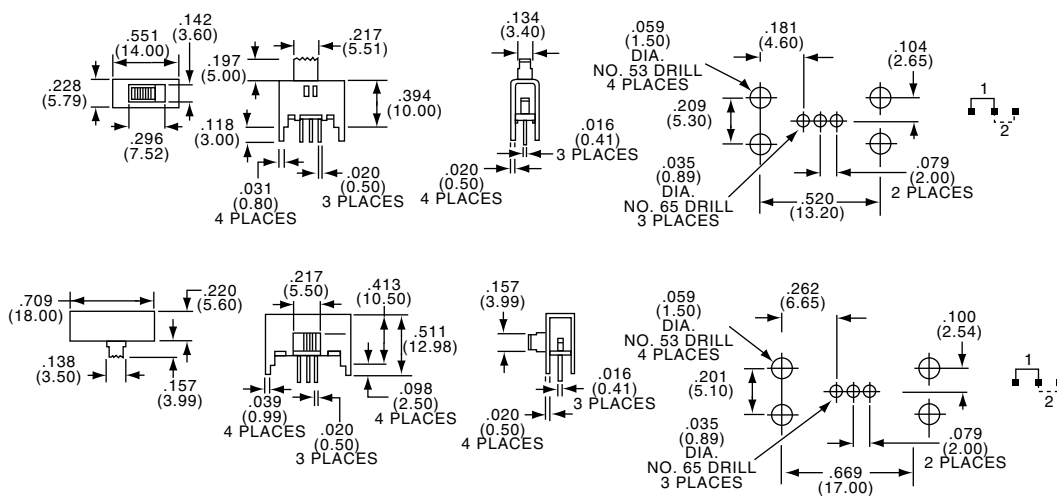
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA 20 VDC or peak AC
 Silver: 300 mA @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingMake before break
 Insulation Resistance1,000 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force100 to 600 Grams
 Life ExpectancyUp to 15,000 Cycles
 Travel0.079" (2.01) (unless otherwise specified)

SPDT



MSS1200

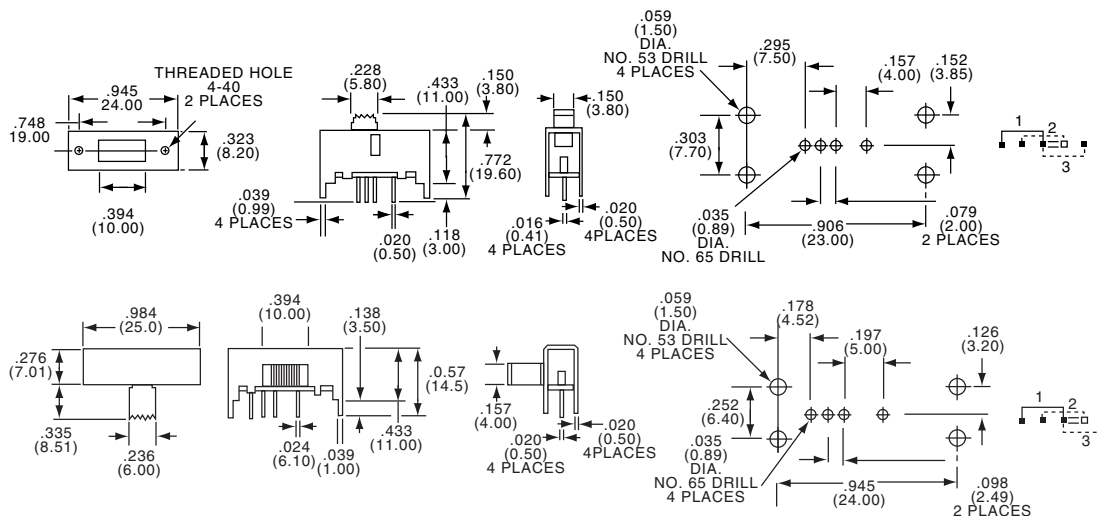


Tyco Electronics	Alcoswitch	Plating	Tyco Electronics	Alcoswitch	Plating
5-1437576-0	MSS1200	Silver	5-1437576-2	MSS1200R	Silver
5-1437576-1	MSS1200G	Gold	5-1437576-3	MSS1200RG	Gold

SP3T



MSS1300

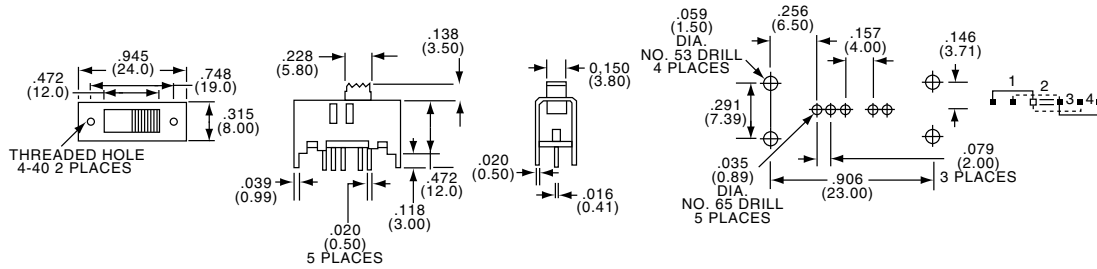


MSS1300R

Tyco Electronics	Alcoswitch	Plating	Tyco Electronics	Alcoswitch	Plating	Total Actuator Travel
5-1437576-4	MSS1300	Silver	5-1437576-6	MSS1300R	Silver	.098(2.50)
5-1437576-5	MSS1300G	Gold	5-1437576-7	MSS1300RG	Gold	.098(2.50)

Slide Switches, Instrumentation Grade

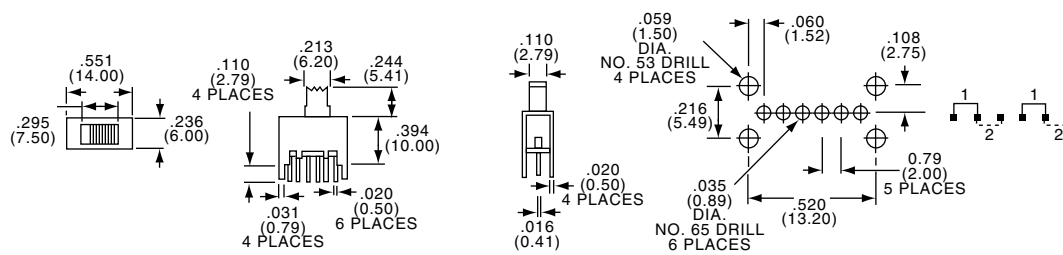
SEE PAGE B20 FOR PRODUCT SPECIFICATIONS



SP4T

MSS1400

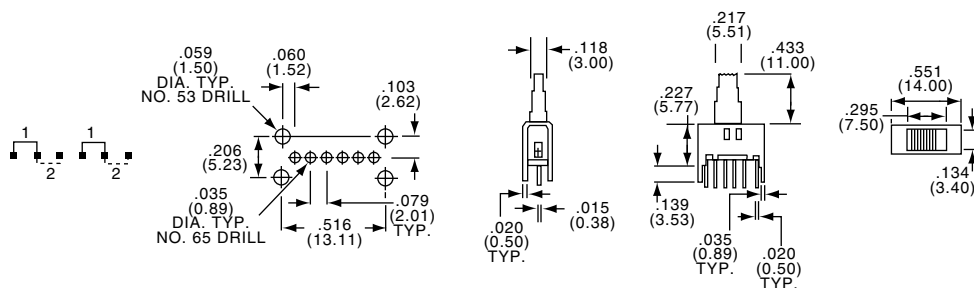
Tyco Electronics	Alcoswitch	Plating
5-1437576-8	MSS1400	Silver
1571423-1	MSS1400G	Gold



DPDT

MSS2225

Tyco Electronics	Alcoswitch	Plating
6-1437576-3	MSS2225	Silver
6-1437576-4	MSS2225G	Gold



DPDT

MSS2250

Tyco Electronics	Alcoswitch	Plating
6-1437576-5	MSS2250	Silver
6-1437576-6	MSS2250G	Gold

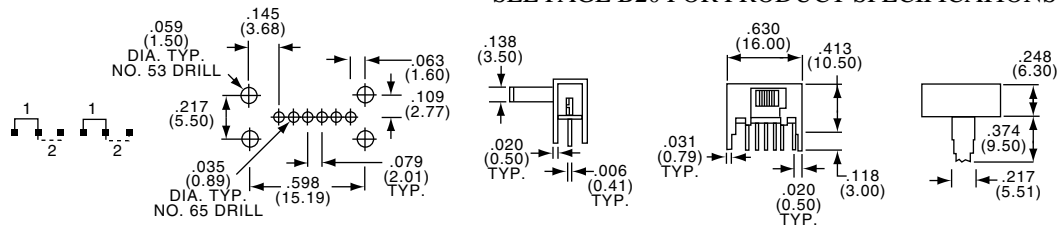
Slide Switches, Instrumentation Grade

SEE PAGE B20 FOR PRODUCT SPECIFICATIONS

DPDT



MSS2250R

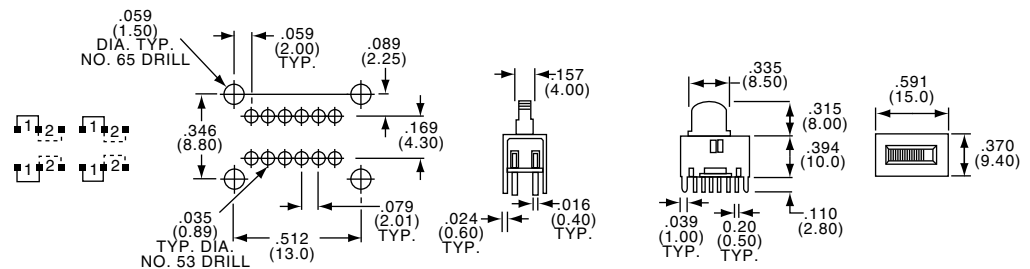


Tyco Electronics	Alcoswitch	Plating
6-1437576-7	MSS2250R	Silver
6-1437576-8	MSS2250RG	Gold

4PDT



MSS4200

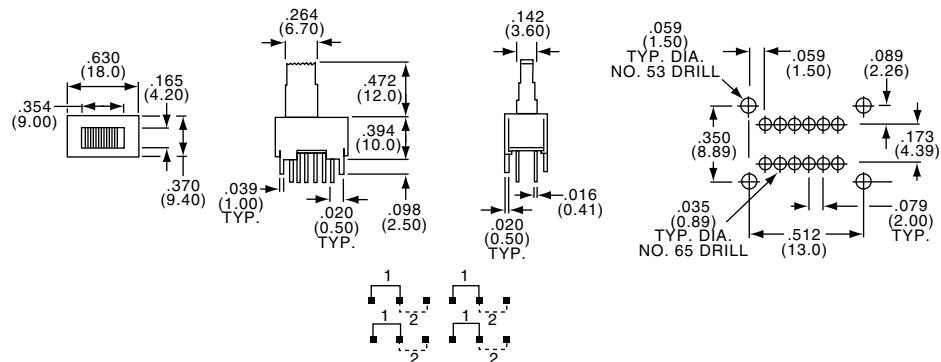


Tyco Electronics	Alcoswitch	Plating
6-1437576-9	MSS4200	Silver
7-1437576-0	MSS4200G	Gold

4PDT



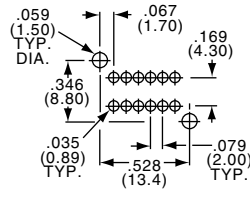
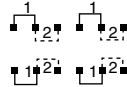
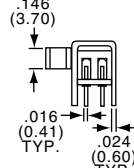
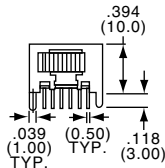
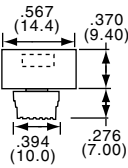
MSS4250



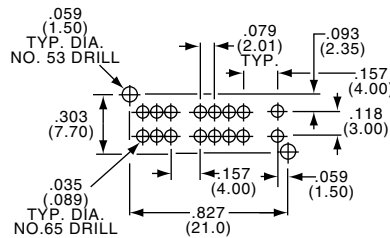
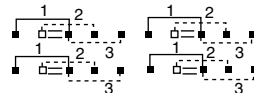
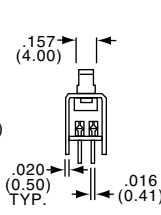
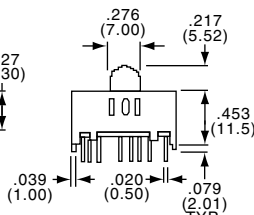
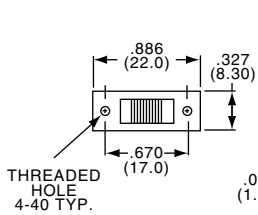
Tyco Electronics	Alcoswitch	Plating
7-1437576-4	MSS4250	Silver

Slide Switches, Instrumentation Grade

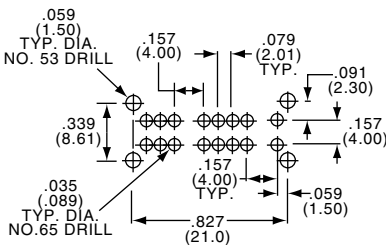
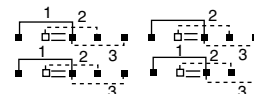
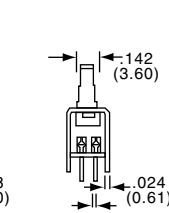
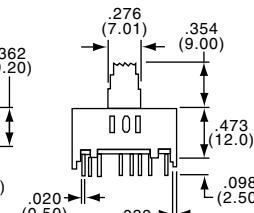
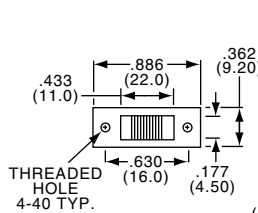
SEE PAGE B20 FOR PRODUCT SPECIFICATIONS



Tyco Electronics	Alcoswitch	Plating
7-1437576-2	MSS4200R	Silver
7-1437576-3	MSS4200RG	Gold



Tyco Electronics	Alcoswitch	Plating
7-1437576-5	MSS4300	Silver
7-1437576-6	MSS4300G	Gold



Tyco Electronics	Alcoswitch	Plating
7-1437576-9	MSS4335	Silver

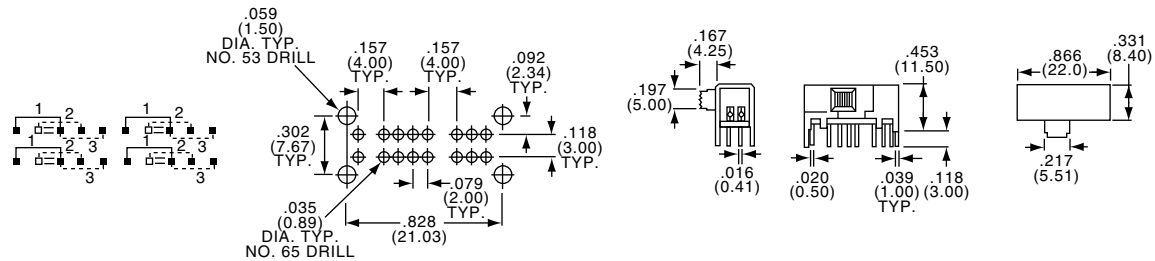
Slide Switches, Instrumentation Grade

SEE PAGE B20 FOR PRODUCT SPECIFICATIONS

4P3T



MSS4300R

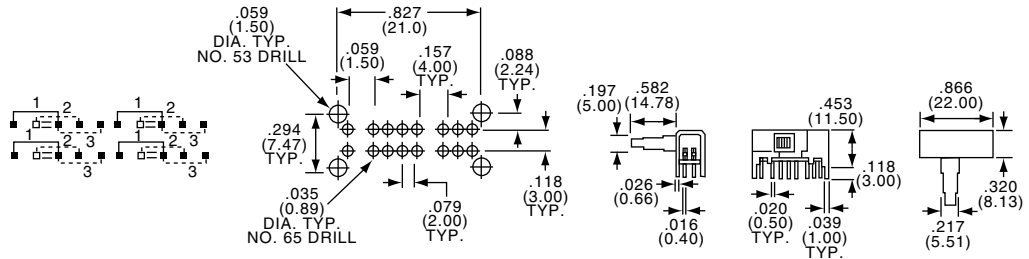


Tyco Electronics	Alcoswitch	Plating
7-1437576-7	MSS4300R	Silver
7-1437576-8	MSS4300RG	Gold

4P3T



MSS4350R

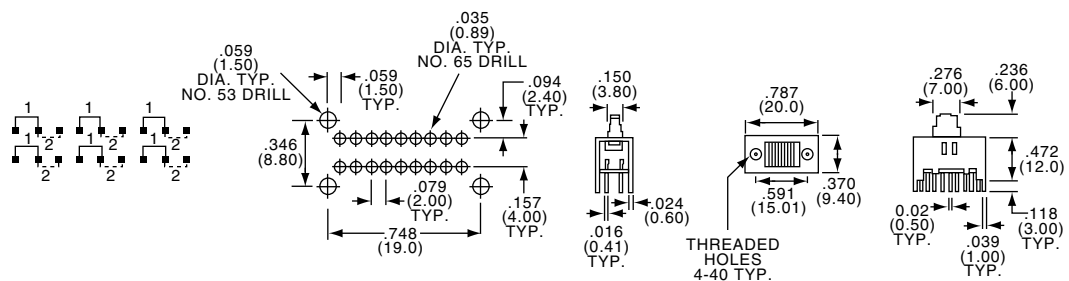


Tyco Electronics	Alcoswitch	Plating
8-1437576-0	MSS4350R	Silver
8-1437576-1	MSS4350RG	Gold

6PDT



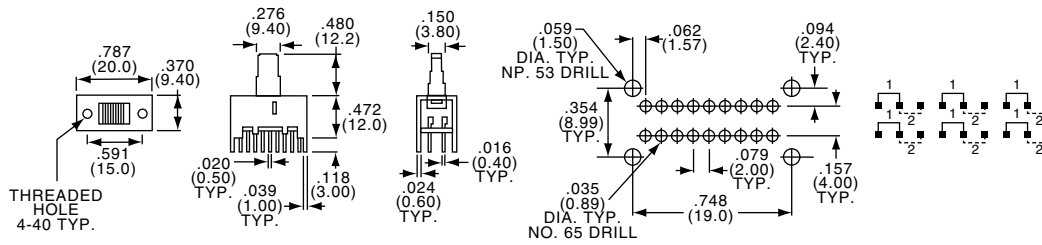
MSS6200



Tyco Electronics	Alcoswitch	Plating
8-1437576-8	MSS6200	Silver
8-1437576-9	MSS6200G	Gold

Slide Switches, Instrumentation Grade

SEE PAGE B20 FOR PRODUCT SPECIFICATIONS

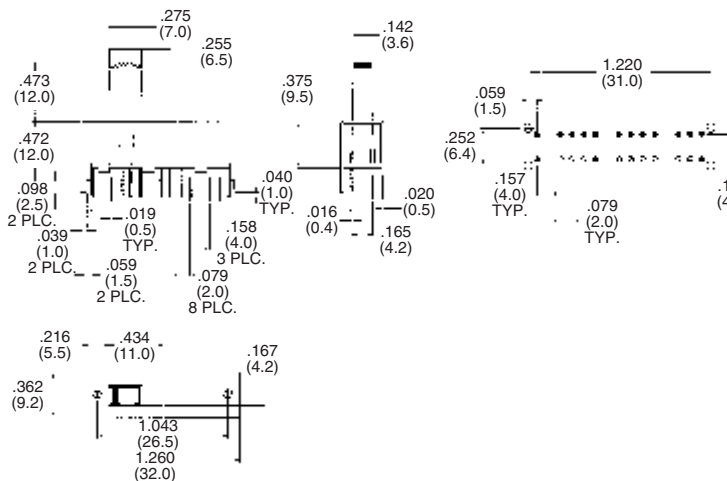


6PDT



MSS6250

Tyco Electronics	Alcoswitch	Plating
9-1437576-0	MSS6250	Silver



Tyco Electronics	Alcoswitch	Plating
9-1437576-3	MSS6350	Silver
—	MSS6350G	Gold

6P3T



MSS6350R

Tyco Electronics	Alcoswitch	Plating
9-1437576-4	MSS6350R	Silver
—	MSS6350RG	Gold

Slide Switches, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver or gold over copper alloy
Case MaterialCold rolled steel
Actuator MaterialPolyester UL94V-0
Terminals/Fixed Contacts.....Gold or silver plate over copper alloy
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
Solder Heat Resistance.....See page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

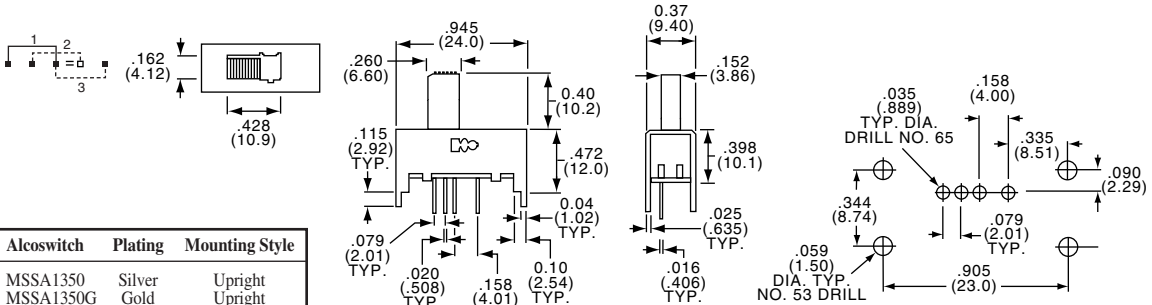
Contact RatingGold: 0.4 VA 20 VDC or peak AC
Silver: 300 mA @ 125 VAC
Initial Contact Resistance30 Milliohms max.
Contact Timing.....Make before break
Insulation Resistance1,000 Megohms min.
Dielectric Strength500 Volts RMS @ sea level
Actuation Force600±300/470 Grams average
Actuator Travel.....0.079" (2.01) approximate
Life ExpectancyUp to 15,000 Cycles

SP3T



MSSA1350

Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437580-3	MSSA1350	Silver	Upright
3-1437580-4	MSSA1350G	Gold	Upright

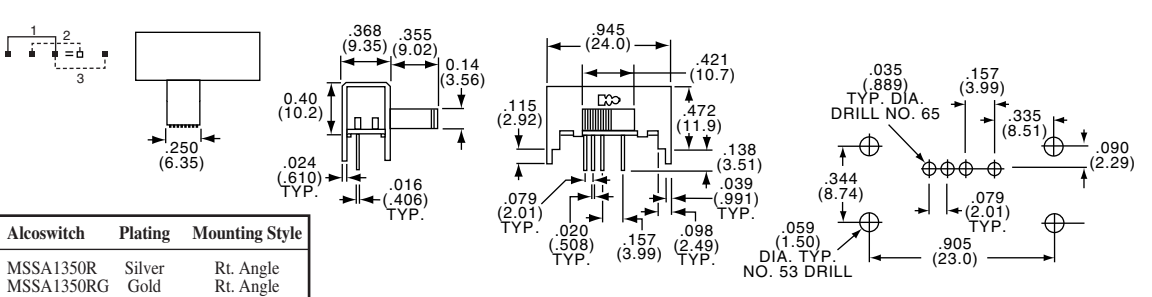


SP3T



MSSA1350R

Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437580-5	MSSA1350R	Silver	Rt. Angle
3-1437580-6	MSSA1350RG	Gold	Rt. Angle

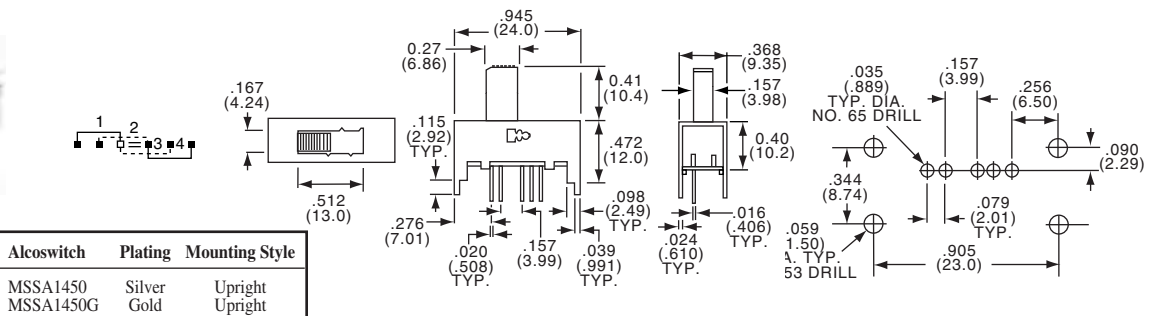


SP4T



MSSA1450

Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437580-7	MSSA1450	Silver	Upright
3-1437580-8	MSSA1450G	Gold	Upright

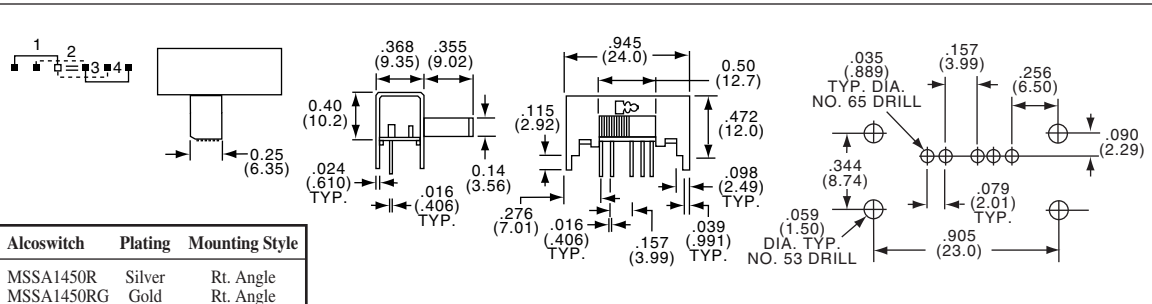


SP4T



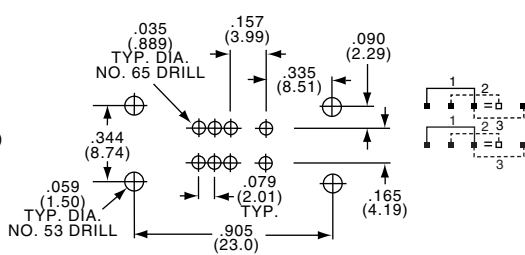
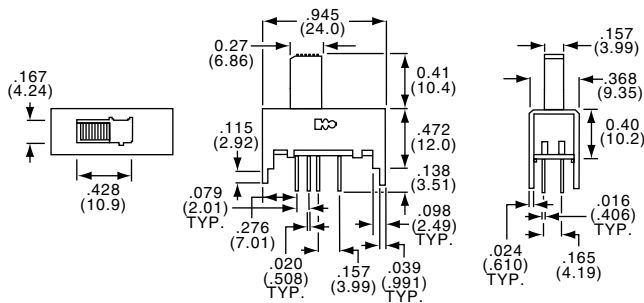
MSSA1450R

Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437580-9	MSSA1450R	Silver	Rt. Angle
4-1437580-0	MSSA1450RG	Gold	Rt. Angle



Slide Switches, Instrumentation Grade

SEE PAGE B26 FOR PRODUCT SPECIFICATIONS



DP3T



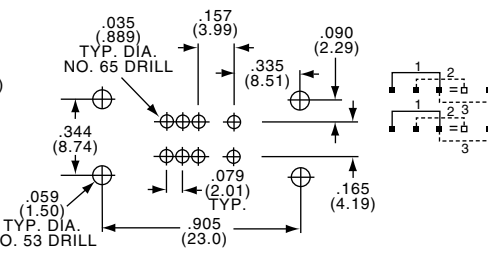
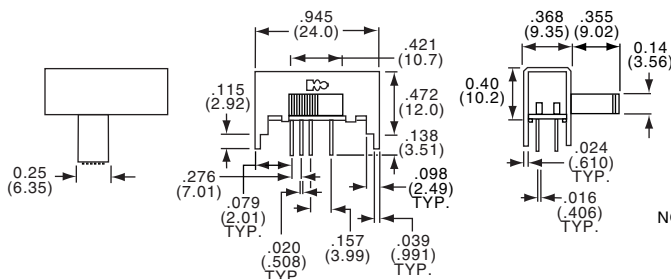
MSSA2350

Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437580-3	MSSA2350	Silver	Upright
5-1437580-4	MSSA2350G	Gold	Upright

DP3T



MSSA2350R

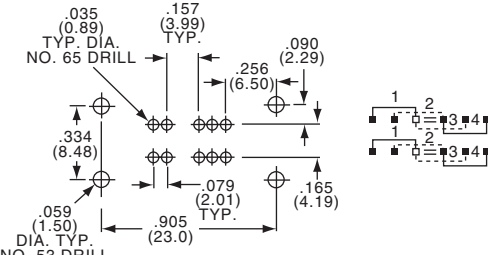
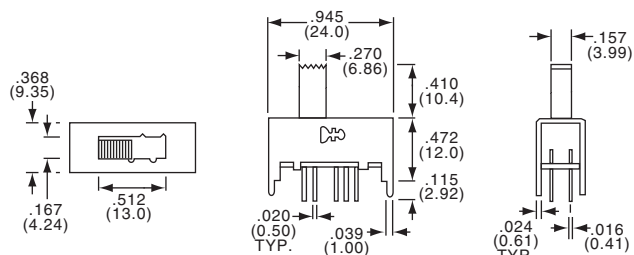


Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437580-5	MSSA2350R	Silver	Rt. Angle
5-1437580-6	MSSA2350RG	Gold	Rt. Angle

DP4T



MSSA2450

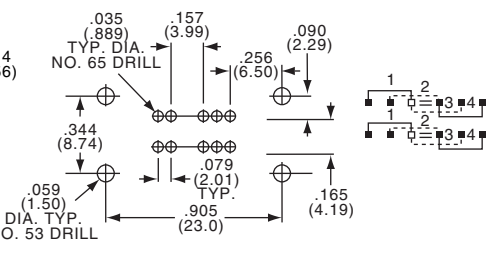
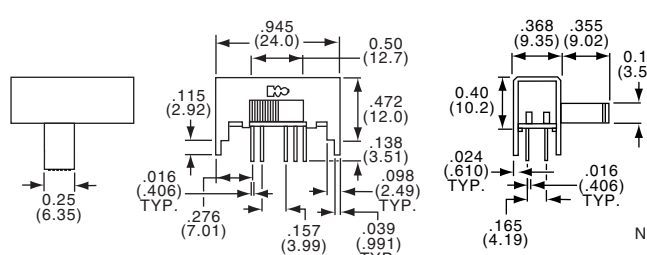


Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437580-7	MSSA2450	Silver	Upright
5-1437580-8	MSSA2450G	Gold	Upright

DP4T



MSSA2450R



Tyco Electronics	Alcoswitch	Plating	Mounting Style
5-1437580-9	MSSA2450R	Silver	Rt. Angle
6-1437580-0	MSSA2450RG	Gold	Rt. Angle

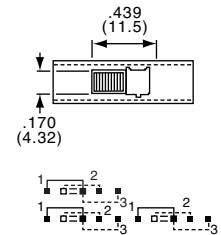
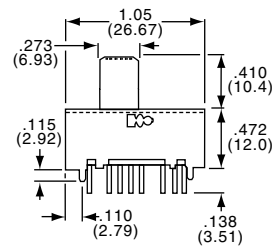
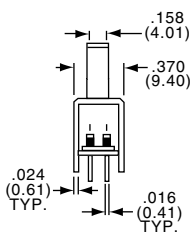
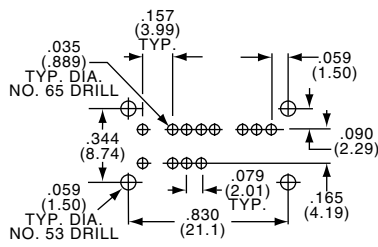
Slide Switches, Instrumentation Grade

SEE PAGE B26 FOR PRODUCT SPECIFICATIONS

3P3T



MSSA3350

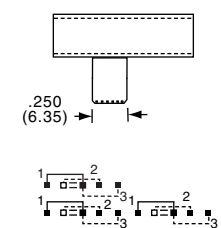
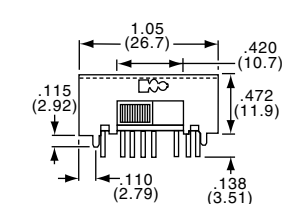
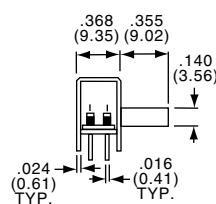
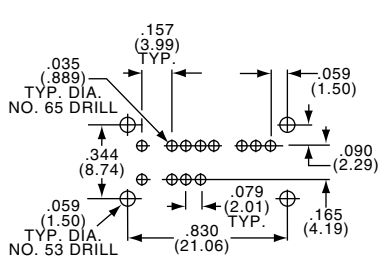


Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437580-1	MSSA3350	Silver	Upright
6-1437580-2	MSSA3350G	Gold	Upright

3P3T



MSSA3350R

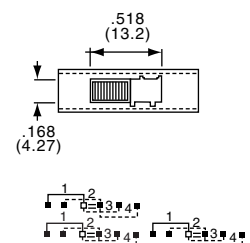
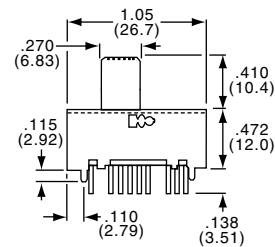
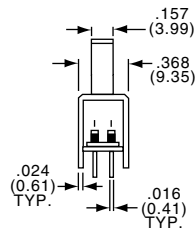
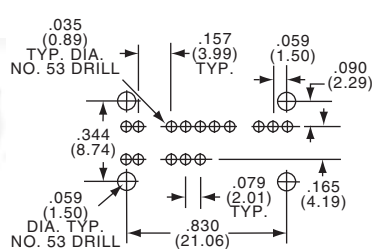


Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437580-3	MSSA3350R	Silver	Rt. Angle
6-1437580-4	MSSA3350RG	Gold	Rt. Angle

3P4T



MSSA3450

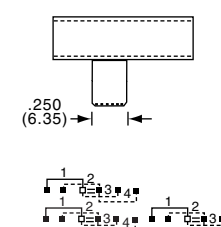
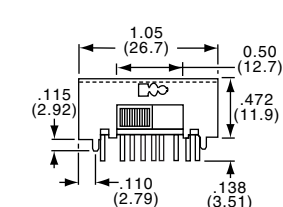
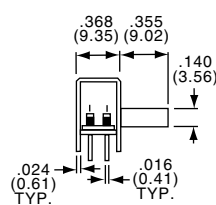
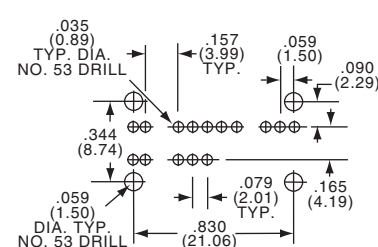


Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437580-5	MSSA3450	Silver	Upright
6-1437580-6	MSSA3450G	Gold	Upright

3P4T



MSSA3450R

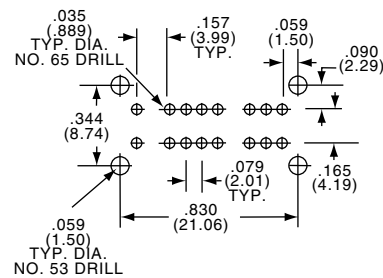
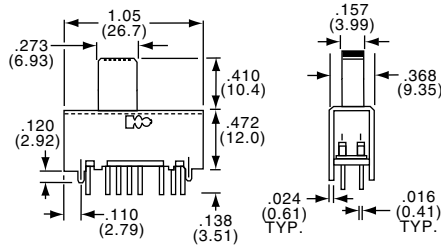
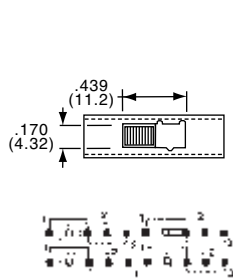


Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437580-7	MSSA3450R	Silver	Rt. Angle
6-1437580-8	MSSA3450RG	Gold	Rt. Angle

Slide Switches, Instrumentation Grade

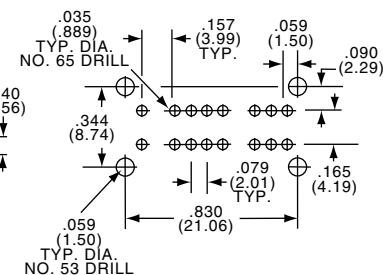
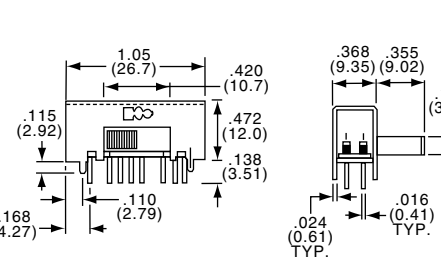
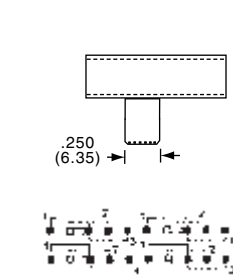
SEE PAGE B26 FOR PRODUCT SPECIFICATIONS

4P3T



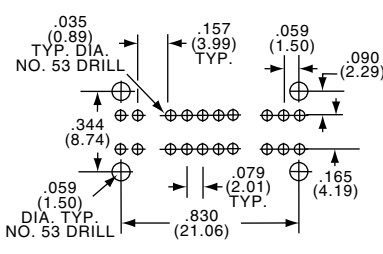
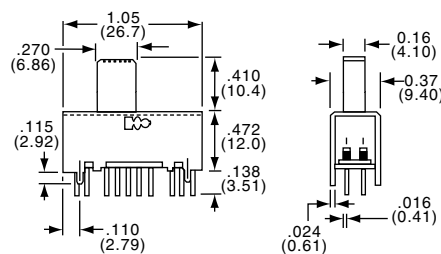
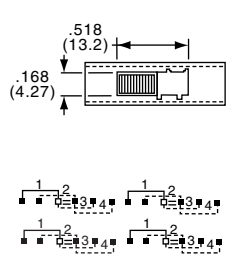
MSSA4350

Tyco Electronics	Alcoswitch	Plating	Mounting Style
6-1437580-9	MSSA4350	Silver	Upright
7-1437580-0	MSSA4350G	Gold	Upright



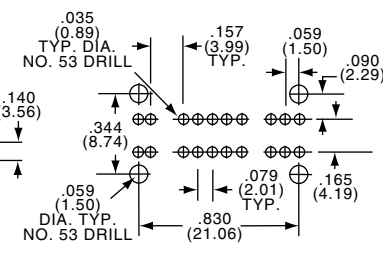
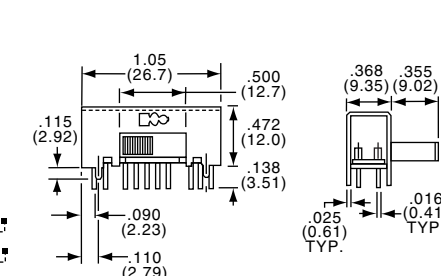
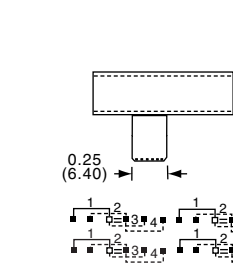
MSSA4350R

Tyco Electronics	Alcoswitch	Plating	Mounting Style
7-1437580-1	MSSA4350R	Silver	Rt. Angle
7-1437580-2	MSSA4350RG	Gold	Rt. Angle



MSSA4450

Tyco Electronics	Alcoswitch	Plating	Mounting Style
7-1437580-3	MSSA4450	Silver	Upright
7-1437580-4	MSSA4450G	Gold	Upright



MSSA4450R

Tyco Electronics	Alcoswitch	Plating	Mounting Style
7-1437580-5	MSSA4450R	Silver	Rt. Angle
7-1437580-6	MSSA4450RG	Gold	Rt. Angle

Slide Switches, Instrumentation Grade, .200 Terminal Spacing

MATERIAL SPECIFICATIONS:

ContactsSilver clad or gold plate
Case MaterialPolyester
Actuator MaterialPolyamide
TerminalsGold or silver plate
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +149°F (-20°C to +65°C)
Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
Solder Heat Resistance.....See page M3-4

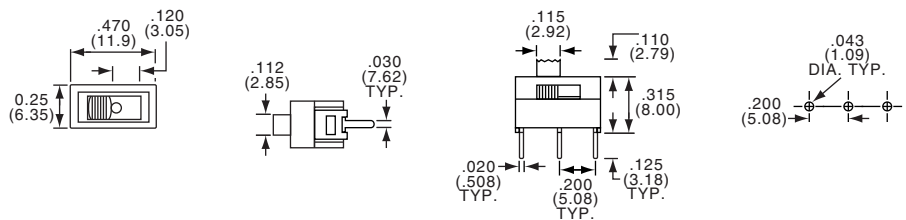
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA max. 20 VDC or peak AC
Silver: 3 A @ 115 VAC, 1.5A @ 230 VAC
Initial Contact Resistance20 Milliohms max.
Contact TimingNon-shorting
Insulation Resistance1,000 Megohms @ 500 VDC min.
Dielectric Strength500 Volts RMS @ sea level
Actuation Force600 ±300 Grams
Actuator Travel......120" (3.05) Approximate
Life ExpectancyUp to 30,000 Cycles

SPDT



MSSA114D

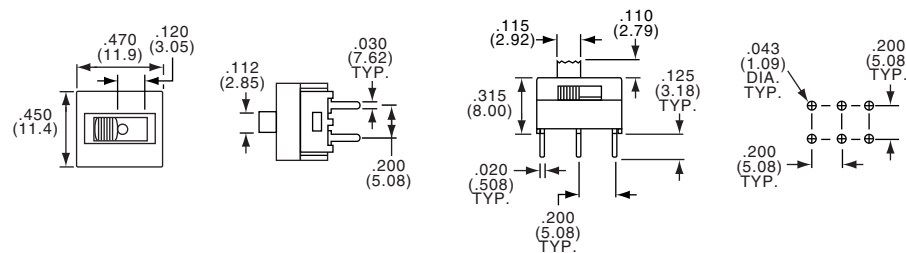


Tyco Electronics	Alcoswitch	Act. Code	Pg. M5	On	Off	Contacts
2-1437580-9	MSSA111DG	D	On	None	On	Gold
3-1437580-0	MSSA111EG	E	On	Off	On	Gold
3-1437580-1	MSSA114D	D	On	None	On	Silver
3-1437580-2	MSSA114E	E	On	Off	On	Silver

DPDT



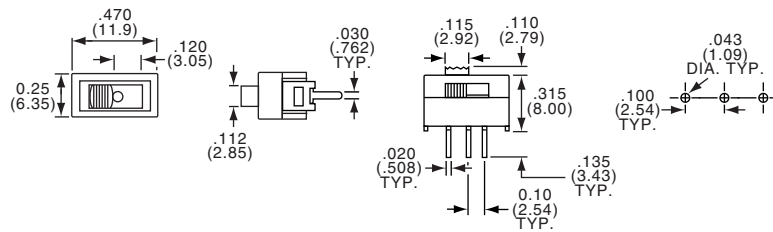
MSSA214N



Tyco Electronics	Alcoswitch	Act. Code	Pg. M5	On	Off	Contacts
4-1437580-9	MSSA211NG	N	On	None	On	Gold
5-1437580-2	MSSA214N	N	On	None	On	Silver

Slide Switches, Instrumentation Grade, .100 Terminal Spacing

SEE PAGE B30 FOR PRODUCT SPECIFICATIONS

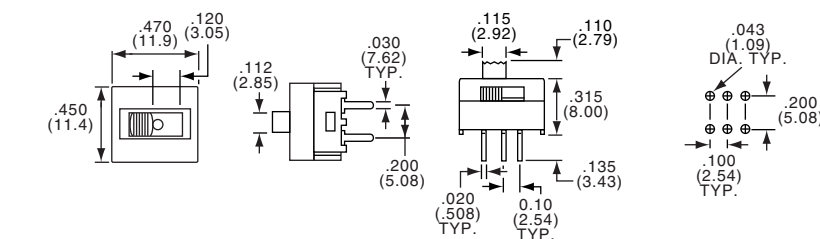


SPDT



MSSA104D

Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
1-1437580-7	MSSA101DG	D		On	None	On	Gold
—	MSSA101EG	E		On	Off	On	Gold
2-1437580-3	MSSA104D	D		On	None	On	Silver
2-1437580-6	MSSA104E	E		On	Off	On	Silver

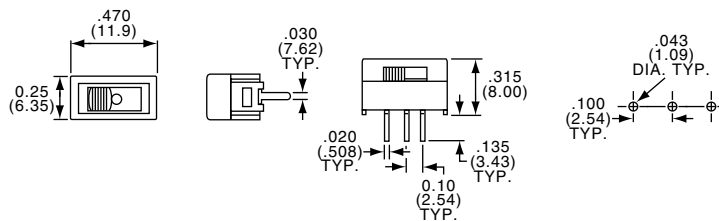


DPDT



MSSA204N

Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
4-1437580-4	MSSA204N	N		On	None	On	Silver

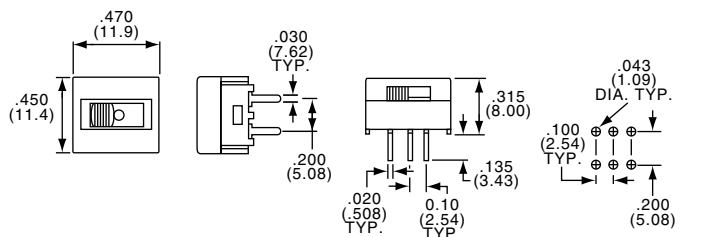


SPDT FLUSH ACTUATOR



MSSA104D1

Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
2-1437580-4	MSSA104D1	D		On	None	On	Silver



DPDT FLUSH ACTUATOR



MSSA204N1

Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
4-1437580-5	MSSA204N1	N		On	None	On	Silver
4-1437580-8	MSSA204P1	P		On	Off	On	Silver

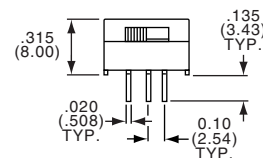
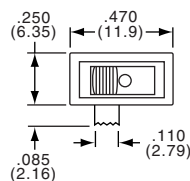
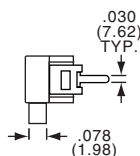
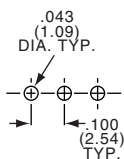
Slide Switches, Instrumentation Grade, .100 Terminal Spacing

SEE PAGE B30 FOR PRODUCT SPECIFICATIONS

SPDT



MSSA101DGRA

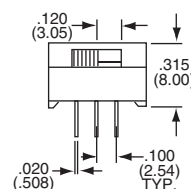
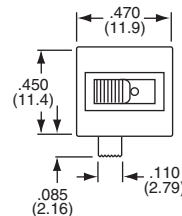
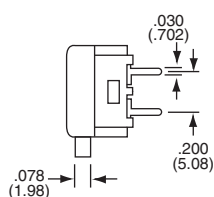
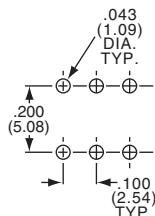


Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
1-1437580-9	MSSA101DGRA	D	On	None	On	Gold	Gold
2-1437580-1	MSSA101EGRA	E	On	Off	On	Gold	Gold
2-1437580-5	MSSA104DRA	D	On	None	On	Silver	Silver
2-1437580-8	MSSA104ERA	E	On	Off	On	Silver	Silver

DPDT



MSSA204NRA



Tyco Electronics	Alcoswitch	Act. Code	Pg. M5				Contacts
4-1437580-2	MSSA201NGRA	N	On	None	On	Gold	Gold
8-1437580-2	MSSA201PGRA	P	On	Off	On	Gold	Gold
4-1437580-6	MSSA204NRA	N	On	None	On	Silver	Silver
—	MSSA204PRA	P	On	Off	On	Silver	Silver

Slide Switches, Low Profile, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsGold or silver over nickel over Cu alloy
 Frame MaterialNickel plated, Steel
 Actuator MaterialPOM 94 HB
 Terminals/Fixed Contacts.....Gold or silver over nickel over Cu alloy
 Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

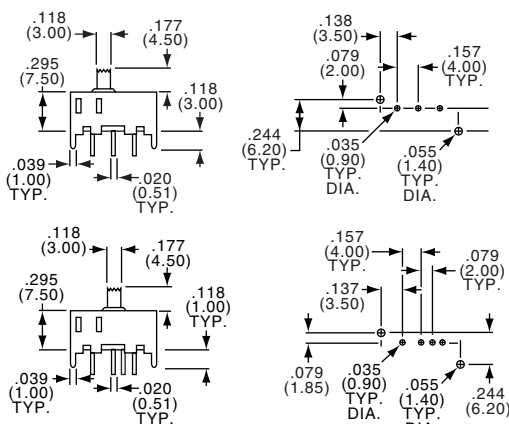
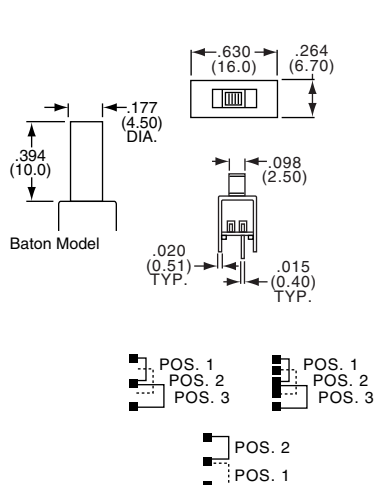
Operating Temperature.....-4°F to +212°F (-20°C to +100°C)
 Storage Temperature.....-40°F to +212°F (-40°C to + 100°C)
 Solder Heat ResistanceSee page M3-4
 Recommended Cleaning.....No chlorine base or Freon can be used.
 Aqueous or 100% ethanol.

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA 20 VDC or peak AC
 Silver: 300 mA @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingMake-before-break
 Insulation Resistance1000 Megohms min.
 Dielectric Strength500 Volts RMS @ sea level
 Actuation Force50 to 450 Grams
 Actuator Travel.....0.079"- .158" (2.01-4.01)
 Life ExpectancyUp to 15,000 Cycles

B

MHS Series



SPDT/SP3T

Standard



MHS122

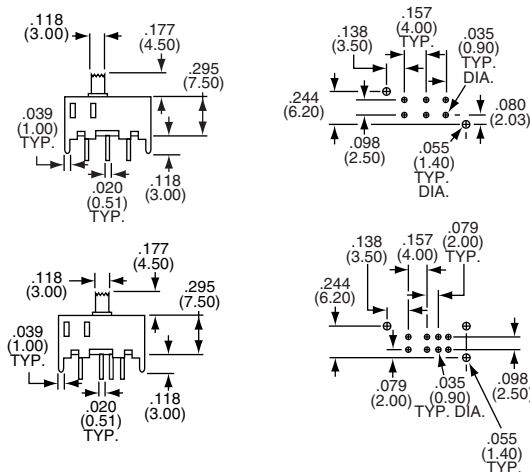
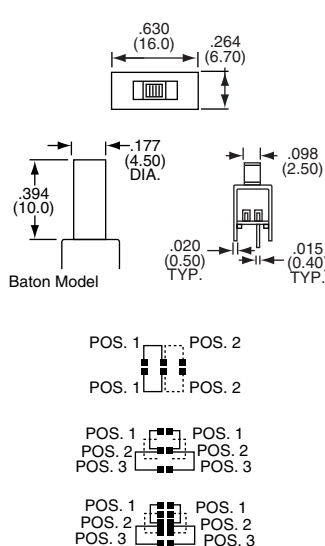


MHS122K

MHS122
MHS123

MHS133

Standard Model Tyco Electronics	Alcoswitch	Baton Model Tyco Electronics	Alcoswitch	Type				Contacts
1437576-9	MHS122	1-1437576-2	MHS122K	SPDT	On	None	On	Silver
1-1437576-5	MHS123	1-1437576-7	MHS123K	SPDT	On	Off	On	Silver
1-1437576-9	MHS133	2-1437576-2	MHS133K	SP3T	On	On	On	Silver
1-1437576-0	MHS122G	1-1437576-3	MHS122KG	SPDT	On	None	On	Gold
	MHS123G		MHS123KG	SPDT	On	Off	On	Gold
2-1437576-0	MHS133G	2-1437576-3	MHS133KG	SP3T	On	On	On	Gold



DPDT/DP3T

Standard



MHS233



MHS233K

MHS222
MHS223

MHS233

Standard Model Tyco Electronics	Alcoswitch	Baton Model Tyco Electronics	Alcoswitch	Type				Contacts
2-1437576-5	MHS222	2-1437576-8	MHS222K	DPDT	On	None	On	Silver
3-1437576-1	MHS223	3-1437576-4	MHS223K	DPDT	On	Off	On	Silver
3-1437576-6	MHS233	3-1437576-9	MHS233K	DP3T	On	On	On	Silver
2-1437576-6	MHS222G	2-1437576-9	MHS222KG	DPDT	On	None	On	Gold
3-1437576-2	MHS223G		MHS223KG	DPDT	On	Off	On	Gold
3-1437576-7	MHS233G	4-1437576-0	MHS233KG	DP3T	On	On	On	Gold

Slide Switches, Low Profile, Right Angle, Instrumentation Grade

SEE PAGE B33 FOR PRODUCT SPECIFICATIONS

B

MHS Series

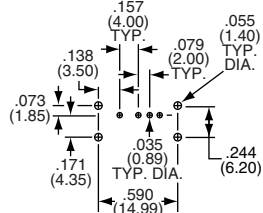
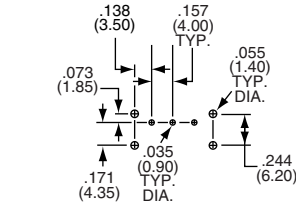
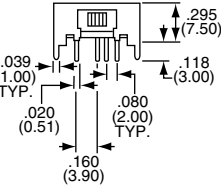
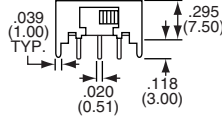
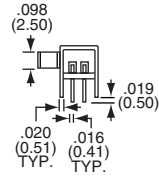
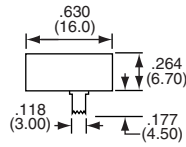
SPDT/SP3T



MHS122RA

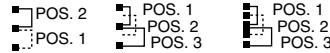


MHS133GRA



MHS122/123

MHS133



Tyco Electronics	Alcoswitch	Type	On	Off	On	Contacts
1-1437576-4	MHS122RA	SPDT	On	None	On	Silver
1-1437576-8	MHS123RA	SPDT	On	Off	On	Silver
2-1437576-4	MHS133RA	SP3T	On	On	On	Silver
1-1437576-1	MHS122GRA	SPDT	On	None	On	Gold
1-1437576-6	MHS123GRA	SPDT	On	Off	On	Gold
2-1437576-1	MHS133GRA	SP3T	On	On	On	Gold

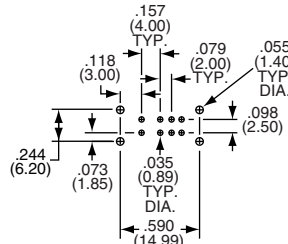
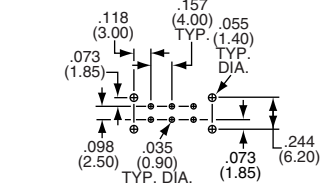
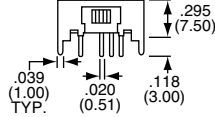
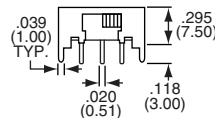
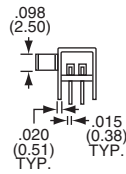
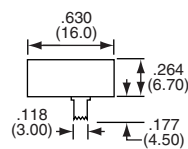
DPDT/DP3T



MHS222RA

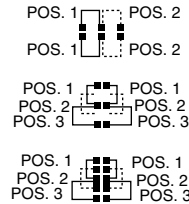


MHS233GRA



MHS222/223

MHS233



Tyco Electronics	Alcoswitch	Type	On	Off	On	Contacts
3-1437576-0	MHS222RA	DPDT	On	None	On	Silver
3-1437576-5	MHS223RA	DPDT	On	Off	On	Silver
4-1437576-1	MHS233RA	DP3T	On	On	On	Silver
2-1437576-7	MHS222GRA	DPDT	On	None	On	Gold
3-1437576-3	MHS223GRA	DPDT	On	Off	On	Gold
3-1437576-8	MHS233GRA	DP3T	On	On	On	Gold

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver clad plate over copper alloy
 Cover Base MaterialPolyester
 Actuator MaterialPolyacetal
 TerminalsSilver over nickel plate over copper alloy
 Terminal SealMolded in

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....-4°F to +140°F (-20°C to +60°C)
 Solder Heat Resistance270°C+10°C, 5 seconds per MIL-STD-202,
 Method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating100 Milliamps @ 12 VDC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingMake before break
 Insulation Resistance100 Megohms min.
 Dielectric Strength500 Volts RMS @ sea level
 Actuation Force250 Grams, (+200g, -150g)
 Actuator Travel.....0.079" (2.01)
 Life ExpectancyUp to 10,000 Cycles

B

SSJ Series

PCB Hole Layout

Circuit Diagram

SPDT

SSJ12

Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437575-1	SSJ12	Silver	Upright

PCB Hole Layout

Circuit Diagram

SPDT

SSJ12R

Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437575-2	SSJ12R	Silver	Right Angle

PCB Hole Layout

Circuit Diagram

SP3T

SSJ13

Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
3-1437575-3	SSJ13	Silver	Upright

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver over nickel over copper alloy
Case MaterialPolyacetal UL94HB
Actuator MaterialPolyester UL94HB
TerminalsSilver over nickel over copper alloy
Terminal SealEpoxy
Terminal Board.....UL 94 V-O

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
Storage Temperature.....+14°F to +140°F (-10°C to +60°C)
Solder Heat Resistance230 ± 150 grams ± 5°C for 3 seconds per MIL-STD-202, Method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating100 mA @ 30 VDC or peak AC
Initial Contact Resistance30 Milliohms max.
Contact TimingMake before break
Insulation Resistance100 Megohms min.
Dielectric Strength500 VAC
Actuation Force200 ± 150 Grams
Life ExpectancyUp to 10,000 Cycles

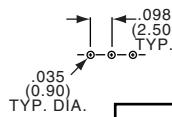
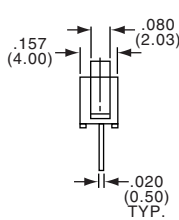
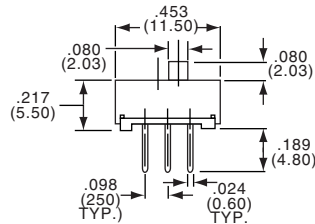
B

MMS Series

SPDT



MMS12



Circuit Diagram

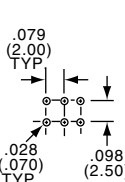
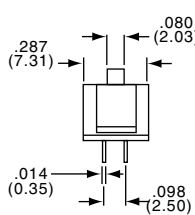
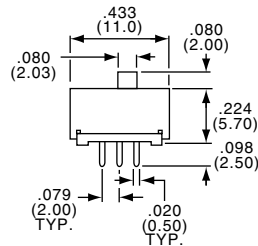


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1437575-4	MMS12	SPDT	Silver	Upright

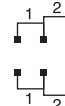
DPDT



MMS22



Circuit Diagram

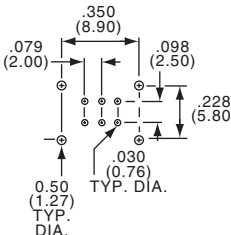
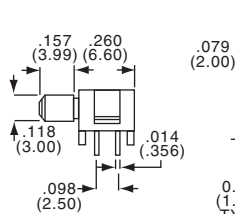
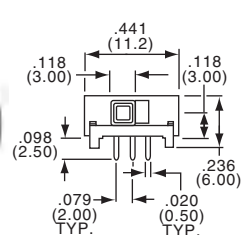


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1437575-5	MMS22	DPDT	Silver	Upright

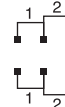
DPDT



MMS22R



Circuit Diagram

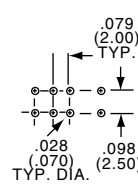
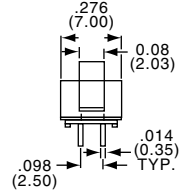
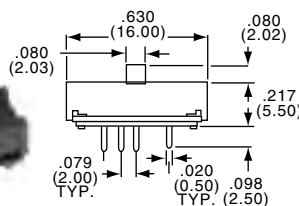


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1437575-6	MMS22R	DPDT	Silver	Right Angle

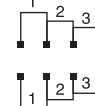
DP3T



MMS23



Circuit Diagram

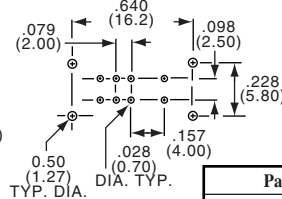
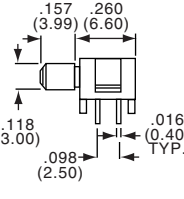
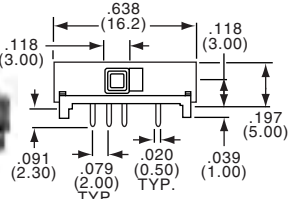


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1437575-8	MMS23	DP3T	Silver	Upright

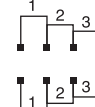
DP3T



MMS23R



Circuit Diagram

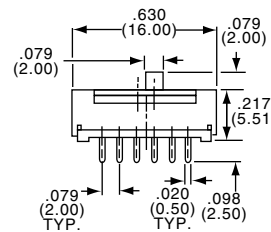
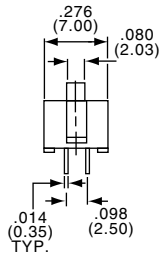
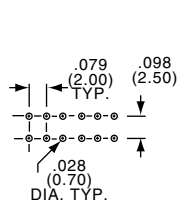
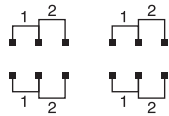


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1437575-9	MMS23R	DP3T	Silver	Right Angle

Slide Switches, Micro Size, Instrumentation Grade

SEE PAGE B36 FOR PRODUCT SPECIFICATIONS

Circuit Diagram

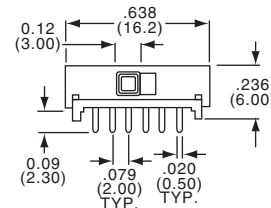
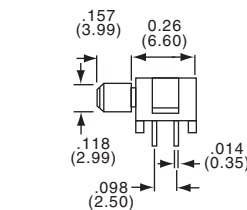
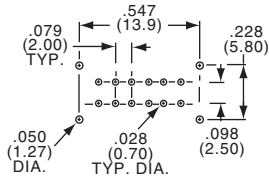
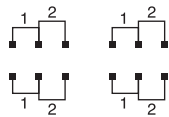


MMS42

4PDT

Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1-1437575-0	MMS42	4PDT	Silver	Upright

Circuit Diagram

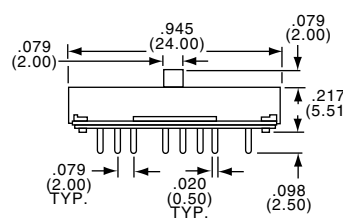
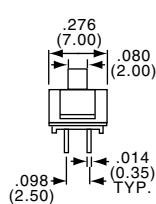
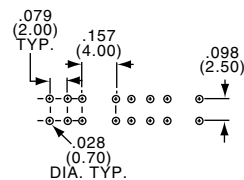
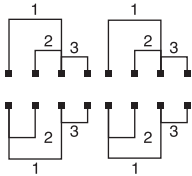


MMS42R

4PDT

Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1-1437575-1	MMS42R	4PDT	Silver	Right Angle

Circuit Diagram

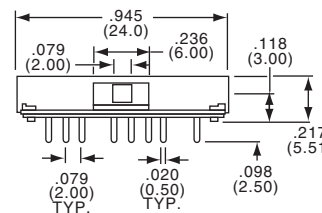
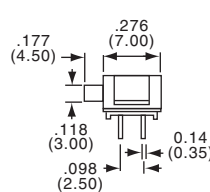
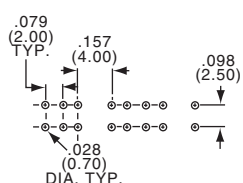
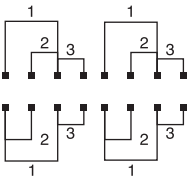


MMS43

4P3T

Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1-1437575-2	MMS43	4P3T	Silver	Upright

Circuit Diagram



MMS43R

4P3T

Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1-1437575-3	MMS43R	4P3T	Silver	Right Angle

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsGold or silver plate over nickel plate
Case MaterialSteel, tin plate
Actuator MaterialPolyacetal UL94HB
TerminalsGold or silver plate over nickel plate
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
Solder Heat Resistance.....+260°C (+500°F) for 5 seconds
per MIL-STD-202, Method 210

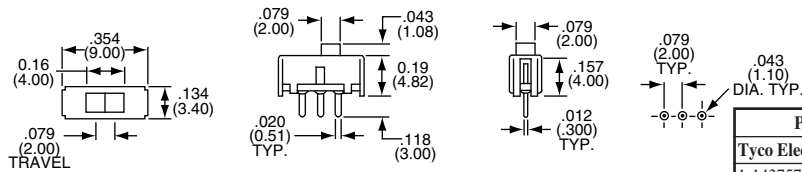
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 VDC or peak AC
Silver: 100 mA @ 30 VDC
Initial Contact Resistance.....30 Milliohms max.
Contact Timing.....Make before break
Insulation Resistance100 Megohms min.
Dielectric Strength500 VAC
Actuation Force250 ± 150 Grams
Life ExpectancyUp to 10,000 Cycles
Travel0.079" (2.01)

SPDT



SSB12



Circuit Diagram

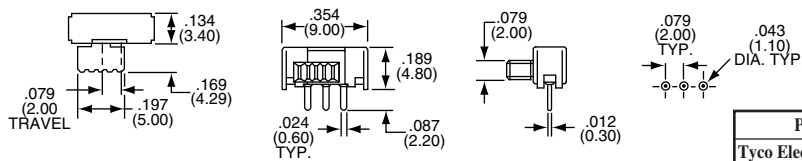


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
1-1437575-8	SSB12	SPDT	Silver	Upright
1-1437575-9	SSB12G	SPDT	Gold	Upright

SPDT



SSB12R



Circuit Diagram

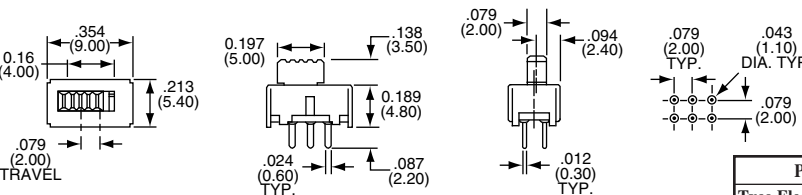


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
2-1437575-0	SSB12R	SPDT	Silver	Right Angle
2-1437575-1	SSB12RG	SPDT	Gold	Right Angle

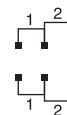
DPDT



SSB22



Circuit Diagram

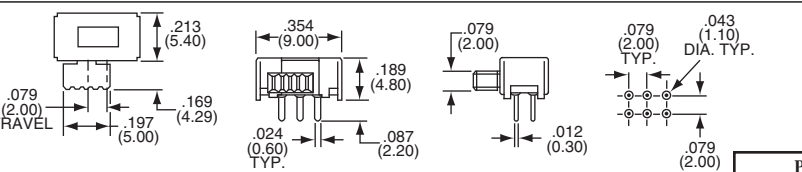


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
2-1437575-2	SSB22	DPDT	Silver	Upright
2-1437575-3	SSB22G	DPDT	Gold	Upright

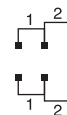
DPDT



SSB22R



Circuit Diagram

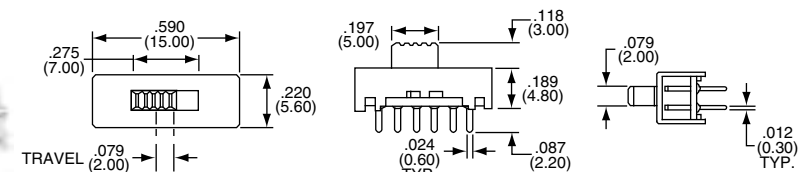


Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
2-1437575-4	SSB22R	DPDT	Silver	Right Angle
2-1437575-5	SSB22RG	DPDT	Gold	Right Angle

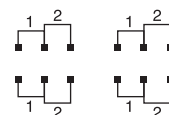
4PDT



SSB42



Circuit Diagram



Part Number				
Tyco Electronics	Alcoswitch	Type	Plating	Mounting Style
2-1437575-8	SSB42	4PDT	Silver	Upright
2-1437575-9	SSB42G	4PDT	Gold	Upright

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver or gold plate
Case MaterialPolyester PPS UL94VO
Actuator MaterialPolyamide UL94HB
Cover MaterialPolyamide UL94HB
TerminalsSilver or gold plate
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
Storage Temperature.....-40°F to +194°F (-40°C to +90°C)
Solder Heat Resistance260°C (+500°F) for 5 seconds
per MIL-STD-202, Method 210

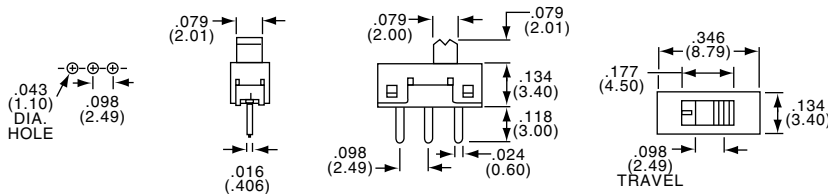
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA max. @ 20 VDC or peak AC
Silver: 100 Milliamps @ 30 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak-Before-Make
Insulation Resistance100 Megohms min.
Dielectric Strength500 VAC
Actuation Force250 ± 100 Grams
Actuator Travel.....0.098" (2.49)
Life ExpectancyUp to 10,000 Cycles

B

SSA Series

SPDT



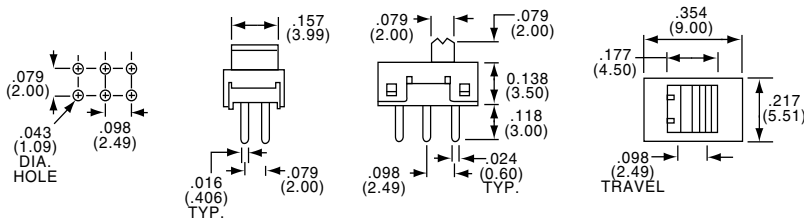
SSA12

Circuit Diagram



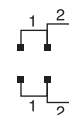
Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
1-1437575-4	SSA12	Silver	Upright
1-1437575-5	SSA12G	Gold	Upright

DPDT



SSA22

Circuit Diagram



Part Number			
Tyco Electronics	Alcoswitch	Plating	Mounting Style
1-1437575-6	SSA22	Silver	Upright
1-1437575-7	SSA22G	Gold	Upright

Slide Switches, PC Tails, Wiping Contact, Consumer Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate over copper alloy
Case MaterialSteel
Actuator MaterialPolycarbonate
Terminals/Fixed Contacts.....Silver plate over copper alloy
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....14°F to +140°F (-10°C to +60°C)
Storage Temperature.....14°F to +140°F (-10°C to +60°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

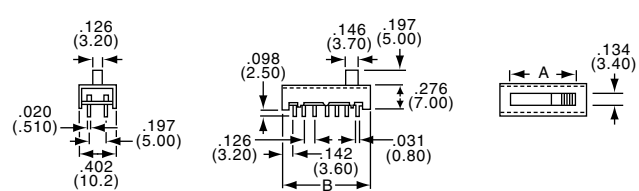
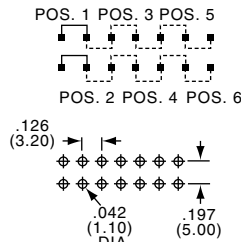
Contact Rating250 mA @ 125 VAC, 150 mA @ 12 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak before make
Insulation Resistance500 Megohms min.
Dielectric Strength500 VAC
Actuation Force100-300 Grams
Actuator Travel.....0.126" (3.20)
Life ExpectancyUp to 10,000 Cycles

2 TO 6 POSITIONS



SLS250PC

SLS220PC



SLS240PCA

SLS230PC

Part Number		Type	Dim.A	Dim.B
Tyco Electronics	Alcoswitch			
3-1437577-9	SLS220PC	2 Positions	.272(6.91)	.535(13.59)
4-1437577-1	SLS230PC	3 Positions	.398(10.11)	.661(16.79)
4-1437577-3	SLS240PCA	4 Positions	.524(13.31)	.787(19.99)
4-1437577-5	SLS250PC	5 Positions	.650(16.51)	.913(23.19)
4-1437577-7	SLS260PC	6 Positions	.776(19.71)	1.039(26.39)

SL Series

Slide Switches, PC Tails, Lever or Knob Actuator

2 TO 10 POSITIONS



SL660
(with KSS KNOB)

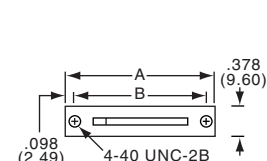
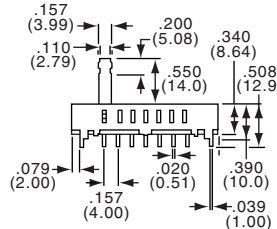
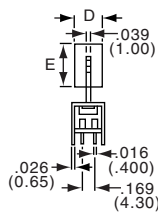
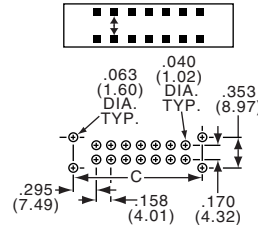


SL550



SL770

CONTACT ARRANGEMENT



Part Number		Type	Dim. A	Dim. B	Dim. C	Knob Only	Description	Dim. D	Dim. E
Tyco Electronics	Alcoswitch								
1437577-9	SL220	2 Positions	.95(24.13)	.750(19.05)	.750(19.05)	KSS10A	Aluminum-Clear Anodize	.270(6.86)	.500(12.70)
1-1437577-0	SL330	3 Positions	1.11(28.19)	.910(23.1)	.910(23.1)	KSS10B	Aluminum-Black Anodize	.270(6.86)	.500(12.70)
1-1437577-1	SL550	5 Positions	1.42(36.07)	1.22(30.99)	1.22(31.1)	KSS20A	Aluminum-Clear Anodize	.305(7.75)	.512(13.00)
1-1437577-2	SL660	6 Positions	1.58(40.13)	1.38(35.05)	1.38(35.1)	KSS20B	Aluminum-Black Anodize	.305(7.75)	.512(13.00)
1-1437577-3	SL770	7 Positions	1.74(44.20)	1.54(39.12)	1.54(39.1)				
1-1437577-4	SL880	8 Positions	1.89(48.01)	1.70(43.18)	1.70(43.1)				
1437577-8	SL1000	10 Positions	2.21(56.13)	2.01(51.05)	2.01(51.5)				

Slide Switches, Panel Mount, Wiping Contact, Consumer Grade

MATERIAL SPECIFICATIONS:

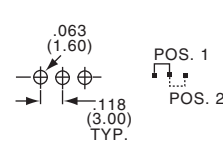
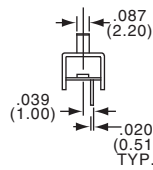
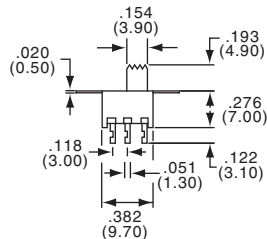
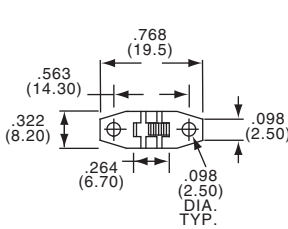
ContactsSilver over nickel plate copper alloy
Case MaterialSteel-zinc plated
Actuator MaterialPBT 30% glass
Terminals/Fixed Contacts.....Silver over nickel plate copper alloy
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
Solder Heat Resistance+300°C (+572°F) for 5 seconds

TYPICAL PERFORMANCE CHARACTERISTICS:

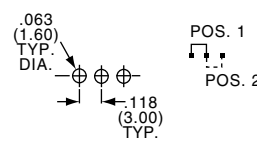
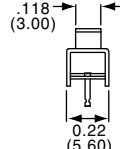
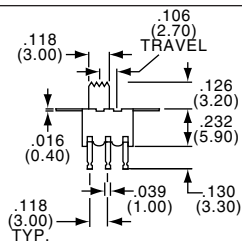
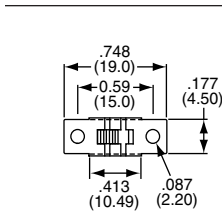
Contact Rating500 mA @ 125 VAC, 200 mA @ 12 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak-Before-Make
Insulation Resistance500 Megohms min.
Dielectric Strength500 VAC
Actuation ForceSLS: 100-300 Grams; SLSA: 220, 300 -500 Grams
Plunger/Actuator Travel:0.106" (2.69)
Life ExpectancyUp to 10,000 Cycles



SPDT

SLS120

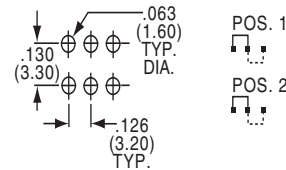
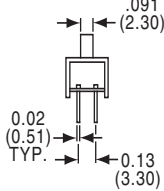
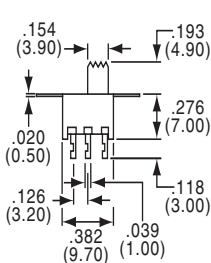
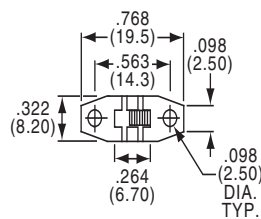
Part Number					
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals	Contacts
1-1437577-5	SLS120	SPDT	Panel	Lug	



SPDT

SLSA120

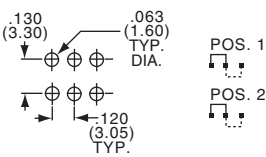
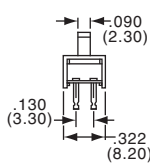
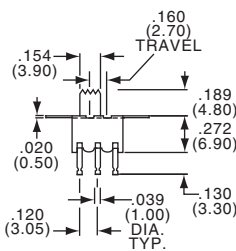
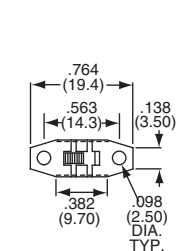
Part Number					
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals	Contacts
5-1437577-3	SLSA120	SPDT	Panel	Turret	



DPDT

SLS220

Part Number					
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals	Contacts
3-1437577-7	SLS220	DPDT	Panel	Lug	



DPDT

SLSA220

Part Number					
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals	Contacts
5-1437577-5	SLSA220	DPDT	Panel	Turret	

Slide Switches, Wiping Contacts, Consumer Grade

MATERIAL SPECIFICATIONS:

ContactsCopper alloy-silver/nickel
Case MaterialSteel-zinc plate
Actuator MaterialPBT 30% Glass
Terminals/Fixed Contacts.....Copper, alloy, silver/nickel plate
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-40°F to +212°F (-40°C to +100°C)
Solder Heat Resistance+300°C (+572°F) for 5 seconds

TYPICAL PERFORMANCE CHARACTERISTICS:

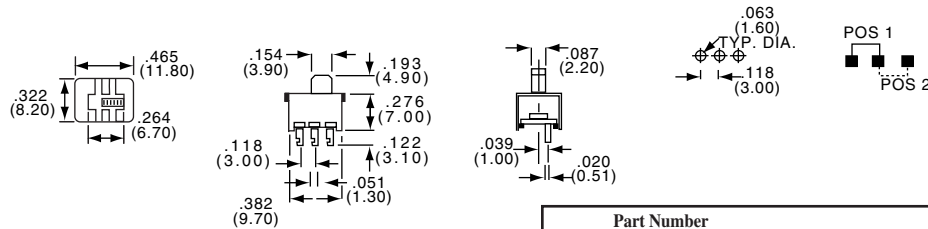
Contact Rating500 mA @ 125 VAC, 200 mA @ 12 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak before make
Insulation Resistance500 Megohms min.
Dielectric Strength500 VAC
Actuation Force350±150 Grams
Plunger/Actuator Travel:0.106 (2.69)
Life ExpectancyUp to 10,000 Cycles

SPDT



Lug

SLS1201



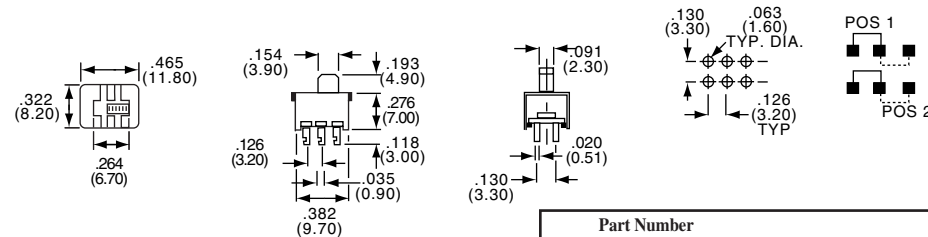
Part Number				
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals Contacts
1-1437577-6	SLS1201	SPDT	PC	Lug

DPDT



Lug

SLS2201



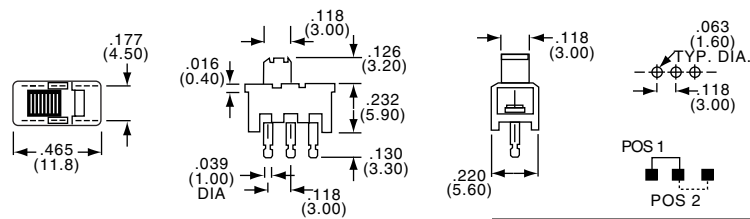
Part Number				
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals Contacts
3-1437577-8	SLS2201	DPDT	PC	Lug

SPDT



Turret

SLSA1201



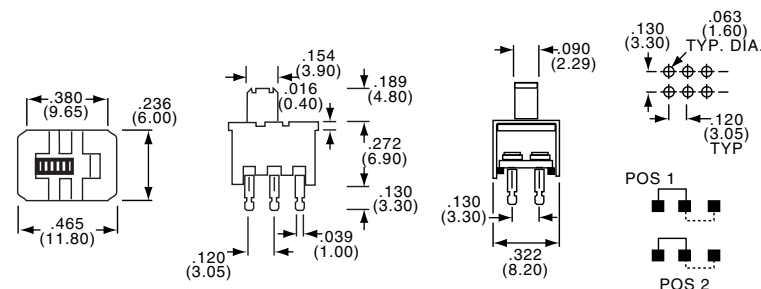
Part Number				
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals Contacts
5-1437577-4	SLSA1201	SPDT	PC	Turret

DPDT



Turret

SLSA2201



Part Number				
Tyco Electronics	Alcoswitch	Type	Mounting	Terminals Contacts
5-1437577-6	SLSA2201	DPDT	PC	Turret

Slide Switches, Miniature, Rolling Contact, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver over nickel plate over copper alloy
Case MaterialTin plate over steel
Actuator MaterialPolycarbonate
Terminals/Fixed Contacts.....Silver over nickel plate over copper alloy

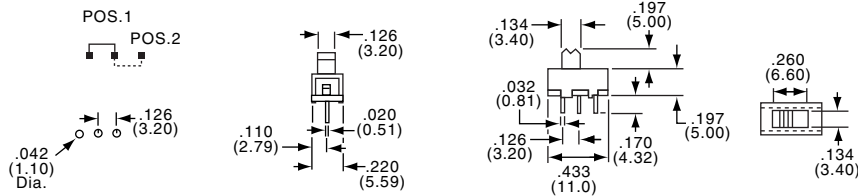
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....14°F to +185°F (-10°C to +85°C)
Storage Temperature.....14°F to +185°F (-10°C to +85°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating250 mA @ 125 VAC, 150 mA @ 12 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak before make
Insulation Resistance500 Megohms min.
Dielectric Strength500 VAC
Actuation Force340 ± 57 Grams
Actuator Travel.....0.126" (3.20)
Life ExpectancyUp to 6,000 to 10,000 Cycles

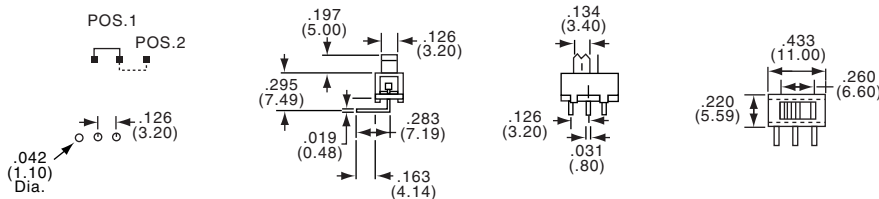
SPDT



SLS121PC

Part Number		
Tyco Electronics	Alcoswitch	Mounting Style
1-1437577-9	SLS121PC	Printed Circuit

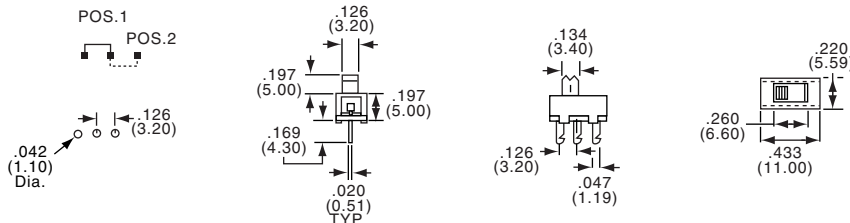
SPDT



SLS121RA

Part Number		
Tyco Electronics	Alcoswitch	Mounting Style
2-1437577-2	SLS121RA	Right Angle PC

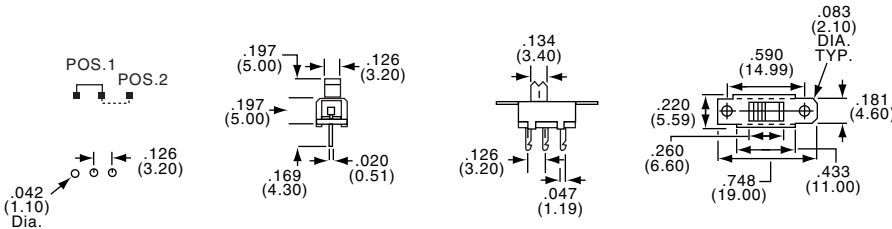
SPDT



SLS1211

Part Number		
Tyco Electronics	Alcoswitch	Mounting Style
1-1437577-8	SLS1211	Printed Circuit

SPDT



SLS121

Part Number		
Tyco Electronics	Alcoswitch	Mounting Style
1-1437577-7	SLS121	Panel Mounted

Slide Switches, Miniature, Rolling Contact, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver over nickel flash over copper alloy
Case MaterialSteel
Actuator MaterialPolycarbonate
Terminals/Fixed Contacts.....Silver over nickel over copper alloy

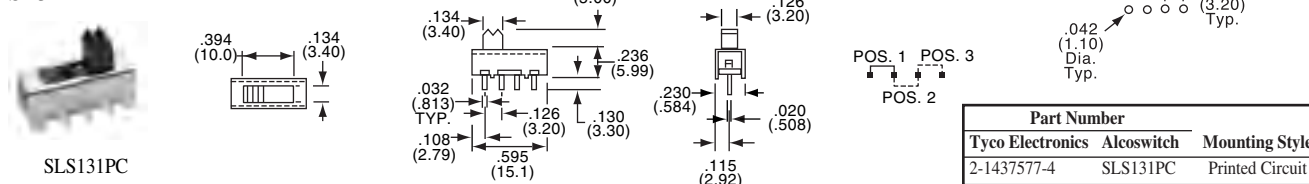
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +185°F (-10°C to +85°C)
Storage Temperature.....+14°F to +185°F (-10°C to +85°C)
Solder Heat Resistance+260°C for 5 seconds

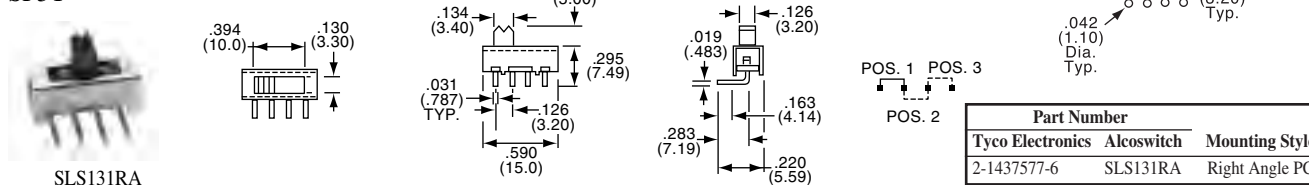
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating250mA @ 125 VAC
150mA @ 12VDC
Initial Contact Resistance20 Milliohms max.
Contact TimingBreak-Before-Make
Insulation Resistance>50 Megohms.
Dielectric Strength500 Volts RMS @ sea level
Actuation Force340 ± 57 Grams
Plunger/Actuator Travel:0.260" to 0.512" (6.60-13.00)
Life ExpectancyUp to 10,000 Cycles at no load

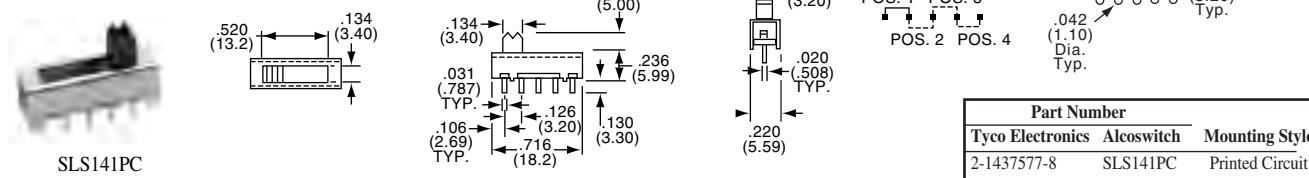
SP3T



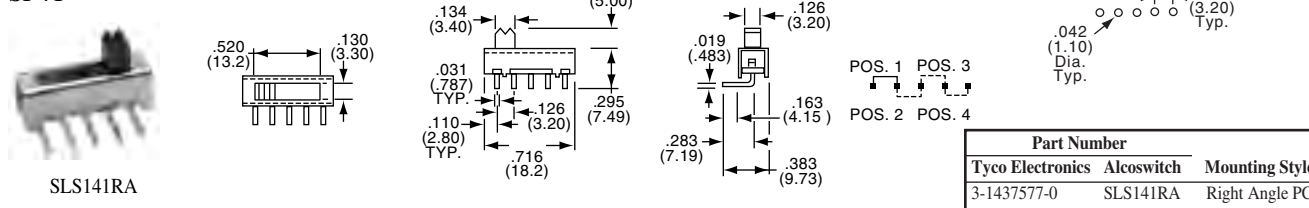
SP3T



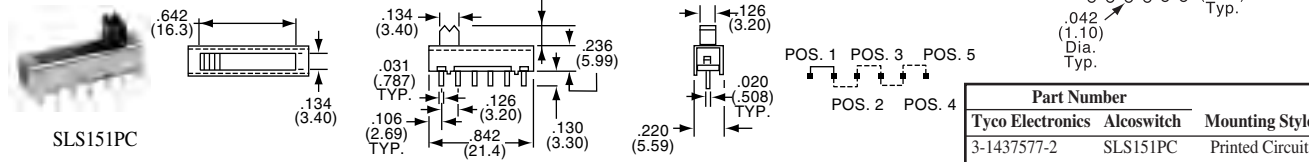
SP4T



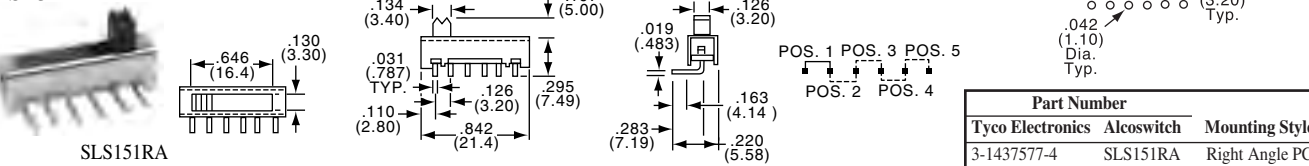
SP4T



SP5T



SP5T



Slide Switches, Baton-Toggle, Multi Pole

MATERIAL SPECIFICATIONS:

ContactsSilver clad over nickel plated copper alloy
Case MaterialSteel, tin plate
Actuator MaterialABS plastic/Aluminum cap
Terminals/Fixed Contacts.....Silver over nickel plated copper alloy
Terminal SealEpoxy

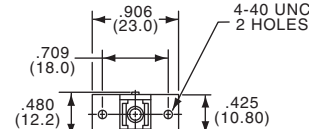
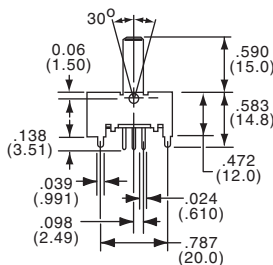
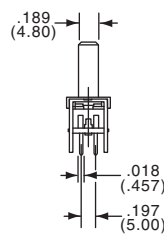
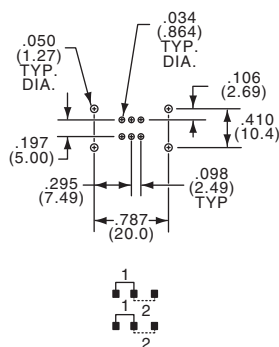
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+5°F to +131°F (-15°C to +55°C)
Storage Temperature.....-4°F to +140°F (-20°C to +60°C)
Solder Heat Resistance.....Hand: 300°C for 3 seconds
Wave: 250°C for 5 seconds

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating300 mA @ 125 VAC, 200 mA @ 12VDC
Initial Contact Resistance20 Milliohms max.
Contact TimingSee table below
Insulation Resistance500 Megohms min.
Dielectric Strength500 Volts RMS @ sea level
Actuation Force450 ± 250 Grams
Plunger/Actuator Travel30°
Life ExpectancyUp to 10,000 Cycles

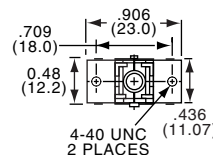
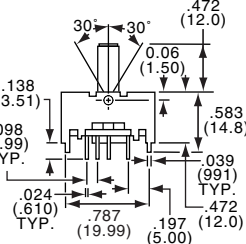
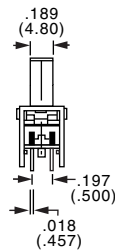
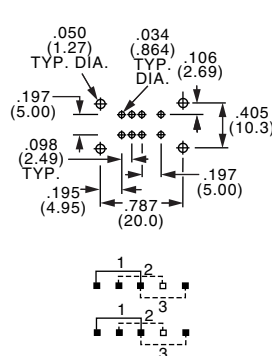
DPDT



CST022NK

Part Number					Contact Timing
Tyco Electronics	Alcoswitch				
1437576-2	CST022NK	None	On	On	Non Shorting - Break-Before-Make (On) indicates momentary position.

DP3T



CST023NK

Part Number					Contact Timing
Tyco Electronics	Alcoswitch				
1437576-4	CST023NK	On	On	On	Non Shorting

Slide Switches, Baton-Toggle, Multi Pole

SEE PAGE B45 FOR PRODUCT SPECIFICATIONS

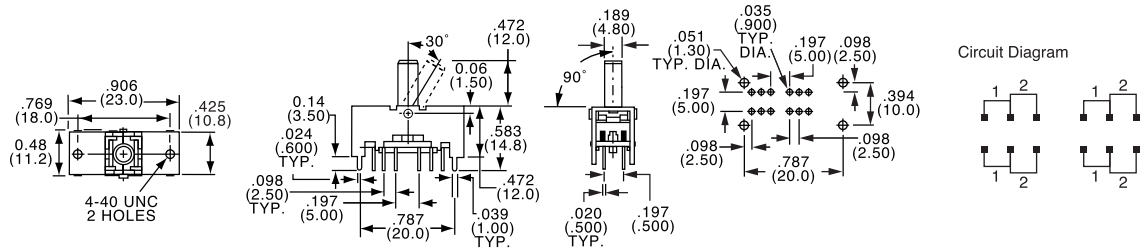
B

CST Series

4PDT



CST042NK

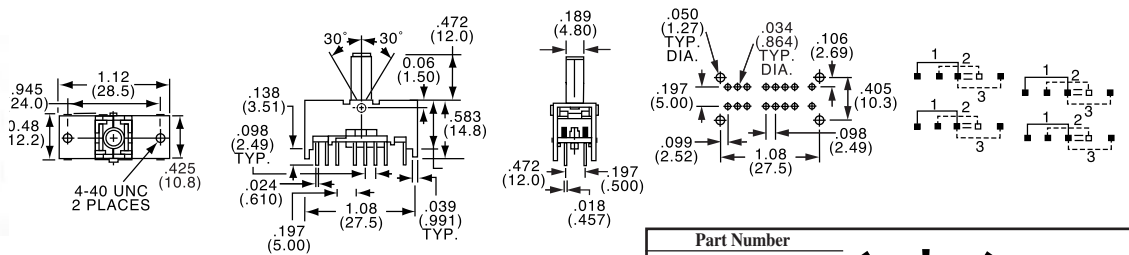


Part Number					Contact Timing
Tyco Electronics	Alcoswitch				
1437576-5	CST042NK	None	On	On	Non Shorting

4P3T



CST043NK

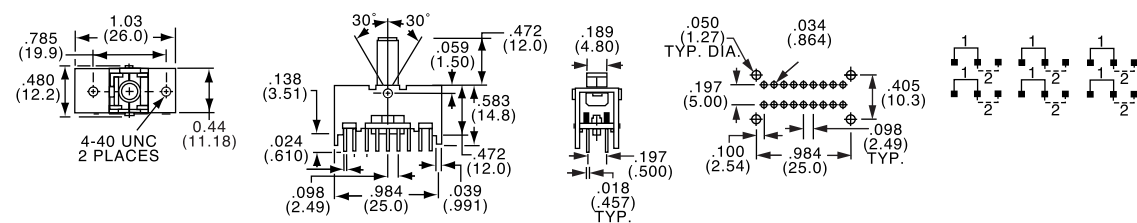


Part Number					Contact Timing
Tyco Electronics	Alcoswitch				
1437576-6	CST043NK	On	On	On	Non Shorting

6PDT



CST062NK



Part Number					Contact Timing
Tyco Electronics	Alcoswitch				
1437576-7	CST062NK	None	On	On	Non Shorting

Slide Switches, Miniature, Right Angle, Surface Mount

MATERIAL SPECIFICATIONS:

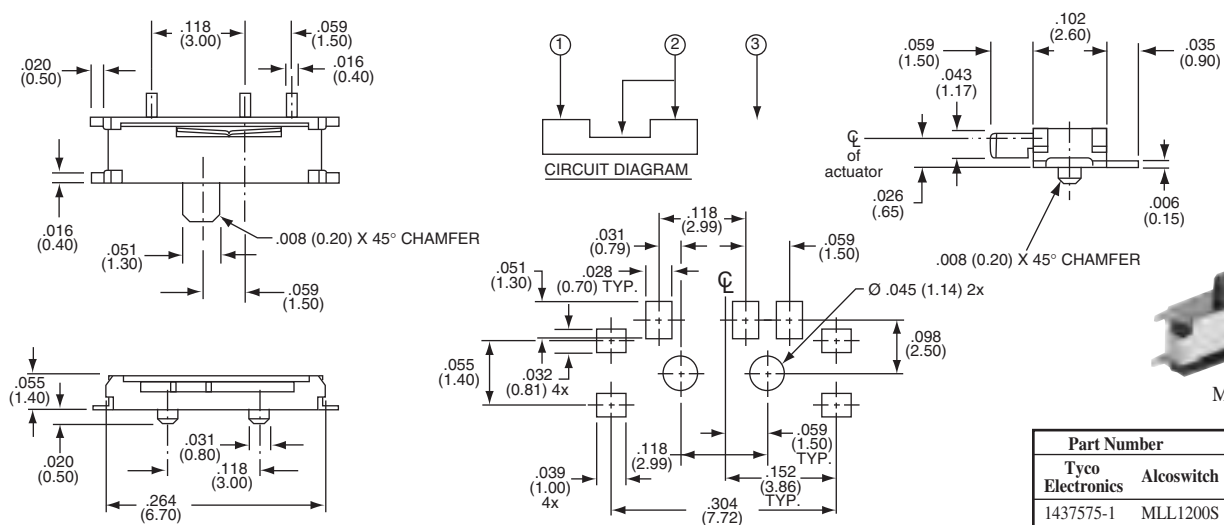
ContactsBeCu, copper alloy, 1 micron silver plate
Case Material40% G.F. PPS, UL94V-0
FrameStainless steel, silver plated
Actuator MaterialNylon, UL94HB polyamide
TerminalsBrass, copper alloy, 1 micron silver plate
Terminal Seal.....Epoxy

ENVIRONMENTAL SPECIFICATIONS:

HumidityMIL-STD-202, Method 103, Condition B
Moisture ResistanceMIL-STD-202, Method 106
Thermal ShockMIL-STD-202, Method 107, Condition A
Solder Heat Resistance ...230°C per EIA 364-56 Level 2

TYPICAL PERFORMANCE CHARACTERISTICS:

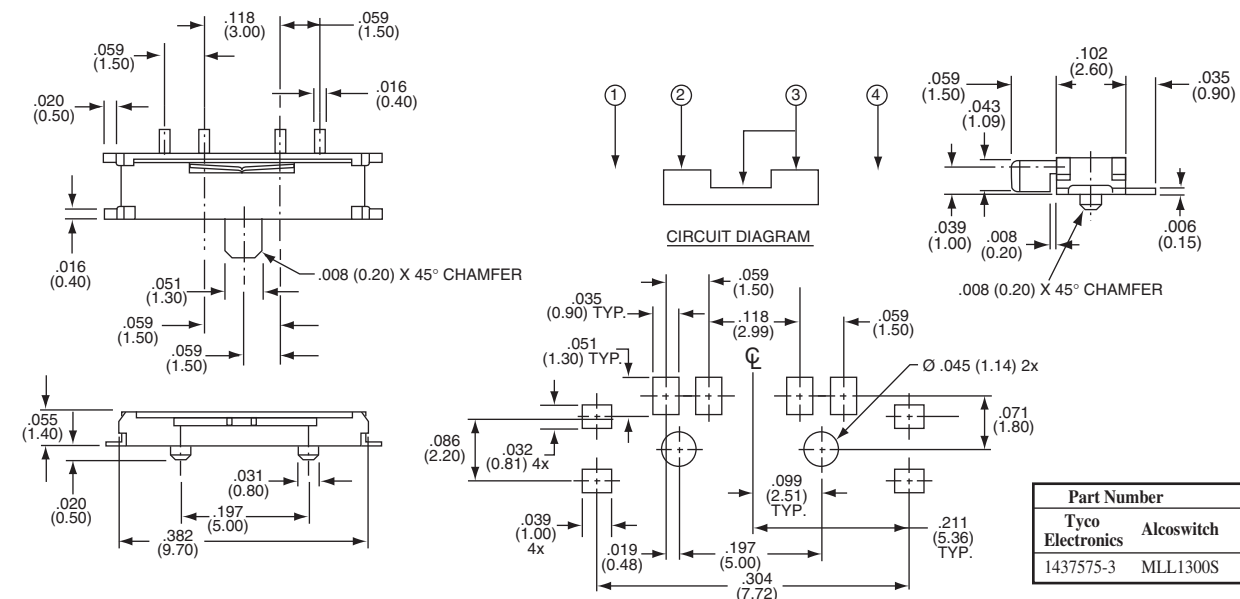
Contact Rating0.3 Amp, 4 VDC
Initial Contact Resistance70 Milliohms
Insulation Resistance100 Megohms min.
Dielectric Strength100 VAC min.
Actuation Force175 ±100 Grams
Life ExpectancyUp to 10,000 Cycles
Travel0.059 (1.5mm)



SPDT

MLL1200S

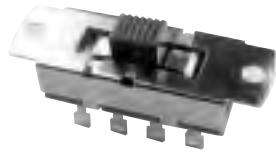
Part Number		
Tyco Electronics	Alcoswitch	Type
1437575-1	MLL1200S	SPDT
1437575-2	MLL1200STR	SPDT



SP3T

Part Number		
Tyco Electronics	Alcoswitch	Type
1437575-3	MLL1300S	SP3T

13 Amp & 6 Amp, Panel Mount



ENVIRONMENTAL SPECIFICATIONS:

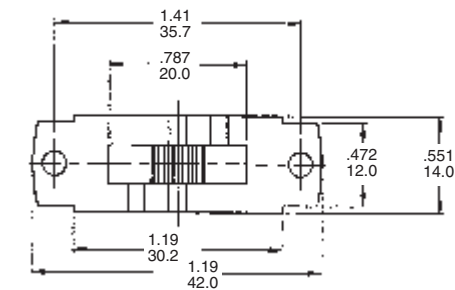
Operating Temperature ..-4°F to 149°F (-20° to +65°C)
Storage Temperature-13°F to 158°F (-25° to +70°C)
Solder Heat Resistance ..Per EIA-364-56A, Procedure 3, Condition B
SolderabilityPer EIA-364-52, Class 2, Category 1, 95% minimum coverage

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, silver plate
BoardPhenolic, UL94V0
FrameSteel, nickel plate
Actuator Material.....Nylon, UL94V-2
TerminalsCopper alloy, silver plate
Terminal SealEpoxy

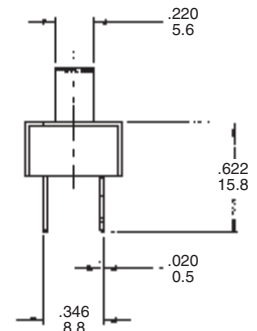
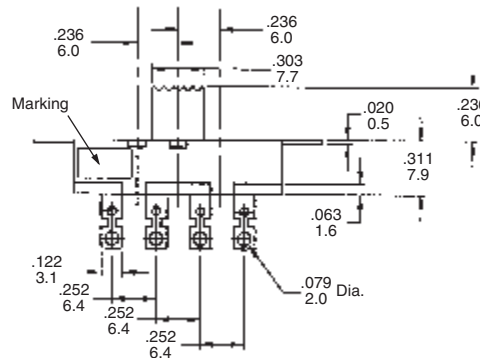
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating13 Amp, 125 VAC or 6.5 Amp, 250 VAC
Initial Contact Resistance.....50 Milliohms max.
Insulation Resistance100 Megohms min.
Dielectric Strength1200 VAC
Actuation Force100-900 Grams
Life ExpectancyUp to 5000 Cycles
Travel0.236 (6.0mm)



DP3T

Part Number 1571490-1



MATERIAL SPECIFICATIONS:

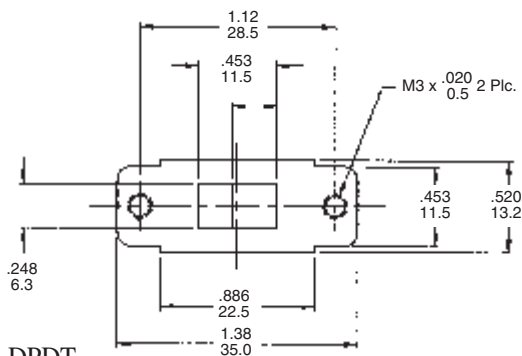
ContactsCopper alloy, silver plate
BoardPhenolic, UL94HB
FrameSteel, nickel plate
Actuator Material.....Polycarbonate, UL94V-2
TerminalsCopper alloy, silver plate
Terminal SealEpoxy

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating6 Amp, 125 VAC or 3 Amp, 250 VAC
Initial Contact Resistance.....50 Milliohms max.
Insulation Resistance100 Megohms min.
Dielectric Strength1800 VAC
Actuation Force500-900 Grams
Life Expectancy5000 Cycles
Travel0.197 (5.0mm)

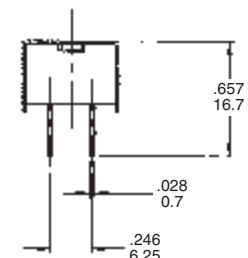
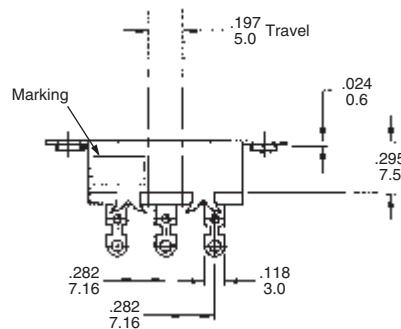
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature ..-4°F to 149°F (-20° to +65°C)
Storage Temperature-13°F to 158°F (-25° to +70°C)
Solder Heat Resistance ..Per EIA-364-56A, Procedure 3, Condition B
SolderabilityPer EIA-364-52, Class 2, Category 1, 95% minimum coverage



DPDT

Part Number 1571491-1





TST Series - Page C5



TT Series - Page C8



ATE Series - Page C19



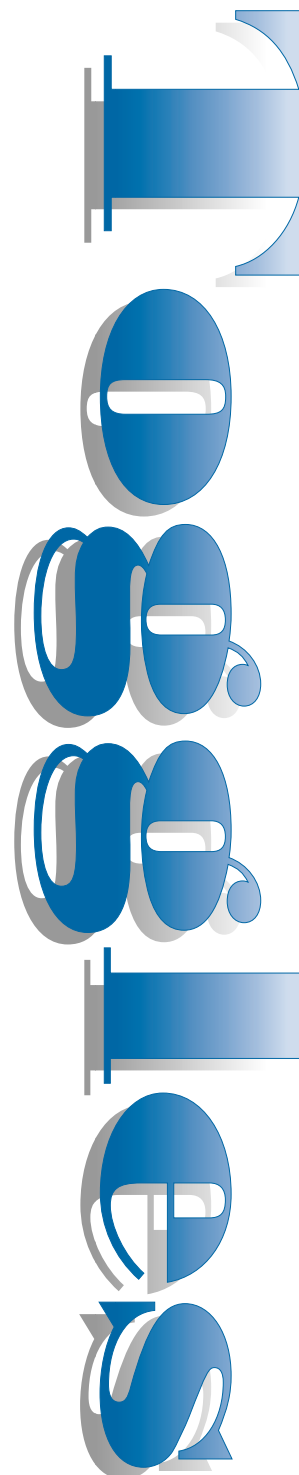
A Series - Page C22



AE Series - Page C35



MT Series - Page C43



Toggle Switches Part Number Index

BT14408C55	MTF206TC47	TST11GGSRA1DC5	TT21NGVRA3TC11
BT15320C55	MTF226NC47	TST11GGSRA4DC5	TT21NGWW2TC13
BT15322C55	MTF226PC47	TT11AGPC1C10	TT21PGPC1C10
BT15328C55	MTF226PAC47	TT11AGPC1ESC16	TT21PGPC3C8
LW1C54	MTF226SC47	TT11AGPC9T1/4C11	TT21PGPC7T1/4C8
LW12-AGC54	MTF226SAC47	TT11AGPC9T1/4ESC16	TT21PGPC8T1/4C8
LW5-AGC54	MTF306DC47	TT11DGPC1C10	TT21PGPC9T1/4C11
MTA106DC43	MTF326DC47	TT11DGPC1ESC16	TT21PGPC9T1/4ESC16
MTA106DPCC44	MTF406NC47	TT11DGPC2TESC8	TT21PGRA1C8
MTA106EC43	MTF426NC47	TT11DGPC3C8	TT21PGRA7T1/4C12
MTA106EPCC44	MTG106DC48	TT11DGPC42C8	TT21PGRA8T1/4C8
MTA106FC43	MTG106EC48	TT11DGPC5T1/42C8	TT21PGRA9T1/4C8
MTA106FPCC44	MTG106FC48	TT11DGPC7T1/4C8	TT21PGVRA1C11
MTA106GC43	MTG106GC48	TT11DGPC8T1/4C8	TT21PGWW2TC13
MTA106GPCC44	MTG106HC48	TT11DGPC9T1/4C11	TT21RGPC1C8
MTA106HC43	MTG126DC49	TT11DGPC9T1/4ESC16	TT21RGPC7T1/4C8
MTA106HPCC44	MTG126EC49	TT11DGRA1C8	TT21RGPC9T1/4C11
MTA206NC43	MTG206NC48	TT11DGRA1ESC8	TT23K2TC14
MTA206NPCC44	MTG206PC48	TT11DGRA1TC8	TT23K3TC15
MTA206PC43	MTG206PAC48	TT11DGRA40C8	TT23K9T1/4C15
MTA206PAC43	MTG206RC48	TT11DGRA42C8	TT23N2TC14
MTA206PAPCC44	MTG206SC48	TT11DGRA46C8	TT23N3TC15
MTA206PPCC44	MTG206TC48	TT11DGRA49C8	TT23N4T1/40C8
MTA206RC43	MTG226NC49	TT11DGRA7T1/4C12	TT23NG6T0C8
MTA206RPCC44	MTG226PC49	TT11DGRA8T1/4C8	TT23NGT6C8
MTA206SC43	MTG226PAC49	TT11DGRA9T1/4C8	TT23N7T1/4C14
MTA206SAC43	MTG306DC48	TT11DGVR1C11	TT23N9T1/4C15
MTA206SAPCC44	MTG306EC48	TT11DGVR3TC11	TT23NRA1C8
MTA206SPCC44	MTG326DC49	TT11DGWW2TC13	TT23P2TC14
MTA206TC43	MTG406NC48	TT11EGPC1C10	TT23P3TC15
MTA206TAC43	MTG406PC48	TT11EGPC1TC8	TT23P6T0C8
MTA206TPCC44	MTG426NC49	TT11EGPC3C8	TT23P7T1/4C14
MTA306DC43	MTL106DC50	TT11EGPC40C8	TT23P8T1/4C8
MTA306DPCC44	MTL106EC50	TT11EGPC5T1/40C8	TT23P9T1/4C15
MTA306EC43	MTL206NC50	TT11EGPC7T1/4C8	TT41NGPC1C10
MTA306EPCC44	MTL206PC50	TT11EGPC8T1/4C8	TT41NGPC8T1/4C8
MTA306FC43	MTL206PAC50	TT11EGPC9T1/4C11	TT41NGPC9T1/4C11
MTA306FPCC44	MTL206SC50	TT11EGPC9T1/4ESC16	TT41NGRA1C8
MTA306HC43	MTL306DC50	TT11EGRA1C8	TT41NGRA2T1/4C8
MTA306HPCC44	MTL406NC50	TT11EGRA3C8	TT41NGRA3C8
MTA406NC43	MTL406PAC50	TT11EGRA40C8	TT41NGRA7T1/4C12
MTA406NPCC44	MTM106DPCC51	TT11EGRA42C8	TT41NGRA9T1/4C8
MTA406PC43	MTM106EPCC51	TT11EGRA46C8	TT41NGWW2TC13
MTA406PAC43	MTM106FPCC51	TT11EGRA7T1/4C12	TT41NGWC9T1/4C11
MTA406PAPCC44	MTM206NPCC51	TT11EGRA9T1/4C8	TT43N2TC14
MTA406PPCC44	MTM206PAPCC51	TT11EGVRA1C11	TT43N3TC15
MTA8106DRAC52	MTM206SPCC51	TT11EGVRA1TC8	TT43N7T1/4C14
MTA8106DVRAC53	MTM306DPCC51	TT11EGVRA3TC11	TT43N9T1/4C15
MTA8106ERAC52	MTM406NPCC51	TT11EGWW2TC13	TT43P3TC15
MTA8106EVRAC53	MTM8106DRAC52	TT11FGPC7T1/4C8	TT43P7T1/4C14
MTA8106FRAC52	MTM8106DVRAC53	TT11FGPC9T1/4C11	TT43P9T1/4C15
MTA8106FVRAC53	MTM8106ERAC52	TT11IFGRA7T1/4C12	TT41NGWW2TC13
MTA8206NRAC53	MTM8106EVRAC53	TT11IFGRA9T1/4C8	TTE11AG9T1/4ESC8
MTA8206NVRAC54	MTM8106FRAC52	TT11IFGRA3TC8	TTE11AGPC3TESC18
MTA8206PRAC53	MTM8206NRAC52	TT12K8T1/4C8	TTE11AGPC9T1/4C8
MTA8206PVRAC54	MTM8206PRAC52	TT13A2TC14	TTE11AGPC9T1/4ESC18
MTA8206RRAC53	MTM8206PRAC52	TT13A3TC15	TTE11DGPC1ESC17
MTB106DC45	MTM8206PVRAC53	TT13A6TC8	TTE11DGPC3TESC18
MTB106EC45	MTM8206RRAC52	TT13A6T0C8	TTE11DGPC9T1/4ESC18
MTB106FC45	MTM8206RVRAC53	TT13A6T2C8	TTE11DGRA1ESC17
MTB106GC45	N11-AGC54	TT13A9T1/4C15	TTE11EG1C8
MTB206NC45	N1AC54	TT13D2TC14	TTE11EGPC1ESC17
MTB206PC45	N1A0C54	TT13D2T1/4C8	TTE11EGPC3TESC18
MTB206TC45	N1-AGC54	TT13D3TC15	TTE11EGPC9T1/4ESC18
MTB306DC45	N1BC54,D32	TT13D4T0C8	TTE11EGRA1ESC17
MTB406NC45	N1CC54	TT13D4T1/49C8	TTE13A9T1/4C8
MTE106DC46	N2-AGC54	TT13D6T0C8	TTE13D2TC8
MTE106EC46	N35-AGC54,D32	TT13D7T1/4C14	TTE13D8T1/4C8
MTE106FC46	N3-AGC54	TT13D9T1/4C15	TTE13D9T1/4C8
MTE106GC46	N40-AGC54	TT13D9T1/4ESC8	TTE13DG2TC8
MTE106HC46	N43-AGC54	TT13DPC2TEC8	TTE13E8T1/4C8
MTE206NC46	N45-AGC54,D32	TT13E2TC14	TTE21KGPC9T1/4ESC18
MTE206PC46	SPA32C55	TT13E3TC15	TTE21NG2T1/4ESC8
MTE206PAC46	SPA42C55	TT13E7T1/4C14	TTE21NGPC1ESC8,C17
MTE206RC46	TST11DGPC1DC5,C6	TT13E9T1/4C15	TTE21NGPC3TESC8,C18
MTE206SC46	TST11DGPC4DC5	TT21KGPC1C10	TTE21NGPC9T1/4ESC18
MTE206TC46	TST11DGRA1DC5,C7	TT21KGPC9T1/4C11	TTE21NGPC9T1/4SC8
MTE306DC46	TST11DGRA2DC5	TT21KGPC9T1/4ESC16	TTE21NGRA1ESC8,C17
MTE306EC46	TST11DGSPC1DC5,C6	TT21NG2TC8	TTE21PGPC1ESC17
MTE406NC46	TST11DGSRA1DC5,C6	TT21NGPC1C10	TTE21PGPC3TESC18
MTE406PC46	TST11DGSRA1DC5,C6	TT21NGPC1ESC16	TTE21PGPC9T1/4ESC18
MTF106DC47	TST11DGVRA1DC5,C7	TT21NGPC1TC8	TTE21PGRA1ESC17
MTF106EC47	TST11DGVRA2DC5	TT21NGPC1T1/4C8	TTE23N2TC8
MTF106FC47	TST11EGPC1DC5	TT21NGPC2T1/4C8	TTE23N8T1/4C8
MTF106GC47	TST11EGRA1DC5	TT21NGPC4C8	TTE23N9T1/4C8
MTF106HC47	TST11EGSRA1DC5	TT21NGPC7T1/4C8	TTE23NG2TC8
MTF126DC47	TST11EGSRA2DC5	TT21NGPC8T1/4C8	TTE23P8T1/4C8
MTF126EC47	TST11EGVRA1DC5	TT21NGPC9T1/4C11	TTE41NGPC1C8
MTF126FC47	TST11FGPC1DC5	TT21NGPC9T1/4ESC16	TTE41NGWW2TC8
MTF126GC47	TST11FGRA1DC5	TT21NGRA1C8	TTE43N8T1/4C8
MTF206NC47	TST11FGSPC1DC5	TT21NGRA1ESC8	TTE43N9T1/4C8
MTF206PC47	TST11FGSRA1DC5	TT21NGRA3T1/4C8	TTE43N9T1/4EC8
MTF206PAC47	TST11FGVRA1DC5	TT21NGRA7T1/4C12	TTE43P8T1/4C8
MTF206RC47	TST11GGPC1DC5	TT21NGRA8T1/4C8	
MTF206SC47	TST11GGPC4DC5	TT21NGRA9T1/4C8	
MTF206SAC47	TST11GGRA1DC5	TT21NGVRA1C11	

Toggle Switches

Toggle Switches, Poles, Throws & Functions Selection Guide

SERIES/CURRENT RATING/PAGE NUMBER

ATE Series0.4VAPage C19
A/AE Series 0.4VA ..5 Amps.....Page C22/35

TT Series0.4VA 3 AmpsPage C8
TST Series0.4VAPage C5
MT Series6 AmpsPage C43

C

Toggle Switch Selection Guide

	SPDT	DPDT	3PDT	4PDT
On - None - On 2 Position	ATE Gemini Tiny/TST Green	ATE Gemini Tiny Green	Green	Tiny Green ATE
On - Off - On 3 Position	ATE Gemini Tiny/TST Green	ATE Gemini Tiny Green	Green	Tiny Green
On - None - (On) 2 Position	ATE Gemini Tiny/TST Green	Gemini Tiny Green	Green	Tiny
(On) - Off - (On) 3 Position	ATE Gemini Green TST	ATE Gemini Green	Green	
On - Off - (On) 3 Position	Gemini Green	Gemini Green	Green	
On - On - On 3 Position		Gemini Green		Green
(On) - On - (On) 3 Positions		Gemini Green		
On - On - (On) 3 Position		Gemini Green		
On - Off 2 Position	Tiny	Tiny		

Toggle Switches, Tiny, Sealed, Through Hole and Surface Mount

FEATURES:

- Rating 0.4VA max. at 20VAC/DC
- High temperature plastics - Liquid crystal polymer (LCP)
- Specifically designed for thru-hole and surface mount applications - Tin lead plated terminals
- Washable process sealed construction - Internal actuator "O" Ring
- Ultrasonic welded case

MATERIAL SPECIFICATIONS:

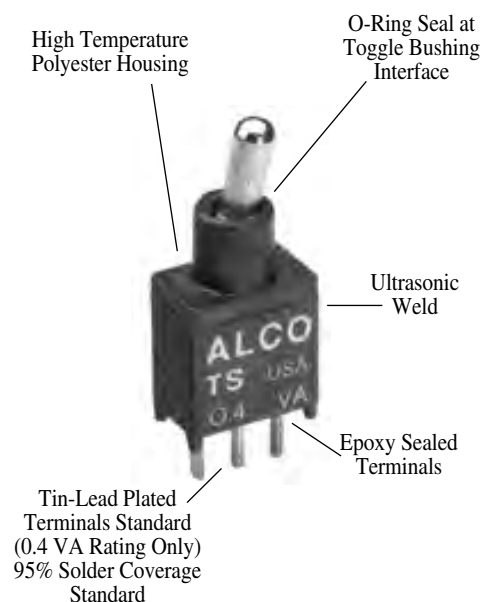
ContactsCopper alloy with gold over nickel plate
 Case MaterialLCP
 Actuator MaterialNickel plated brass
 TerminalsCopper alloy with gold over nickel plating inside, tin plating outside
 Terminal SealEpoxy
 Support BracketTin plated steel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VAC/DC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms 500 VDC min.
 Dielectric Strength1,000 Volt RMS @ sea level
 Actuator Travel22° for E and D function
 18° for F, G function
 Life ExpectancyD Function: Up to 80,000 cycles
 E Function: Up to 60,000 cycles
 F, G Function: Up to 30,000 cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-22°F to +185°F (-30°C to +85°C)
 Storage Temperature.....-67°F to +185°F (-55°C to +85°C)



FUNCTION CHART

The following functions available in single pole.

None - indicates no mechanical position.

Off - indicates a mechanical position with no electrical connection.

(On) - indicates momentary connection.

D	2 Positions	On	None	On
E	3 Positions	On	Off	On
F	2 Positions	On	None	(On)
G	3 Positions	(On)	Off	(On)
Terminals Connected		1-2	-	2-3

PART NUMBERING MATRIX

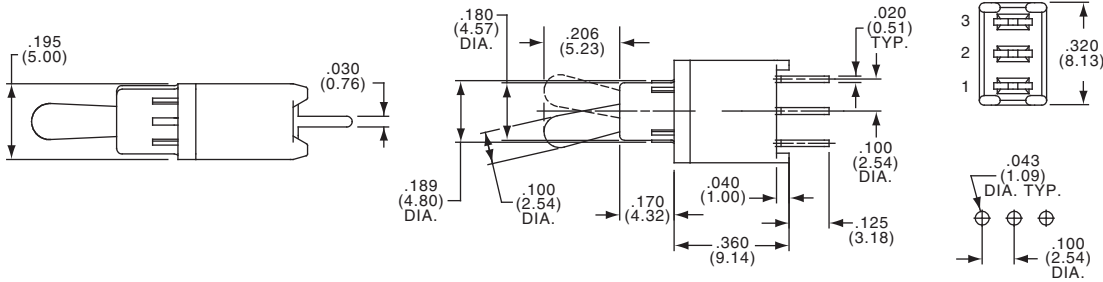
Model	No. of Poles	Contact Rating	Function	Contact Plating	Terminations	Actuator	Bushing (Plain)
TST	1	1	D on none on E on off on F on none(on) G (on) off (on)	G	PC RA VRA SPC SRA SRAB P.C. Right Angle Vertical Right Angle SurfaceMount Surface Mount R.A. SurfaceMount R.A. Butt	1 2 4 .206" .250" .400"	D

APPLICATION NOTE:

For sealed pushbutton switches, see page D3 - D5

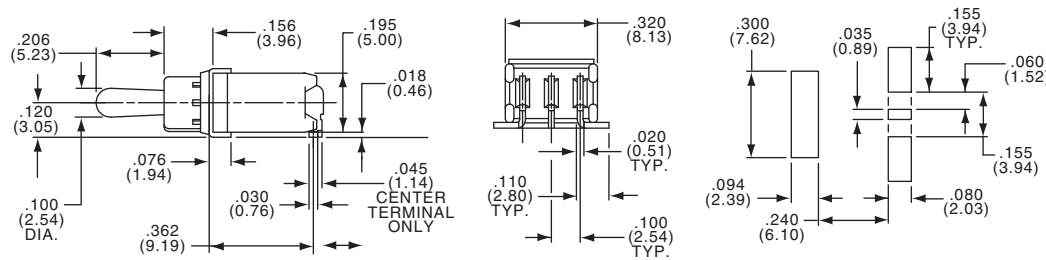
Toggle Switches, Tiny, Sealed, Through Hole and Surface Mount

PC MOUNT **PC**



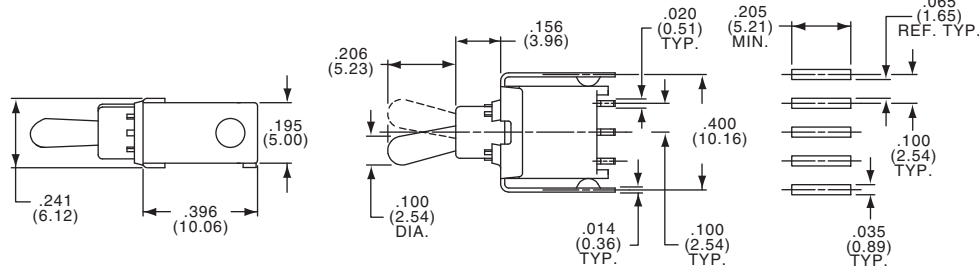
TST11DGPC1D

SURFACE MOUNT RIGHT ANGLE "L" BEND **SRA**



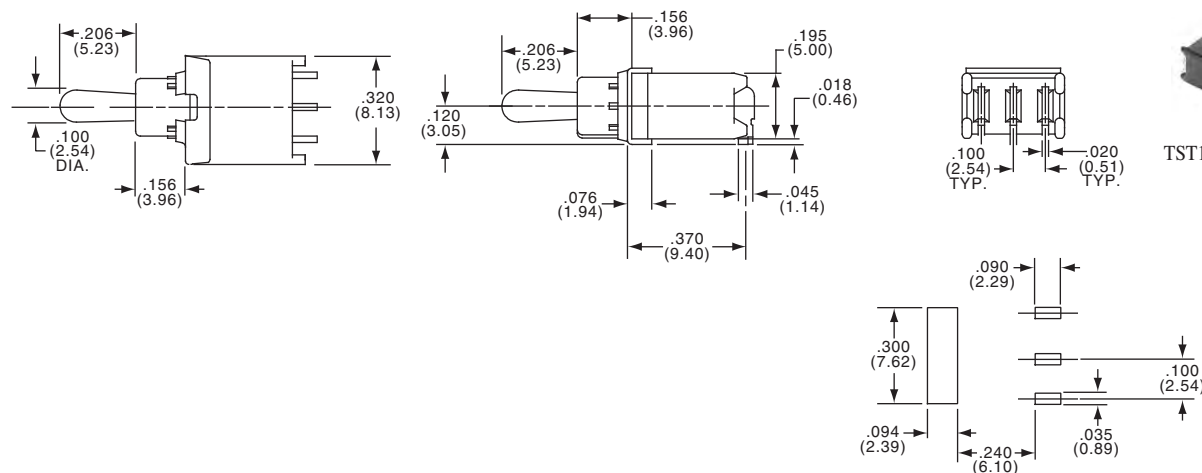
TST11DGSRA1D

SURFACE MOUNT **SPC**



TST11DGSPC1D

SURFACE MOUNT RIGHT ANGLE BUTT **SRAB**



TST11DGSRA1D

Toggle Switches, Tiny, Part Number Matrix

MATERIAL SPECIFICATIONS:

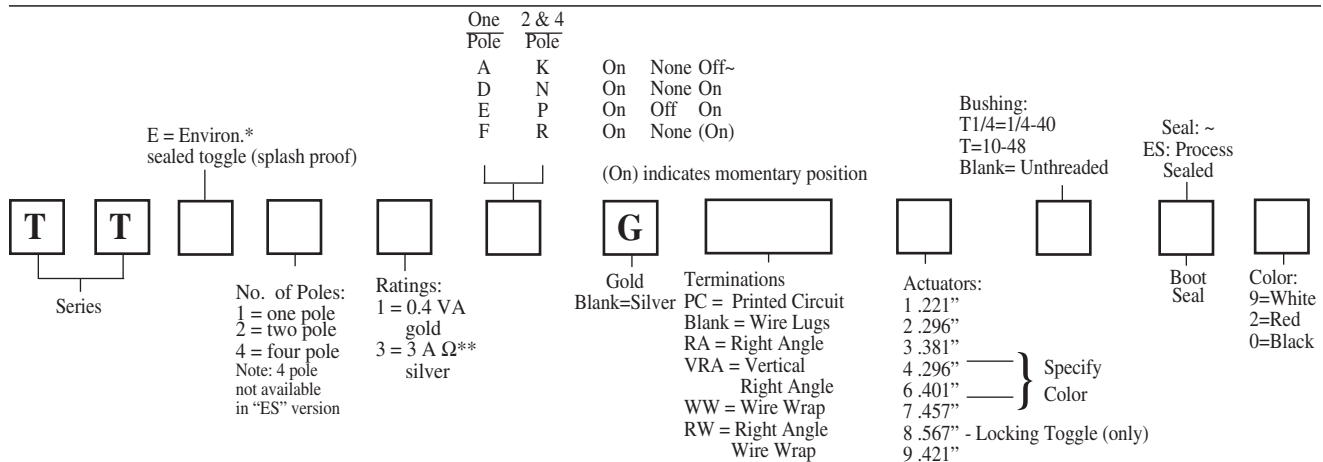
Contacts.....Gold over nickel or silver plate
Case Material.....Thermoplastic 94V-0
Terminals/Fixed Contacts.....Tin lead plate
Terminal Seal.....Epoxy on single pole, optional
on double pole
Process Seal.....ES version only (see page C16 - C17)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-22°F to +185°F (-30°C to +85°C)
Storage Temperature.....-67°F to +185°F (-55°C to +85°C)
Solder Heat Resistance.....See page M3-4
U.L. (File E-46765).....Silver only

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating..... Gold: 0.4 VA max. @ 20 VDC or peak AC
Silver (2 pos.): 3 A @ 125 VAC or 28 VDC
Silver (3 pos.): 2 A @ 125 VAC or 28 VDC
Initial Contact Resistance..... 20 Milliohms max.
Contact Timing..... Break before Make
Insulation Resistance..... 1,000 Megohms 500 VDC min.
Dielectric Strength..... 1,000 Volts RMS @ sea level
Plunger/Actuator Travel..... 26°
High Torque Bushing Shoulder..... Yes
Life Expectancy..... See chart below
Note: Hardware included with switch



Tiny toggle switch life expectancy chart

One Pole	0.4VA	80,000 (2 Pos.)	60,000 (3 Pos.)
Two Pole	3 Amp	20,000 (2 Pos.)	10,000 (3 Pos.)
Four Pole	0.4VA	80,000 (2 Pos.)	60,000 (3 Pos.)
	3 Amp	20,000 (2 Pos.)	10,000 (3 Pos.)

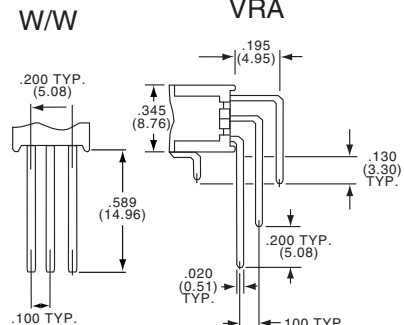
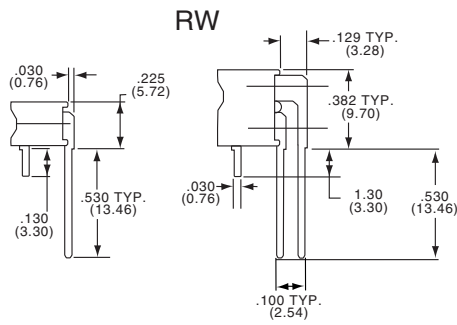
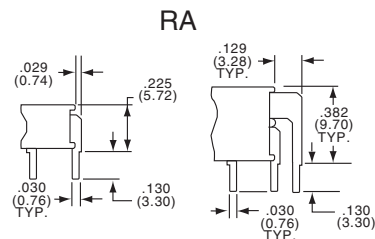
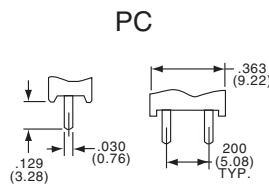
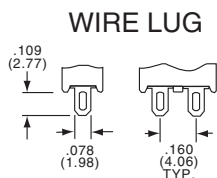
APPLICATION NOTE:

For surface mount termination, use the "TST" series on page C5.
For 3 pole refer to the MT Series on page C43

Actuator Dimensions shown with	
1,2,3,4,6	10-48 bushing
7,8,9	1/4-40 bushing

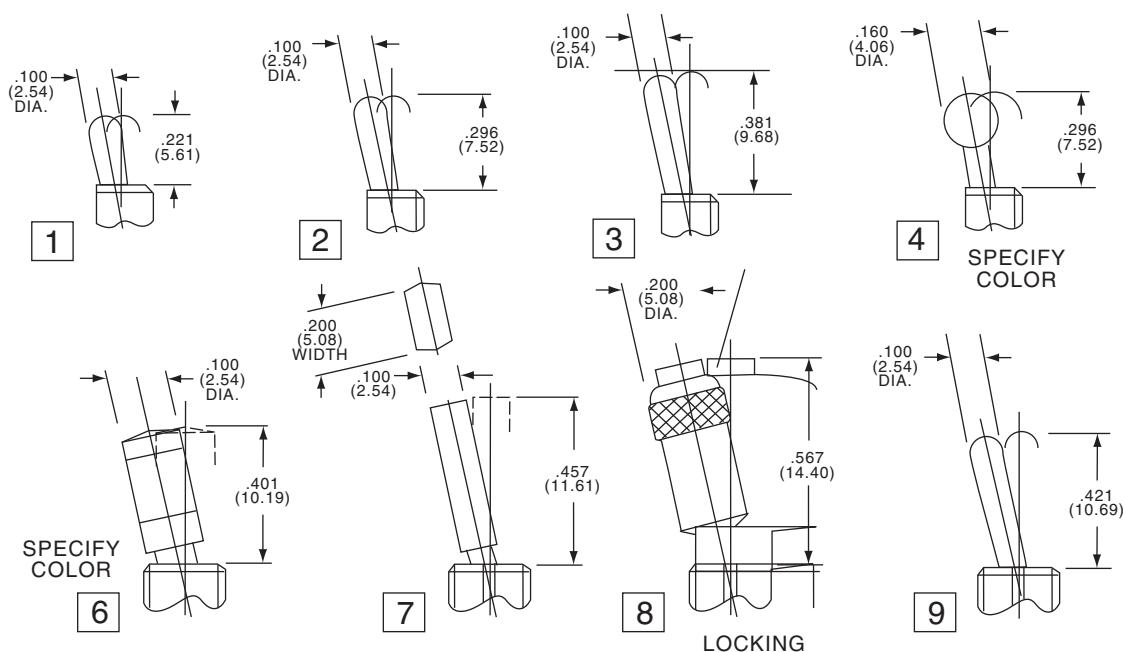
* Not available on 7 actuator or with VRA.
** Not available in RA.
Ω Available in PC & WL only.
~ Available in WL & PC only.

TERMINATIONS

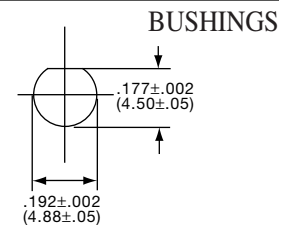
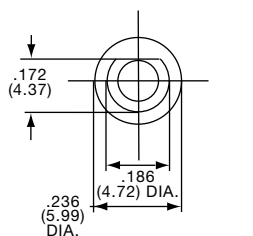
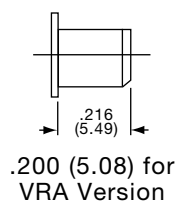


Toggle Switches, Tiny, Actuator and Bushing Options

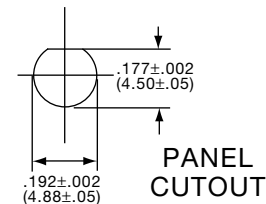
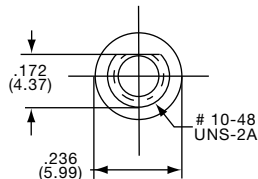
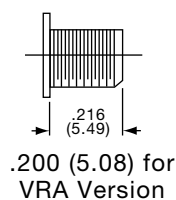
Toggle Cap
Series C-11*
Available



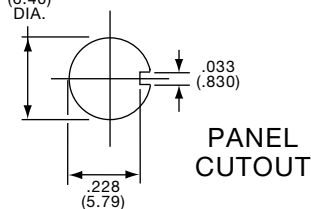
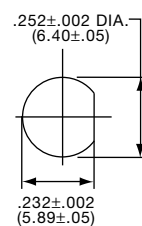
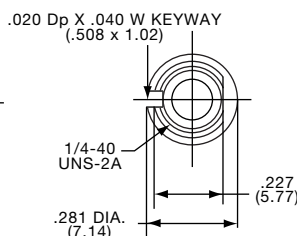
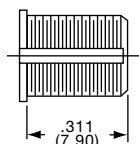
BLANK



T

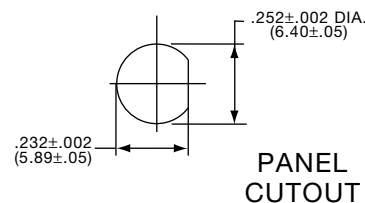
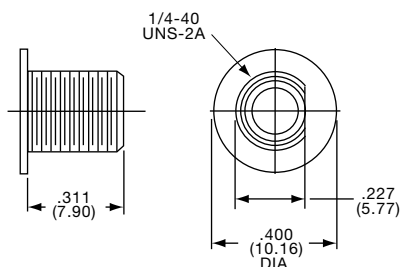


T1/4

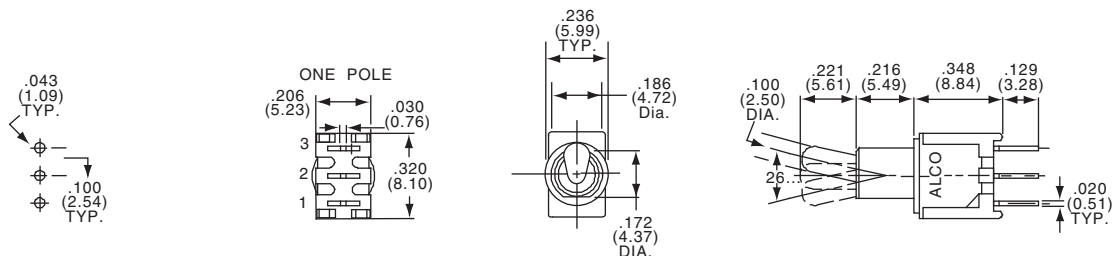


*T1/4

*VERSION USED
ON TTE(Enviromentally
Sealed) Series



Toggle Switches, Tiny, Vertical, PC Mount



1 POLE

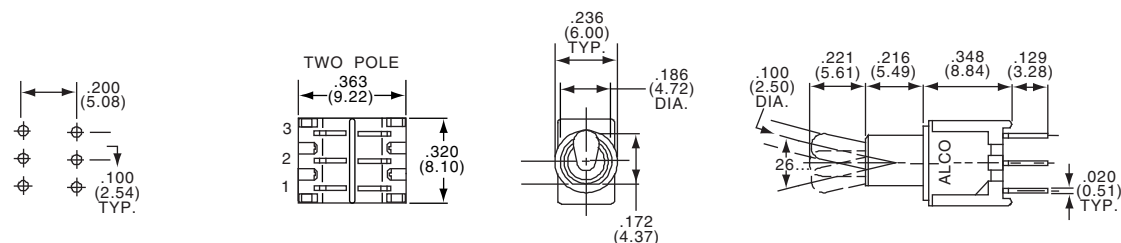
For Terminal Connections refer to Code Chart (see page M5-6)



TT11DGPC1

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
2-1437561-3	TT11AGPC1	SPST	A	On	None	Off
2-1437561-6	TT11DGPC1	SPDT	D	On	None	On
5-1437561-1	TT11EGPC1	SPDT	E	On	Off	On

Note: No center terminal on "A" switches



2 POLE

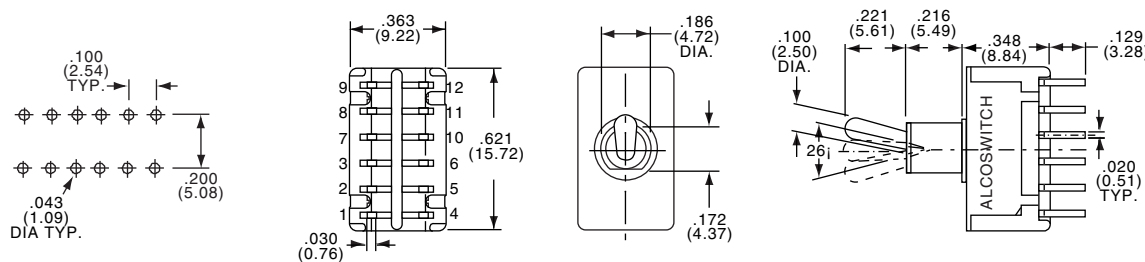
For Terminal Connections refer to Code Chart (see page M5-6)



TT21NGPC1

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
9-1437561-9	TT21KGPC1	DPST	K	On	None	Off
1437562-3	TT21NGPC1	DPDT	N	On	None	On
3-1437562-4	TT21PGPC1	DPDT	P	On	Off	On

Note: No center terminal on "K" switches



4 POLE



TT41NGPC1

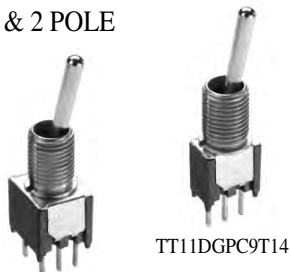
Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
6-1437562-6	TT41NGPC1	4PDT	N	On	None	On

Toggle Switches, Tiny, Vertical and Vertical Right Angle, PC Mount

SEE PAGE C8 FOR PRODUCT SPECIFICATIONS

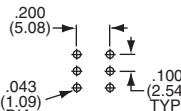
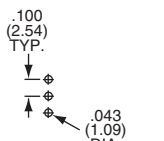
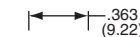
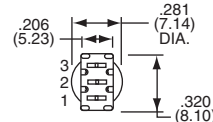
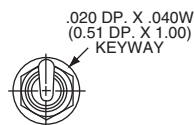
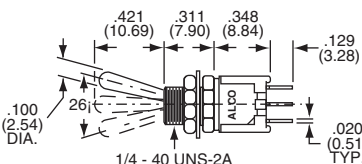
For terminal connections refer to Code Chart on page M5-6

1 & 2 POLE



TT11DGPC9T1/4

TT21NGPC9T1/4



4 POLE



TT41NGPC9T1/4

Tyco Electronics	Alcoswitch	Type	Act.	Code	P.	M5				Tyco Electronics	Alcoswitch	Type	Act.	Code	P.	M5			
2-1437561-5	TT11AGPC9T1/4	SPST	A	On	None	Off				1-1437562-1	TT21NGPC9T1/4	DPDT	N	On	None	On			
3-1437561-5	TT11DGPC9T1/4	SPDT	D	On	None	On				3-1437562-8	TT21PGPC9T1/4	DPDT	P	On	Off	On			
5-1437561-9	TT11EGPC9T1/4	SPDT	E	On	Off	On				4-1437562-6	TT21RGPC9T1/4	DPDT	R	On	None	(On)			
7-1437561-3	TT11FGPC9T1/4	SPDT	F	On	None	On				6-1437562-8	TT41NGPC9T1/4	4PDT	N	On	None	On			
1437562-1	TT21KGPC9T1/4	DPST	K	On	None	Off				7-1437562-5	TT41PGPC9T1/4	4PDT	P	On	Off	On			

Note: No center terminal on "A" or "K" switches.

(On) indicates momentary position.

Note: Hardware Included

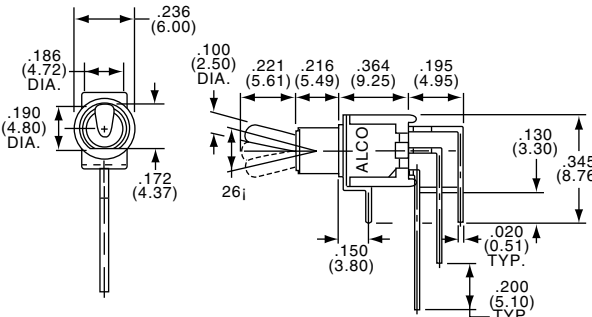
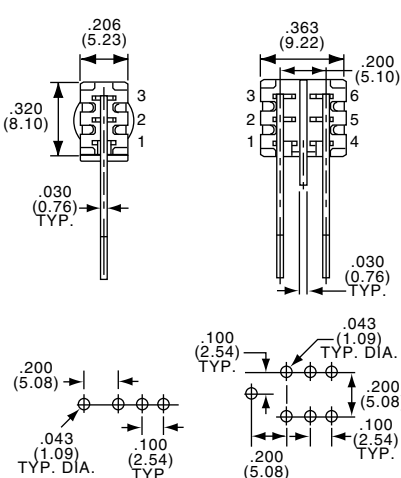
1 & 2 POLE



TT11DGVRA1
Vertical Actuation



TT21NGVRA1
Vertical Actuation



Tyco Electronics	Alcoswitch	Type	Act.	Code	P.	M5			
4-1437561-8	TT11DGVRA1	SPDT	D	On	None	On			
6-1437561-9	TT11EGVRA1	SPDT	E	On	Off	On			
2-1437562-2	TT21NGVRA1	DPDT	N	On	None	On			
4-1437562-3	TT21PGVRA1	DPDT	P	On	Off	On			

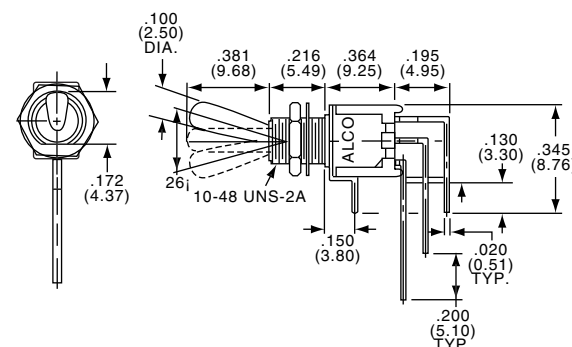
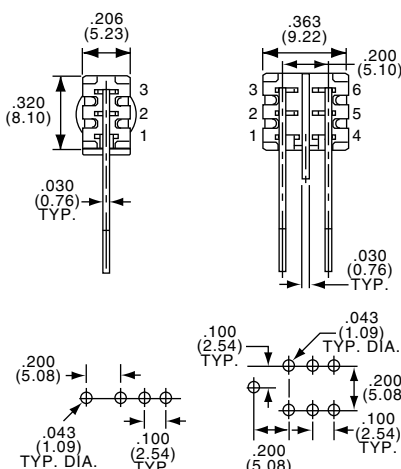
1 & 2 POLE



TT11DGVRA3T
Vertical Actuation



TT21NGVRA3T
Vertical Actuation



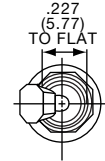
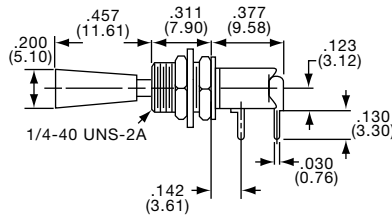
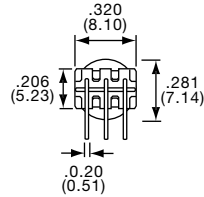
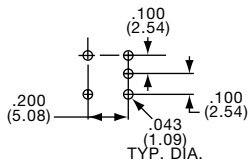
Tyco Electronics	Alcoswitch	Type	Act.	Code	P.	M5			
4-1437561-9	TT11DGVRA3T	SPDT	D	On	None	On			
7-1437561-0	TT11EGVRA3T	SPDT	E	On	Off	On			
2-1437562-3	TT21NGVRA3T	DPDT	N	On	None	On			

Toggle Switches, Tiny, Right Angle, Flat Actuator

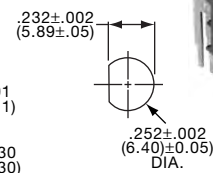
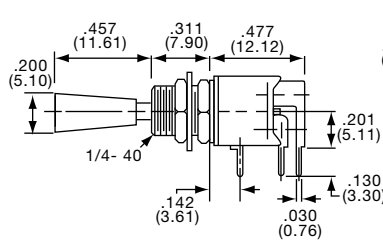
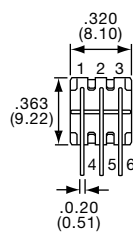
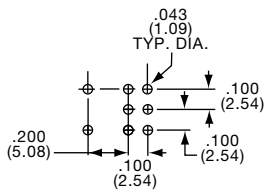
SEE PAGE C8 FOR PRODUCT SPECIFICATIONS

* Refer to Page C8 for
Other Options *

1 & 2 POLE FLAT



TT11DGRA7T1/4
Horizontal Actuation



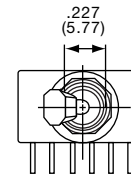
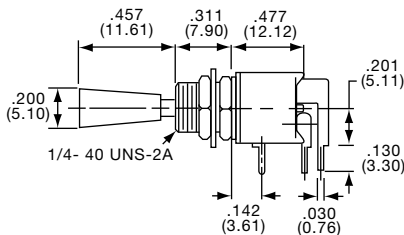
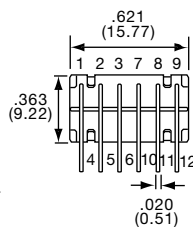
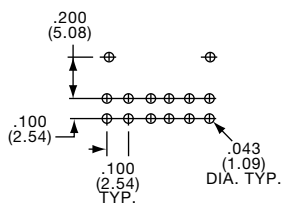
TT21NGRA7T1/4
Horizontal Actuation

Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	
4-1437561-5	TT11DGRA7T1/4	SPDT	D	On None On	
6-1437561-7	TT11EGRA7T1/4	SPDT	E	On Off On	
7-1437561-4	TT11FGRA7T1/4	SPDT	F	On None (On)	
1-1437562-9	TT21NGRA7T1/4	DPDT	N	On None On	
4-1437562-0	TT21PGRA7T1/4	DPDT	P	On Off On	

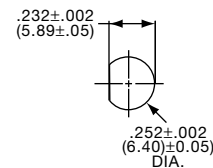
(On) indicates momentary position

Pinned for Anti-Rotation

4 POLE FLAT



TT41NGRA7T1/4
Horizontal Actuation



Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	
7-1437562-2	TT41NGRA7T1/4	4PDT	N	On None On	

Pinned for Anti-Rotation

Toggle Switches, Tiny, Wire Wrap Termination

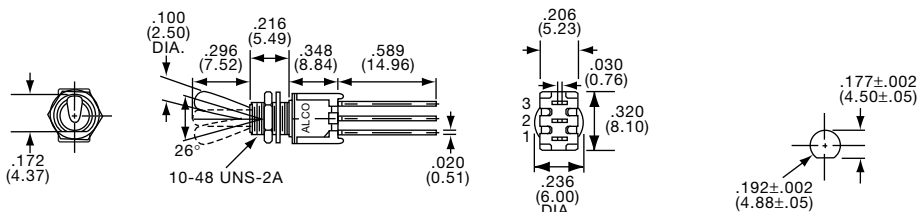
SEE PAGE C8 FOR PRODUCT SPECIFICATIONS

For terminal connections refer to Code Chart on page M5-6

1 POLE



TT11DGWW2T

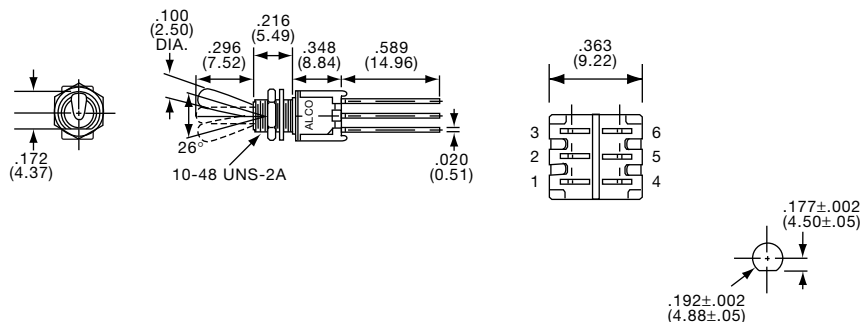


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
5-1437561-0	TT11DGWW2T	SPDT	D	On	None	On
7-1437561-1	TT11EGWW2T	SPDT	E	On	Off	On

2 POLE



TT21NGWW2T

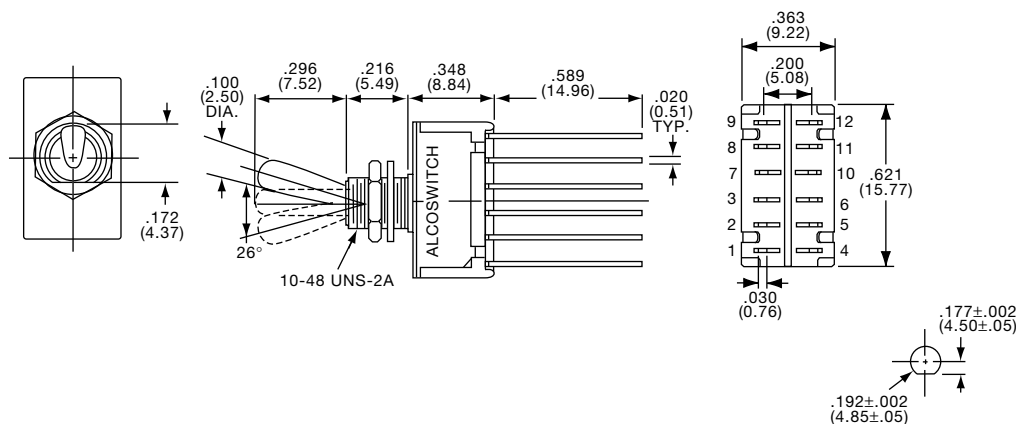


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
2-1437562-4	TT21NGWW2T	DPDT	N	On	None	On
4-1437562-4	TT21PGWW2T	DPDT	P	On	Off	On

4 POLE



TT41NGWW2T



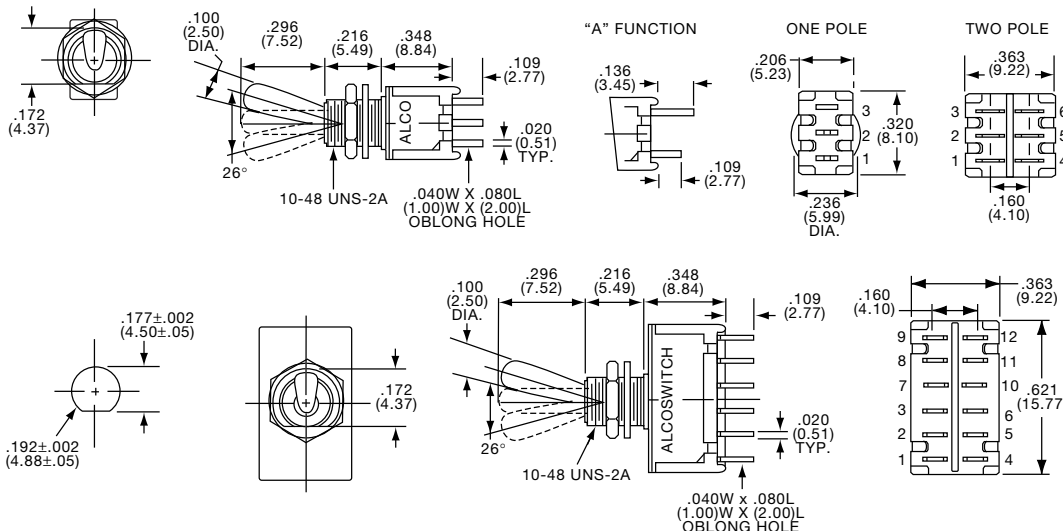
Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
7-1437562-4	TT41NGWW2T	4PDT	N	On	None	On

Toggle Switches, Tiny, Wire Lug, Round or Flat Actuators

SEE PAGE C8 FOR PRODUCT SPECIFICATIONS

For terminal connections refer to Code Chart on page M5-6

NOTICE: Wire lug terminals accept two No. 20 AWG wires.



1 & 2 POLE

TT13D2T

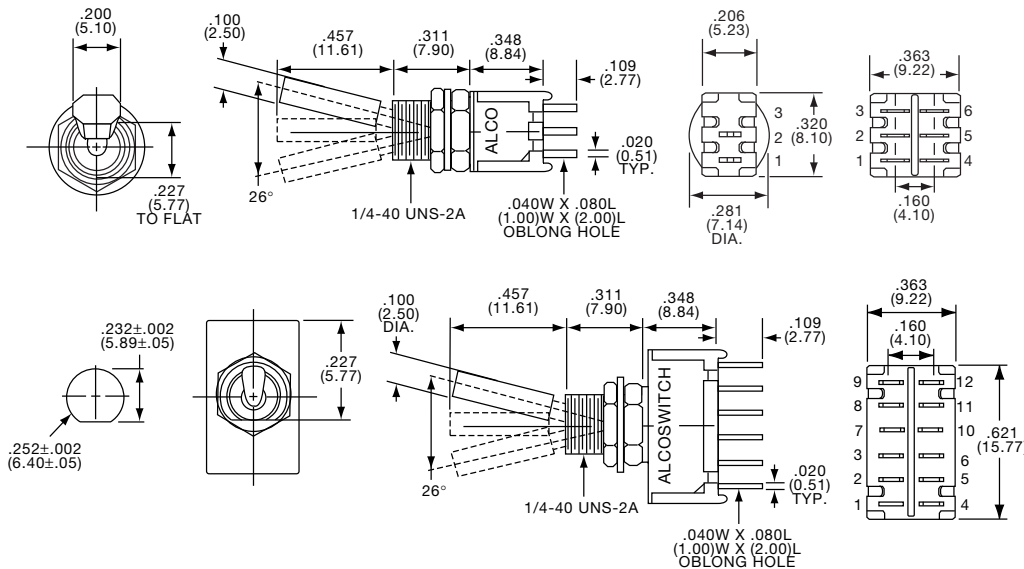
TT23N2T

4 POLE

TT43N2T

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
7-1437561-8	TT13A2T	SPST	A	On	None	Off	5-1437562-1	TT23N2T	DPDT	N	On	None	On
8-1437561-5	TT13D2T	SPDT	D	On	None	On	5-1437562-7	TT23P2T	DPDT	P	On	Off	On
9-1437561-5	TT13E2T	SPDT	E	On	Off	On	7-1437562-6	TT43N2T	4PDT	N	On	None	On
4-1437562-7	TT23K2T	DPST	K	On	None	Off							

Note: No center terminal "A" or "K" action switches.



1 & 2 POLE

TT13D7T1/4

TT23N7T1/4

4 POLE

TT43N7T1/4

Pinned for Anti-Rotation

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
9-1437561-1	TT13D7T1/4	SPDT	D	On	None	On	6-1437562-0	TT23P7T1/4	DPDT	P	On	Off	On
9-1437561-7	TT13E7T1/4	SPDT	E	On	Off	On	7-1437562-8	TT43N7T1/4	4PDT	N	On	None	On
5-1437562-5	TT23N7T1/4	DPST	N	On	None	On		TT43P7T1/4	4PDT	P	On	Off	On

Toggle Switches, Tiny, Wire Lug, Long Actuators

SEE PAGE C8 FOR PRODUCT SPECIFICATIONS

For terminal connections refer to Code Chart on page M5-6

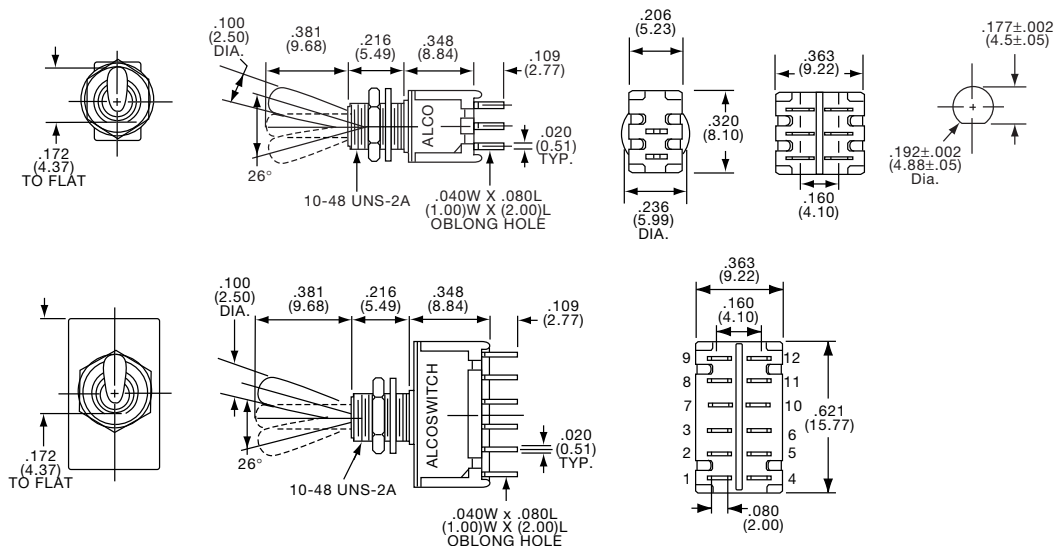
1 & 2 POLE



TT13D3T



TT23N3T



Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
8-1437561-0	TT13A3T	SPST	A	On	None	Off	5-1437562-8	TT23P3T	DPDT	P	On	Off	On
8-1437561-8	TT13D3T	SPDT	D	On	None	On	7-1437562-7	TT43N3T	4PDT	N	On	None	On
9-1437561-6	TT13E3T	SPDT	E	On	Off	On	8-1437562-0	TT43P3T	4PDT	P	On	Off	On
4-1437562-8	TT23K3T	DPST	K	On	None	Off							
5-1437562-2	TT23N3T	DPDT	N	On	None	On							

Note: No center terminal on "A" or "K" action switches.

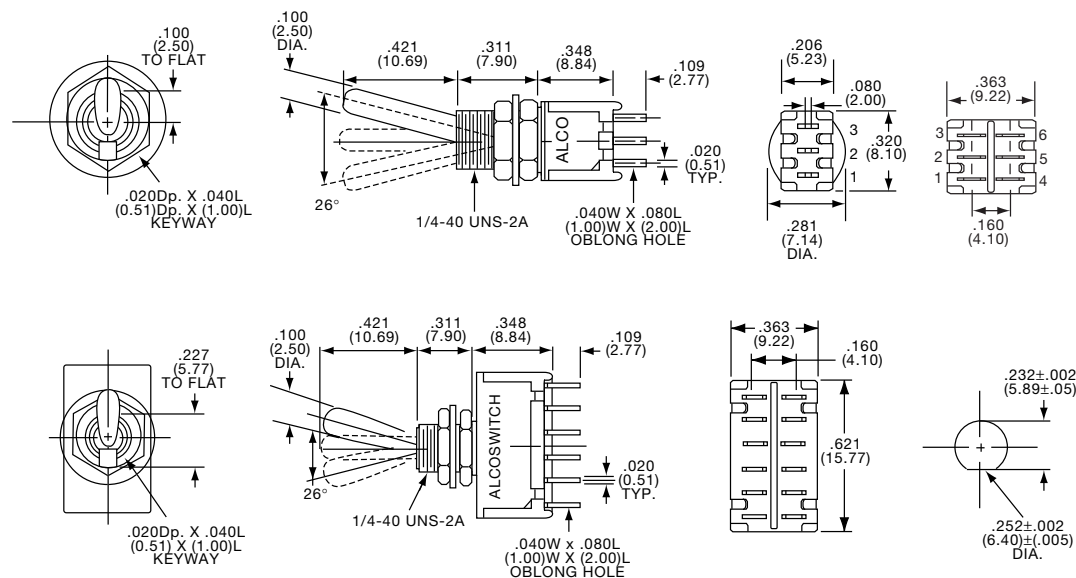
1 & 2 POLE



TT13A9T1/4



TT23N9T1/4



Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
8-1437561-4	TT13A9T1/4	SPST	A	On	None	Off	6-1437562-2	TT23P9T1/4	DPDT	P	On	Off	On
9-1437561-2	TT13D9T1/4	SPDT	D	On	None	On	7-1437562-9	TT43N9T1/4	4PDT	N	On	None	On
9-1437561-8	TT13E9T1/4	SPDT	E	On	Off	On	8-1437562-1	TT43P9T1/4	4PDT	P	On	Off	On
4-1437562-9	TT23K9T1/4	DPST	K	On	None	Off							
5-1437562-6	TT23N9T1/4	DPDT	N	On	None	On							

Note: No center terminal on "A" or "K" action switches.

Toggle Switches, Process Sealed, Vertical

MATERIAL SPECIFICATIONS:

Contacts Gold over nickel
 Inner Case Material High temperature polyester
 Outer Case Material Polyamide
 Terminals/Fixed Contacts Tin lead plate
 Terminal Seal Epoxy
 Process Seal Disposable boot, epoxied double case

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating 0.4VA Max. @ 20 VDC or peak AC
 Initial Contact Resistance 20 Milliohms max.
 Contact Timing Break-before-make
 Insulation Resistance 1,000 Megohms min. 500 VDC
 Dielectric Strength 1,000 Volts RMS @ sea level
 Plunger/Actuator Travel 26°
 Life Expectancy See page C8

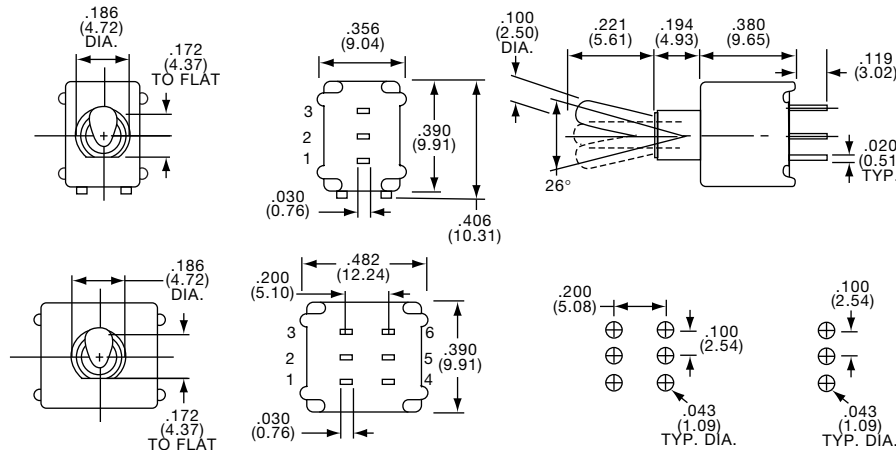
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature -22°F to +185°F (-30°C to +85°C)
 Storage Temperature -67°F to +185°F (-55°C to +85°C)
 Solder Heat Resistance See page M3-4

APPLICATION NOTE: Each switch is provided with a disposable boot used only during cleaning operation.

* Refer to Page C8 for Other Options *

Note: Hardware included with switch



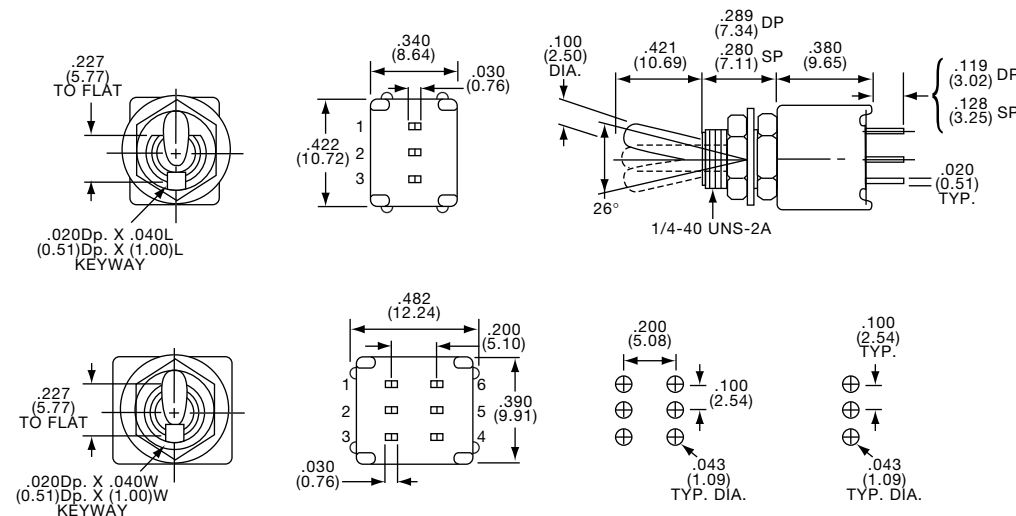
1 & 2 POLE
UNTHREADED BUSHING



TT11DGPC1ES

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
2-1437561-4	TT11AGPC1ES	SPST	A	On	None	Off
2-1437561-7	TT11DGPC1ES	SPDT	D	On	None	On

Note: No center terminal "A".



1 & 2 POLE
THREADED BUSHING

TT11DGPC9T1/4ES

TT21NGPC9T1/4ES

Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
6-1437830-2	TT11AGPC9T1/4ES	SPST	A	On	None	Off
	TT11DGPC9T1/4ES	SPDT	D	On	None	On
	TT11EGPC9T1/4ES	SPDT	E	On	Off (On)	On
	TT21KGPC9T1/4ES	DPST	K	On	None	Off

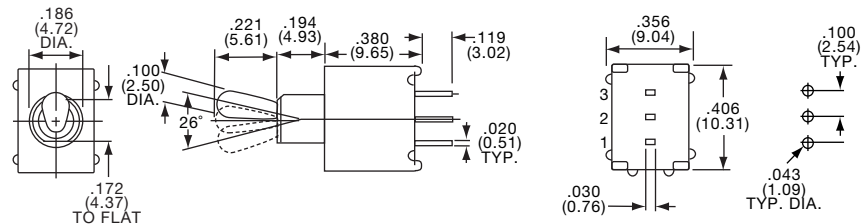
Note: No center terminal "A" or "K" action switches.

Toggle Switches, Tiny, Enviromental and Process Sealed

SEE PAGE C16 FOR PRODUCT SPECIFICATIONS

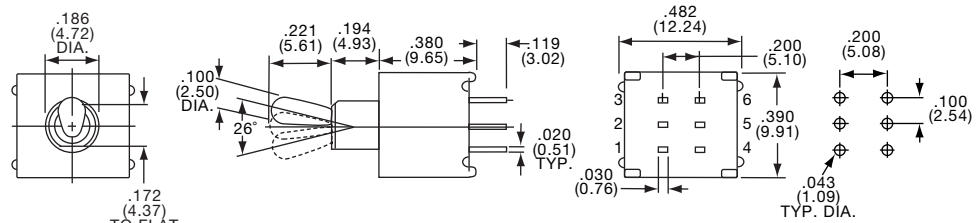
For terminal connections refer to Code Chart on page M5-6

1 POLE-PC VERTICAL MOUNT



Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
8-1437562-6	TTE11DGPC1ES	SPDT	D	On	None	On
	TTE11EGPC1ES	SPDT	E	On	Off	On

2 POLE-PC VERTICAL MOUNT

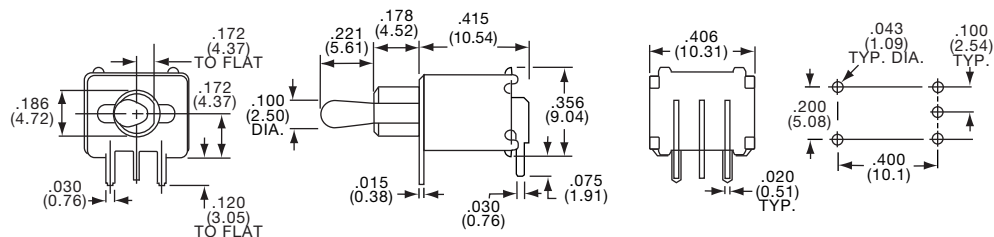


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
1437563-1	TTE21NGPC1ES	DPDT	N	On	None	On
	TTE21PGPC1ES	DPDT	P	On	Off	On

1 POLE-PC RIGHT ANGLE



TTE11DGRA1ES
Horizontal Actuation

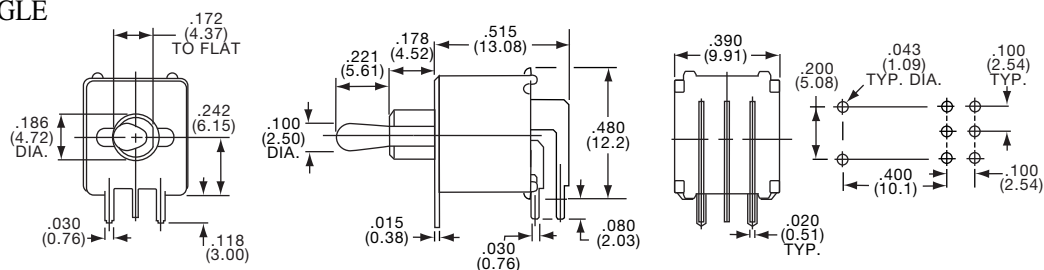


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
8-1437562-9	TTE11DGRA1ES	SPDT	D	On	None	On
9-1437562-2	TTE11EGRA1ES	SPDT	E	On	Off	On

2 POLE-PC RIGHT ANGLE



TTE21NGRA1ES
Horizontal Actuation



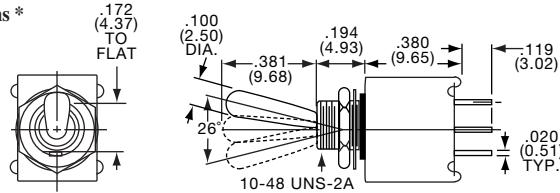
Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
1437563-4	TTE21NGRA1ES	DPDT	N	On	None	On
	TTE21PGRA1ES	DPDT	P	On	Off	On

Toggle Switches, Tiny, Enviromental and Process Sealed

For terminal connections refer to Code Chart on page M5-6.

SEE PAGE C16 FOR PRODUCT SPECIFICATIONS

* Refer to Page C8 for
Other Options *



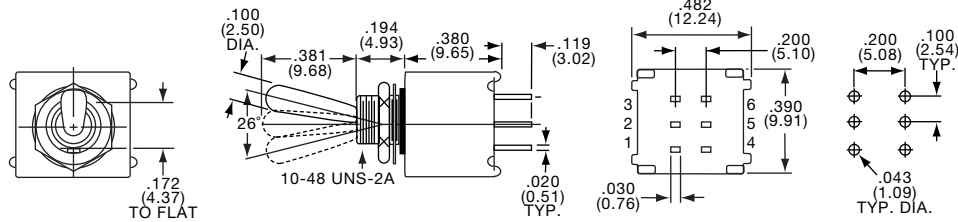
Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
8-1437562-5	TTE11AGPC3TES	SPST	A	On	None	Off
8-1437562-7	TTE11DGPC3TES	SPDT	D	On	None	On
9-1437562-0	TTE11EGPC3TES	SPDT	E	On	Off	On

Note: No center terminal on "A" action switches.

1 POLE



TTE11DGPC3TES

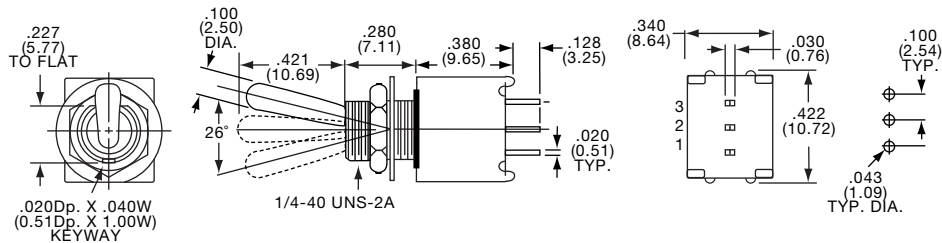


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	On
1437563-2	TTE21NGPC3TES	DPDT	N	On	None	On
	TTE21PGPC3TES	DPDT	P	On	Off	On

2 POLE



TTE21NGPC3TES



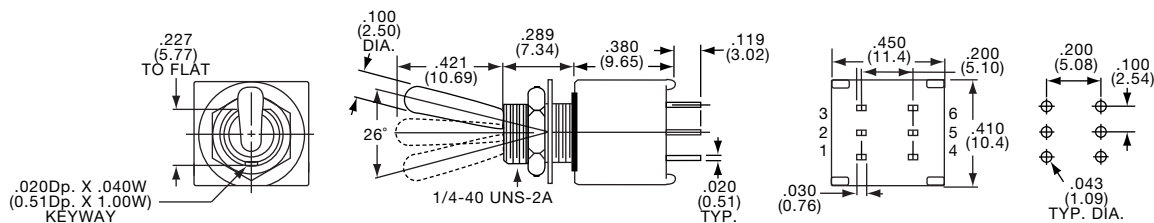
Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
	TTE11AGPC9T1/4ES	SPST	A	On	None	Off
8-1437562-8	TTE11DGPC9T1/4ES	SPDT	D	On	None	On
9-1437562-1	TTE11EGPC9T1/4ES	SPDT	E	On	Off	On

Note: No center terminal on "A" action switches.

1 POLE



TTE11DGPC9T4ES



Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	None	Off
	TTE21KGPC9T1/4ES	DPST	K	On	None	Off
1437563-3	TTE21NGPC9T1/4ES	DPDT	N	On	None	On
	TTE21PGPC9T1/4ES	DPDT	P	On	Off	On

Note: No center terminal on "K" action switches.

2 POLE



TTE21NGPC9T4ES

Toggle Switches, Process Sealed, Vertical and Right Angle, Round Actuator

MATERIAL SPECIFICATIONS:

ContactsGold over nickel plate
Case MaterialPolyester 94V-0
Actuator MaterialNickel plated copper alloy
TerminalsPhosphor bronze
Terminal SealEpoxy
Process SealTested to MIL-STD-202, method 112
(Internal O-Ring)test condition A and D, 85°C

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC
Initial Contact Resistance100 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance500 Megohms @ 250 VDC min.
Dielectric Strength500 Volts RMS @ sea level
Actuation Force400 Grams
Life ExpectancyUp to 10,000 Cycles

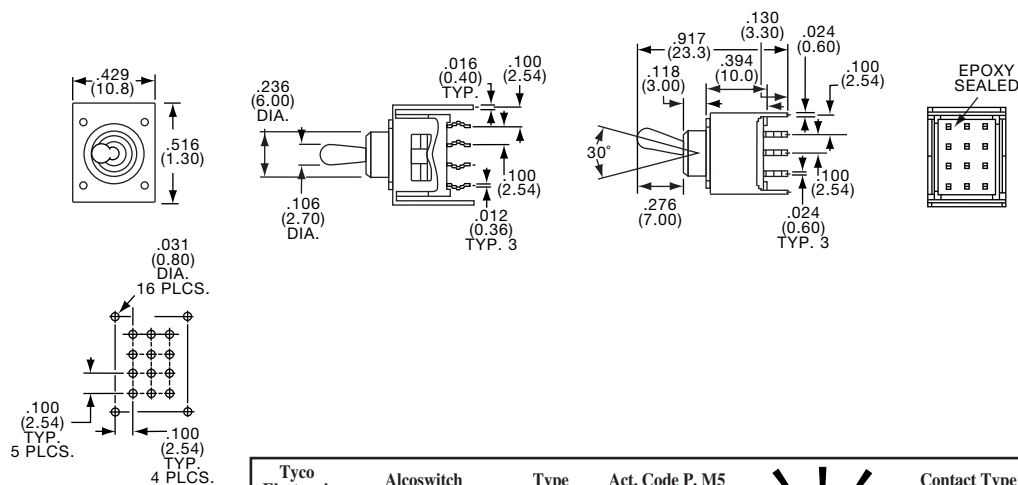
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)

4PDT



ATE4DGPC2

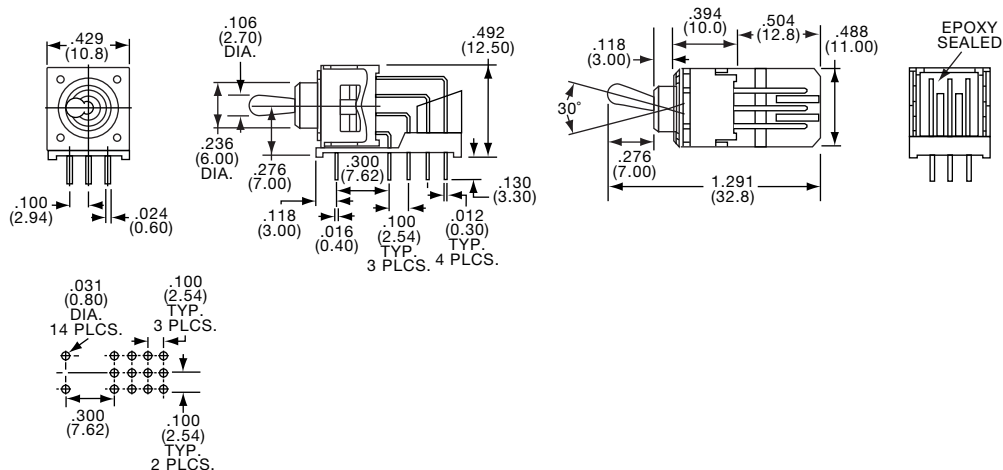


Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On None On	Contact Type
2-1437557-1	ATE4DGPC2	4PDT	8	On None On	Gold

4PDT



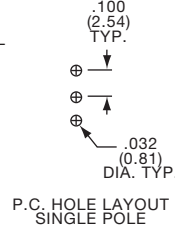
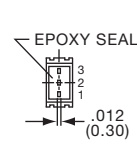
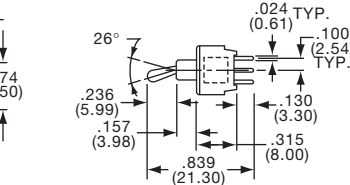
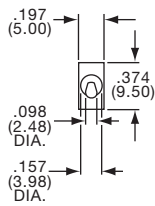
ATE4DGRA2



Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On None On	Contact Type
2-1437557-2	ATE4DGRA2	4PDT	8	On None On	Gold

Toggle Switches, Process Sealed, Vertical, Round or Flat Actuators

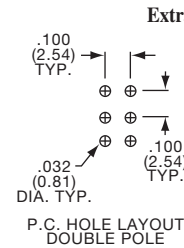
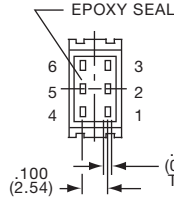
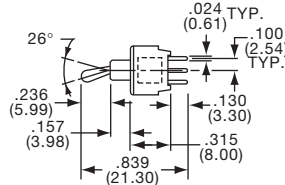
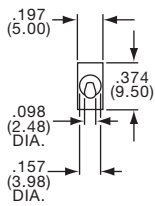
SEE PAGE C19 FOR PRODUCT SPECIFICATIONS



SPDT/DPDT



ATE1DGPC1



Extra compact double pole saves PCB real estate.

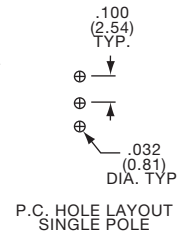
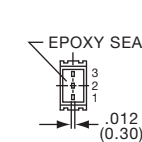
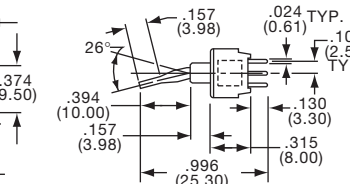
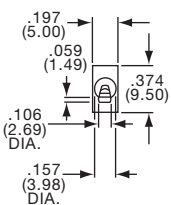


ATE2DGPC1

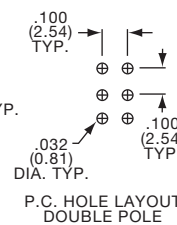
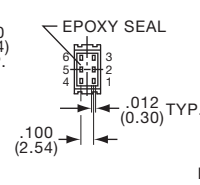
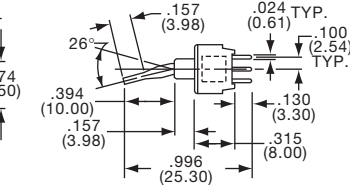
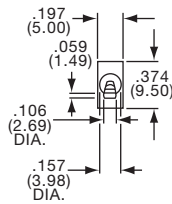
Tyco Electronics	Alcoswitch	Type				Contact Type
1437557-2	ATE1DGPC1	SPDT	On	None	On	Gold
1437557-6	ATE1EGPC1	SPDT	On	Off	On	Gold
	ATE1FGPC1	SPDT	On	None (On)	On	Gold
1-1437557-2	ATE1GGPC1	SPDT	(On)	Off	(On)	Gold
Terminals Connected: (On) indicates momentary position.						
			2-3	2-1		

Tyco Electronics	Alcoswitch	Type				Contact Type
1-1437557-5	ATE2DGPC1	DPDT	On	None	On	Gold
1-1437557-9	ATE2EGPC1	DPDT	On	Off	On	Gold
Terminals Connected:						
			2-3	2-1	5-4	

SPDT/DPDT



ATE1DGPC7



Extra compact double pole saves PCB real estate.



ATE2DGPC7

Tyco Electronics	Alcoswitch	Type				Contact Type
1437557-3	ATE1DGPC7	SPDT	On	None	On	Gold
1-1437557-3	ATE1GGPC7	SPDT	(On)	Off	(On)	Gold
Terminals Connected:						
			2-3	2-1	5-4	
(On) indicates momentary position.						

Tyco Electronics	Alcoswitch	Type				Contact Type
1-1437557-6	ATE2DGPC7	DPDT	On	None	On	Gold
Terminals Connected:						
			2-3	2-1	5-4	

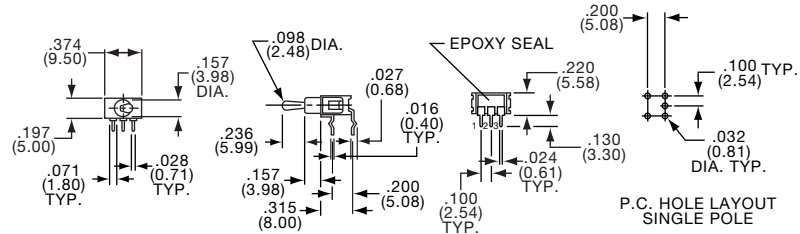
Toggle Switches, Process Sealed, Right Angle, Retention Feature

SEE PAGE C19 FOR PRODUCT SPECIFICATIONS

SPDT/DPDT



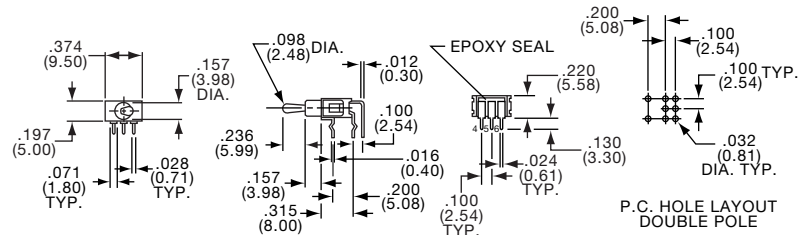
ATE1DGRA1
Horizontal Actuation



Extra compact double pole
saves PCB real estate.



ATE2DGRA1
Horizontal Actuation

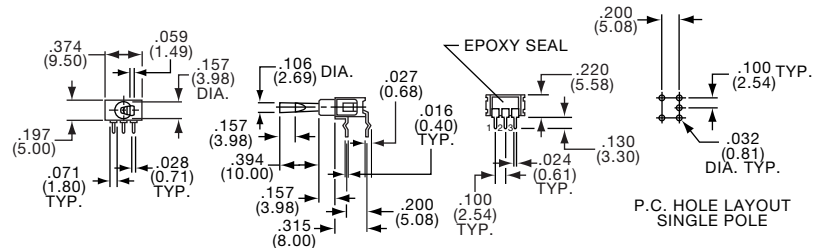


Tyco Electronics	Alcoswitch	Type	On	None	Off	Contact Type	Tyco Electronics	Alcoswitch	Type	On	None	Off	Contact Type
1437557-4	ATE1DGRA1	SPDT	On	None	On	Gold	1-1437557-7	ATE2DGRA1	DPDT	On	None	On	Gold
1437557-8	ATE1EGRA1	SPDT	On	Off	On	Gold	3-1437592-7	ATE2EGRA1	DPDT	On	Off	On	Gold
1-1437557-0	ATE1FGRA1	SPDT	On	None (On)		Gold		ATE2GGRA1	DPDT	(On)	Off	(On)	Gold
1-1437557-4	ATE1GGRA1	SPDT	(On)	Off	(On)	Gold	Terminals Connected:			2-3		2-1	
Terminals Connected:										5-6		5-4	
(On) indicates momentary position.							(On) indicates momentary position.						

SPDT/DPD



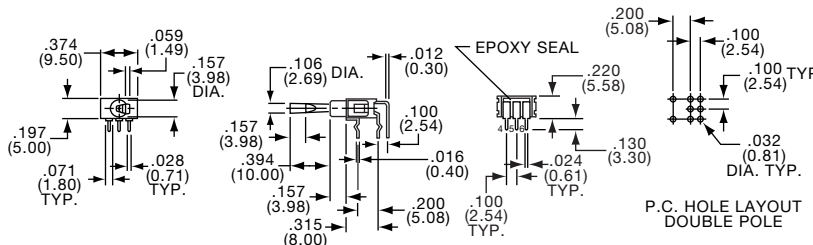
ATE1DGRA7
Horizontal Actuation



Extra compact double pole
saves PCB real estate.



ATE2DGRA7
Horizontal Actuation



Tyco Electronics	Alcoswitch	Type	On	None	Off	Contact Type	Tyco Electronics	Alcoswitch	Type	On	None	Off	Contact Type
1437557-5	ATE1DGRA7	SPDT	On	None	On	Gold	1-1437557-8	ATE2DGRA7	DPDT	On	None	On	Gold
1437557-9	ATE1EGRA7	SPDT	On	Off	On	Gold	Terminals Connected:			2-3		2-1	
1-1437557-1	ATE1FGRA7	SPDT	On	None (On)		Gold				5-6		5-4	
Terminals Connected:							(On) indicates momentary position.						
(On) indicates momentary position.							(On) indicates momentary position.						

Toggle Switches, A Series, Part Number Matrix

"A" SERIES DESIGN FEATURES

- Toggle – Machined brass, heavy nickel plated.
- Bushing & Frame – Rigid one-piece die cast, copper flashed, heavy nickel plated.
- Fixed Contact – Welded construction.
- Terminal Seal – Epoxy sealing of terminals is standard.

MATERIAL SPECIFICATIONS:

Contacts	Gold/gold flash
	Silver/tin lead
Case Material	Thermoset
Terminal Seal	Epoxy

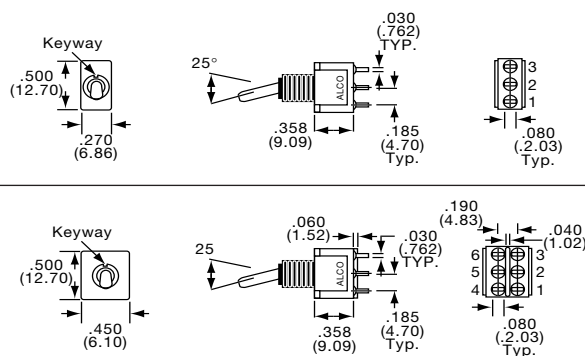
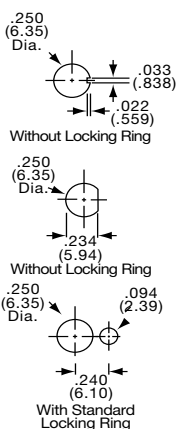
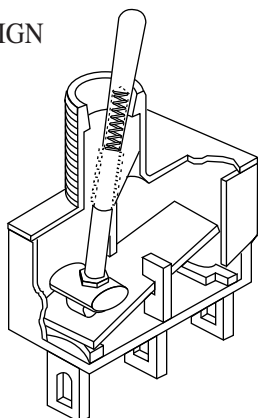
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	Silver: 2 A @ 250 VAC or 5 A @ 125 VAC
	Silver: 2 A @ 30 VDC
	Gold: 0.4 VA @ 20 VAC/DC max.
Insulation Resistance	1,000 Megohms min. @ 500 VDC.
Dielectric Strength	1,000 Volts RMS @ sea level initial
Electrical Life	Up to 30,000 Cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to + 185°F (-20°C to + 85°C)
Storage Temperature.....-49°F to + 212°F (-45°C to + 100°C)
Note: Hardware included with switch

DESIGN



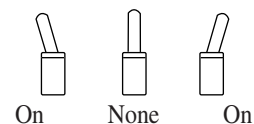
PART NUMBERING

Toggle Switches, A Series, Options

FUNCTIONS

The following functions available in SP or DP.

01	2 Positions	None indicates no mechanical position
03	3 Positions	Off indicates a mechanical position with no electrical connection.
05	3 Positions	(On) indicates momentary action.
07	3 Positions	
08	2 Positions	



On None On

On Off On

(On) Off (On)

(On) Off On

(On) None On

1—2 — 2—3

1—2 — 2—3
4—5 — 5—6

SPDT, connect terminals:

DPDT, connect terminals:

11	3 Positions	On On On
13	3 Positions	(On) On On
15	3 Positions	(On) On (On)

Functions available in DP case only

Connect terminals:

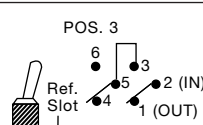
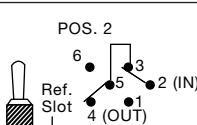
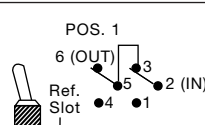
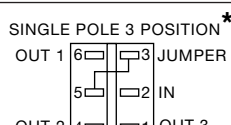
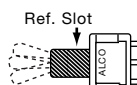
1—2 2—3 2—3
4—5 4—5 5—6

* SP3T functions achieved with external jumper installed by customer

WIRING DIAGRAM FOR FUNCTIONS

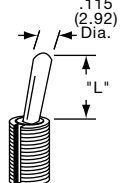


Pos. 3
Pos. 2
Pos. 1

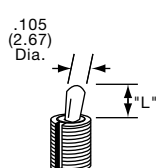


TOGGLES

S
Standard

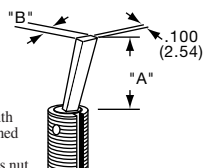


M
Short

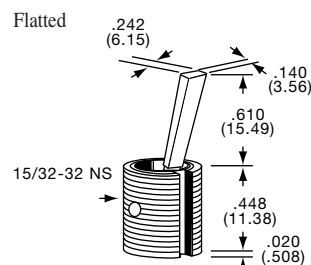


P3
P4

Flatted
Available only with "Y" bushing. Pinned for anti-rotation. Use N-3-AG dress nut for enhancement. Pg. C54



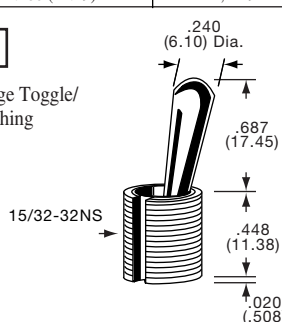
T2P
Flatted



Dimension "L"	Bushing	Dimension "L"	Bushing Type	Actuator	Dimension "A"	Dimension "B"
.410 (10.41)	"Y", "H", "CW"	.200 (5.08)	"Y", "H", "CW"	P3	.450 (11.43)	.200 (5.08)
.480 (12.19)	"D", "D9"	.270 (6.86)	"D", "D9"	P4	.250 (6.35)	.165 (4.19)

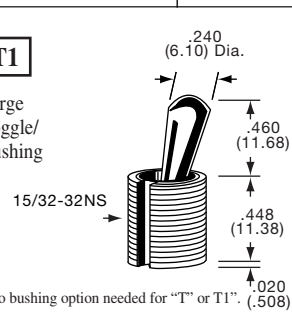
T

Large Toggle/
Bushing



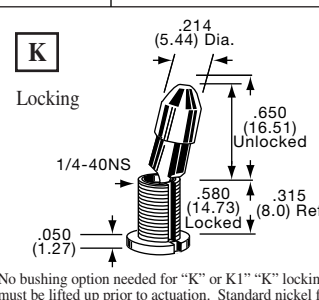
T1

Large
Toggle/
Bushing



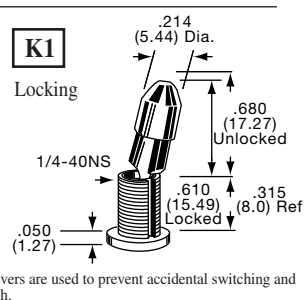
K

Locking



K1

Locking



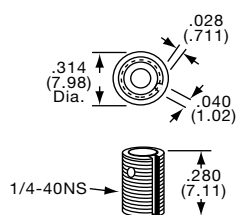
No bushing option needed for "K" or "K1" "K" locking levers are used to prevent accidental switching and must be lifted up prior to actuation. Standard nickel finish.

Toggle Switches, A Series, Options

BUSHINGS

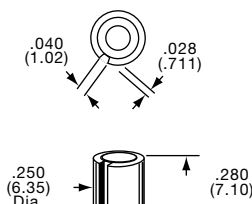
Y

1/4-40 Thread
.35" long, slotted
(Standard)



D9

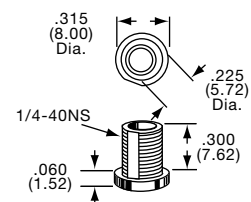
Unthreaded
.28" long



Used with
Z, C & W
terminations

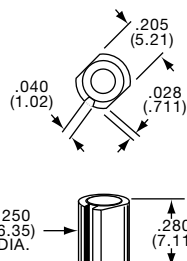
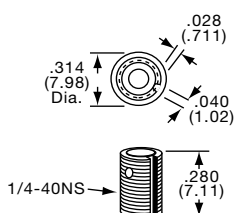
H

1/4-40 Thread
Flanged, .30" long



D

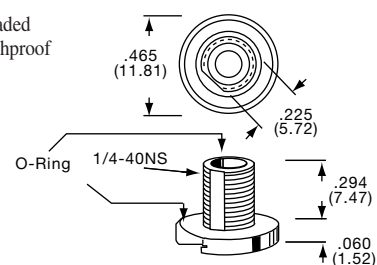
1/4-40 Thread
.28" long, slotted



Used with
A, AV2, V30
V80 & V90
terminations

CW

Threaded
Splashproof

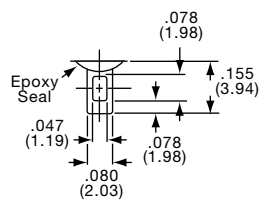


For S & M Toggles

TERMINALS

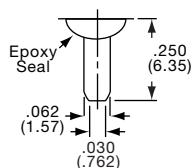
Z

Wire Lug



Z3

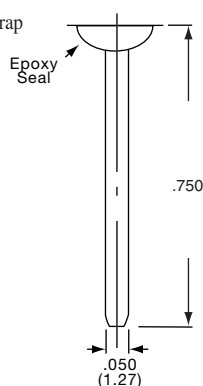
Quick Connect



Mates with Tyco
61454 or 60900.

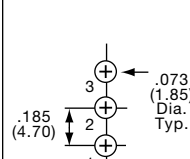
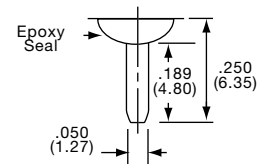
W

Wire Wrap

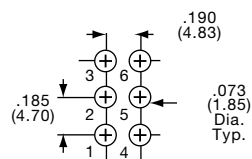


C

Printed Circuit



Single pole



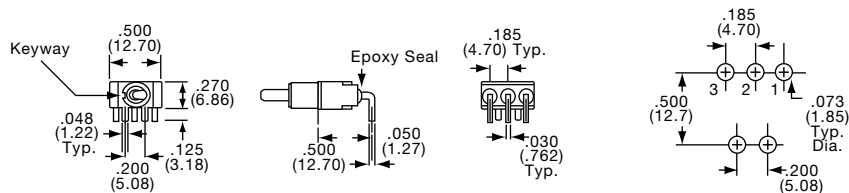
Double pole

Toggle Switches, A Series, Options

TERMINALS

A

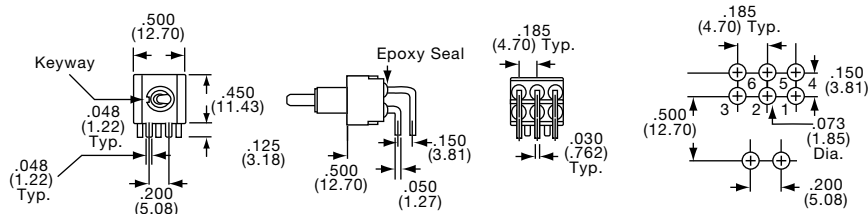
Right Angle
Single Pole



Note: Terminal numbers viewed from top of P.C. boards.

A

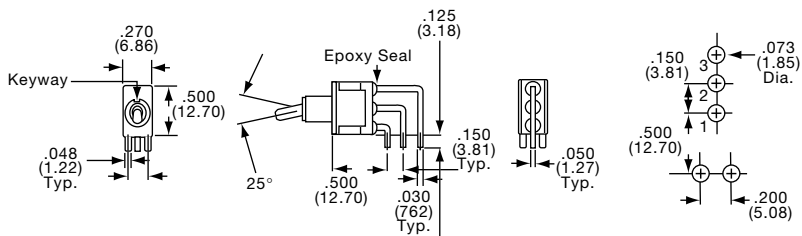
Right Angle
Double Pole



Note: Terminal numbers viewed from top of P.C. boards.

AV2

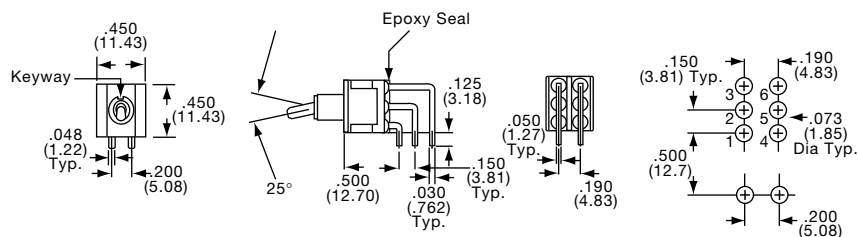
Vertical Right Angle
Single Pole



Note: Terminal numbers viewed from top of P.C. boards.

AV2

Vertical Right Angle
Double Pole



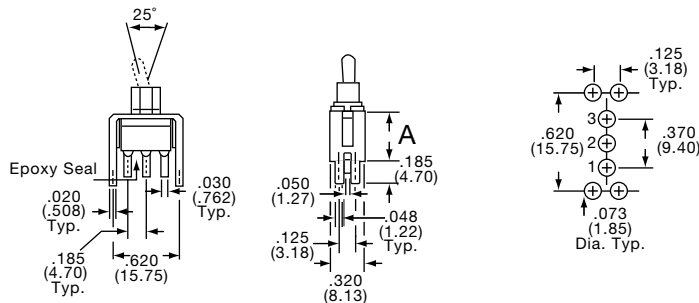
Note: Terminal numbers viewed from top of P.C. boards.

Toggle Switches, A Series, Options

TERMINALS NOTE: Terminal numbers viewed from top of P.C. board

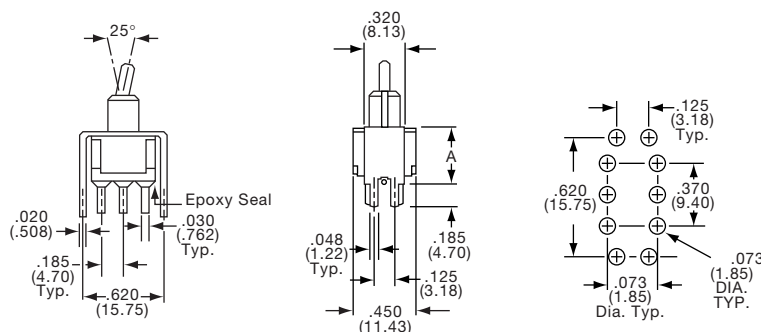
V30 V40 V90

Vertical Support Bracket
Single Pole



Option Code	Dim."A"
V30	.460 (11.68)
V40	.630 (16.00)
V90	1.150 (29.21)

Vertical Support Bracket
Double Pole



Option Code	Dim."A"
V30	.460 (11.68)
V40	.630 (16.00)
V90	1.150 (29.21)

CONTACTS

B CONTACTS: Copper alloy with gold plate, welded button.

TERMINALS: Brass with gold plate.

ELECTRICAL RATING: 0.4 VA @ 20 VAC/DC.

Q CONTACTS: Copper alloy with silver, welded button.

TERMINALS: Brass with tin/lead plate.

ELECTRICAL RATING: 5 A @ 125 VAC, 2 A @ 250 VAC, 2 A @ 30 VDC.

UL/CSA RATING: 5A @ 125 VAC, 3A @ 250 VAC.
(Specify "UL" option code)

G CONTACTS: Copper alloy with gold plate over silver, welded button.

TERMINALS: Brass alloy, with gold plate.

Note: This contact option can be used for low-level or power switching. If level is above 0.4 VA @ 20 VAC/DC, the switch is rendered usable only for power switching due to arc-removal of gold plate.

UL/CSA RATING: 5A @ 125 VAC, 3A @ 250 VAC
(Specify "UL" option code)

ELECTRICAL RATING: 0.4 VA @ 20 VAC/DC or 5 A @ 125 VAC, 2 A @ 250 VAC, 2 A @ 30 VDC.

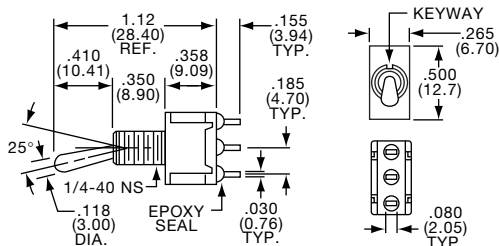
* Refer to Pages C22-C26 for
Additional Options *

Toggle Switches, A Series, Vertical, Wire Lug, Long Bat Actuator

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS

SPDT

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
5-1437554-0	A101SYZQ	SPDT	1	On	None	On
7-1437554-7	A103SYZQ	SPDT	5	On	Off	On
9-1437554-6	A105SYZQ	SPDT	5	(On)	Off	(On)
1437555-9	A107SYZQ	SPDT	5	On	Off	(On)
2-1437555-0	A108SYZQ	SPDT	1	On	None	(On)
Gold Contacts						
4-1437554-9	A101SYZB	SPDT	1	On	None	On
7-1437554-6	A103SYZB	SPDT	5	On	Off	On
9-1437554-5	A105SYZB	SPDT	5	(On)	Off	(On)
	A107SYZB	SPDT	5	On	Off	(On)

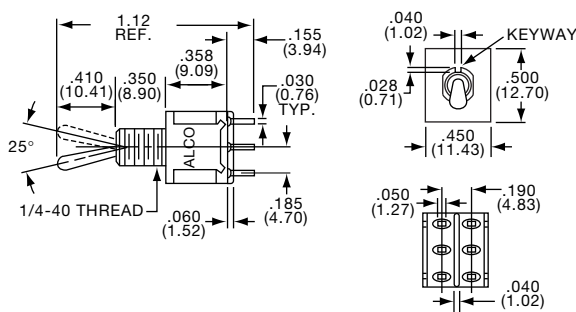


A101SYZQ

G
Gemini Series

DPDT

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
4-1437555-9	A201SYZQ	DPDT	2	On	None	On
6-1437555-2	A203SYZQ	DPDT	6	On	Off	On
7-1437555-0	A205SYZQ	DPDT	6	(On)	Off	(On)
7-1437555-6	A207SYZQ	DPDT	6	On	Off	(On)
8-1437555-5	A208SYZQ	DPDT	2	On	None	(On)
1437556-1	A211SYZQ	SP3T	11	On	On	On
1437556-4	A213SYZQ	SP3T	11	On	On	(On)
1437556-7	A215SYZQ	SP3T	11	(On)	On	(On)



A201SYZQ

Toggle Switches, A Series, PC Terminals, Long Bat Actuators

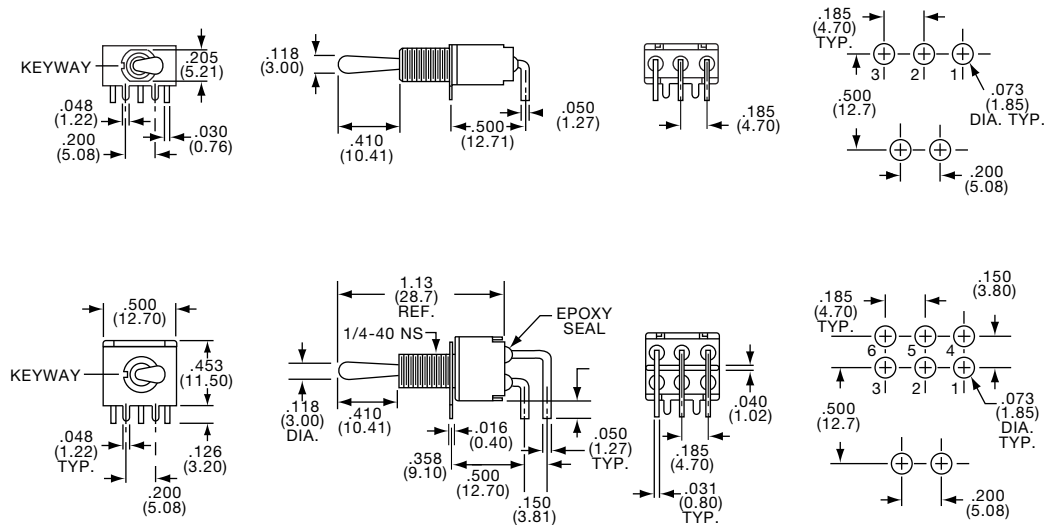
* Refer to Pages C22-C26 for Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS

SPDT/DPDT



A101SYAB
Horizontal Actuation

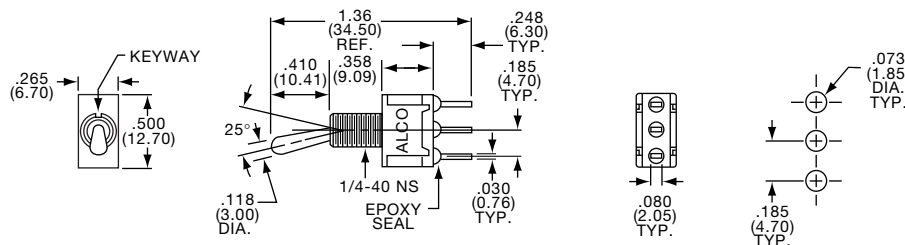


Tyco Electronics	Alcoswitch	Type	Act. Code P.M5	On	None	Off
Gold Contacts						
4-1437554-3	A101SYAB	SPDT	1	On	None	On
	A103SYAB	SPDT	5	On	Off	On
4-1437555-3	A201SYAB	DPDT	2	On	None	On
	A208SYAB	DPDT	2	On	None	(On)

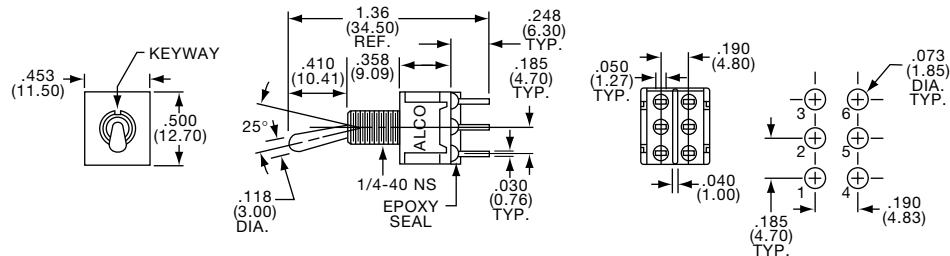
SPDT/DPDT



A101SYCB



A201SYCB

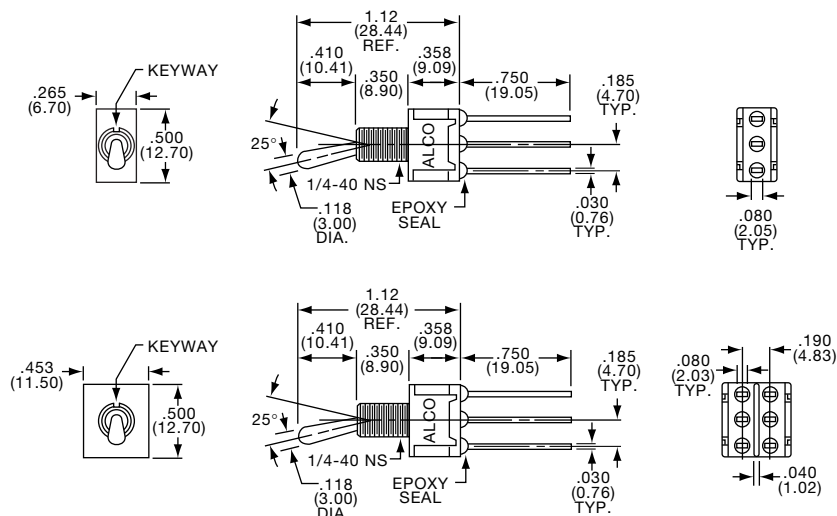


Tyco Electronics	Alcoswitch	Type	Act. Code P.M5	On	None	Off
Gold Contacts						
4-1437554-5	A101SYCB	SPDT	1	On	None	On
7-1437554-2	A103SYCB	SPDT	5	On	Off	On
1-1437555-8	A108SYCB	SPDT	1	On	None	(On)
4-1437555-5	A201SYCB	DPDT	2	On	None	On
6-1437555-0	A203SYCB	DPDT	6	On	Off	On
8-1437555-3	A208SYCB	DPDT	2	On	None	(On)

Toggle Switches, A Series, Wire Wrap or Wire Lug, Long Bat Actuators

* Refer to Pages C22-C26 for
Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS



SPDT/DPDT

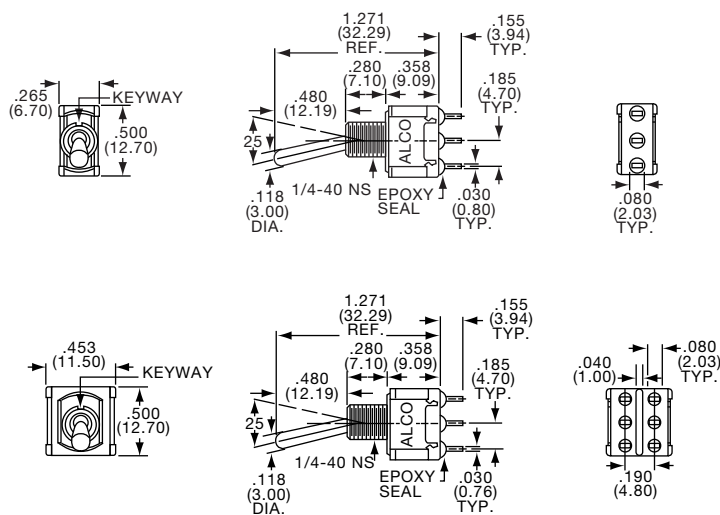


A101SYWQ



A201SYWQ

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5	↖	↓	↗
Silver Contacts						
4-1437554-8	A101SYWQ	SPDT	1	On	None	On
7-1437554-5	A103SYWQ	SPDT	5	On	Off	On
4-1437555-7	A201SYWQ	DPDT	2	On	None	On
	A203SYWQ	DPDT	6	On	Off	On



SPDT/DPDT



A101SDZQ



A201SDZQ

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5	↖	↓	↗
Silver Contacts						
4-1437554-0	A101SDZQ	SPDT	1	On	None	On
6-1437554-9	A103SDZQ	SPDT	5	On	Off	On
4-1437555-1	A201SDZQ	DPDT	2	On	None	On
5-1437555-9	A203SDZQ	DPDT	6	On	Off	On

* Refer to Pages C22-C26 for
Additional Options *

Toggle Switches, A Series, PC Tail, Straight or Right Angle, Long Bat Actuator

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS

SPDT

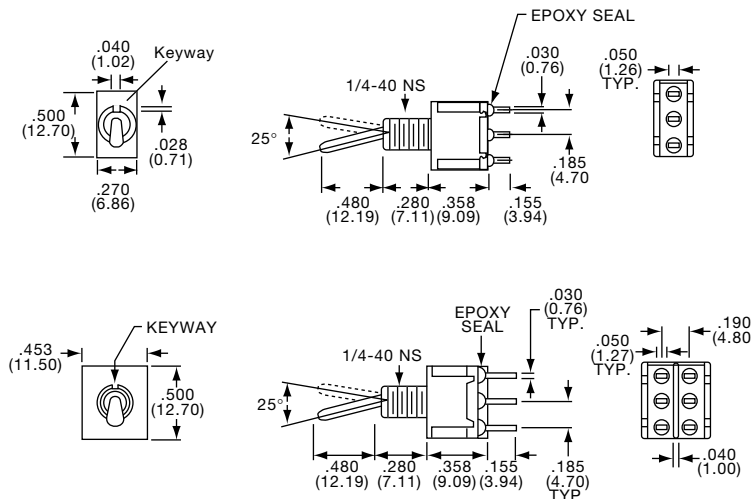


A101SDCQ

DPDT



A201SDCQ



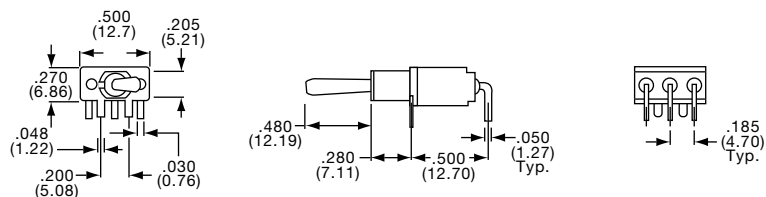
Tyco Electronics	Alcoswitch	Type	Act. Code P.M5	On	Off	On
Silver Contacts						
3-1437554-9	A101SDCQ	SPDT	1	On	None	On
6-1437554-8	A103SDCQ	SPDT	5	On	Off	On
1571670-1	A201SDCQ	DPDT	2	On	None	On
	A203SDCQ	DPDT	6	On	Off	On
	A208SDCQ	DPDT	2	On	None	(On)

SPDT/DPDT



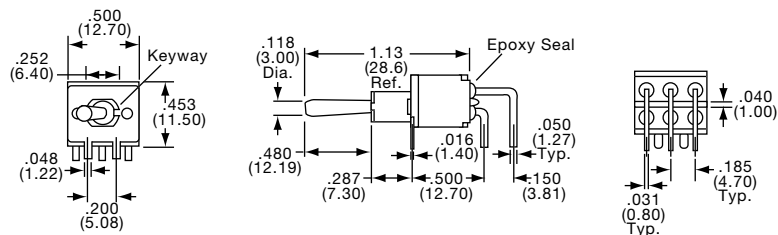
A101SD9AQ

Horizontal Actuation



A201SD9AQ

Horizontal Actuation

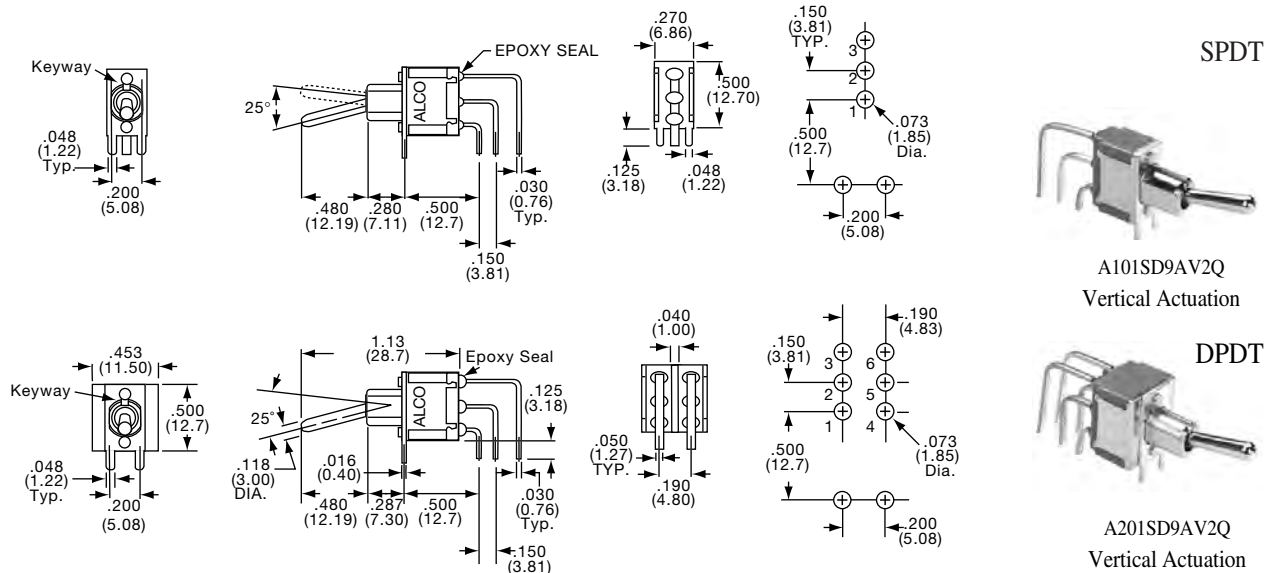


Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5	On	Off	On
Silver Contacts								
3-1437554-4	A101SD9AQ	Gold Contacts 3-1437554-3	A101SD9AB	SPDT	1	On	None	On
6-1437554-4	A103SD9AQ		A103SD9AB	SPDT	5	On	Off	On
1-1437555-6	A108SD9AQ			SPDT	1	On	None	(On)
3-1437555-8	A201SD9AQ		A201SD9AB	DPDT	2	On	None	On
8-1437555-1	A208SD9AQ		A208SD9AB	DPDT	2	On	None	(On)

Toggle Switches, A Series, Vertical, Right Angle, Long Bat Actuator

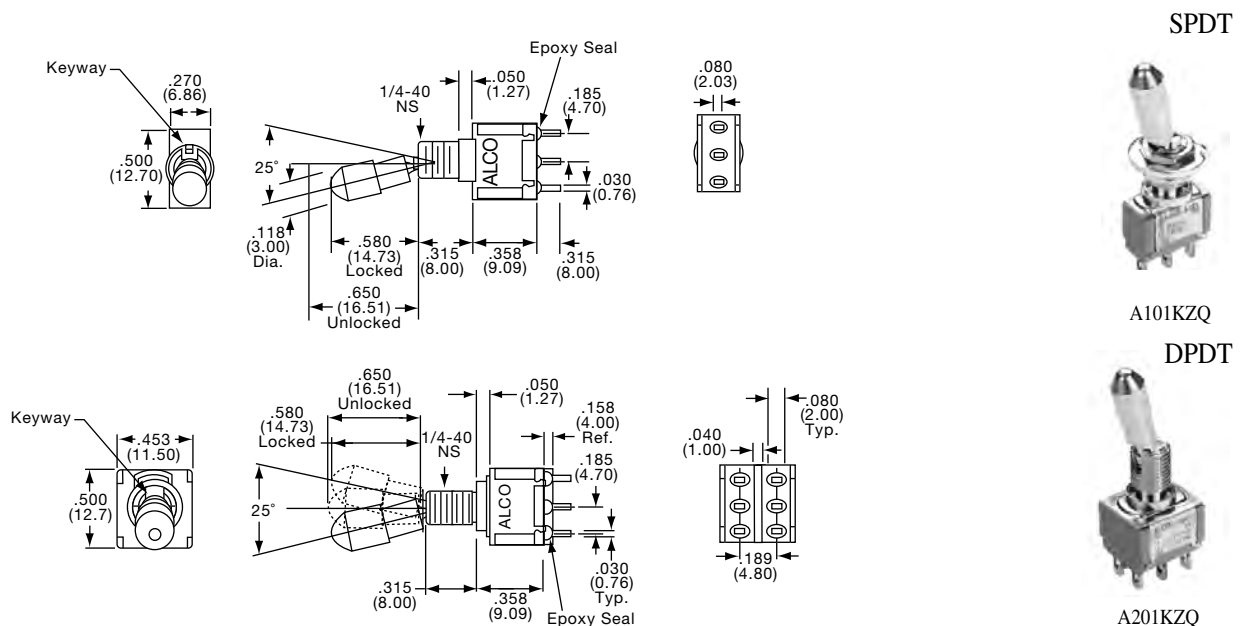
* Refer to Pages C22-C26 for Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS



Tyco Electronics	Alcoswitch	Type	Act. Code	P.M5	👉	⬇	👈	Tyco Electronics	Alcoswitch	Type	Act. Code	P.M5	👉	⬇	👈
Silver Contacts								Silver Contacts							
3-1437554-6	A101SD9AV2Q	SPDT	1	On	None	On		3-1437555-9	A201SD9AV2Q	DPDT	2	On	None	On	
6-1437554-6	A103SD9AV2Q	SPDT	5	On	Off	On		5-1437555-8	A203SD9AV2Q	DPDT	6	On	Off	On	
								8-1437555-2	A208SD9AV2Q	DPDT	2	On	None	(On)	

Toggle Switches, A Series, Wire Lug, Locking Toggle



Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	↙	↓	↘	Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	↙	↓	↘
Silver Contacts								Gold Contacts		Silver Contacts							
1437554-9	A101KZQ	SPDT	1		On	None	On	A201KZB	2-1437555-5	A201KZQ	DPDT	2			On	None	On
5-1437554-8	A103KZQ	SPDT	5		On	Off	On	A203KZB	5-1437555-3	A203KZQ	DPDT	6			On	Off	On
								6-1437555-5	A205KZB	A205KZQ	DPDT	6			(On)	Off	(On)
								8-1437555-8	A211KZB	A211KZQ	SP3T	11			On	On	On

* Refer to Pages C22-C26 for
Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS

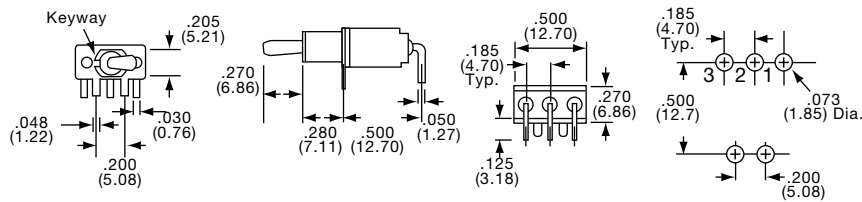
Toggle Switches, A Series, Right Angle, Short Bat Actuators

SPDT



A101MD9AQ

Horizontal Actuation



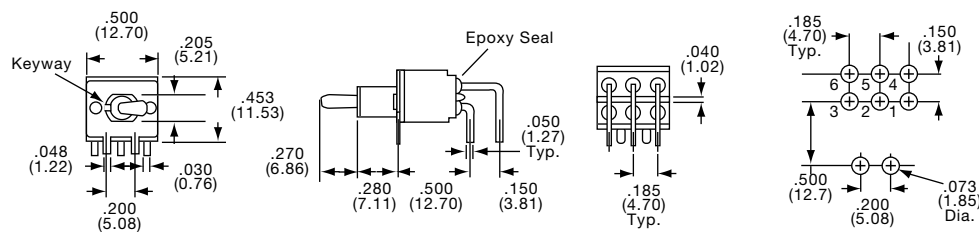
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5			
Silver Contacts		Gold Contacts						
1-1437554-6	A101MD9AQ	1-1437554-4	A101MD9AB	SPDT	1	On	None	On
6-1437554-1	A103MD9AQ	5-1437554-9	A103MD9AB	SPDT	5	On	Off	On
	A108MD9AQ	1-1437555-2	A108MD9AB	SPDT	1	On	None	(On)

DPDT



A201MD9AQ

Horizontal Actuation



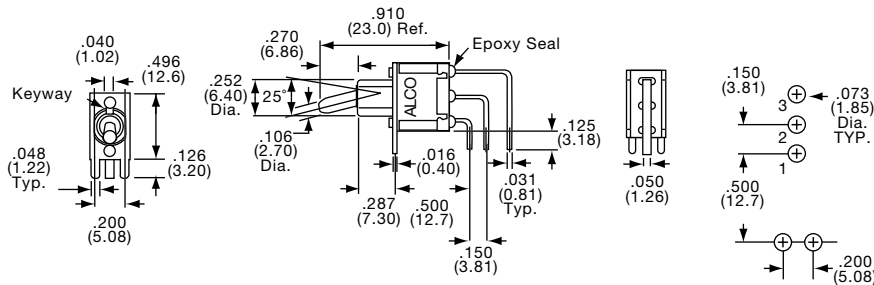
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5			
Silver Contacts		Gold Contacts						
2-1437555-8	A201MD9AQ	2-1437555-7	A201MD9AB	DPDT	2	On	None	On
		5-1437555-4	A203MD9AB	DPDT	6	On	Off	On

SPDT



A101MD9AV2Q

Vertical Actuation



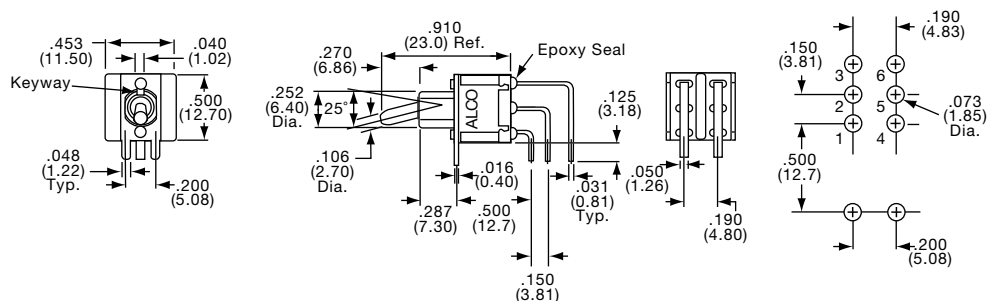
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5			
Silver Contacts		Gold Contacts						
1-1437554-9	A101MD9AV2Q	1-1437554-7	A101MD9AV2B	SPDT	1	On	None	On
	A103MD9AV2Q	6-1437554-2	A103MD9AV2B	SPDT	5	On	Off	On
	A108MD9AV2Q			SPDT	1	On	None	(On)

DPDT



A201MD9AV2AQ

Vertical Actuation

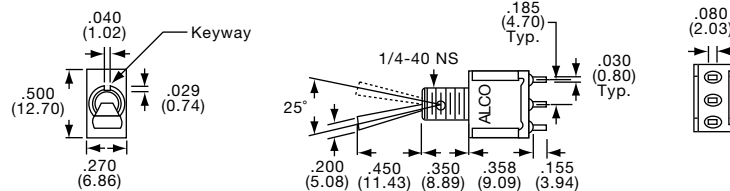


Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Type	Act. Code P. M5			
Silver Contacts		Gold Contacts						
3-1437555-0	A201MD9AV2Q	2-1437555-9	A201MD9AV2B	DPDT	2	On	None	On
	A203MD9AV2Q		A203MD9AV2B	DPDT	6	On	Off	On
	A208MD9AV2Q		A208MD9AV2B	DPDT	2	On	None	(On)

Toggle Switches, A Series, Vertical, Wire Lug, Flat or Long Bat Actuator

* Refer to Pages C22-C26 for Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS



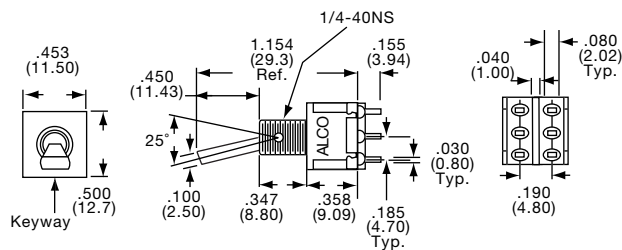
SPDT



A101P3YZQ

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
2-1437554-9	A101P3YZQ	SPDT	1	On	None	On
6-1437554-3	A103P3YZQ	SPDT	5	On	Off	On
8-1437554-7	A105P3YZQ	SPDT	5	(On)	Off	(On)
1437555-5	A107P3YZQ	SPDT	5	On	Off	(On)
1-1437555-5	A108P3YZQ	SPDT	1	On	None	(On)

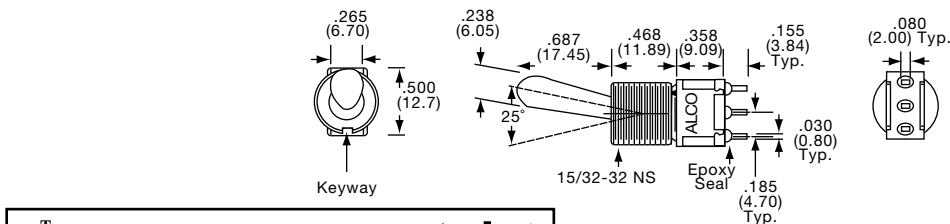
Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
3-1437555-6	A201P3YZQ	DPDT	2	On	None	On
5-1437555-6	A203P3YZQ	DPDT	6	On	Off	On
6-1437555-6	A205P3YZQ	DPDT	6	(On)	Off	(On)
7-1437555-3	A207P3YZQ	DPDT	6	On	Off	(On)
8-1437555-0	A208P3YZQ	DPDT	2	On	None	(On)
9-1436555-3	A211P3YZQ	SP3T	11	On	On	On
	A215P3YZQ	SP3T	11	(On)	On	(On)



DPDT



A201P3YZQ

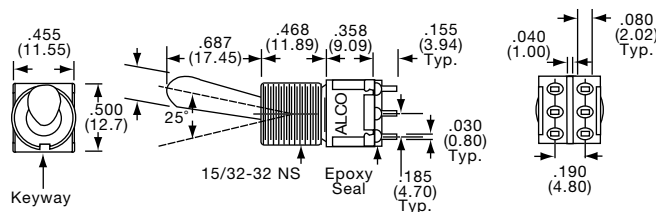


SPDT



A101TZQ

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
5-1437554-6	A101TZQ	SPDT	1	On	None	On
8-1437554-0	A103TZQ	SPDT	5	On	Off	On



DPDT



A201TZQ

Tyco Electronics	Alcoswitch	Type	Act. Code P.M5			
Silver Contacts						
5-1437555-2	A201TZQ	DPDT	2	On	None	On
6-1437555-4	A203TZQ	DPDT	6	On	Off	On
	A211TZQ	SP3T	11	On	On	On

Toggle Switches, A Series, Wire Lug, 15/32 Bushing, Short Bat Actuator

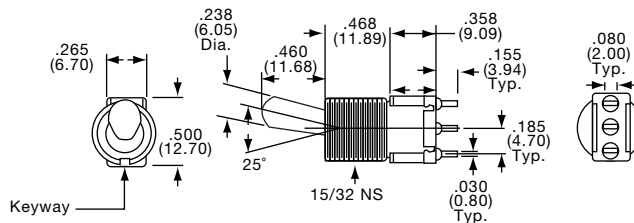
* Refer to Pages C22-C26 for Additional Options *

SEE PAGE C22 FOR PRODUCT SPECIFICATIONS

SPDT



A103T1ZQ

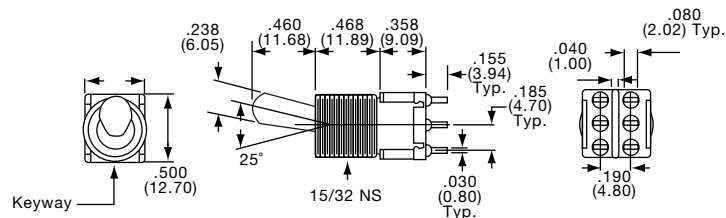


Tyco Electronics	Alcoswitch	Type	Act. Code	P.M5	On	Off	On
Silver Contacts							
5-1437554-4	A101T1ZQ	SPDT	1		On	None	On
7-1437554-9	A103T1ZQ	SPDT	5		On	Off	On
9-1437554-8	A105T1ZQ	SPDT	5		(On)	Off	(On)
	A108T1ZQ	SPDT	1		On	None	(On)

DPDT



A201T1ZQ



Tyco Electronics	Alcoswitch	Type	Act. Code	P.M5	On	Off	On
Silver Contacts							
5-1437555-0	A201T1ZQ	DPDT	2		On	None	On
6-1437555-3	A203T1ZQ	DPDT	6		On	Off	On
7-1437555-1	A205T1ZQ	DPDT	6		(On)	Off	(On)
7-1437555-7	A207T1ZQ	DPDT	6		On	Off	(On)
8-1437555-6	A208T1ZQ	DPDT	2		On	None	(On)
1437556-2	A211T1ZQ	SP3T	11		On	On	On

Toggle Switches, AE Series, Process Sealed, Part Number Matrix

"AE" SERIES DESIGN FEATURES

- MIL-STD-202 Method 112C Leak Test
- Toggle – Machined brass, heavy nickel plated.
- Bushing & Cover - Nylon, ultrasonically welded to case, with integral "O-ring", UL94VO.
- Fixed Contact – Welded construction.
- Terminal Seal – Epoxy sealing of terminals is standard.
- Termination – Precious metal (gold or silver)/brass or copper strip with welded contact area.

MATERIAL SPECIFICATIONS:

Process Sealing "O-ring" seals will withstand wave soldering and various subsequent cleaning operations. Meets MIL-STD-202, Method 112C, Test Condition A & D, 85°C.

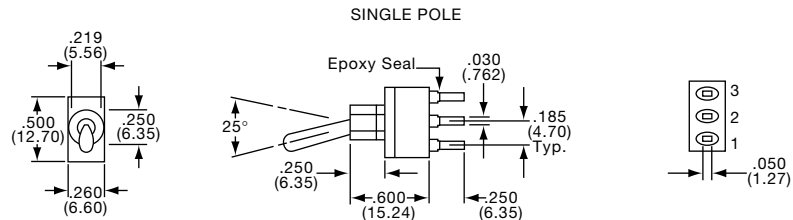
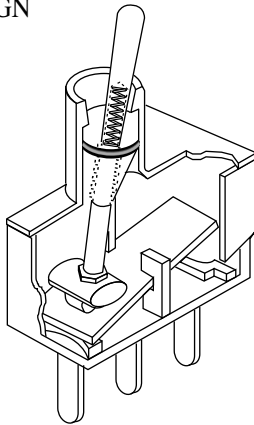
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to + 185°F (-20°C to + 85°C)
Storage Temperature.....-49°F to + 212°F (-45°C to + 100°C)
Solder Heat ResistanceSee page M3-4

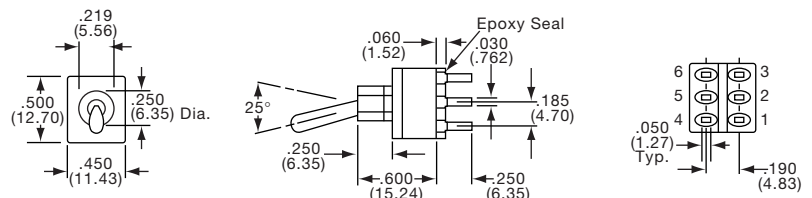
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingSilver: 2 A @ 250 VAC or 5 A @ 125 VAC
Silver: 2 A @ 30 VDC
Gold: 0.4 VA @ 20 VAC/DC
Contact Resistance30 Milliohms max. initial
Insulation Resistance1,000 Megohms min. @ 500 VDC.
Dielectric Strength1,000 Volts RMS @ sea level initial
Static Withstanding.....15 KV per IEC 801-2
Electrical LifeUp to 30,000 Cycles

"O-RING" DESIGN



(TYPICAL DIMENSIONS)



DOUBLE POLE

PART NUMBERING

Model	Function	Toggle	Bushing	Terminal	Contact	Option
AE1 Single Pole		S Bat. Long	D1 Unthreaded	A Right Angle	B Gold	U.L. (Q or G contact only)
AE2 Double Pole		L Lever		AV2 Vertical Right Angle	Q Silver	
		L1 Lever		C Printed Circuit	G Gold over Silver	
		L2 Lever		V30 Vertical Support Bracket		
01 On-On		M Bat. Short		W Wire Wrap		
03 On-Off-On				Z3 Quick Connect		
05 (On)-Off-(On)				Z Wire Lug		
07 On-Off-(On)						
08 On-(On)						
11 On-On-On						
13 On-On-(On)						
15 (On)-On-(On)						
		Double Pole case only				

Application Note: For surface mount termination, use the "TST" series, Page C5

Other Options

- N** Black finish toggle, add "N" to end of part number, but before U.L. option.

See page C36 for SP3T wiring diagram.

Pushbutton Switches, Panel Mount, Wire Lug or PC Tails, 6 Amp

MATERIAL SPECIFICATIONS:

ContactsSilver clad copper with gold flash
Case Material.....Thermoset
Actuator MaterialNickel plated copper alloy
Terminals.....Copper with gold flash
Terminal SealMolded in

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4°F to +176°F (-20°C to +80°C)
Storage Temperature-40°F to +176°F (-40°C to +80°C)
Solder Heat ResistanceSee page M3-4

Note: Hardware included with switches

TYPICAL PERFORMANCE CHARACTERISTICS:

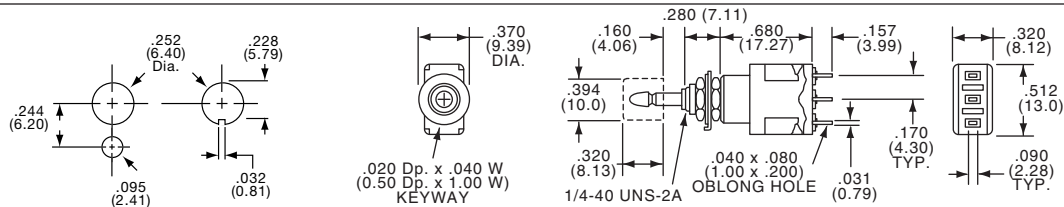
Contact Rating.....6 A @ 125 VAC, 3 A @ 250 VAC
Initial Contact Resistance10 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance.....1,000 Megohms min.
Dielectric Strength.....1,500 Volts RMS @ sea level
Actuation Force1.3 to 2.7 lbs.
Actuator Travel140" (3.56)
Life Expectancy.....Up to 50,000 Actuations

Cap not supplied, order separately
(See Cap Model C22 and C23 on page D32.)

SPDT



MPA106D

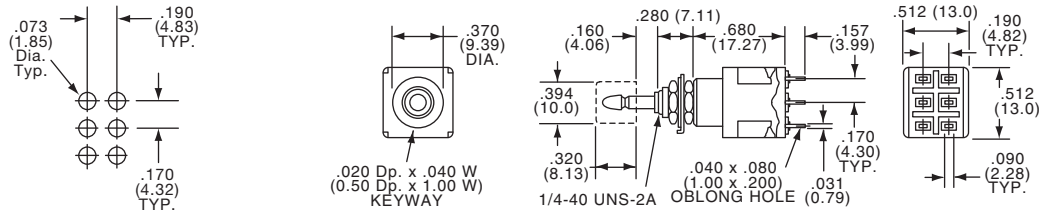


Part Number				
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Action
2-1437567-8	MPA106D	SPDT	23	Push-on/Push-off
2-1437567-9	MPA106F	SPDT	19	Momentary

DPDT



MPA206N



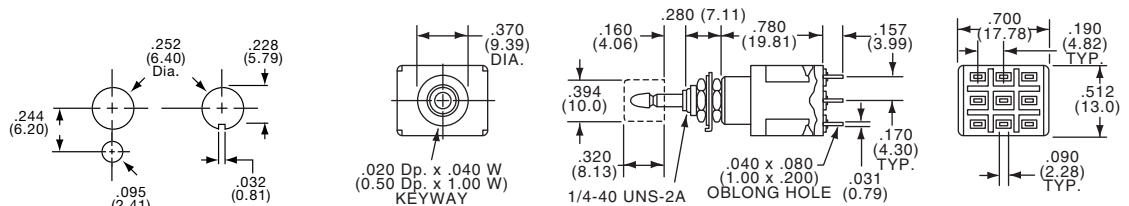
Part Number				
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Action
Wirelug Terminals				
3-1437567-1	MPA206N	DPDT	24	Push-on/Push-off
3-1437567-3	MPA206R	DPDT	20	Momentary

Part Number				
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Action
PC Terminals				
3-1437567-2	MPA206NPC	DPDT	24	Push-on/Push-off
3-1437567-4	MPA206RPC	DPDT	20	Momentary

3PDT



MPA306D

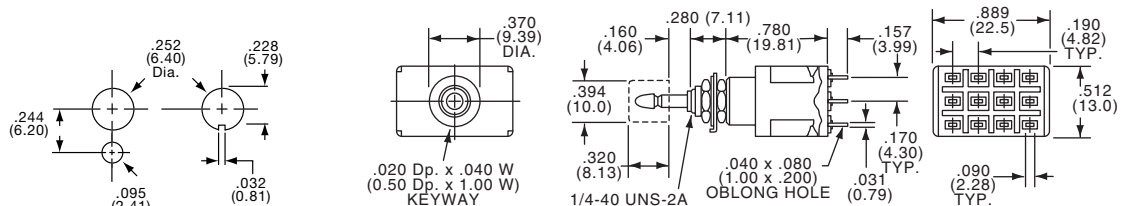


Part Number				
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Action
3-1437567-5	MPA306D	3PDT	25	Push-on/Push-off
3-1437567-6	MPA306F	3PDT	21	Momentary

4PDT



MPA406N



Part Number				
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Action
3-1437567-7	MPA406N	4PDT	26	Push-on/Push-off
3-1437567-8	MPA406R	4PDT	22	Momentary

Pushbutton Switches, Splashproof, Panel Mount, Wire Lug, 6 Amp

MATERIAL SPECIFICATIONS:

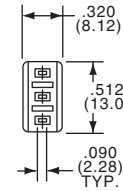
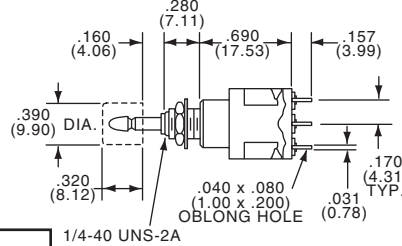
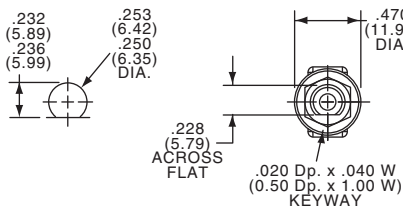
ContactsSilver clad copper with gold flash
Case MaterialThermoset
Actuator MaterialNickel plated copper alloy
TerminalsCopper with gold flash
Terminal SealMolded in

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4°F to +176°F (-20°C to +80°C)
Storage Temperature-40°F to +176°F (-40°C to +80°C)
Note: Hardware included with switches

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating6 A @ 125 VAC, 3 A @ 250 VAC
Initial Contact Resistance10 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,500 Volts RMS @ sea level
Actuation Force1.3 to 2.7 lbs.
Actuator Travel140" (3.56)
Life ExpectancyUp to 50,000 Actuations
Notice: O-ring on shoulder and inside moveable shaft provides splashproof seal. Meets IP65

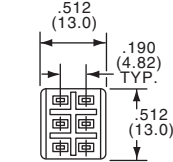
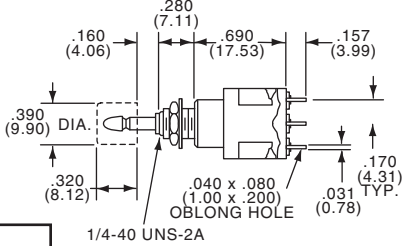
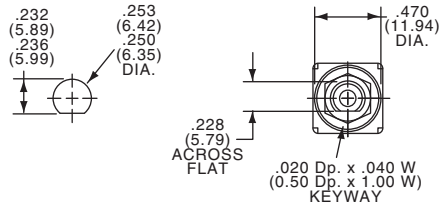


SPDT

MPE106D

Part Number		Act. Code		Action
Tyco Electronics	Alcoswitch	Type	P. M6	
4-1437567-2	MPE106D	SPDT	23	Push on/Push off
4-1437567-3	MPE106F	SPDT	19	Momentary

Cap not supplied, order separately (See Cap Model C22 and C23 on page D32.)

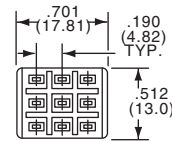
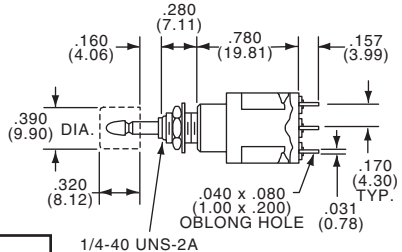
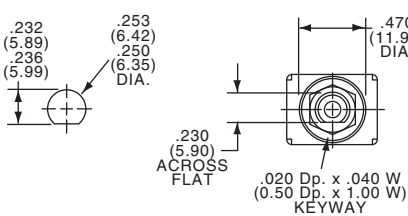


DPDT

MPE206N

Part Number		Act. Code		Action
Tyco Electronics	Alcoswitch	Type	P. M6	
4-1437567-4	MPE206N	DPDT	24	Push on/Push off
4-1437567-5	MPE206R	DPDT	20	Momentary

Cap not supplied, order separately (See Cap Model C22 and C23 on page D32.)

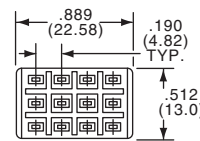
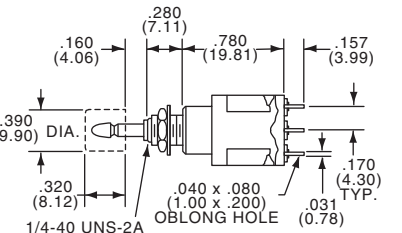
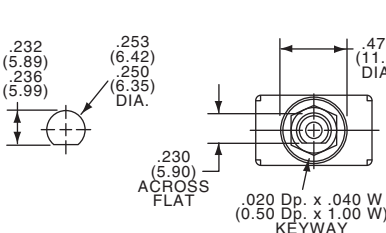


3PDT

MPE306F

Part Number		Act. Code		Action
Tyco Electronics	Alcoswitch	Type	P. M6	
—	MPE306D	3PDT	25	Push on/Push off
4-1437567-6	MPE306F	3PDT	21	Momentary

Cap not supplied, order separately (See Cap Model C22 and C23 on page D32.)



4PDT

MPE406N

Part Number		Act. Code		Action
Tyco Electronics	Alcoswitch	Type	P. M6	
4-1437567-7	MPE406N	4PDT	26	Push on/Push off
4-1437567-8	MPE406R	4PDT	22	Momentary

Cap not supplied, order separately (See Cap Model C22 and C23 on page D32.)

Pushbutton Switches, 15/32 Bushing, Mustang, Wire Lug or PC Tails, 6 Amp

MATERIAL SPECIFICATIONS:

ContactsSilver clad copper with gold flash
Case MaterialThermoset
TerminalsCopper with gold flash finish
Terminal SealMolded in

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)
Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

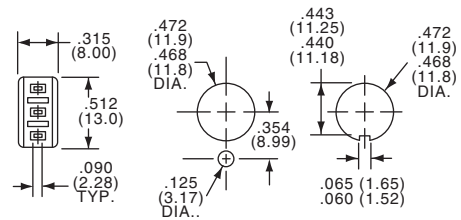
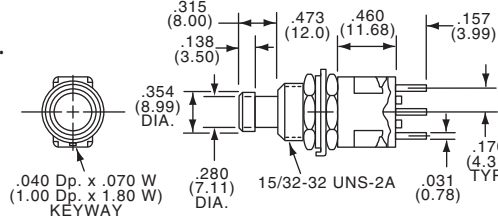
Contact Rating6 A @ 125 VAC, 3 A @ 250 VAC
Initial Contact Resistance10 Milliohms max.
Contact Timing.....Break-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,500 Volts RMS @ sea level
Actuation Force1.3 to 2.7 lbs.
Actuator Travel......138" (3.51)
Life ExpectancyUp to 50,000 Actuations
Note: Hardware included with switches

SPDT

Black Cap supplied.



MPG106D



Other Caps Available, order separately
(See Cap Model C9 on page D32.)

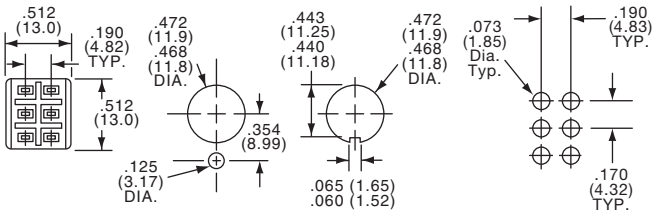
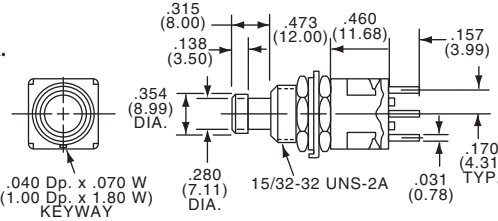
Part Number		Type	Act. Code P. M6	Action	Terminals
Tyco Electronics	Alcoswitch				
4-1437567-9	MPG106D	SPDT	23	Push on/Push off	Wire Lug
5-1437567-0	MPG106F	SPDT	19	Momentary	Wire Lug

DPDT

Black Cap supplied.



MPG206NPC



Other Caps Available, order separately
(See Cap Model C9 on page D32.)

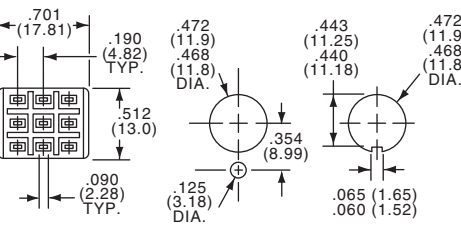
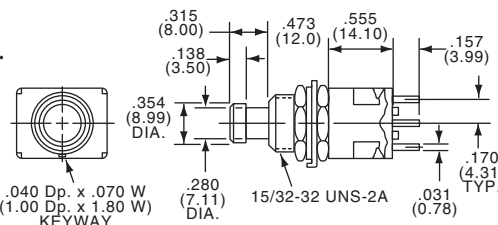
Part Number		Type	Act. Code P. M6	Action	Terminals
Tyco Electronics	Alcoswitch				
5-1437567-1	MPG206N	DPDT	24	Push on/Push off	Wire Lug
5-1437567-3	MPG206R	DPDT	20	Momentary	Wire Lug
5-1437567-2	MPG206NPC	DPDT	24	Push on/Push off	PC
5-1437567-4	MPG206RPC	DPDT	20	Momentary	PC

3PDT

Black Cap supplied.



MPG306D



Other Caps Available, order separately
(See Cap Model C9 on page D32.)

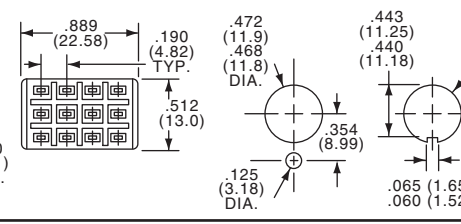
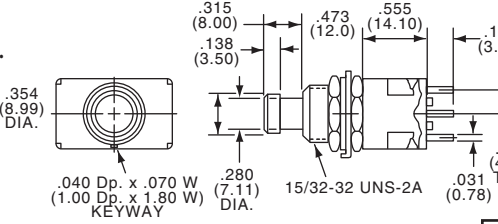
Part Number		Type	Act. Code P. M6	Action	Terminals
Tyco Electronics	Alcoswitch				
5-1437567-5	MPG306D	3PDT	25	Push on/Push off	Wire Lug
5-1437567-6	MPG306F	3PDT	21	Momentary	Wire Lug

4PDT

Black Cap supplied.



MPG406N



Other Caps Available, order separately
(See Cap Model C9 on page D32.)

Part Number		Type	Act. Code P. M6	Action	Terminals
Tyco Electronics	Alcoswitch				
5-1437567-7	MPG406N	4PDT	25	Push on/Push off	Wire Lug
5-1437567-8	MPG406R	4PDT	21	Momentary	Wire Lug

Pushbutton Switches, Snap Action, Wire Lug, 3 Amp

MATERIAL SPECIFICATIONS:

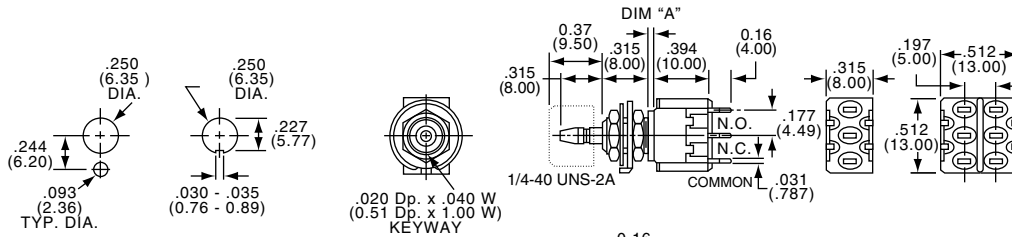
ContactsSilver
Case MaterialEpoxy resin
Actuator MaterialCopper alloy, nickel plate
TerminalsSilver
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+5°F to +158°F (-15°C to +70°C)
Storage Temperature.....+5°F to +158°F (-15°C to +70°C)
Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating3 A @ 115 VAC or 28 VDC
Initial Contact Resistance10 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms @ 500 VDC min.
Dielectric Strength1,000 Volts RMS @ sea level
Actuation ForceSingle pole - 7 to 14 oz. (200 to 400 grams)
.....Double pole - 14 to 25 oz. (400 to 700 grams)
Actuator Travel.....Momentary .040" (1.02)
.....Push on/off .098" (2.49)
Life ExpectancyUp to 50,000 Actuations

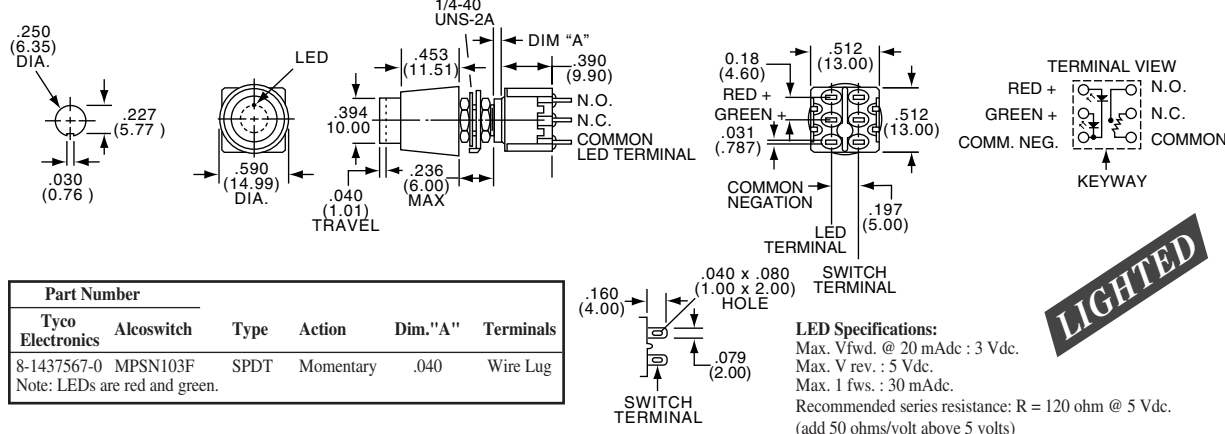


SPDT/DPDT



Part Number	Type	Action	Dim."A"	Terminals
Tyco Electronics	Alcoswitch			
5-1437567-9	MPS103D	SPDT Push-on/Off	.100	Wire Lug
6-1437567-3	MPS103F	SPDT Momentary	.040	Wire Lug
6-1437567-8	MPS203N	DPDT Push-on/Off	.100	Wire Lug
7-1437567-2	MPS203R	DPDT Momentary	.040	Wire Lug

Note: Hardware included with switches
Caps not supplied, order separately. (See Cap Model C22 and C23 on Page D32.)



SPDT

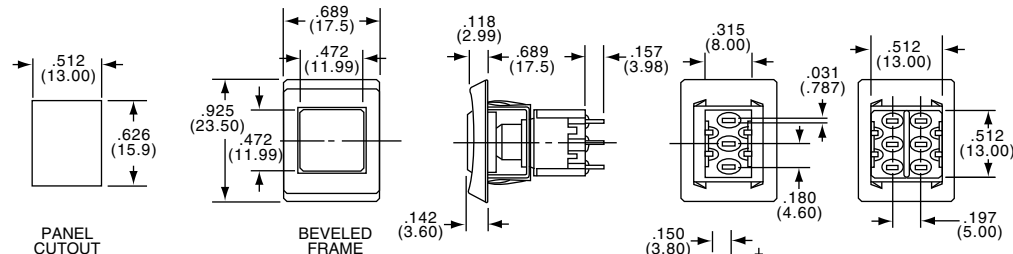


Part Number	Type	Action	Dim."A"	Terminals
Tyco Electronics	Alcoswitch			
8-1437567-0	MPSN103F	SPDT Momentary	.040	Wire Lug

Note: LEDs are red and green.

LED Specifications:
Max. Vfwd. @ 20 mA dc : 3 Vdc.
Max. V rev. : 5 Vdc.
Max. I fws : 30 mA dc.
Recommended series resistance: R = 120 ohm @ 5 Vdc.
(add 50 ohms/volt above 5 volts)

LIGHTED



SPDT/DPDT



Part Number	Type	Action	Terminals
Tyco Electronics	Alcoswitch		
8-1437567-1	MPSR103F	SPDT Momentary	Wire Lug
8-1437567-2	MPSR203R	DPDT Momentary	Wire Lug
Model	Description	Color	
2-1437628-2	SDR0	Plastic beveled frame	Black
5-1437627-5	C330	Square button for MPSR	Black
5-1437627-6	C332	Square button "	Red
5-1437627-8	C339	Square button "	White

C-33(*) Button not supplied, Plastic (black)
beveled edged frame Model SDR0, not supplied.
ORDER SEPARATELY

Pushbutton Switches, Snap Action, PC or Wire Wrap Tails, 3 Amp

SPDT/DPDT

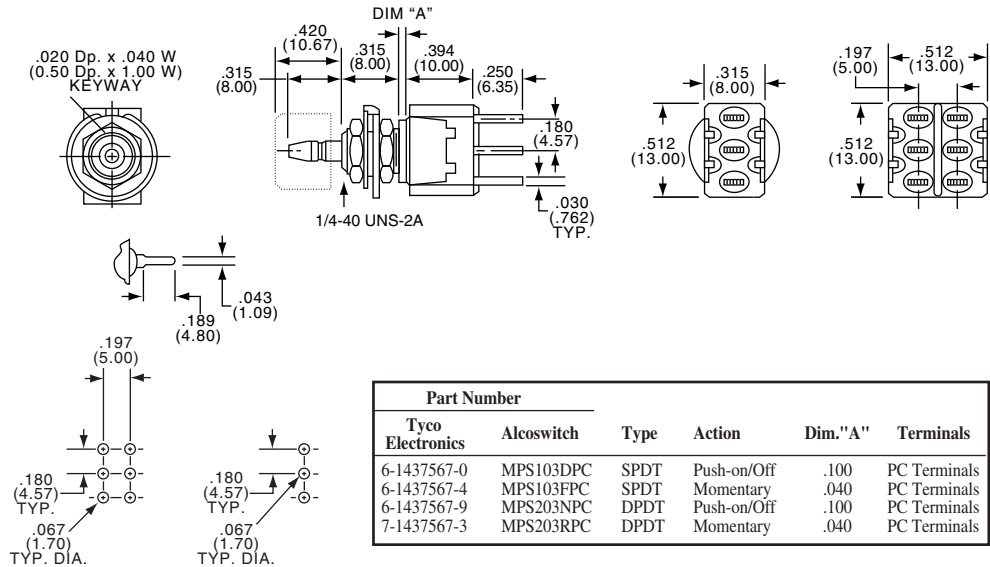
SEE PAGE D25 FOR PRODUCT SPECIFICATIONS



MPS103FPC



MPS203RPC



Caps not supplied, order separately. (See Cap Model C22 and C23 on Page D32.)

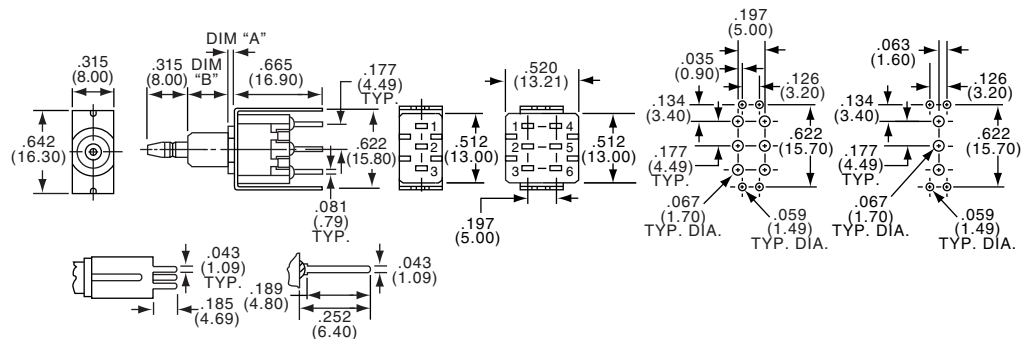
SPDT/DPDT



MPS103FPCV



MPS203RPCV



Caps not supplied, order separately.
(See Cap Model C22 and C23 on Page D32.)

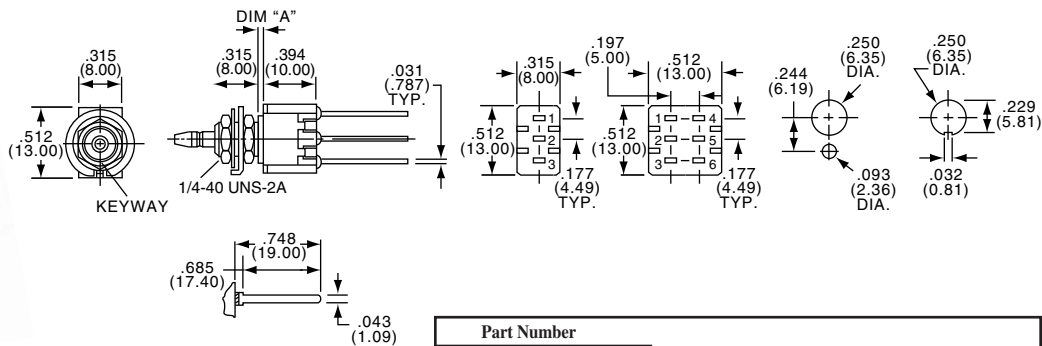
SPDT/DPDT



MPS103FWW



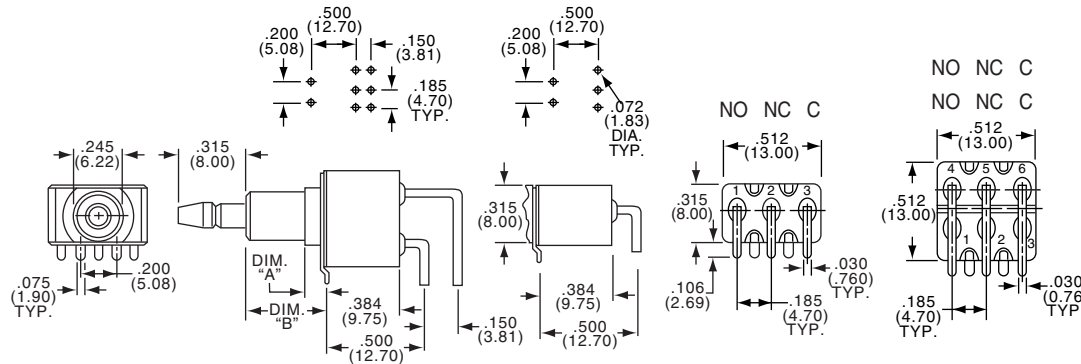
MPS203RWW



Caps not supplied, order separately.
(See Cap Model C22 and C23 on Page D32.)

Pushbutton Switches, Snap Action, Right Angle, 3 Amp

SEE PAGE D25 FOR PRODUCT SPECIFICATIONS



SPDT/DPDT



MPS103DRA



MPS203NRA

Part Number						
Tyco Electronics	Alcoswitch	Type	Action	Dim."A"	Dim."B"	Terminals
6-1437567-2	MPS103DRA	SPDT	Push-on/Off	.100(2.54)	.423(10.7)	Right Angle PC
6-1437567-6	MPS103FRA	SPDT	Momentary	.060(1.52)	.364(9.24)	Right Angle PC
7-1437567-1	MPS203NRA	DPDT	Push-on/Off	.100(2.54)	.423(10.7)	Right Angle PC
7-1437567-5	MPS203RRA	DPDT	Momentary	.060(1.52)	.364(9.24)	Right Angle PC

Caps not supplied, order separately.
(See Cap Model C22 and C23 on Page D32.)

MSP3/MSPS

Pushbutton Switches, 2.5mm Travel, Panel Mount

MATERIAL SPECIFICATIONS:

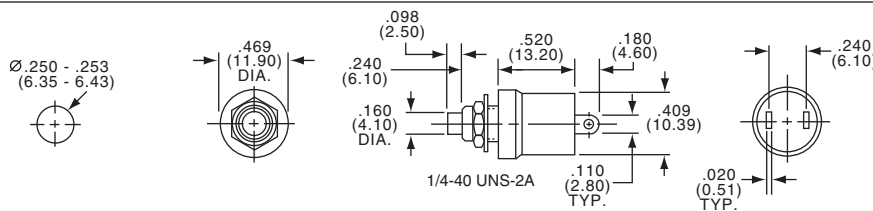
ContactsSilver plate over copper alloy
Case MaterialThermoplastic
Actuator MaterialThermoplastic
TerminalsSilver plate

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....+5°F to +153°F (-15°C to +75°C)
Solder Heat ResistanceSee page M3-4
Note: Hardware included with switches

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingMSP103 - 3 Amps @ 125 VAC
(with over travel) .059" (1.5mm)
MSPS103 - 0.5 Amps @ 125 VAC
(Butt contact)
Initial Contact Resistance100 Milliohms
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Life ExpectancyUp to 10,000 Cycles
Travel2.5 mm



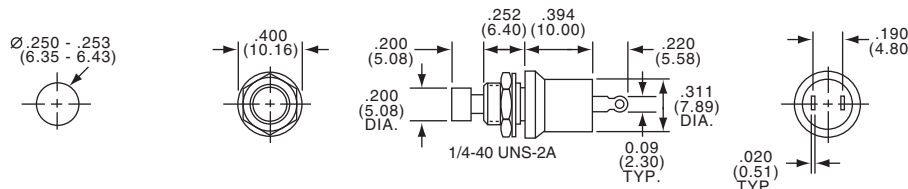
SPST



MSP103B

3 AMPS

Part Number						
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Momentary Action	Bushing Length	Actuator Color
8-1437567-3	MSP103B	SPST	14	Normally Closed	.236	Black
8-1437567-4	MSP103C	SPST	13	Normally Open	.236	Red
8-1437567-5	MSP103C0	SPST	13	Normally Open	.236	Black
8-1437567-6	MSP103C2	SPST	13	Normally Open	.374	Red



MSPS103B

0.5 AMPS

Part Number						
Tyco Electronics	Alcoswitch	Type	Act. Code P. M6	Momentary Action	Bushing Length	Actuator Color
1437568-5	MSPS103B	SPST	14	Normally Closed	.245	Black
1437568-6	MSPS103C2	SPST	13	Normally Open	.245	Red
1437568-7	MSPS103C0	SPST	13	Normally Open	.245	Black

Pushbutton Switches, Front or Rear Entry Mount, 15/32 Bushing

MATERIAL SPECIFICATIONS:

ContactsSilver plate
Case MaterialThermoset
Actuator MaterialThermoplastic
TerminalsSilver plate
Terminal SealEpoxy

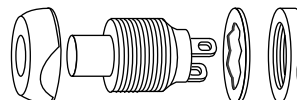
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-4°F to +176°F (-20°C to +80°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.5 A @ 125 VAC
Initial Contact Resistance100 Milliohms
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Actuator Travel......098" (2.49)
Life ExpectancyUp to 10,000 Cycles

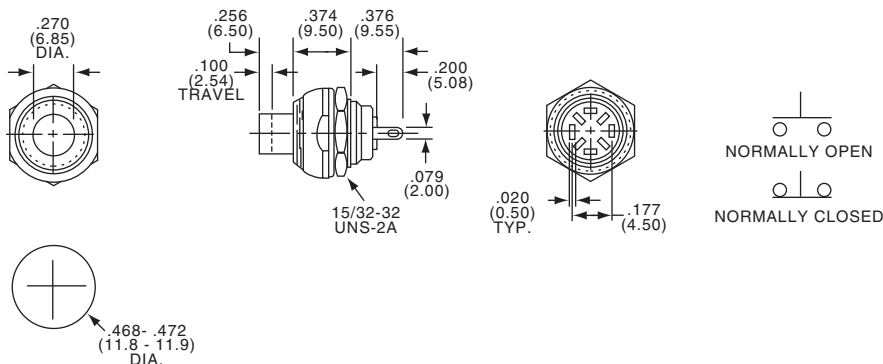
Application Note: Illustration shows versatile front or rear entry usage, with hardware supplied.



SPST



MSPF101B

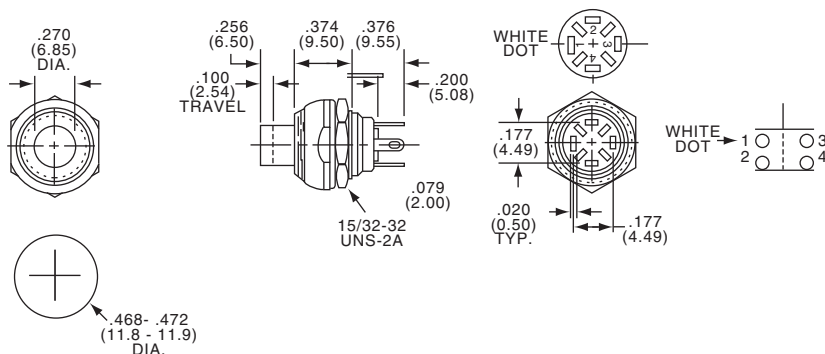


Part Number				
Tyco Electronics	Alcoswitch	Type	Action	Actuator Color
8-1437567-8	MSPF101B	SPST	Normally Closed	Black
9-1437567-3	MSPF101C	SPST	Normally Open	Red

2 CIRCUIT



MSPF101BC



Part Number				
Tyco Electronics	Alcoswitch	Type	Action	Actuator Color
8-1437567-9	MSPF101BC0	2 Circuit	Normally open-normally closed	Black
9-1437567-0	MSPF101BC2	2 Circuit	Normally open-normally closed	Red
9-1437567-1	MSPF101BC6	2 Circuit	Normally open-normally closed	Blue
9-1437567-2	MSPF101BC9	2 Circuit	Normally open-normally closed	White

Pushbutton Switches, Magnetic Reed, Long Life, Hermetically Sealed

MATERIAL SPECIFICATIONS:

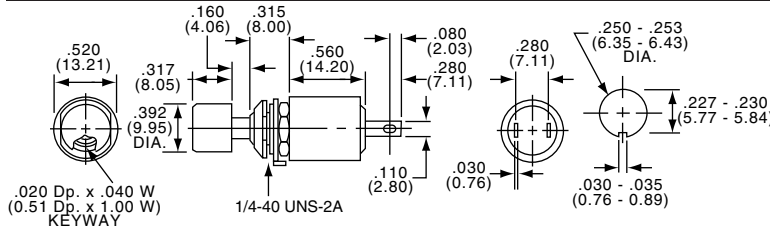
ContactsGold
Case MaterialSteel
Actuator MaterialPolyamide
Terminals/Fixed Contacts.....Wire Lug
Pin useable for PC applications

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating1.0 VA optimum (100 mA max., 100 VDC max.)
Initial Contact Resistance100 Milliohms max.
Actuation ForceTactile "keyboard feel" 4 to 7 oz.
"breakaway" reducing immediately to 1.5 oz.
"follow-through"
Actuator Travel078" nominal
Life Expectancy.....Up to 5,000,000 Cycles @ .1 VA; 50,000 cycles @ 5VA
Solder Heat ResistanceSee page M3-4
Note: Hardware included with switches

ENVIRONMENTAL SPECIFICATIONS:

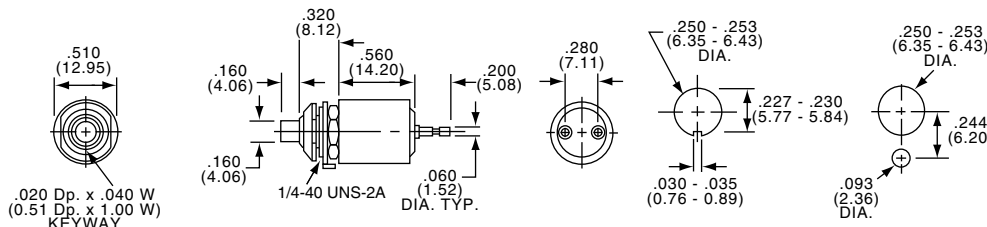
Operating Temperature.....+14°F to +176°F (-10°C to +80°C)
Storage Temperature.....+14°F to +176°F (-10°C to +80°C)



Part Number		Type	Act. Code	P. M6	Action	Actuator Type	Terminals
Tyco Electronics	Alcoswitch						
9-1437567-4	MSPM101B0	SPST	14		Normally Closed	Black Cap	Pin
1437568-1	MSPM101C2	SPST	13		Normally Open	Red Cap	Pin
9-1437567-5	MSPM101B1	SPST	14		Normally Closed	Black Cap	Lug
9-1437567-9	MSPM101C1	SPST	13		Normally Open	Red Cap	Lug

Cap Model C22 supplied with unit.

N.C. OR N.O.
SOFT DETENT



Part Number		Type	Act. Code	P. M6	Action	Actuator Type	Terminals
Tyco Electronics	Alcoswitch						
9-1437567-7	MSPM101BS	SPST	14		Normally Closed	Black Plunger	Pin
1437568-3	MSPM101CS	SPST	13		Normally Open	Red Plunger	Pin
9-1437567-8	MSPM101BS1	SPST	14		Normally Closed	Black Plunger	Lug
1437568-4	MSPM101CS1	SPST	13		Normally Open	Red Plunger	Lug

N.C. OR N.O.
AUDIBLE DETENT

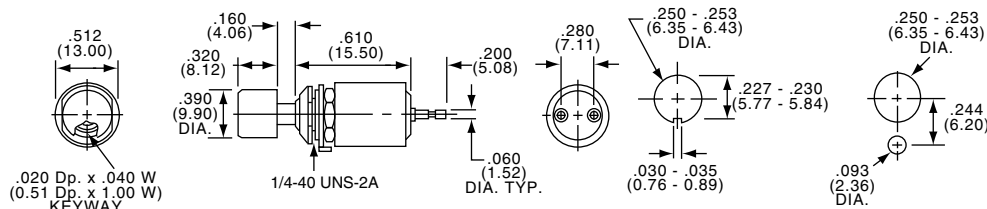


Pushbutton Switches, Push-Pull, Magnetic Reed, Long Life, Hermetically Sealed

SPECIFICATIONS (Same as above except):

Travel125" (3.18) nominal

Actuation ForceTactile feel 5 to 8 oz. "breakaway" with magnetically accelerated "follow-through"



Part Number		Type	Act. Code	P. M6	Push	Pull	Actuator Type	Terminals
Tyco Electronics	Alcoswitch							
9-1437567-6	MSPM101BP	SPST	18		Open	Closed	Black Cap	Pin
1437568-2	MSPM101CP	SPST	17		Closed	Open	Red Cap	Pin

Cap Model C22 supplied with unit.
Model C23 available, order separately. (See Page D32.)

N.C. OR N.O.



Push Switch, JLS Series

MATERIAL SPECIFICATIONS:

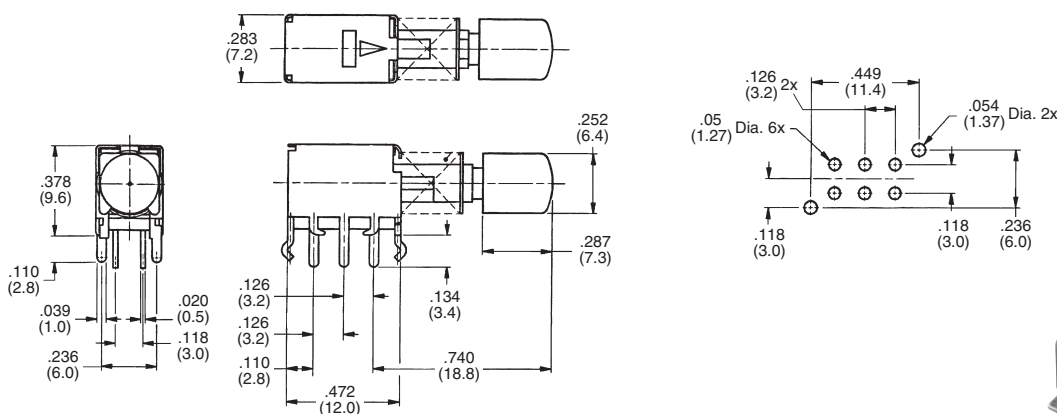
ContactsSilver clad copper
 FrameSteel
 Actuator MaterialAcetal
 Terminals/Fixed Contacts.....Brass, silver plate
 InsulatorPhenol

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating1 Amp @25 VDC
 Initial Contact Resistance100 Milliohms
 Actuation Force300±150 gms
 Actuator Travel0.091 (2.3)
 Life Expectancy.....Up to 10,000 cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)



Part Number			
Tyco Electronics	Alcoswitch	Act. Code P. M6	Actuator Type
1437566-8	JLS91439FKBC	N	Black Cap
1437566-7	JLS91439FK	N	Gray Cap
1437566-9	JLS91439FWC	N	White Cap

D

MSPM, JLS Series

Pushbutton Switches, Splashproof Boot Seals

A wide selection of stock boot seals for pushbuttons are available in a variety of styles and thread sizes. ALCOSWITCH seals replace standard mounting hardware to provide environmental seal. Fabricated of Neoprene in black and optional red or gray. Custom colors and thread sizes are also available on special order.

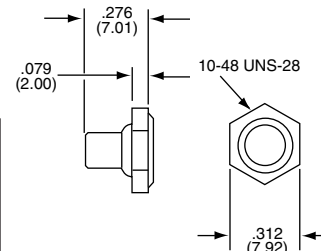


BP10480

10-48 PUSHBUTTON BOOT SEALS

Splashproof seal designed for "TINY" pushbutton switches having a 10-48 bushing and .14" long button actuators. The hex nut is molded-in to the Neoprene seal. No O-Ring is required. Custom colors are available on special order.

Part Number					
Tyco Electronics	Alcoswitch	Mount Color	Boot Color	Thread Size	Use with Switch Types
1-1437626-4	BP10480	Black	Black	10-48	TP Series
1-1437626-5	BP10482	Red	Red	10-48	TP Series
1-1437626-6	BP10488	Gray	Gray	10-48	TP Series



BPA14400

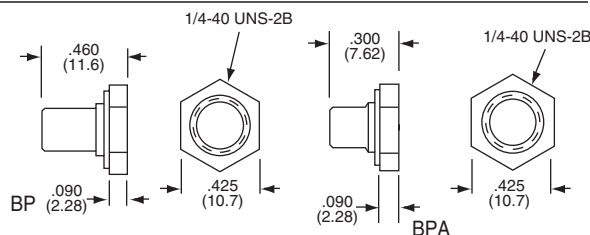


BP14400

1/4-40 PUSHBUTTON BOOT SEALS

Splashproof seals for miniature pushbuttons having a 1/4-40 bushing. The two models allow use with buttons that extend up to .17" (BPA) or up to .33" (BP). The hex nut is molded-in and no O-Ring is required.

Part Number					
Tyco Electronics	Alcoswitch	Mount Color	Boot Color	Thread Size	Use with Switch Types
1-1437626-7	BP14400	Black	Black	1/4-40	MSPM, MPA3, MPS and TP Series
1-1437626-8	BP14402	Red	Red	1/4-40	MSPM, MPA3, MPS and TP Series
1-1437626-9	BP14408	Gray	Gray	1/4-40	MSPM, MPA3, MPS and TP Series
2-1437626-7	BPA14400	Black	Black	1/4-40	MSPMBS, MSPMCS, MSP3, MPA3, TP Series
2-1437626-8	BPA14402	Red	Red	1/4-40	MSPMBS, MSPMCS, MSP3, MPA3, TP Series
2-1437626-9	BPA14408	Gray	Gray	1/4-40	MSPMBS, MSPMCS, MSP3, MPA3, TP Series



BP20100

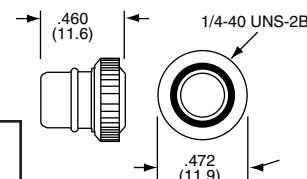


BP1900

1/4-40 PUSHBUTTON BOOT SEALS

Splashproof seals having 1/4-40 blind nuts integrally mounted to the black Neoprene seal. Supplied with a captive O-Ring to complete the panel seal. Used with actuators up to .37" long. Choice of two-tone with nickel finish knurled ring or all black.

Part Number					
Tyco Electronics	Alcoswitch	Mount Color	Boot Color	Thread Size	Use with Switch Types
2-1437626-3	BP1900	Nickel	Black	1/4-40	MSPM, MSP3, MPA3 and TP Series
2-1437626-4	BP2010	Black	Black	1/4-40	MSPM, MSP3, MPA3 and TP Series

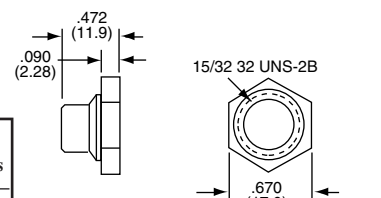


BP15320

15/32-32 PUSHBUTTON BOOT SEALS

Splashproof seals incorporating a molded-in hex nut for water tight and dust tight protection. Replaces standard hardware usually supplied. Recommended for large size pushbutton switches with actuators extending up to .31" long.

Part Number					
Tyco Electronics	Alcoswitch	Mount Color	Boot Color	Thread Size	Use with Switch Types
2-1437626-0	BP15320	Black	Black	15/32-32	MSPF and MPG Series
2-1437626-1	BP15322	Red	Red	15/32-32	MSPF and MPG Series
2-1437626-2	BP15328	Gray	Gray	15/32-32	MSPF and MPG Series



BP5900

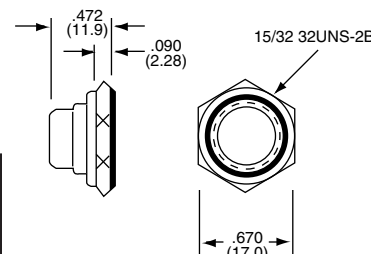


BP5890

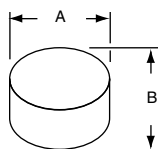
15/32-32 PUSHBUTTON BOOT SEALS

Splashproof seals having 15/32-32 hex shape mounts integrally bonded onto the black Neoprene seal. Supplied with a captive O-Ring for use against the panel. Readily accepts actuators up to .38" in length. Available in two tone with nickel finish hex-mount, or all black.

Part Number					
Tyco Electronics	Alcoswitch	Mount Color	Boot Color	Thread Size	Use with Switch Types
2-1437626-5	BP5890	Nickel	Black	15/32-32	MSPF and MPG Series
2-1437626-6	BP5900	Black	Black	15/32-32	MSPF and MPG Series



Pushbutton Switches, Accessories



CAPS



C5



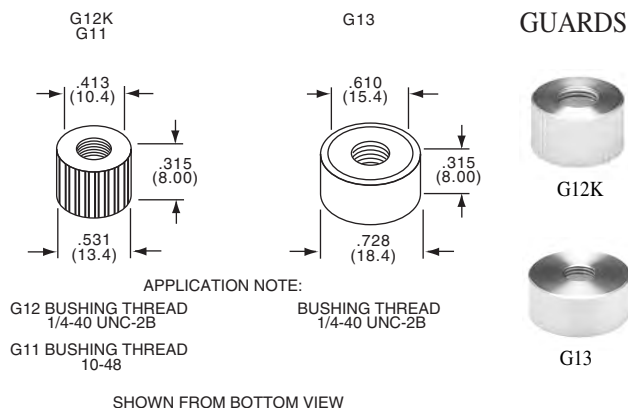
C22

Model	ID.	Description	Use Guard	Color	"A" Diameter	B Height
C5(*)	Snapfit	Small plastic cap for MPA3 Series	-	(0), (2), (5), (9)	.195	.120
C8(*)	Snapfit	Large plastic cap for MPA3 Series	-	(0), (2), (5), (9)	.310	.160
C9(*)	Snapfit	Spare color cap for MPG Series	-	(0), (2), (6), (9)	.354	.138
C22(*)	Snapfit	MPS/MSPM/MPE/MPA6	G12	(0), (2), (3), (4), (5), (6), (9)	.394	.315
C23(*)	Snapfit	MPS/MSPM/MPE/MPA6	G13	(0), (2), (3), (4), (5), (6), (9)	.590	.394
C33(*)	Snapfit	Square button for MPSR	-	(0), (2), (6), (9)	.378SQ.	.201

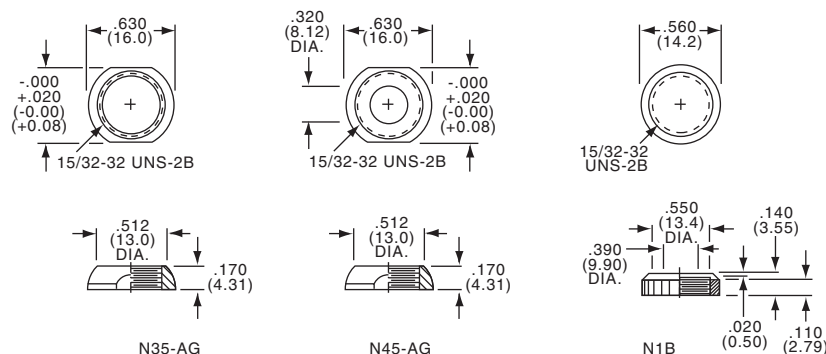
(*) Specify color by adding suffix number: (0) Black, (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.

Part Number		Type	Color	Finish	Can be Used with Cap
Tyco Electronics	Alcoswitch				
7-1437627-6	G11A	10-48	Clear aluminum	Plain	C22 —
7-1437627-7	G11B	10-48	Black aluminum	Plain	C22 —
7-1437627-8	G11C	10-48	Chromed Brass	Plain	C22 —
8-1437627-1	G12A	1/4-40	Clear aluminum	Plain	C12 C22
8-1437627-2	G12B	1/4-40	Black aluminum	Plain	C12 C22
8-1437627-3	G12C	1/4-40	Chromed brass	Plain	C12 C22
8-1437627-4	G12KA	1/4-40	Clear aluminum	Knurled	C12 C22
8-1437627-5	G12KB	1/4-40	Black aluminum	Knurled	C12 C22
8-1437627-6	G12KC	1/4-40	Chromed brass	Knurled	C12 C22
8-1437627-7	G13A	1/4-40	Clear aluminum	Plain	C13 C23
8-1437627-8	G13B	1/4-40	Black aluminum	Plain	C13 C23
8-1437627-9	G13C	1/4-40	Chromed brass	Plain	C13 C23
9-1437627-0	G13KA	1/4-40	Clear aluminum	Knurled	C13 C23
9-1437627-1	G13KB	1/4-40	Black aluminum	Knurled	C13 C23
9-1437627-2	G13KC	1/4-40	Chromed brass	Knurled	C13 C23
9-1437627-3	G15*	15/32"	Chromed brass	Plain	C13 C23

*G15 Model used on the MSPF Series



DECORATIVE HARDWARE



Part Number		Type	Description
Tyco Electronics	Alcoswitch		
1-1437628-0	N1B	15/32"	"Perfect Fit" knurled nut
1-1437628-4	N35-AG	15/32"	Decorative nut (supplied on switch)
1-1437628-7	N45-AG	15/32"	"Perfect Fit" decorative nut

Pushbutton Switches, Panel Seal

FEATURES

The BP Series offers a unique means of sealing pushbutton switches, using a standard 1/4-40 threading bushing, to almost any thickness panel. Simply install the BP adaptor into a 15/32" dia. or 1/2" dia. panel opening and secure with its hex nut. The switch is then threaded into the previously mounted adaptor and tightened into place. A complete and decorative panel seal is the result of the simple process.

MATERIALS

The flexible panel seal is custom molded of Neoprene rubber for long life, flexibility and chemical resistance. The threaded plastic adaptor is molded of ABS thermoplastic, is impact resistant and designed for ease of mounting.

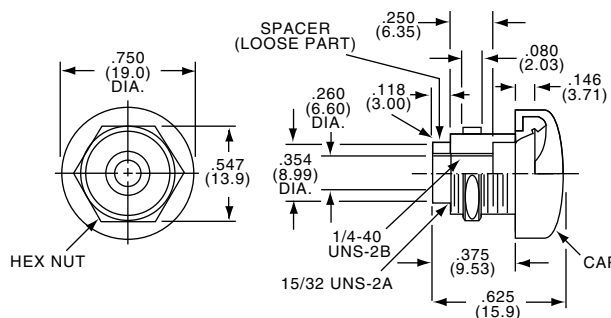
BPM

For use with Miniature Pushbutton

The BPM seal adaptor accommodates all AUGAT/ALCOSWITCH MPA Series of pushbutton switches utilizing the 1/4-40 threaded bushing.



BPM15320



Part Number		
Tyco Electronics	Alcoswitch	Color* of Seal
3-1437626-0	BPM15320	Black
3-1437626-1	BPM15322	Red
3-1437626-2	BPM15328	Gray

(*) Custom seal colors are available upon special request.

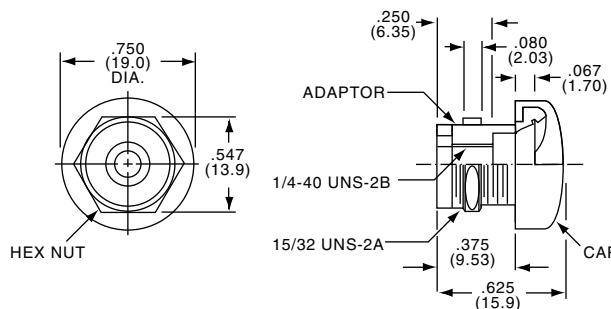
BPT

For use with Tiny Series TPF Pushbutton

The BPT seal adaptor accommodates all AUGAT/ALCOSWITCH TPF Series Tiny Pushbutton switches utilizing the 1/4-40 threading bushing.



BPT15328



Part Number		
Tyco Electronics	Alcoswitch	Color* of Seal
3-1437626-3	BPT15320	Black
3-1437626-4	BPT15322	Red
3-1437626-5	BPT15328	Grey

(*) Custom seal colors are available upon special request.

Engineering Notes

D

Engineering Notes



TSP Series - Page D3



TP Series - Page D6



TP-ES Series - Page D13



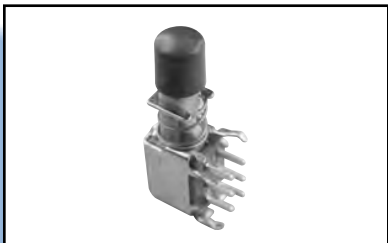
APA Series - Page D16



MPA Series - Page D22



MSPM Series - Page D29



JLS Series - Page D29



BP Series - Page D31

Pushbutton

D

Pushbutton Switches

Pushbutton Switches, Tiny, Process Sealed

FEATURES:

- High temperature plastics — liquid crystal polymer (LCP)
- Specifically designed for thru-hole and surface mount
- Tin-lead plated terminals
- Washable process sealed construction — internal actuator O-ring

MATERIAL SPECIFICATIONS:

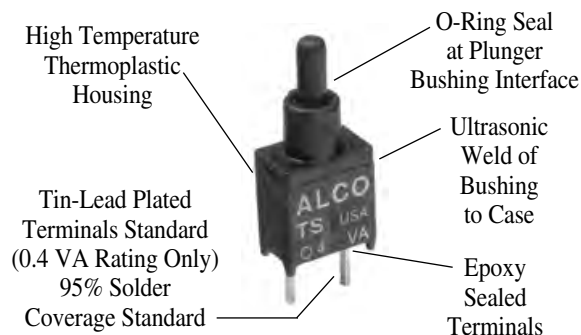
ContactsCopper Alloy with gold over nickel plating-
Case & BushingThermoplastic (LCP)
ActuatorGlass reinforced nylon
Nickel Plating InsideTin plating outside
Support BracketTin plated steel
TerminalsCopper alloy with gold over nickel plating

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature..... -22°F to +185°F (-30°C to +85°C)
Storage Temperature.....-67°F to +185°F (-55°C to +85°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VAC/DC
Initial Contact Resistance20 Milliohms max.
Insulation Resistance1,000 Megohms @ 500 VDC min.
Terminal SealEpoxy
Actuator Travel......035" (0.89)
Actuator SealO-Ring
Dielectric StrengthC - 1000 VDC RMS @ sea level
F - 500 VDC RMS @ sea level
Life ExpectancyC - Up to 80,000 Cycles
F - Up to 60,000 Cycles



FUNCTION CHART

The following functions available in single pole.

C Function	2 Positions	Off	(On)
SPST	Terminals Connected		1-3
Omit center terminal for function C			

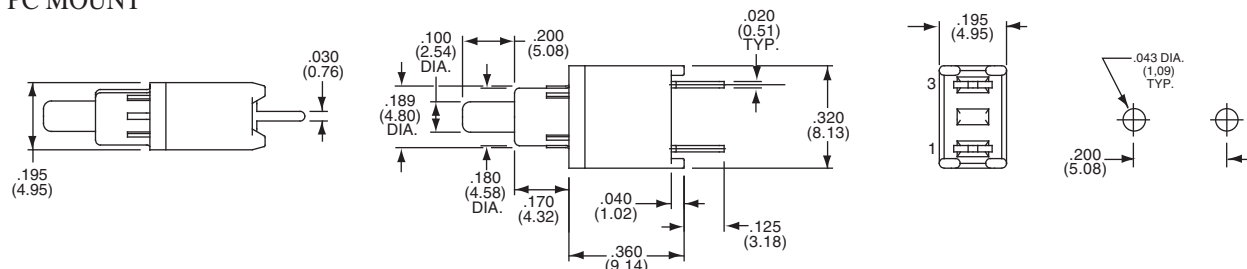
F Function	2 positions	On	(On)
SPDT	Terminal Connected	1-2	2-3

Off Indicates a mechanical position with no electrical connection.
(ON) INDICATES MOMENTARY ACTION

PART NUMBERING MATRIX

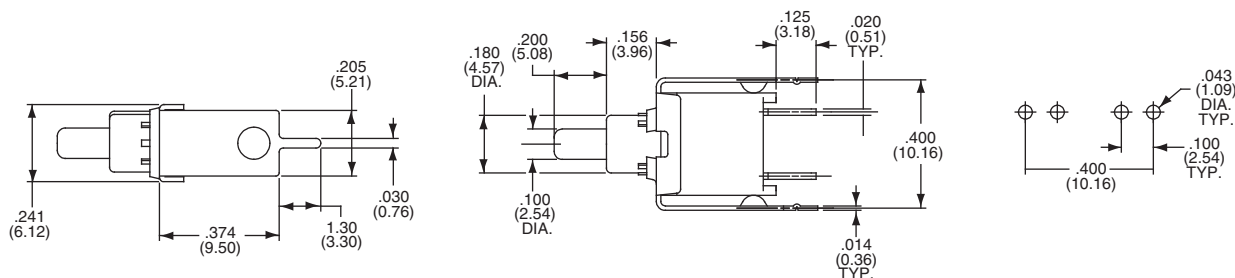
Model	Bushing (Plain)	Actuator	Poles	Rating	Function	Plating	Terminations	Colors
TSP	D	Std. .200" long F = Flush	1	1	C = Off (On) F = On (On)	G	PC = P.C. PCV = P.C. w/bracket RA = Right Angle VRA = Vertical Right Angle SPC = SurfaceMount SRA = Surface Mount R.A. SRAB = SurfaceMount R.A. Butt	0=Black 2=Red

PC PC MOUNT

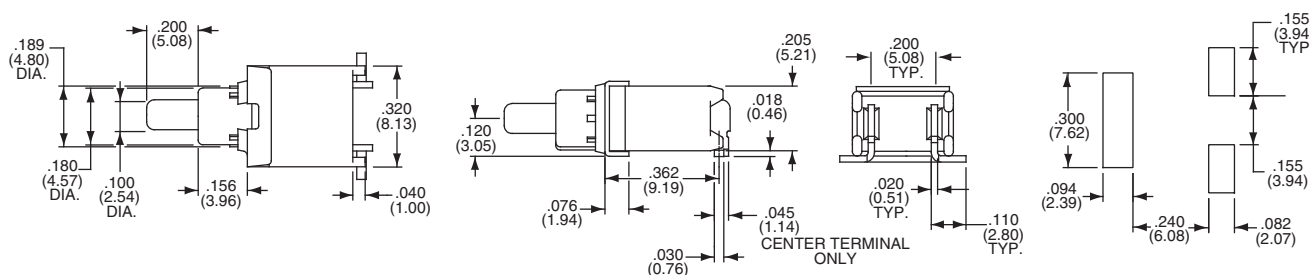


Pushbutton Switches, Tiny, Process Sealed, Mounting Options

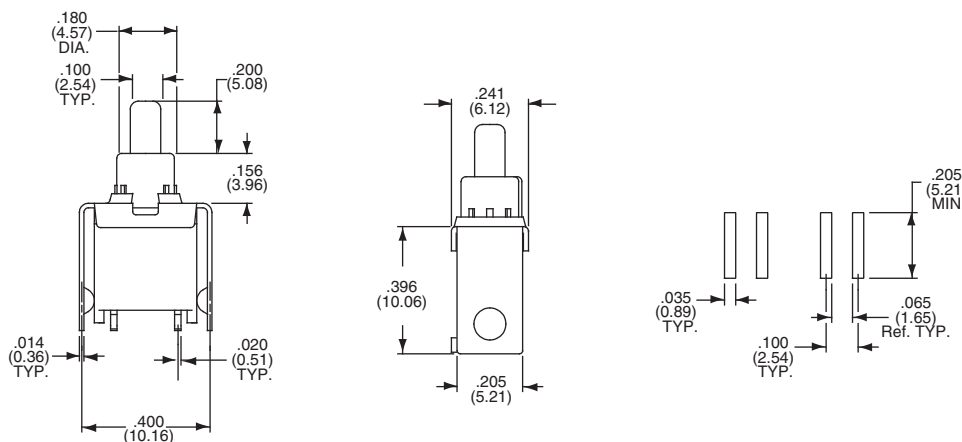
PCV PC WITH VERTICAL SUPPORT BRACKET



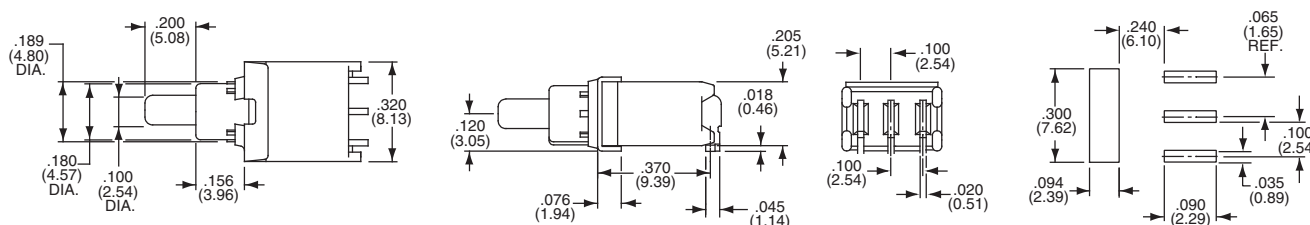
SRA SURFACE MOUNT RIGHT ANGLE "L" BEND



SPC SURFACE MOUNT WITH SUPPORT BRACKET

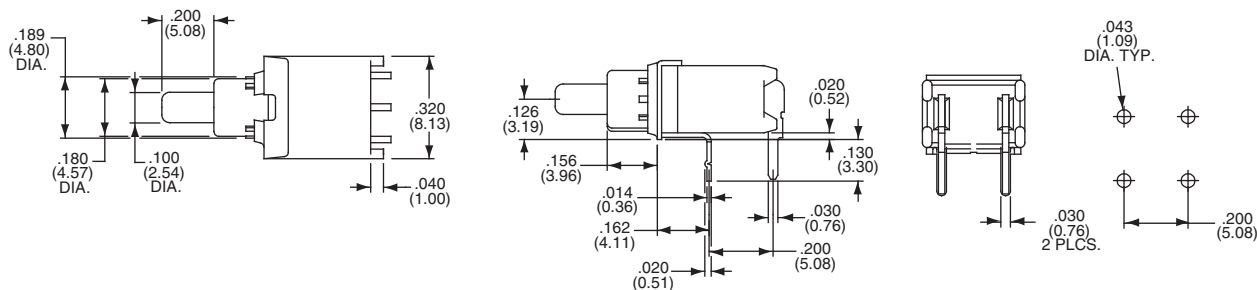


SRAB SURFACE MOUNT RIGHT ANGLE BUTT

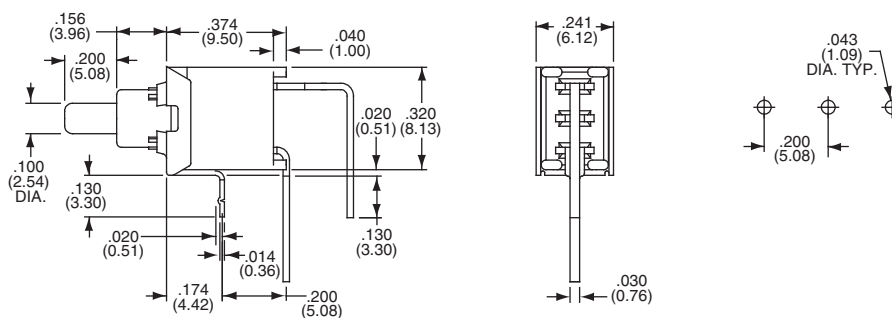


Pushbutton Switches, Tiny, Process Sealed Options

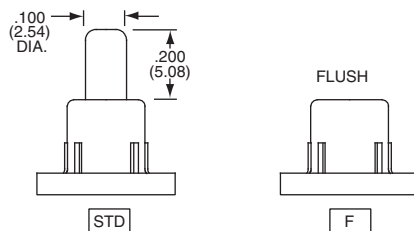
RIGHT ANGLE RA



PC WITH VERTICAL SUPPORT BRACKET VRA



ACTUATORS



Pushbutton Switches, Tiny, Part Number Matrix

MATERIAL SPECIFICATIONS:

ContactsGold - gold plate, silver - silver plate
Case MaterialHigh temperature polyester
Actuator Material.....Polyamide
Terminals/Fixed ContactsTin lead plate
Terminal Seal.....SP epoxy, DP epoxy optional

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-22°F to +149°F (-30°C to +65°C)
Storage Temperature-22°F to +149°F (-30°C to +65°C)
Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA Max. @ 20 VDC or peak AC
Silver: 1A @ 125 VAC or 28 VDC resistive
Initial Contact Resistance20 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms @ 500VDC min.
Dielectric Strength.....1,000 Volts @ sea level
Actuation Force50 to 400 Grams
Plunger/Actuator Travel030" (.762)
Life Expectancy.....See below
Note: Hardware included with switches

PART NUMBERING MATRIX

Model	Bushing	Actuator	Poles	Rating	Function	Plating	Terminations	Process Seal	Button Colors
TP									
Blank= Sq. No Bushing A=Rnd. No Bushing B=Rnd., .188" Bushing Dia. Unthreaded C=Rnd., 10/48 Bushing Dia. D=Rnd., .250" Bushing Dia. Unthreaded F=Rnd., 1/4-40 Bushing Dia.			1 = Single 2 = Double	1 = Gold 0.4 VA 3 = Silver** 1 Amp	G = Gold None = Silver**	Blank=Wire lug PC=Printed Circuit RA=Right Angle*** VRA=Vertical Right Angle****	ES = Process Sealed*** Process Seal: Disposable boot, epoxied double case	0=Black 2=Red	
F = Flush Actuator*			SP DP C M F R	S.T. Momentary D.T. Momentary					

- * Available with "B" and "C" bushing only
- ** Silver - available only in wire lug and PC termination
- *** Right angle, ES available with "B" and "C" bushing only
- **** Available only in single pole

ES switches provided with disposable boot used only during cleaning operation.

Application Note:

For 3 pole and 4 pole, refer to pages D22 and D24 . . . "MP Series"
For Surface Mount termination, refer to pages D3-D5 . . . "TSP Series"

TP Series Life Expectancy Chart		
Pushbuttons	1 Pole	2 Pole
0.4 (Gold Plate)	100,000	80,000
1A (Silver Plate)	60,000	50,000

PROCESS SEAL VERSION NOT



TP



TPA

PROCESS SEAL VERSION AVAILABLE



TPB



TPC



TPD

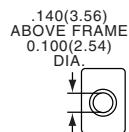


TPF

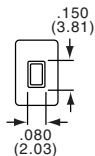
SERIES (TP)

Pushbutton Switches, Tiny, Straight or Right Angle, Single or Dual Actuators

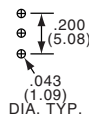
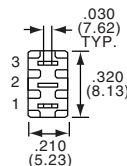
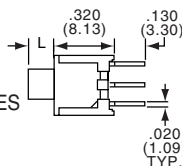
SEE PAGE D6 FOR PRODUCT SPECIFICATIONS



TPA SERIES



TP SERIES



SPST/SPDT



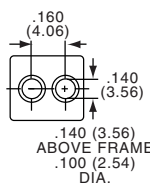
TP11CGPC0



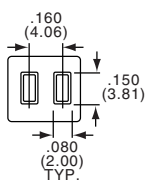
TPA11CGPC0

Model	Actuator Type	Dim.L	Type	Act. Code P. M6	Action	Contact Type
TP11CGPC(*)	SQ.	.125	SPST	C	N.O. Momentary	Gold
TP11FGPC(*)	SQ.	.125	SPDT	F	Momentary	Gold
TPA11CGPC(*)	RND.	.150	SPST	C	N.O. Momentary	Gold
TPA11FGPC(*)	RND.	.150	SPDT	F	Momentary	Gold

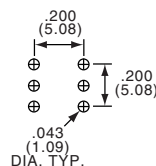
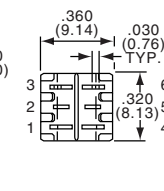
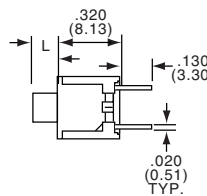
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.



TPA SERIES



TP SERIES



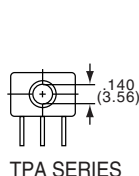
SPST/SPDT (DUAL)



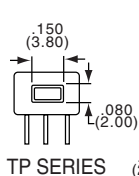
TP21CCGPC0

Model	Actuator Type	Dim.L	Type	Act. Code P. M6	Action	Contact Type
TP21CCGPC(*)	SQ.	.125	2xSPST	C	N.O. Momentary	Gold
TPA21CCGPC(*)	RND.	.150	2xSPST	C	N.O. Momentary	Gold
TPA21FFGPC(*)	RND.	.150	2xSPDT	F	Momentary	Gold

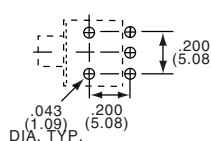
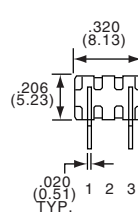
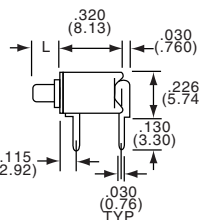
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.



TPA SERIES



TP SERIES



SPST/SPDT



TPA11CGRA



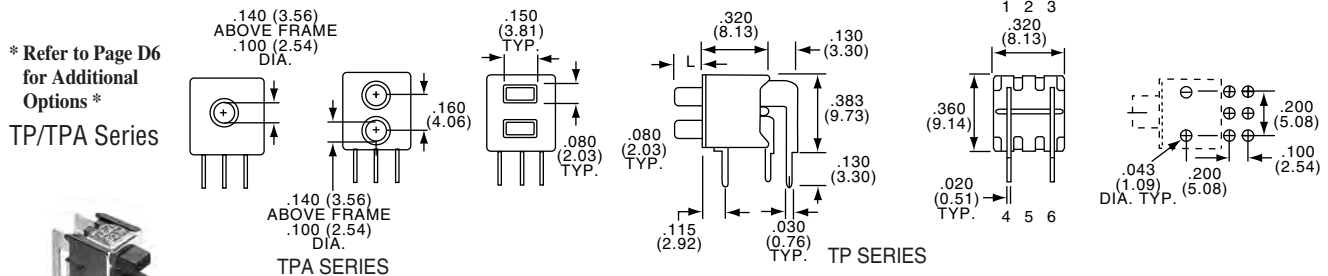
TP11CGRA

Model	Actuator Type	Dim.L	Type	Act. Code P. M6	Action	Contact Type
TP11CGRA(*)	SQ.	.125	SPST	C	N.O. Momentary	Gold
TP11FGRA(*)	SQ.	.125	SPDT	F	Momentary	Gold
TPA11CGRA(*)	RND.	.150	SPST	C	N.O. Momentary	Gold
TPA11FGRA(*)	RND.	.150	SPDT	F	Momentary	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

Pushbutton Switches, Tiny, Right Angle, Single or Dual Actuators

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS



TP21CCGRA0

SPST/SPDT (DUAL)
DPST

Model	Actuator Type	Dim.L	Type	Act. Code P. M6	Action	Contact Type
TP21CCGRA(*)	SQ.	.125	2xSPST	C	N.O. Momentary	Gold
TP21FFGRA(*)	SQ.	.125	2xSPDT	F	Momentary	Gold
TPA21MGRA(*)	RND.	.150	DPST	M	N.O. Momentary	Gold
TPA21CCGRA(*)	RND.	.150	2xSPST	C	N.O. Momentary	Gold
TPA21FFGRA(*)	RND.	.150	2xSPDT	F	Momentary	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" or "M" action switch.

Pushbutton Switches, Tiny, Straight or Right Angle, Unthreaded or 10-48 Bushing

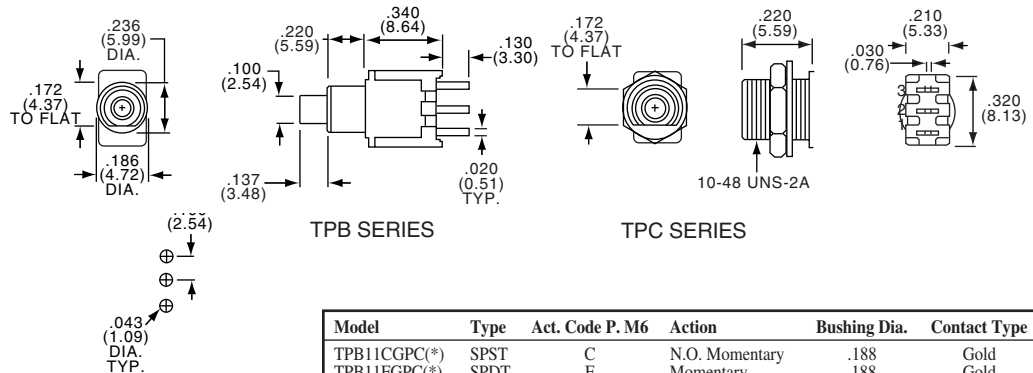
SPST/SPDT



TPB11CGPC



TPC11FGPC



Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB11CGPC(*)	SPST	C	N.O. Momentary	.188	Gold
TPB11FGPC(*)	SPDT	F	Momentary	.188	Gold
TPC11CGPC(*)	SPST	C	N.O. Momentary	10-48	Gold
TPC11FGPC(*)	SPDT	F	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

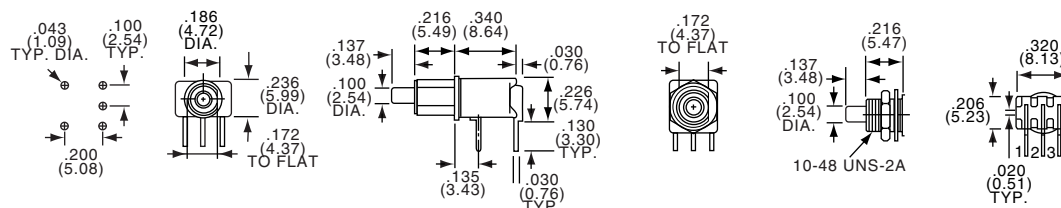
DPST/DPDT



TPB11CGRA



TPC11CGRA

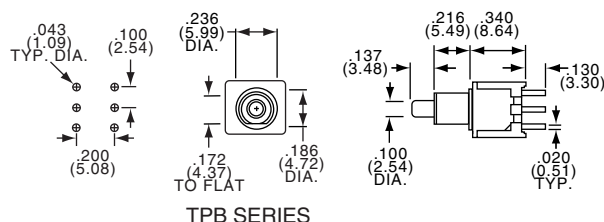


Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB11CGRA(*)	SPST	C	N.O. Momentary	.188	Gold
TPB11FGRA(*)	SPDT	F	Momentary	.188	Gold
TPC11CGRA(*)	SPST	C	N.O. Momentary	10-48	Gold
TPC11FGRA(*)	SPDT	F	Momentary	10-48	Gold

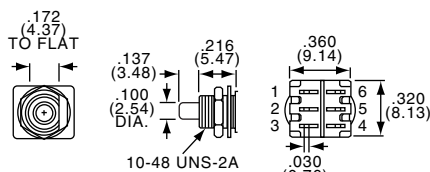
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

Pushbutton Switches, Tiny, Straight or Right Angle, Unthreaded or 10-48 Bushing

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS
DPST/DPDT



TPB SERIES



TPC SERIES



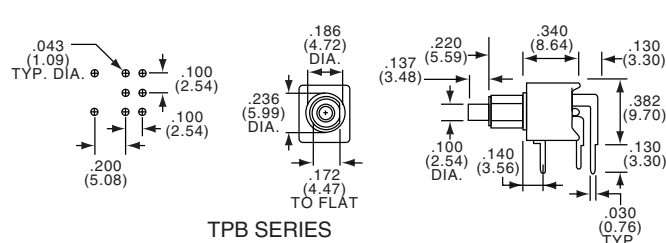
TPB21MGPC



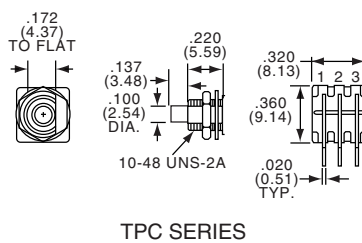
TPC21RGPC

Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB21MGPC(*)	DPST	M	N.O. Momentary	.188	Gold
TPB21RGPC(*)	DPDT	R	Momentary	.188	Gold
TPC21MGPC(*)	DPST	M	N.O. Momentary	10-48	Gold
TPC21RGPC(*)	DPDT	R	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.



TPB SERIES



TPC SERIES

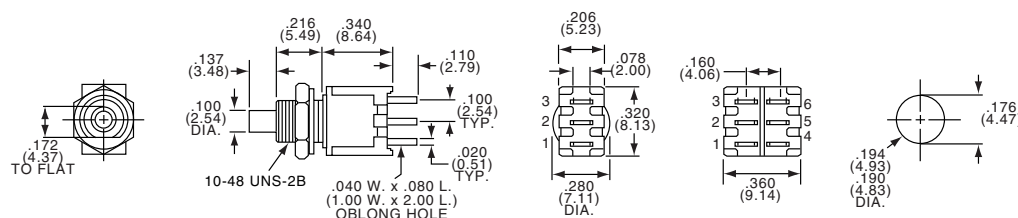
DPST/DPDT



TPC21MGRA

Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB21MGRA(*)	DPST	M	N.O. Momentary	.188	Gold
TPB21RGRA(*)	DPDT	R	Momentary	.188	Gold
TPC21MGRA(*)	DPST	M	N.O. Momentary	10-48	Gold
TPC21RGRA(*)	DPDT	R	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.



1 & 2 POLE



TPC23M



TPC13C

Model	Type	Act. Code P. M6	Action	Contact Type
TPC13C(*)	SPST	C	N.O. Momentary	Silver
TPC13F(*)	SPDT	F	Momentary	Silver
TPC23M(*)	DPST	M	N.O. Momentary	Silver
TPC23R(*)	DPDT	R	Momentary	Silver

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" or "M" action switches.

Pushbutton Switches, Tiny, Straight or Right Angle, Flush Actuator

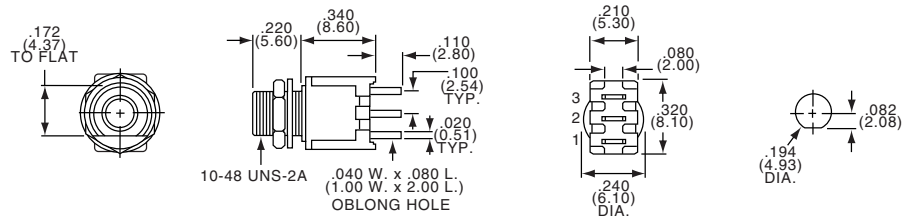
SEE PAGE D6 FOR PRODUCT SPECIFICATIONS

SPST/SPDT

Wire Lugs 10-48 Bushing



TPCF13C



Model	Silver Contacts	Type	Act. Code P. M6	Action	Bushing Type
TPCF13C(*)	SPST	C	N.O. Momentary	Threaded	
TPCF13F(*)	SPDT	F	Momentary	Threaded	

(*) Specify button color by adding suffix numbers: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

SPST/SPDT

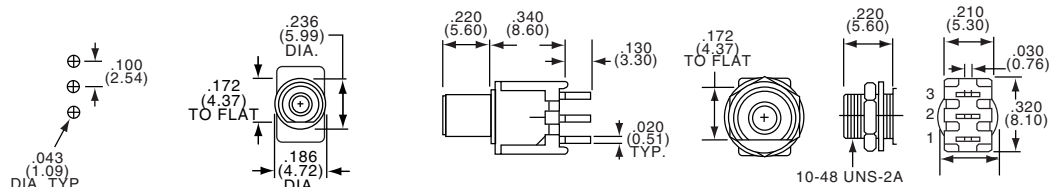
PC 10-48 Bushing



TPBF11FGPC



TPCF11CGPC



TPB SERIES

TPC SERIES

Model	Gold Contacts	Type	Act. Code P. M6	Action	Bushing Type
TPBF11CGPC(*)	SPST	C	N.O. Momentary	Unthreaded	
TPBF11FGPC(*)	SPDT	F	Momentary	Unthreaded	
TPCF11CGPC(*)	SPST	C	N.O. Momentary	Threaded	
TPCF11FGPC(*)	SPDT	F	Momentary	Threaded	

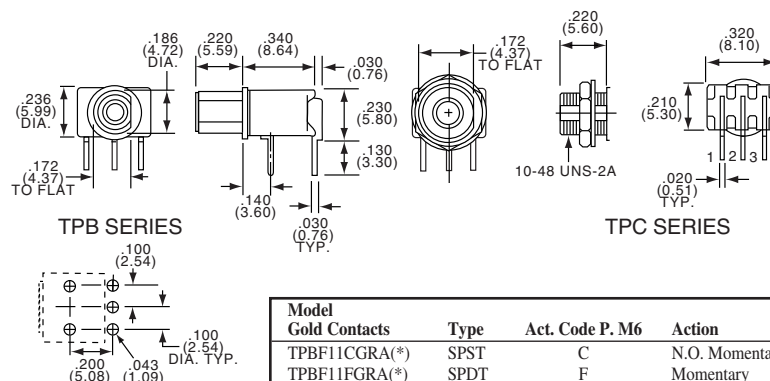
(*) Specify button color by adding suffix numbers: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

SPST/SPDT

RA 10-48 Bushing



TPBF11CGRA



TPB SERIES

TPC SERIES

Model	Gold Contacts	Type	Act. Code P. M6	Action	Bushing Type
TPBF11CGRA(*)	SPST	C	N.O. Momentary	Unthreaded	
TPBF11FGRA(*)	SPDT	F	Momentary	Unthreaded	
TPCF11CGRA(*)	SPST	C	N.O. Momentary	Threaded	
TPCF11FGRA(*)	SPDT	F	Momentary	Threaded	

(*) Specify button color by adding suffix numbers: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

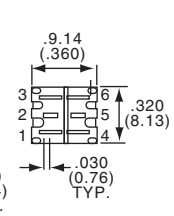
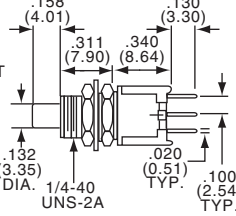
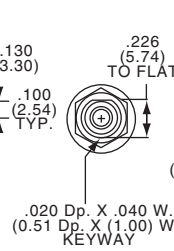
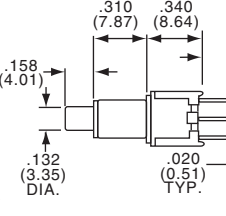
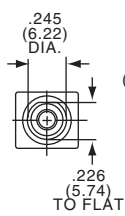
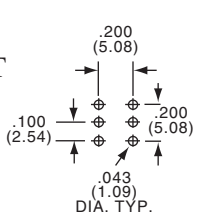
Pushbutton Switches, Tiny, Vertical or Right Angle, Unthreaded or 1/4-40 Bushing

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS

DPST/DPDT



TPD21MGPC



TPD SERIES

TPF SERIES

Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPD21MGPC(*)	DPST	M		N.O. Momentary	.250	Gold
TPD21RGPC(*)	DPDT	R		Momentary	.250	Gold
TPF21MGPC(*)	DPST	M		N.O. Momentary	1/4-40	Gold
TPF21RGPC(*)	DPDT	R		Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminals on "M" Action switches.

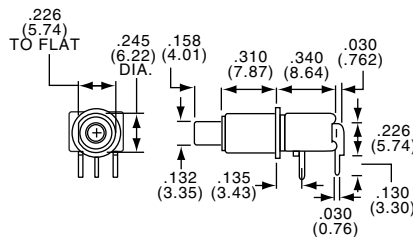
SPST/SPDT



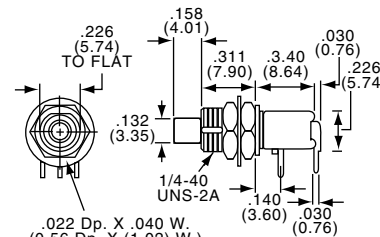
TPD11CGRA



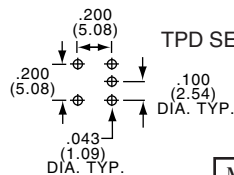
TPF11CGRA



TPD SERIES



TPF SERIES



Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPD11CGRA(*)	SPST	C		N.O. Momentary	.250	Gold
TPD11FGRA(*)	SPDT	F		Momentary	.250	Gold
TPF11CGRA(*)	SPST	C		N.O. Momentary	1/4-40	Gold
TPF11FGRA(*)	SPDT	F		Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

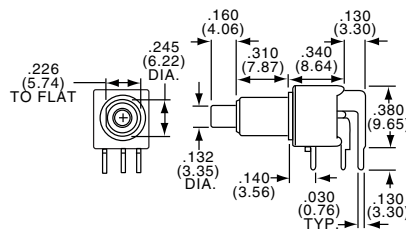
DPST/DPDT



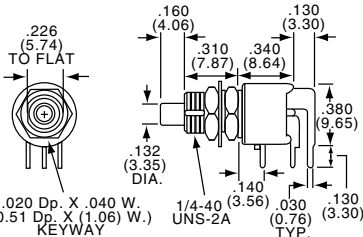
TPF21MGRA



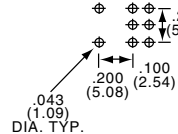
TPD21MGRA



TPD SERIES



TPF SERIES



Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPD21MGRA(*)	DPST	M		N.O. Momentary	.250	Gold
TPD21RGRA(*)	DPDT	R		Momentary	.250	Gold
TPF21MGRA(*)	DPST	M		N.O. Momentary	1/4-40	Gold
TPF21RGRA(*)	DPDT	R		Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" Action switches.

Pushbutton Switches, Tiny, Process Sealed, Straight

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS

* Refer to Page D6 for Additional Options *

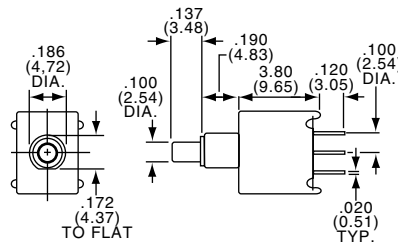
SPST/SPDT



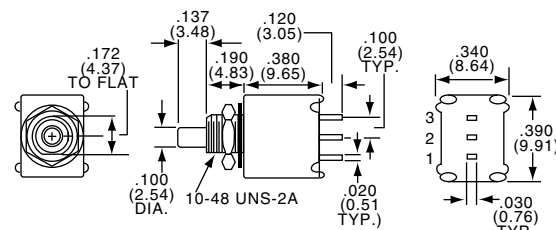
TPB11CGPCES



TPC11CGPCES



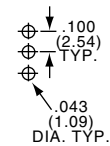
TPB SERIES



TPC SERIES

Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPB11CGPCES(*)	SPST	C		N.O. Momentary	.188	Gold
TPB11FGPCES(*)	SPDT	F		Momentary	.188	Gold
TPC11CGPCES(*)	SPST	C		N.O. Momentary	10-48	Gold
TPC11FGPCES(*)	SPDT	F		Momentary	10-48	Gold

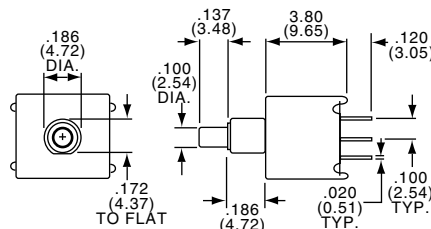
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.



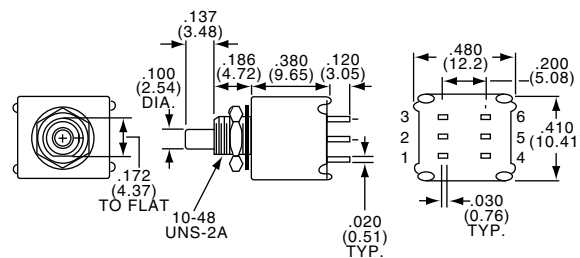
DPST/DPDT



TPB21RGPCES



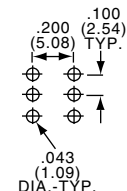
TPB SERIES



TPC SERIES

Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPB21MGPCES(*)	DPST	M		N.O. Momentary	.188	Gold
TPB21RGPCES(*)	DPDT	R		Momentary	.188	Gold
TPC21MGPCES(*)	DPST	M		N.O. Momentary	10-48	Gold
TPC21RGPCES(*)	DPDT	R		Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.



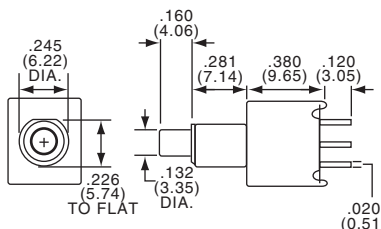
SPST/SPDT



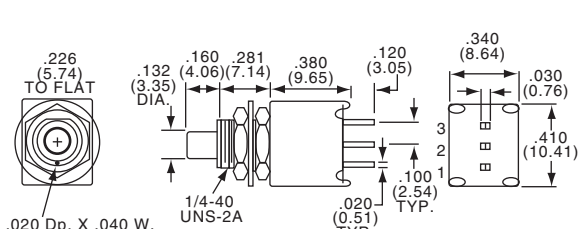
TPD11CGPCES



TPF11CGPCES



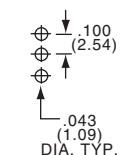
TPD SERIES



TPF SERIES

Model	Type	Act. Code	P. M6	Action	Bushing Dia.	Contact Type
TPD11CGPCES(*)	SPST	C		N.O. Momentary	.250	Gold
TPD11FGPCES(*)	SPDT	D		Momentary	.250	Gold
TPF11CGPCES(*)	SPST	C		N.O. Momentary	.250	Gold
TPF11FGPCES(*)	SPDT	F		Momentary	.250	Gold

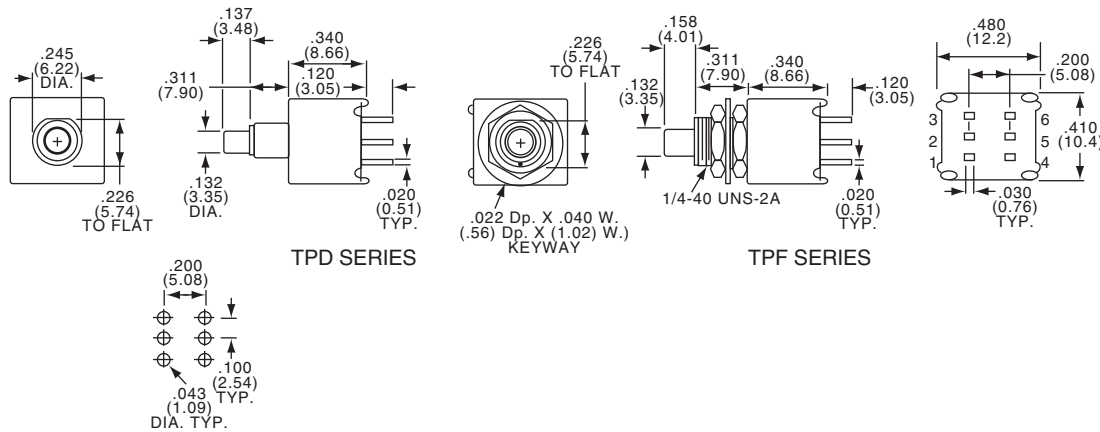
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.



Pushbutton Switches, Tiny, Process Sealed, Straight or Right Angle

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS

DPST/DPDT

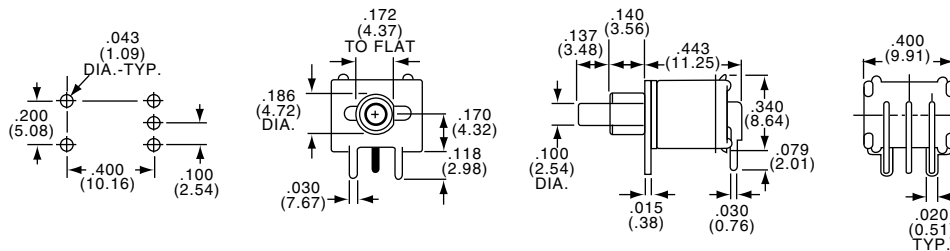


TPD21MGPCES

Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPD21MGPCES(*)	DPST	M	N.O. Momentary	.250	Gold
TPD21RGPCES(*)	DPDT	R	Momentary	.250	Gold
TPF21MGPCES(*)	DPST	M	N.O. Momentary	1/4-40	Gold
TPF21RGPCES(*)	DPDT	R	Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.

SPST/SPDT

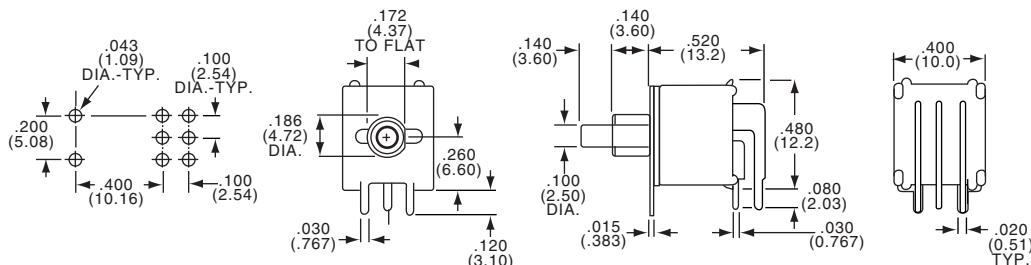


TPB11CGRAES

Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB11CGRAES(*)	SPST	C	N.O. Momentary	.188	Gold
TPB11FGRAES(*)	SPDT	F	Momentary	.188	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

DPST/DPDT

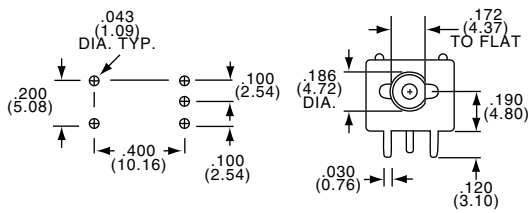


Model	Type	Act. Code P. M6	Action	Bushing Dia.	Contact Type
TPB21MGRAES(*)	DPST	M	N.O. Momentary	.188	Gold
TPB21RGRAES(*)	DPDT	R	Momentary	.188	Gold

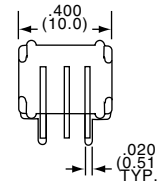
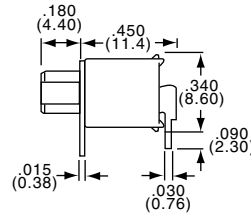
(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.

Pushbutton Switches, Tiny, Process Sealed, Flush Actuator, Straight or Right Angle

SEE PAGE D6 FOR PRODUCT SPECIFICATIONS



TPBF Series



SPST/SPDT

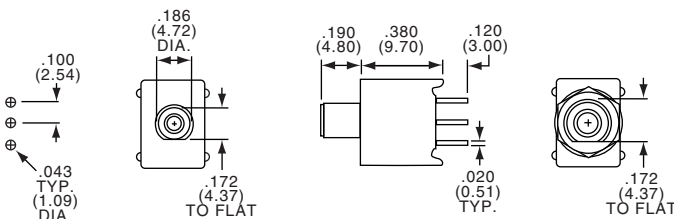


TPBF11CGRAESO

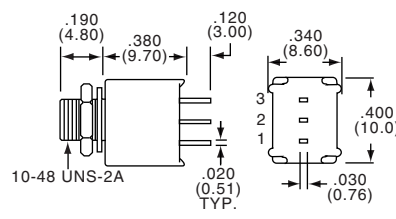
Model	Type	Act. Code P. M6	Action
TPBF11CGRAES(*)	SPST	C	N.O. Momentary
TPBF11FGRAES(*)	SPDT	F	Momentary

(*) Specify button color by adding suffix numbers: (0) Black, (2) Red.

Note: No center terminal on "C" Action switches.



TPBF Series



TPCF Series

SPST/SPDT



TPBF11CGPCES

Model	Type	Act. Code P. M6	Action
TPBF11CGPCES(*)	SPST	C	N.O. Momentary
TPBF11FGPCES(*)	SPDT	F	Momentary
TPCF11FGPCES(*)	SPDT	F	Momentary

(*) Specify button color by adding suffix numbers: (0) Black, (2) Red.

Note: No center terminal on "C" action switch.

Pushbutton Switches, .120 Actuator, Straight

MATERIAL SPECIFICATIONS:

ContactsGold plate
Case MaterialPolyester
Actuator MaterialPolyester, black
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC or peak AC
Initial Contact Resistance50 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms @ 500 VDC min.
Dielectric Strength500 Volts RMS @ sea level
Actuator Travel......050" (1.27)
Life ExpectancyUp to 10,000 Cycles

FOR SEALED VERSIONS SEE PAGES D19 AND D20

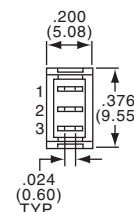
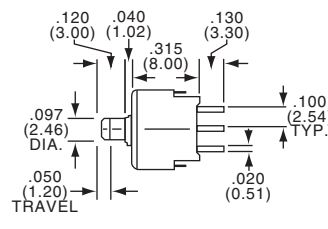
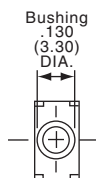
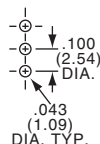
D

APA Series

SPST/SPDT



APA1BGPC



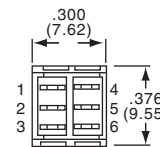
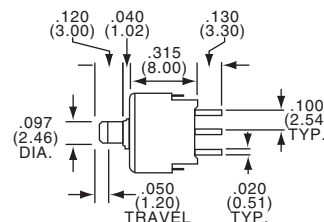
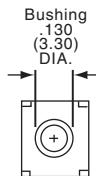
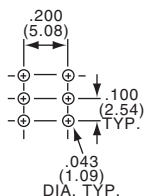
Part Number					
Tyco Electronics	Alcoswitch	Type	Action		
1437567-2	APA1BGPC	SPST	N.C. Momentary	1-3	(—)
1437567-3	APA1CGPC	SPST	N.O. Momentary	—	(1-3)
1437567-5	APA1FGPC	SPDT	Momentary	2-3	(2-1)

Note: No center terminals on "B" or "C" action switches.

DPST/DPDT



APA2MGPC

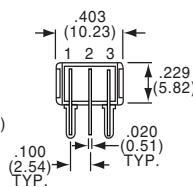
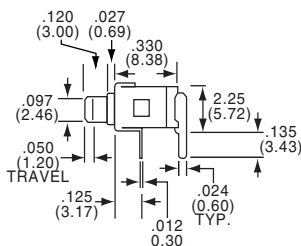
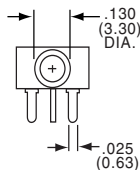
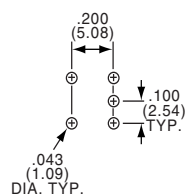


Part Number					
Tyco Electronics	Alcoswitch	Type	Action		
—	APA2LGPC	DPST	N.C. Momentary	1-3, 4-6	(—)
1437567-7	APA2MGPC	DPST	N.O. Momentary	—	(1-3, 4-6)
1437567-9	APA2RGPC	DPDT	Momentary	2-3, 5-6	(2-1, 5-4)

Note: No center terminals on "L" or "M" action switches.

Pushbutton Switches, .120 Actuator, Right Angle

SPST/SPDT

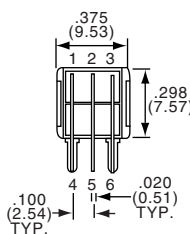
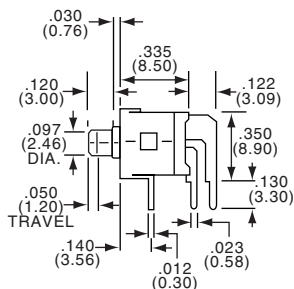
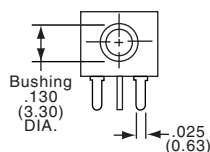
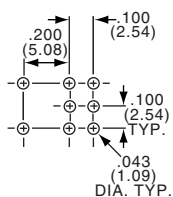


APA1FGRA

Part Number					
Tyco Electronics	Alcoswitch	Type	Action		
—	APA1BGRA	SPST	N.C. Momentary	1-3	(—)
1437567-4	APA1CGRA	SPST	N.O. Momentary	—	(1-3)
1437567-6	APA1FGRA	SPDT	Momentary	2-3	(2-1)

Note: No center terminals on "B" or "C" action switches.

DPST/DPDT



APA2RGRA

Part Number					
Tyco Electronics	Alcoswitch	Type	Action		
1437567-8	APA2MGRA	DPST	N.O. Momentary	—	(1-3, 4-6)
1-1437567-0	APA2RGRA	DPDT	Momentary	2-3, 5-6	(2-1, 5-4)

Note: No center terminals on "M" action switches.

Pushbutton Switches, .157 Actuator, Vertical or Right Angle

MATERIAL SPECIFICATIONS:

ContactsGold plate
Case MaterialPolyester
Actuator MaterialPolyester, black
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

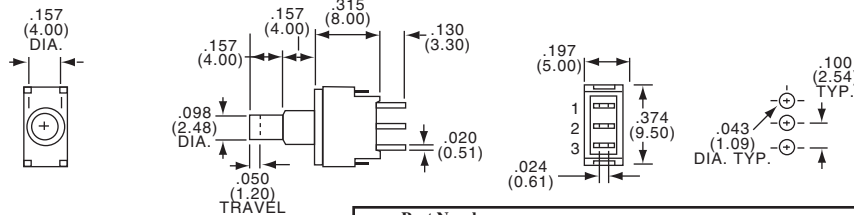
Contact Rating0.4 VA Max. @ 20 VDC or peak AC
Initial Contact Resistance50 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms @ 500 VDC min.
Dielectric Strength500 Volts RMS @ sea level
Actuator Travel.....0.050" (1.27)
Life ExpectancyUp to 10,000 Cycles

FOR SEALED VERSIONS SEE PAGES D19 AND D20

SPST/SPDT



APB1BGPC



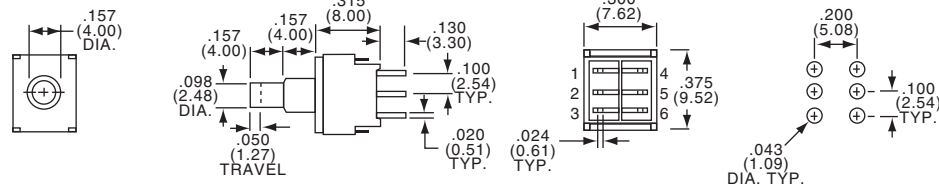
Part Number		Type	Action		
Tyco Electronics	Alcoswitch				
1-1437567-1	APB1BGPC	SPST	N.C. Momentary	1-3	(—)
1-1437567-2	APB1CGPC	SPST	N.O. Momentary	—	(1-3)
1-1437567-4	APB1FGPC	SPDT	Momentary	2-3	(2-1)

Note: No center terminal on "B" and "C" action switches.

DPST/DPDT



APB2RGPC



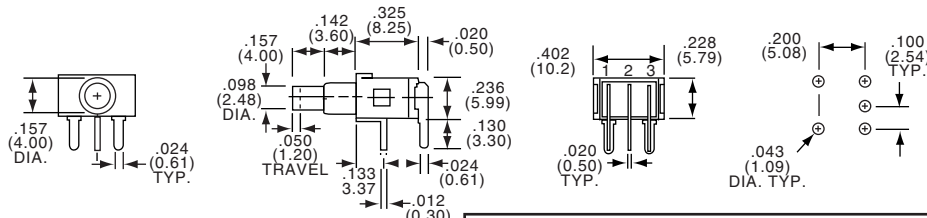
Part Number		Type	Action		
Tyco Electronics	Alcoswitch				
—	APB2LGPC	DPST	N.C. Momentary	1-3, 4-6	(—)
1-1437567-7	APB2RGPC	DPDT	Momentary	2-3, 5-6	(2-1, 5-4)

Note: No center terminal on "L" action switches.

SPST/SPDT



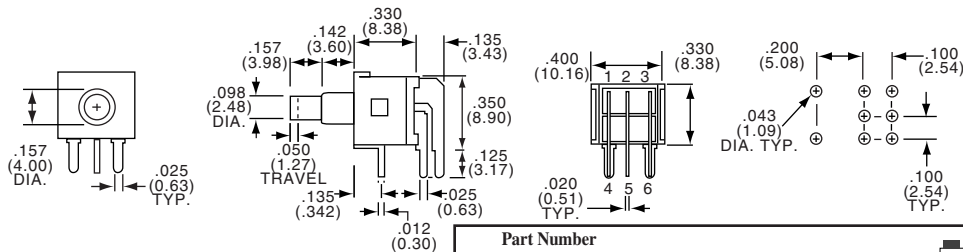
APB1FGRA



Part Number		Type	Action		
Tyco Electronics	Alcoswitch				
—	APB1BGRA	SPST	N.C. Momentary	1-3	(—)
1-1437567-3	APB1CGRA	SPST	N.O. Momentary	—	(1-3)
1-1437567-5	APB1FGRA	SPDT	Momentary	2-3	(2-1)

Note: No center terminal on "B" and "C" action switches.

DPST/DPDT



Part Number		Type	Action		
Tyco Electronics	Alcoswitch				
1-1437567-6	APB2MGRA	DPST	N.O. Momentary	—	(1-3, 4-6)
	APB2RGRA	DPDT	Momentary	2-3, 5-6	(2-1, 5-4)

Note: No center terminal on "M" action switches.

Pushbutton Switches, Process Sealed, .157 Actuator, Straight, Retention Terminal

MATERIAL SPECIFICATIONS:

ContactsGold plated
Case MaterialPolyester
Actuator MaterialPolyester, black
Terminals/Fixed Contacts.....Copper alloy
Terminal SealEpoxy

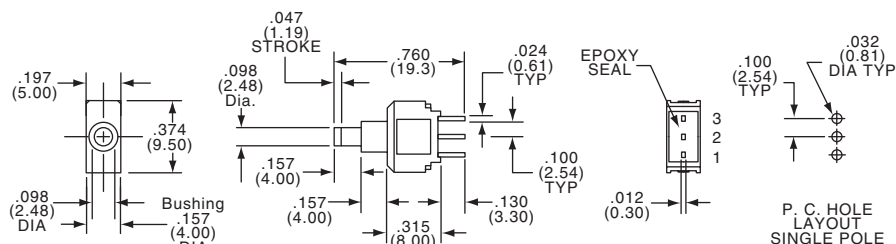
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC or peak AC
Initial Contact Resistance.....50 Milliohms max.
Insulation Resistance500 Megohms @ 250 VDC min.
Dielectric Strength500 Volts RMS @ sea level
Actuator Travel.....0.047" (1.19)
Life ExpectancyUp to 10,000 Cycles

SPDT

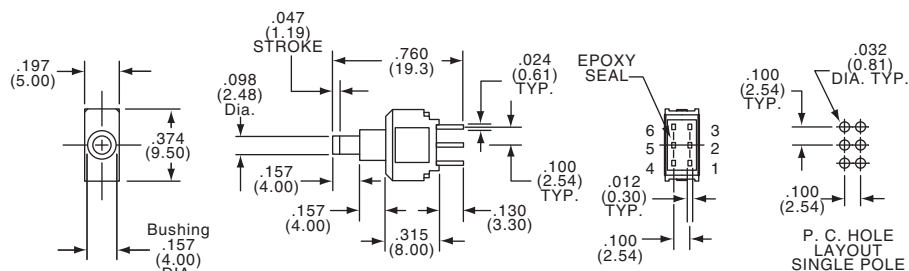


APBE1FGPC

Part Number					
Tyco Electronics	Alcoswitch	Type	On	(On)	Contact Type
1-1437567-8	APBE1FGPC	SPDT	On	(On)	Gold
Terminals Connected:			2-3	(2-1)	
(On) indicates momentary position.					

DPDT

Extra compact double pole saves PCB real estate.



APBE2RGPC

Part Number					
Tyco Electronics	Alcoswitch	Type	On	(On)	Contact Type
2-1437567-0	APBE2RGPC	DPDT	On	(On)	Gold
Terminals Connected:			2-3 & 5-6	(2-1 & 5-4)	
(On) indicates momentary position.					

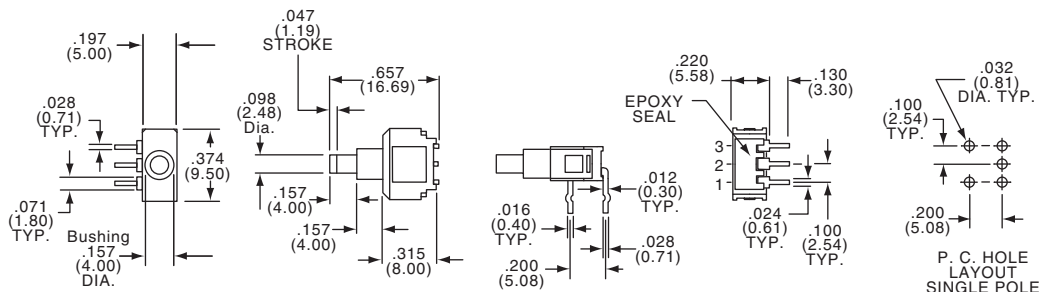
Pushbutton Switches, Process Sealed, .157 Actuator, Retention Terminal, Right Angle

SEE PAGE D19 FOR PRODUCT SPECIFICATIONS.

SPDT



APBE1FGRA



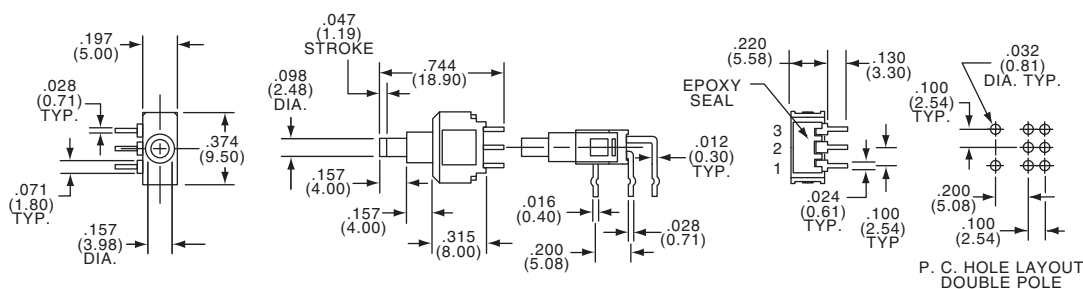
Part Number					
Tyco Electronics	Alcoswitch	Type			Contact Type
1-1437567-9	APBE1FGRA	SPDT	On	(On)	Gold
Terminals Connected: 2-3 (2-1)					
(On) indicates momentary position.					

DPDT

Extra compact double pole
saves PCB real estate.



APBE2RGRA



Part Number					
Tyco Electronics	Alcoswitch	Type			Contact Type
2-1437567-1	APBE2RGRA	DPDT	On	(On)	Gold
Terminals Connected: 2-3 & 5-6 (2-1 & 5-4)					
(On) indicates momentary position.					

Pushbutton Switches, Sub-Miniature, Panel Mount

MPA3 Series

MATERIAL SPECIFICATIONS:

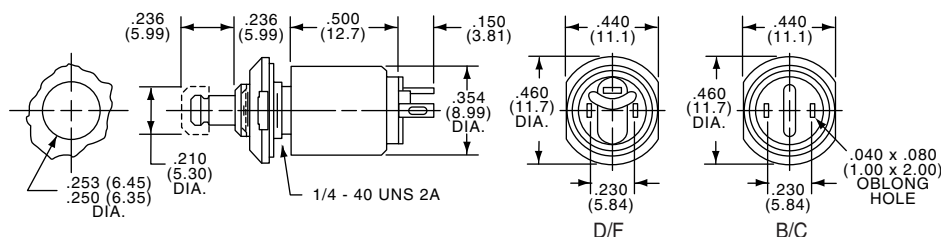
ContactsSilver clad
Case MaterialThermoset
Actuator MaterialPolyamide
TerminalsSilver plate

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
Storage Temperature.....-40°F to +176°F (-40°C to +80°C)
Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating3 A @ 125 VAC
Initial Contact Resistance20 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Actuation Force10 oz. SPST, 16 oz. SPDT average
Actuator Travel.....100" (2.54)
Life ExpectancyUp to 10,000 Cycles
Note: Hardware included with switches



SPST/SPDT



MPA103C

Part Number		Type	Act. Code	P. M6	Action	Contact Rating
Tyco Electronics	Alcoswitch					
2-1437567-4	MPA103B	SPST	14		N. C. Momentary	3 Amps
2-1437567-5	MPA103C	SPST	13		N. O. Momentary	3 Amps
2-1437567-6	MPA103D	SPDT	16		Push on/push off- (tactile)	3 Amps
2-1437567-7	MPA103F	SPDT	15		Momentary - (tactile)	3 Amps

Black Cap supplied. Other colors available, order separately.
(See Cap C5 and C8 on Page D32.)

MPB Series

Pushbutton Switches, Miniature, Over-Travel

MATERIAL SPECIFICATIONS:

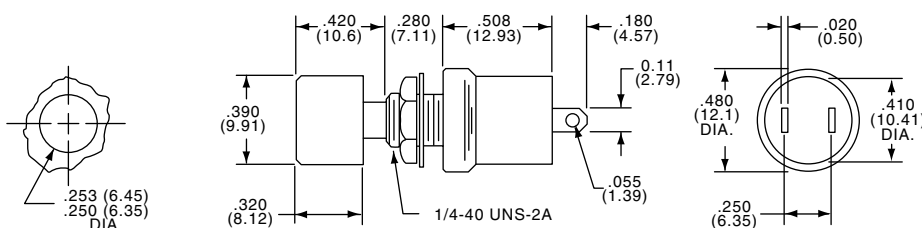
ContactsSilver plate
Case MaterialThermoset
Actuator MaterialPolyamide
TerminalsSilver plate

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
Storage Temperature.....+5°F to +158°F (-15°C to +70°C)
Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating3 A @ 125 VAC
Initial Contact Resistance20 Milliohms max.
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Actuator Travel.....100" (2.54) Overtravel .059" (1.5mm)
Life Expectancy20,000 Cycles
Note: Hardware included with switches



SPST

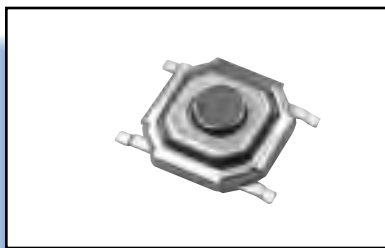


MPB103B

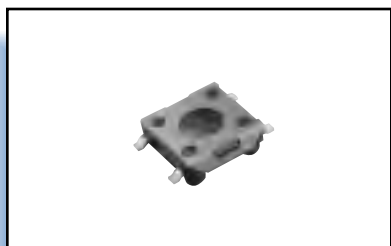
Part Number		Type	Act. Code	P. M6	Action	Actuator Color
Tyco Electronics	Alcoswitch					
3-1437567-9	MPB103B	SPST	14		N.C. Momentary	Black
4-1437567-0	MPB103C	SPST	13		N.O. Momentary	Red



FSM Series - Page E3



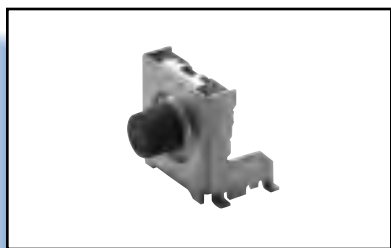
4.9mm Series - Page E11



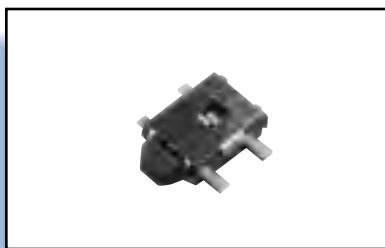
Low Profile Series - Page E12



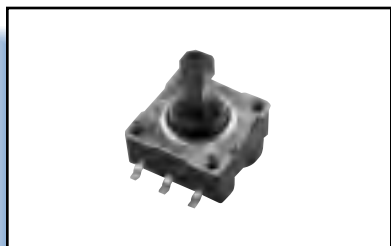
High Life Tactile - Page E12



Sealed Series - Page E27



Side Actuated - Page E29



Multi-Directional Actuation - Page E30

Tactile

E

Tactile Switches

Tactile Switches Part Number Index

FSME3	FSM4JAE5	FSMRA 8JLE7
FSM100E16	FSM4JAAE5	FSMRACDE8
FSM100AE16	FSM4JARTE6	FSMRACDAE8
FSM101E16	FSM4JLE5	FSMSME9
FSM102E17	FSM4JRTE6	FSMSMTRE9
FSM102AE17	FSM4JSMAE10	1571217E18
FSM103E17	FSM4JSMAAE10	1571218E19
FSM104E17	FSM4JSMAATRE10	1571219E20
FSM10JE5	FSM4JSMATRE10	1571220E21
FSM10JAE5	FSM4LPE15	1571262E29
FSM10JAAE5	FSM4LPTRE15	1571294E22
FSM10JLE5	FSM5JE5	1571295E24
FSM11JE5	FSM5JAE5	1571296E23
FSM11JAE5	FSM5JAAE5	1571297E26
FSM11JAAE5	FSM5JLE5	1571298E25
FSM11JLE5	FSM6JE5	1571300E27
FSM12JE5	FSM6JAE5	1571407E28
FSM12JAE5	FSM6JAAE5	1571514E30
FSM12JAAE5	FSM6JARTE6	1571515E30
FSM12JLE5	FSM6JLE5	1571625E12
FSM13JE5	FSM6JRTE6	1571626E13
FSM13JAE5	FSM6JSMAE10	1571636E14
FSM13JAAE5	FSM6JSMAAE10	
FSM13JLE5	FSM6JSMAATRE10	
FSM14JE5	FSM6JSMATRE10	
FSM14JAE5	FSM7JE5	
FSM14JAAE5	FSM7JAE5	
FSM14JLE5	FSM7JAAE5	
FSM14JRTE6	FSM7JLE5	
FSM15JE5	FSM8JE5	
FSM15JAE5	FSM8JAE5	
FSM15JAAE5	FSM8JAAE5	
FSM15JLE5	FSM8JARTE6	
FSM16JE5	FSM8JLE5	
FSM16JAE5	FSM8JRTE6	
FSM16JAAE5	FSM8JSMAE10	
FSM16JLE5	FSM8JSMATRE10	
FSM17JE5	FSM9JE5	
FSM17JAE5	FSM9JAE5	
FSM17JAAE5	FSM9JAAE5	
FSM17JLE5	FSM9JLE5	
FSM18JE5	FSMCE3	
FSM18JAE5	FSMCDE8	
FSM18JAAE5	FSMCD AE8	
FSM18JLE5	FSMCTATRE11	
FSM1JE4,E5	FSMCTTRE11	
FSM1JAE5	FSMJM3.5ATRE9	
FSM1JAAE5	FSMJM4.3E9	
FSM1JLE5	FSMJM4.3ATRE9	
FSM1LPE15	FSMJM4.3TRE9	
FSM1LPAE15	FSMJM5.0ATRE9	
FSM1LPATRE15	FSMRA 1JE7	
FSM1LPTRE15	FSMRA 1JLE7	
FSM201AE16	FSMRA 2JE7	
FSM2JE4,E5	FSMRA 2JAE7	
FSM2JAE5	FSMRA 2JHE7	
FSM2JAAE5	FSMRA 2JLE7	
FSM2JARTE6	FSMRA 3JE7	
FSM2JLE5	FSMRA 3JLE7	
FSM2JRTE6	FSMRA 4JE7	
FSM2JSMAE10	FSMRA 4JAE7	
FSM2JSMAAE10	FSMRA 4JLE7	
FSM2JSMAATRE10	FSMRA 5JE7	
FSM2JSMATRE10	FSMRA 5JLE7	
FSM3JE5	FSMRA 6JE7	
FSM3JAE5	FSMRA 6JLE7	
FSM3JAAE5	FSMRA 7JE7	
FSM3JLE5	FSMRA 7JLE7	
FSM4JE5	FSMRA 8JE7	

Tactile Switches, .138 [3.5] x .236 [6], Through Hole

MATERIAL SPECIFICATIONS:

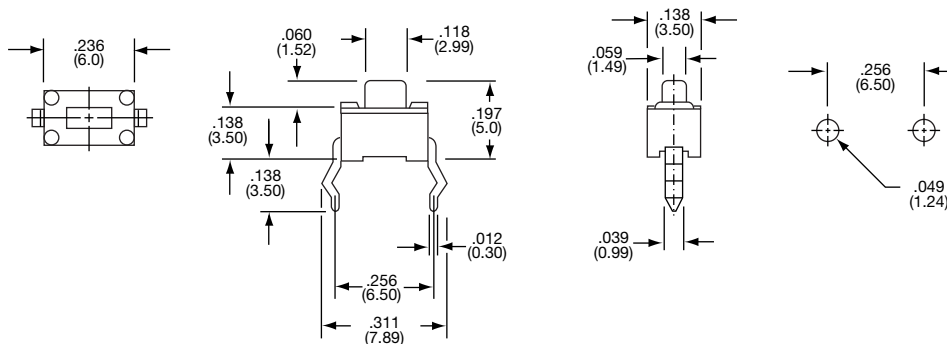
ContactsStainless/Silver clad plate
Case MaterialNylon
Actuator MaterialPBT
Terminals/Fixed Contacts.....Copper alloy, Silver/Nickel

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-40°F to +185°F (-40°C to + 85°C)
Storage Temperature.....-40°F to +185°F (-40°C to + 85°C)
Solder Heat ResistanceSee Page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 500 VDC
Dielectric Strength500 VAC for 1 minute
Actuation Force130±50 Grams
Actuator Travel......010"(.254)
Life ExpectancyUp to 20,000 Cycles

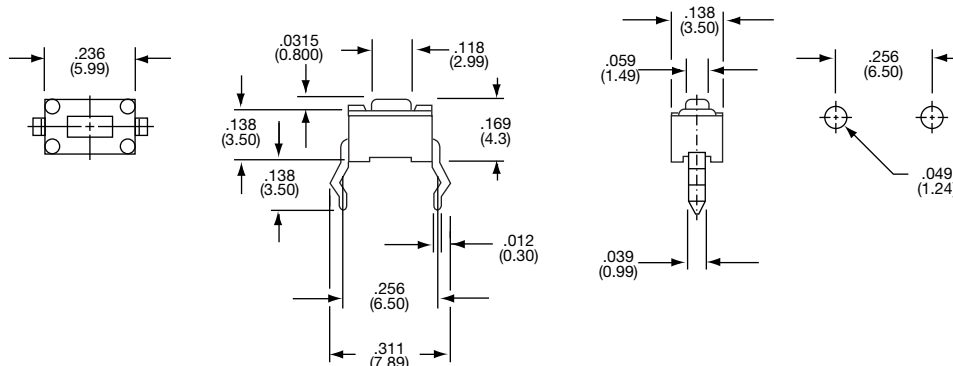


3.5 x 6mm



FSM

Tyco Electronics	Alcoswitch	Type	Off	On
1437565-1	FSM	SPST	Off	(On)
(On) indicates momentary position.				



3.5 x 6mm



FSMC

Tyco Electronics	Alcoswitch	Type	Off	On
7-1437565-6	FSMC	SPST	Off	(On)
(On) indicates momentary position.				

Tactile Switches, .236 [6] x .236 [6], Through Hole

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, silver plate
Case.....Polyamide
Actuator ButtonPolyacetal Resin
FrameSteel, tin plate
TerminalsCopper alloy, silver plate

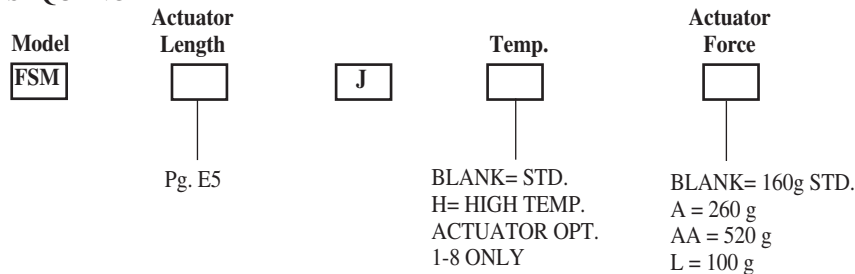
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-40°F to +221°F (-40°C to +105°C)
Storage Temperature.....-40°F to +221°F (-40°C to +105°C)
Solder Heat ResistanceSee Page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength500 VAC
Actuation ForceSee page E5
Actuator Travel......012" (0,3)
Electrostatic Discharge
w/ESD Ground Terminal5Kv w/no discharge
Life ExpectancyUp to 100,000 Cycles

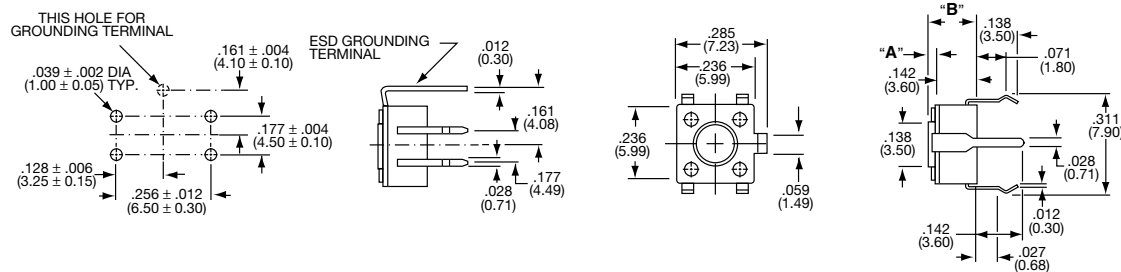
PART NUMBERING SEQUENCE



6 x 6 mm



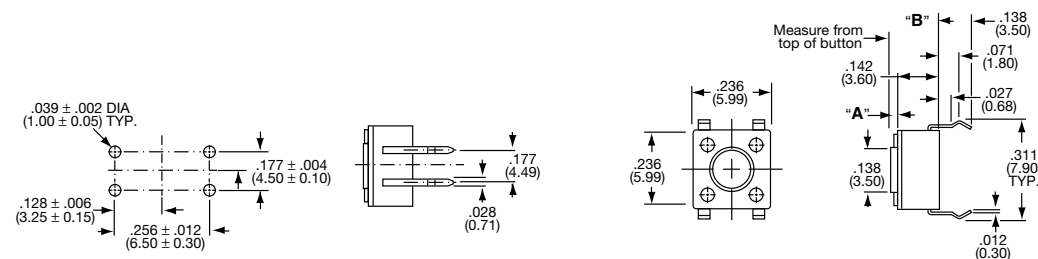
FSM1J
WITH
ESD
TERMINAL



6 x 6 mm



FSM2J
WITHOUT
ESD
TERMINAL



Tactile Switches, .236 [6] x .236 [6], Through Hole (Continued)

TYCO Electronics Part Number	ALCO Part Number	DIMENSIONS		Actuation Force	Actuator Material	Life Cycles
		A	B			
With Ground Terminal						
1-1437565-5	FSM1J	0.028 (0.70)	0.169 (4.30)	160±50gf	PBT	100,000
—	FSM1JAA	0.028 (0.70)	0.169 (4.30)	260±50gf	PBT	100,000
—	FSM1JAA	0.028 (0.70)	0.169 (4.30)	520±100gf	PBT	100,000
—	FSM1JL	0.028 (0.70)	0.169 (4.30)	100±50gf	PBT	100,000
3-1437565-3	FSM3J	0.055 (1.40)	0.196 (5.00)	160±50gf	PBT	100,000
—	FSM3JAA	0.055 (1.40)	0.196 (5.00)	260±50gf	PBT	100,000
—	FSM3JAA	0.055 (1.40)	0.196 (5.00)	520±100gf	PBT	100,000
—	FSM3JL	0.055 (1.40)	0.196 (5.00)	100±50gf	PBT	100,000
4-1437565-4	FSM5J	0.134 (3.40)	0.276 (7.00)	160±50gf	ACETAL	100,000
—	FSM5JAA	0.134 (3.40)	0.276 (7.00)	260±50gf	ACETAL	100,000
—	FSM5JAA	0.134 (3.40)	0.276 (7.00)	520±100gf	ACETAL	100,000
—	FSM5JL	0.134 (3.40)	0.276 (7.00)	100±50gf	ACETAL	100,000
5-1437565-1	FSM7J	0.232 (5.90)	0.374 (9.50)	160±50gf	PBT	100,000
—	FSM7JAA	0.232 (5.90)	0.374 (9.50)	260±50gf	PBT	100,000
—	FSM7JAA	0.232 (5.90)	0.374 (9.50)	520±100gf	PBT	100,000
—	FSM7JL	0.232 (5.90)	0.374 (9.50)	100±50gf	PBT	100,000
7-1437565-5	FSM9J	0.146 (3.70)	0.287 (7.30)	160±50gf	ACETAL	100,000
—	FSM9JAA	0.146 (3.70)	0.287 (7.30)	260±50gf	ACETAL	100,000
—	FSM9JAA	0.146 (3.70)	0.287 (7.30)	520±100gf	ACETAL	100,000
—	FSM9JL	0.146 (3.70)	0.287 (7.30)	100±50gf	ACETAL	100,000
1437565-8	FSM11J	0.173 (4.40)	0.315 (8.00)	160±50gf	ACETAL	100,000
—	FSM11JAA	0.173 (4.40)	0.315 (8.00)	260±50gf	ACETAL	100,000
—	FSM11JAA	0.173 (4.40)	0.315 (8.00)	520±100gf	ACETAL	100,000
—	FSM11JL	0.173 (4.40)	0.315 (8.00)	100±50gf	ACETAL	100,000
1-1437565-0	FSM13J	0.370 (9.40)	0.512 (13.00)	160±50gf	ACETAL	100,000
1-1437565-1	FSM13JAA	0.370 (9.40)	0.512 (13.00)	260±50gf	ACETAL	100,000
—	FSM13JAA	0.370 (9.40)	0.512 (13.00)	520±100gf	ACETAL	100,000
—	FSM13JL	0.370 (9.40)	0.512 (13.00)	100±50gf	ACETAL	100,000
—	FSM15J	0.527 (13.40)	0.669 (17.00)	160±50gf	ACETAL	100,000
147916-1	FSM15JAA	0.527 (13.40)	0.669 (17.00)	260±50gf	ACETAL	100,000
—	FSM15JAA	0.527 (13.40)	0.669 (17.00)	520±100gf	ACETAL	100,000
—	FSM15JL	0.527 (13.40)	0.669 (17.00)	100±50gf	ACETAL	100,000
—	FSM17J	0.193 (4.90)	0.335 (8.51)	160±50gf	ACETAL	100,000
—	FSM17JAA	0.193 (4.90)	0.335 (8.51)	260±50gf	ACETAL	100,000
—	FSM17JAA	0.193 (4.90)	0.335 (8.51)	520±100gf	ACETAL	100,000
—	FSM17JL	0.193 (4.90)	0.335 (8.51)	100±50gf	ACETAL	100,000
Without Ground Terminal						
2-1437565-0	FSM2J	0.028 (0.70)	0.169 (4.30)	160±50gf	PBT	100,000
2-1437565-1	FSM2JAA	0.028 (0.70)	0.169 (4.30)	260±50gf	PBT	100,000
—	FSM2JAA	0.028 (0.70)	0.169 (4.30)	520±100gf	PBT	100,000
2-1437565-4	FSM2JL	0.028 (0.70)	0.169 (4.30)	100±50gf	PBT	100,000
3-1437565-6	FSM4J	0.055 (1.40)	0.196 (5.00)	160±50gf	PBT	100,000
3-1437565-7	FSM4JAA	0.055 (1.40)	0.196 (5.00)	260±50gf	PBT	100,000
3-1437565-8	FSM4JAA	0.055 (1.40)	0.196 (5.00)	520±100gf	PBT	100,000
—	FSM4JL	0.055 (1.40)	0.196 (5.00)	100±50gf	PBT	100,000
4-1437565-5	FSM6J	0.134 (3.40)	0.276 (7.00)	160±50gf	ACETAL	100,000
4-1437565-6	FSM6JAA	0.134 (3.40)	0.276 (7.00)	260±50gf	ACETAL	100,000
—	FSM6JAA	0.134 (3.40)	0.276 (7.00)	520±100gf	ACETAL	100,000
—	FSM6JL	0.134 (3.40)	0.276 (7.00)	100±50gf	ACETAL	100,000
5-1437565-2	FSM8J	0.232 (5.90)	0.374 (9.50)	160±50gf	PBT	100,000
5-1437565-3	FSM8JAA	0.232 (5.90)	0.374 (9.50)	260±50gf	PBT	100,000
5-1437565-4	FSM8JAA	0.232 (5.90)	0.374 (9.50)	520±100gf	PBT	100,000
1571376-1	FSM8JL	0.232 (5.90)	0.374 (9.50)	100±50gf	PBT	100,000
1437565-7	FSM10J	0.146 (3.70)	0.287 (7.30)	160±50gf	ACETAL	100,000
—	FSM10JAA	0.146 (3.70)	0.287 (7.30)	260±50gf	ACETAL	100,000
—	FSM10JAA	0.146 (3.70)	0.287 (7.30)	520±100gf	ACETAL	100,000
—	FSM10JL	0.146 (3.70)	0.287 (7.30)	100±50gf	ACETAL	100,000
1437565-9	FSM12J	0.173 (4.40)	0.315 (8.00)	160±50gf	ACETAL	100,000
—	FSM12JAA	0.173 (4.40)	0.315 (8.00)	260±50gf	ACETAL	100,000
—	FSM12JAA	0.173 (4.40)	0.315 (8.00)	520±100gf	ACETAL	100,000
—	FSM12JL	0.173 (4.40)	0.315 (8.00)	100±50gf	ACETAL	100,000
1-1437565-2	FSM14J	0.370 (9.40)	0.512 (13.00)	160±50gf	ACETAL	100,000
—	FSM14JAA	0.370 (9.40)	0.512 (13.00)	260±50gf	ACETAL	100,000
—	FSM14JAA	0.370 (9.40)	0.512 (13.00)	520±100gf	ACETAL	100,000
—	FSM14JL	0.370 (9.40)	0.512 (13.00)	100±50gf	ACETAL	100,000
1-1437565-3	FSM16J	0.527 (13.40)	0.669 (17.00)	160±50gf	ACETAL	100,000
—	FSM16JAA	0.527 (13.40)	0.669 (17.00)	260±50gf	ACETAL	100,000
—	FSM16JAA	0.527 (13.40)	0.669 (17.00)	520±100gf	ACETAL	100,000
—	FSM16JL	0.527 (13.40)	0.669 (17.00)	100±50gf	ACETAL	100,000
1-1437565-4	FSM18J	0.193 (4.90)	0.335 (8.51)	160±50gf	ACETAL	100,000
—	FSM18JAA	0.193 (4.90)	0.335 (8.51)	260±50gf	ACETAL	100,000
—	FSM18JAA	0.193 (4.90)	0.335 (8.51)	520±100gf	ACETAL	100,000
—	FSM18JL	0.193 (4.90)	0.335 (8.51)	100±50gf	ACETAL	100,000

Tactile Switches, .236 [6] x .236 [6], Radial Tape

MATERIAL SPECIFICATIONS:

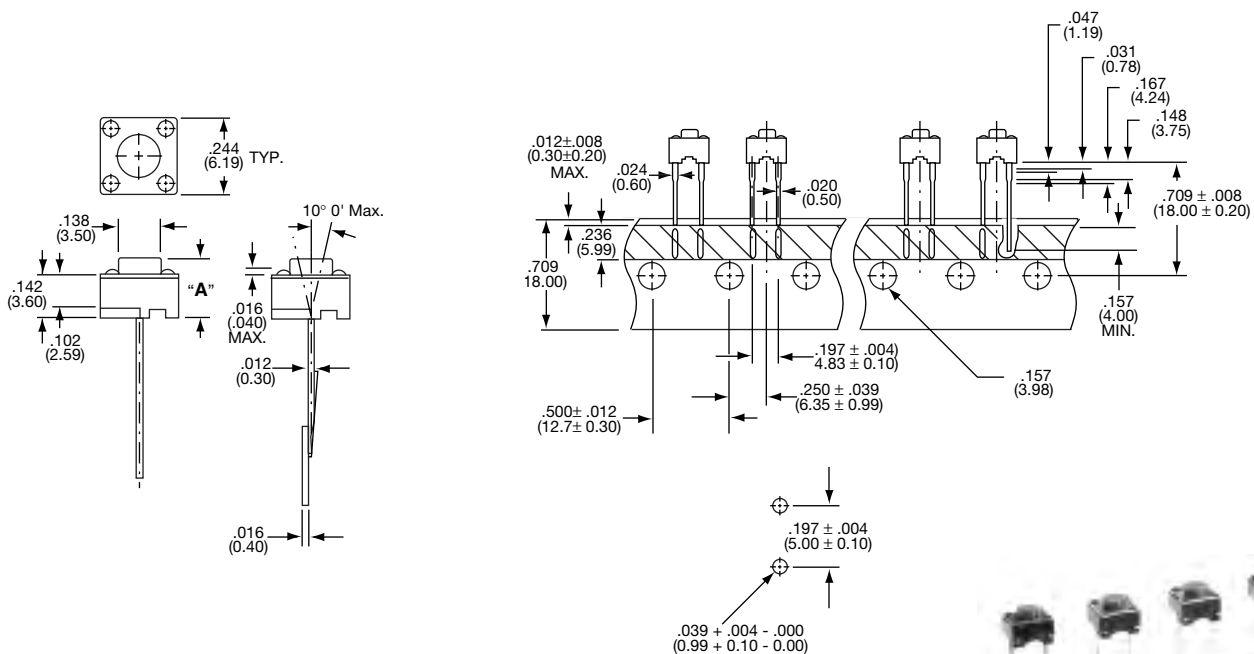
ContactsCopper alloy, silver clad plate
Case.....Nylon
Actuator ButtonPBT
Cover.....Steel, tin plate
TerminalsCopper alloy, silver clad plate

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature..... -40°F to +221°F (-40°C to +105°C)
Storage Temperature.....-40°F to +221°F (-40°C to +105°C)
Solder Heat ResistanceSee Page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength500 VAC for 1 minute
Actuation ForceSee Below
Actuator Travel......010" (.254)
Life ExpectancyUp to 100,000 Cycles



FSM4JRT

Tyco Electronics	Alcoswitch	Dimension A	Actuation Force
2-1437565-6	FSM2JRT	4.3 (.169)	160 +/-50 gm
2-1437565-2	FSM2JART	4.3 (.169)	260 +/-75 gm
4-1437565-0	FSM4JRT	5.0 (.197)	160 +/-50 gm
147997-1	FSM4JART	5.0 (.197)	260 +/-75 gm
4-1437565-8	FSM6JRT	7.0 (.276)	160 +/-50 gm
1571402-1	FSM6JART	7.0 (.276)	260 +/-75 gm
147694-1	FSM8JRT	9.5 (.374)	160 +/-50 gm
147871-1	FSM8JART	9.5 (.374)	260 +/-75 gm
1571010-1	FSM14JRT	13.0 (.512)	160 +/-50 gm

Tactile Switches, .236 [6] x .236 [6], Right Angle

MATERIAL SPECIFICATIONS:

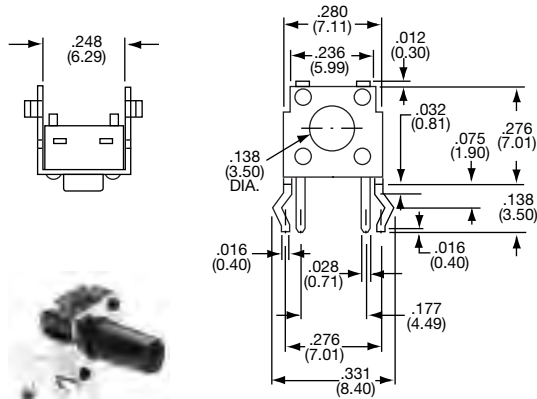
ContactsCopper alloy, silver clad plate
Case.....PBT
Actuator ButtonNylon/acetel
FrameSteel, tin plate
TerminalsCopper alloy, silver plate

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-22°F to +185°F (-30°C to +85°C)
Solder Heat ResistanceSee Page M3-4

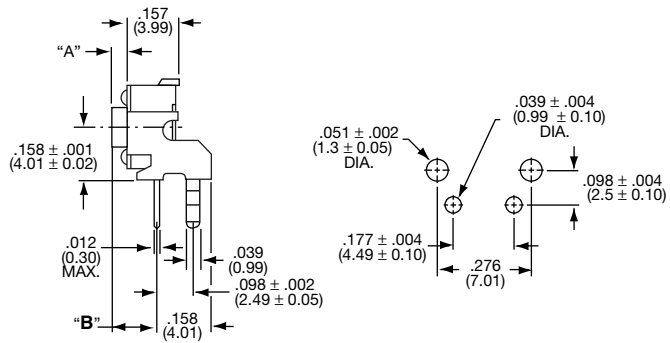
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength500 VAC for 1 minute
Actuation ForceSee Below
Actuator Travel......012" (0,3)
Life ExpectancyUp to 100,000 Cycles
Up to 50,000 Cycles 520 GF (AA option)



FSMRA7J

Type	Off	On
SPST	Off	On
	(On) indicates momentary position.	



Tyco Electronics	Alcoswitch	Dim. A	Dim B
8-1437565-4	FSMRA 1J	.022" (0,55)	.124" (3,15)
1571386-2	FSMRA 1JL	.022" (0,55)	.124" (3,15)
8-1437565-5	FSMRA 2J	.049" (1,25)	.152" (3,86)
1571386-1	FSMRA 2JL	.049" (1,25)	.152" (3,86)
8-1437565-8	FSMRA 2JA	.049" (1,25)	.152" (3,86)
8-1437565-9	FSMRA 2JH	.049" (1,25)	.152" (3,86)
9-1437565-0	FSMRA 3J	.128" (3,25)	.230" (5,84)
1571386-3	FSMRA 3JL	.128" (3,25)	.230" (5,84)
9-1437565-1	FSMRA 4J	.226" (5,74)	.329" (8,36)
1571819-1	FSMRA 4JA	.226" (5,74)	.329" (8,36)
1571386-4	FSMRA 4JL	.226" (5,74)	.329" (8,36)
9-1437565-2	FSMRA 5J	.140" (3,55)	.242" (6,15)
1571386-5	FSMRA 5JL	.140" (3,55)	.242" (6,15)
9-1437565-3	FSMRA 6J	.167" (4,25)	.269" (6,85)
1571386-6	FSMRA 6JL	.167" (4,25)	.269" (6,85)
9-1437565-5	FSMRA 7J	.364" (9,25)	.467" (11,86)
1571386-7	FSMRA 7JL	.364" (9,25)	.467" (11,86)
1571419-1	FSMRA 8J	.522" (13,26)	.624" (15,85)
1571386-8	FSMRA 8JL	.522" (13,26)	.624" (15,85)

PART NUMBERING SEQUENCE

Model	Actuator Length	Temperature	Actuation Force
FSMRA	J		
ACTUATOR LENGTH DIM "A"	SWITCH HEIGHT DIM "B"	BLANK = STD. TEMP. H = HIGH TEMP.	BLANK = 160 g (STD.) A = 260 g (OPT.) AA = 520 g (OPT.) L = 100 g (OPT.)
.022" (0,56)	.124" (3,15)		
.049" (1,24)	.152" (3,86)		
.128" (3,25)	.230" (5,84)		
.226" (5,74)	.329" (8,36)		
.140" (3,55)	.242" (6,15)		
.167" (4,24)	.269" (6,85)		
.364" (9,24)	.467" (11,86)		
.522" (13,26)	.624" (15,85)		

CONSULT FACTORY
FOR OTHER OPTIONS

Tactile Switches, .236 [6] x .236 [6], Square Button, Straight or Right Angle

MATERIAL SPECIFICATIONS:

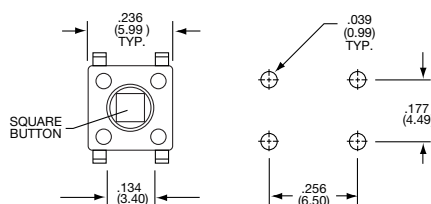
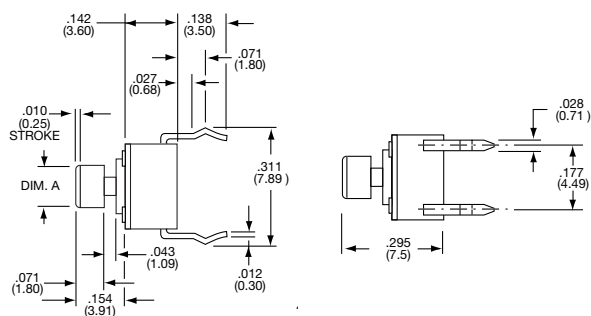
Contacts	Copper alloy, silver clad plate
Case.....	Nylon
Actuator Button	Polyacetal Resin
Cover	Pet film
Terminals	Copper alloy, silver plate
Frame (R/A)	Steel, tin plate

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	50 mA @ 12 VDC
Initial Contact Resistance	100 Milliohms Max.
Insulation Resistance	100 Megohms min. @ 100 VDC
Dielectric Strength	500 VAC for 1 minute
Actuation Force	100 and 160 ±50 Grams
Actuator Travel	.010"(.254)
Life Expectancy	Up to 100,000 Cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature..... -4°F to +185°F (-20°C to +85°C)
Storage Temperature..... -22°F to +185°F (-30°C to +85°C)
Solder Heat ResistanceSee Page M3-4



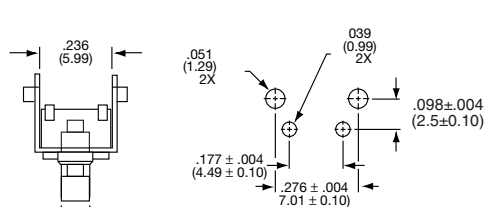
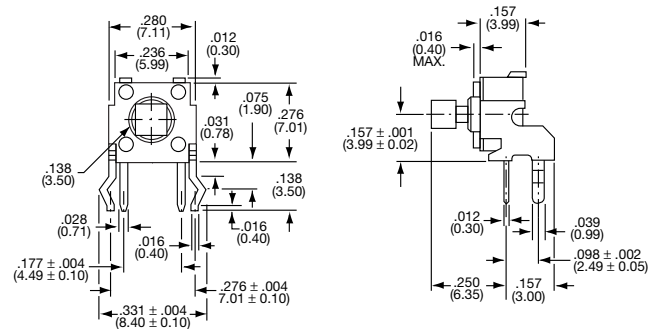
6 x 6 mm



FSMCDA

Tyco Electronics	Alcoswitch	Dim. A	Type			Force
7-1437565-8	FSMCD	.095 (2,42)	SPST	Off	(On)	100±50g
7-1437565-9	FSMCDA	.110 (2,80)	SPST	Off	(On)	160±50g

(On) indicates momentary position.



6 x 6 mm



FSMRACDA

Tyco Electronics	Alcoswitch	Dim. A	Force
9-1437565-9	FSMRACD	.095 (2,42)	100±50g
1437566-1	FSMRACDA	.110 (2,80)	160±50g

Tactile Switches, .138 [3.5] x .236 [6], Surface Mount

MATERIAL SPECIFICATIONS:

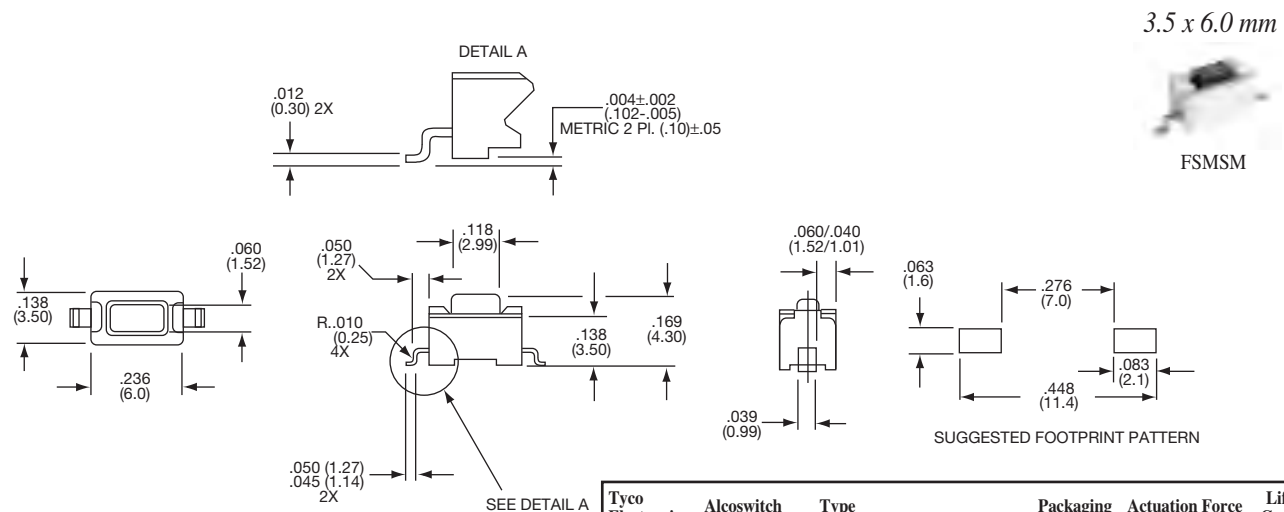
ContactsStainless steel, silver clad plate
Case MaterialFSMSM: PPS
Actuator MaterialFSMSM: Nylon
FSMJM: PPS
TerminalsCopper alloy, silver plate or tin plate
Cover.....Stainless steel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 500 VDC
Dielectric Strength500 VAC for 1 minute
Actuator Travel......010"(.254)
Life Expectancy20,000-40,000 Cycles

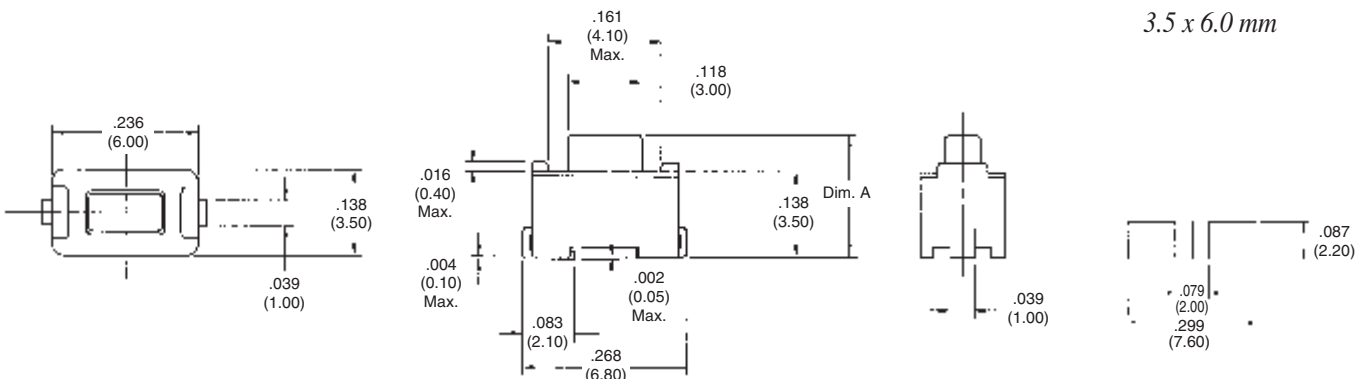
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-40°F to +185°F (-40°C to +85°C)
Storage Temperature.....-40°F to +185°F (-40°C to +85°C)
Solder Heat ResistanceFSMSM IR Soldering EIA-364-56,
Procedure 5 Level 1, 215° C
FSMJM IR Soldering per EIA 364-56
Procedure 5, level 2, 464°F (240°C)



Tyco Electronics	Alcoswitch	Type	Packaging	Actuation Force	Life Cycle
1437566-3	FSMSM	SPST Off (On)	Bulk	180±50	20,000
1437566-4	FSMSMTR		Reel	180±50	20,000

(On) indicates momentary position.



Tyco Electronics	Alcoswitch	Type	Dim. A	Actuation Force	Packaging	Life Cycle
147873-1	FSMJM5.0ATR	SPST	.197 (5.00)	180±50	Reel	40,000
147873-2	FSMJM4.3ATR	SPST	.169 (4.30)	180±50	Reel	40,000
147873-3	FSMJM3.5ATR	SPST	.138 (3.50)	180±50	Reel	40,000
147942-1	FSMJM4.3	SPST	.169 (4.30)	130±50	Bulk	40,000
147942-2	FSMJM4.3TR	SPST	.169 (4.30)	130±50	Reel	40,000

Tactile Switches, .236 [6] x .236 [6], Surface Mount

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, silver plate
Case.....PPS
Actuator ButtonPPS
Cover.....Steel, tin plate
TerminalsCopper alloy, silver plate

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-22°F to +185°F (-30°C to +85°C)
Solder Heat ResistanceIR Soldering EIA-364-56
Procedure 5 Level 3, 500°F (260°C)

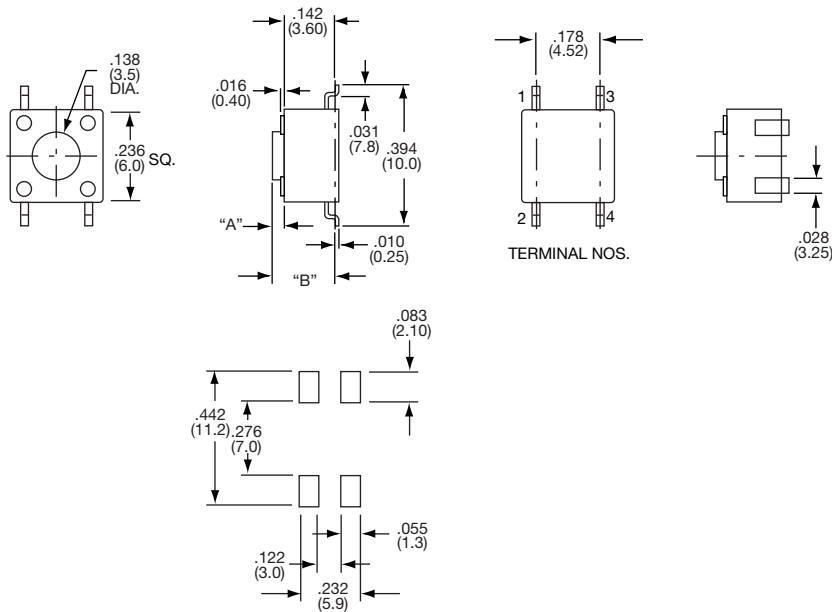
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength500 VAC for 1 minute
Actuation ForceSee Below
Actuator Travel......010"(.254)
Life ExpectancyUp to 100,000 Cycles

6 x 6 mm



FSMJ SMA



Bulk Pack Part Number		Tape & Reel Part Number		Actuator Length	Switch Height	Actuation Force
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	Dimension A	Dimension B	
2-1437565-7	FSM2JSMA	3-1437565-0	FSM2JSMATR	.028 (0.70)	.169 (4.30)	160 ± 50 grams
4-1437565-1	FSM4JSMA	4-1437565-2	FSM4JSMATR	.055 (1.40)	.196 (5.00)	160 ± 50 grams
4-1437565-9	FSM6JSMA	5-1437565-0	FSM6JSMATR	.134 (3.40)	.276 (7.00)	160 ± 50 grams
2-1437565-8	FSM2JSMAA	2-1437565-9	FSM2JSMAATR	.028 (0.70)	.169 (4.30)	260 ± 50 grams
1571563-1	FSM4JSML	1571563-2	FSM4JSMLTR	.055 (1.40)	.196 (5.00)	100 ± 50 grams
1571563-3	FSM4JSMAA	1571563-4	FSM4JSMAATR	.055 (1.40)	.196 (5.00)	260 ± 50 grams
—	FSM6JSMAA	—	FSM6JSMAATR	.134 (3.40)	.276 (7.00)	260 ± 50 grams
3-1437566-8	FSM8JSMA	—	FSM8JSMATR	.232 (5.90)	.374 (9.50)	260 ± 50 grams
1571527-1	FSM2JSML	1571527-2	FSM2JSMLTR	.028 (0.70)	.169 (4.30)	100 ± 50 grams

Low Profile Series FSMCT Tactile Switches, .196 [5.0] x .196 [5.0], Surface Mount

MATERIAL SPECIFICATIONS:

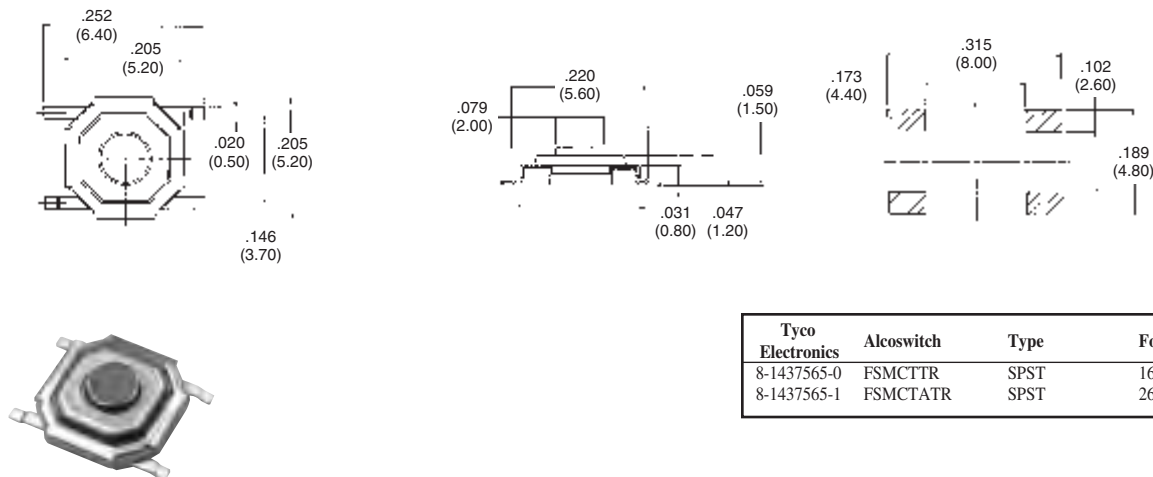
Cover	Nickel Silver
Stem/Actuator	Brass-"J" Lead
	Brass nickel plate-gullwing
Contacts:	
Moving	Stainless Steel, Silver Clad-Plate
Fixed/Terminal	Copper Alloy, Silver-Plate
Case	Nylon, UL94V-0

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	20mA @ 15VDC
Initial Contact Resistance	100MilliOhms Max
Insulation Resistance	100Megaohms @ 100VDC Min.
Dielectric Strength	500 VAC for 1 minute
Actuation Travel	0.25 +0.1/-0.2
Life Expectancy	Up to 500,000 and 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature	-4 to +185°F (-20 to +85°C)
Storage Temperature	-22 to +185°F (-30 to +85°C)
Resistance to solder heat	Per EIA-364-56A, Procedure 4 & 5, Level 3
Solderability	Per EIA-364-52, Class 2, Category 1, Temp. 473°F (245°C) max., Time 2.5 seconds max., 95% minimum coverage.



Tyco Electronics	Alcoswitch	Type	Force	Life Cycle
8-1437565-0	FSMCTTR	SPST	160±50	1,000,000
8-1437565-1	FSMCTATR	SPST	260±50	500,000

"J" lead option in development. Contact factory for additional information.

Low Profile, 6 x 6 SMT J-Lead, Extended Life

MATERIAL SPECIFICATIONS:

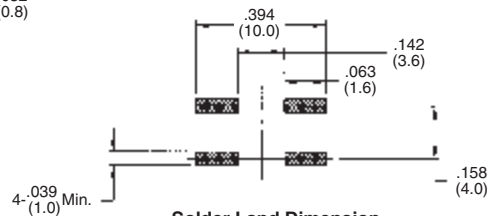
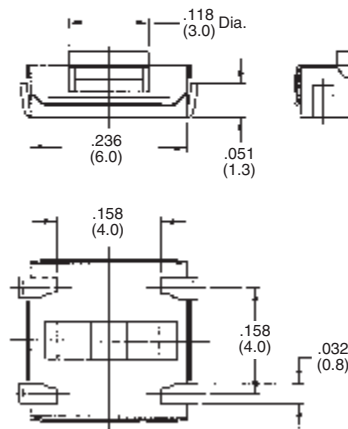
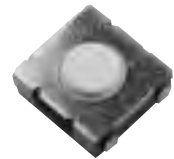
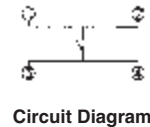
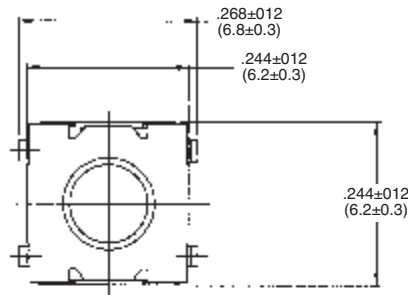
CoverStainless Steel
 Stem/ActuatorNylon UL94V-0
 Contacts:
 MovingStainless Steel, Silver Clad-Plate
 Fixed/TerminalCopper Alloy, Silver-Plate
 CaseThermoplastic, UL94V-0, Black
 TapeTeflon

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC for 1 minute
 Actuation Travel0.008 +/-0.004 (.2 +/- .10)

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-22 to +185°F (-30 to +85°C)
 Resistance to solder heatPer EIA-364-56A, Procedure 4 & 5,
 Level 3
 SolderabilityPer EIA-364-52, Class 2, Category 1,
 Temp 473°F (245°C), 95% minimum
 coverage.



Solder Land Dimension

Tyco Electronics	Dim L	Force	Life	Packaging
1571625-1	.098 (2.5)	50gf	2,000,000	Bulk
1571625-2	.098 (2.5)	50gf	2,000,000	T&R
1571625-3	.098 (2.5)	100gf	1,000,000	Bulk
1571625-4	.098 (2.5)	100gf	1,000,000	T&R
1571625-5	.098 (2.5)	160gf	1,000,000	Bulk
1571625-6	.098 (2.5)	160gf	1,000,000	T&R
1571625-7	.098 (2.5)	260gf	100,000	Bulk
1571625-8	.098 (2.5)	260gf	100,000	T&R

Low Profile, 6 x 6 SMT, Gull Wing, Extended Life

MATERIAL SPECIFICATIONS:

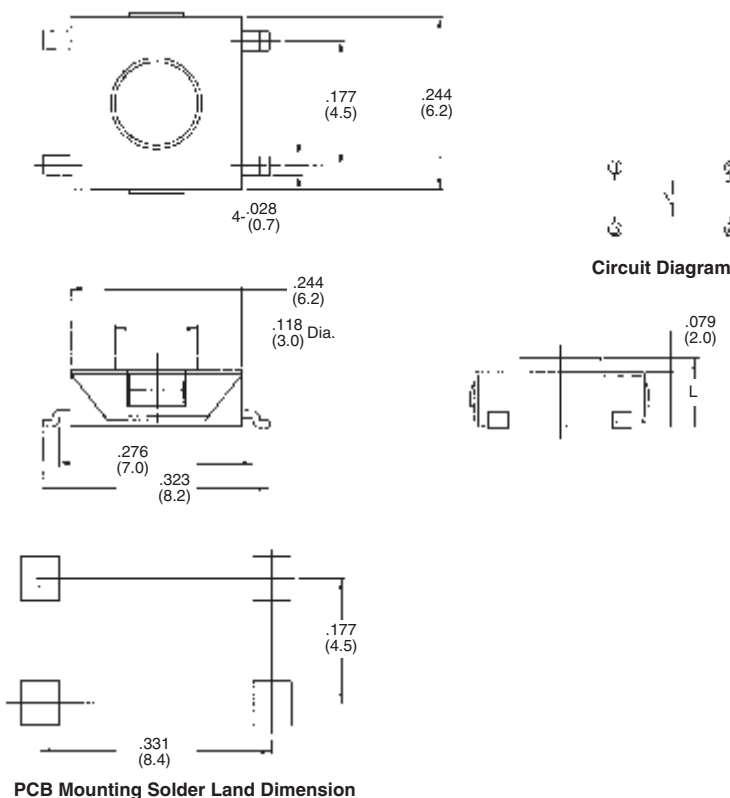
CoverCopper Alloy, Tin Lead Plate
 Stem/ActuatorNylon UL94V-0
 Contacts:
 MovingStainless Steel, Silver Clad-Plate
 Fixed/TerminalCopper Alloy, Silver-Plate
 CaseThermoplastic, UL94V-0, Black
 TapeTeflon

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC for 1 minute
 Actuation Travel0.010 +/- .004 (.25 +/- .10)

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-22 to +185°F (-30 to +85°C)
 Resistance to solder heatPer EIA-364-56A, Procedure 4 & 5,
 Level 3
 SolderabilityPer EIA-364-52, Class 2, Category 1,
 Temp 473°F (245°C) max., time 2.5
 seconds max., 95% minimum coverage.



Tyco Electronics	Dim L	Force	Life	Packaging
1571626-1	.098 (2.5)	50gf	1,000,000	Bulk
1571626-2	.098 (2.5)	50gf	1,000,000	T&R
1571626-3	.098 (2.5)	100gf	1,000,000	Bulk
1571626-4	.098 (2.5)	100gf	1,000,000	T&R
1571626-5	.098 (2.5)	160gf	1,000,000	Bulk
1571626-6	.098 (2.5)	160gf	1,000,000	T&R
1571626-7	.079 (2.0)	160gf	1,000,000	Bulk
1571626-8	.079 (2.0)	160gf	1,000,000	T&R
1571626-9	.098 (2.5)	260gf	100,000	Bulk
1-1571626-0	.098 (2.5)	260gf	100,000	T&R

Low Profile, 6 x 6 SMT, Gull Wing w/ESD Terminal, Extended Life

MATERIAL SPECIFICATIONS:

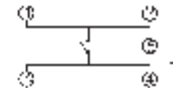
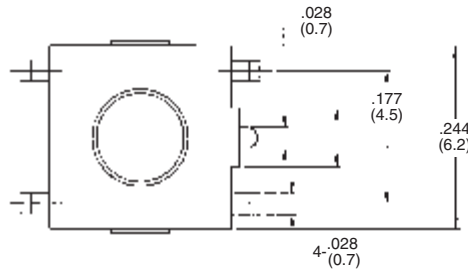
CoverCopper Alloy, Tin Lead Plate
 Stem/ActuatorNylon UL94V-0
 Contacts:
 MovingStainless Steel, Silver Clad-Plate
 Fixed/TerminalCopper Alloy, Silver-Plate
 CaseThermoplastic, UL94V-0, Black
 TapeTeflon

TYPICAL PERFORMANCE CHARACTERISTICS:

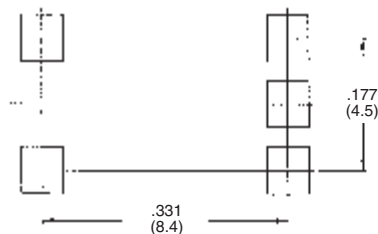
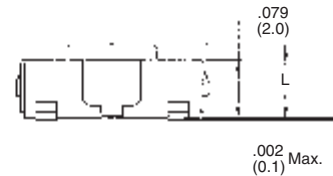
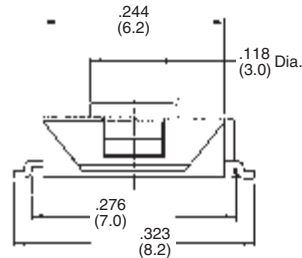
Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100V DC Min.
 Dielectric Strength500 VAC for 1 minute
 Actuation Travel0.010 +/- .004 (.25 +/- .10)

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-22 to +185°F (-30 to +85°C)
 Resistance to solder heatPer EIA-364-56A, Procedure 4 & 5,
 Level 3
 SolderabilityPer EIA-364-52, Class 2, Category 1,
 Temp 473°F (245°C) max., time 2.5
 seconds max., 95% minimum coverage.



Circuit Diagram



PCB Mounting Solder Land Dimension

Tyco Electronics	Dim L	Force	Life	Packaging
1571636-1	.098 (2.5)	50gf	1,000,000	Bulk
1571636-2	.098 (2.5)	50gf	1,000,000	T&R
1571636-3	.098 (2.5)	100gf	1,000,000	Bulk
1571636-4	.098 (2.5)	100gf	1,000,000	T&R
1571636-5	.098 (2.5)	160gf	1,000,000	Bulk
1571636-6	.098 (2.5)	160gf	1,000,000	T&R
1571636-7	.079 (2.0)	160gf	1,000,000	Bulk
1571636-8	.079 (2.0)	160gf	1,000,000	T&R
1571636-9	.098 (2.5)	260gf	100,000	Bulk
1-1571636-0	.098 (2.5)	260gf	100,000	T&R

Tactile Switches, .236 [6] x .236 [6], Low Profile, Surface Mount

MATERIAL SPECIFICATIONS:

ContactsCopper Alloy, silver clad plated
Case MaterialPPS
StemPPS
Cover.....Steel, tin-plate
TerminalsCopper alloy, silver plated

ENVIRONMENTAL SPECIFICATIONS:

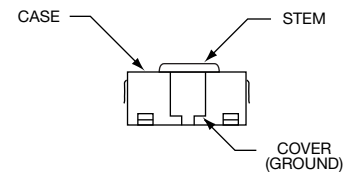
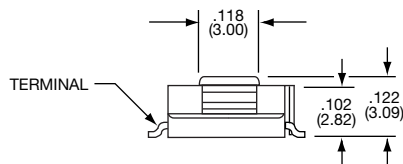
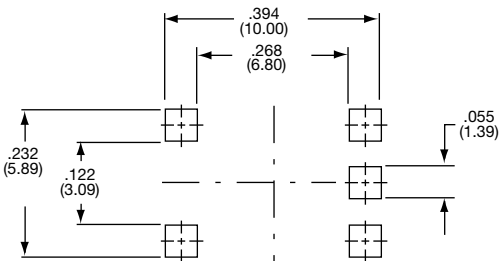
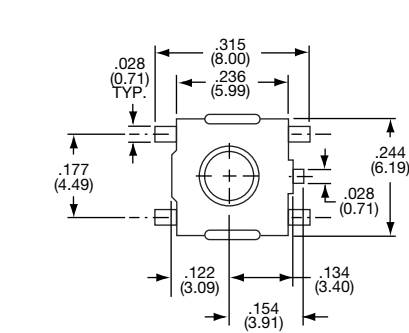
Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-22°F to +185°F (-30°C to +85°C)
Solder Heat ResistanceIR Soldering EIA-364-56
Procedure 5 Level 2, 464°F (240°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

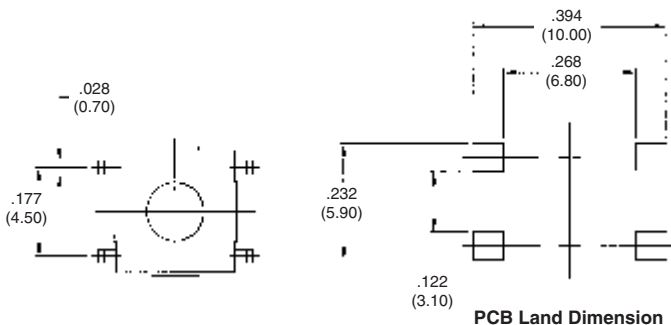
Contact Rating50mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @ 100 VDC
Dielectric Strength500 VAC, 1 minute
Actuation ForceSee Below.
Life ExpectancyUp to 100,000 Cycles



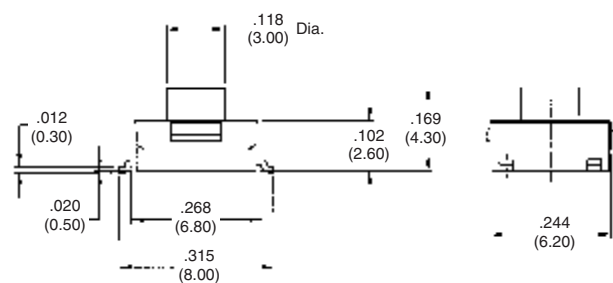
FSM1LP



FSM4LP



PCB Land Dimension



Tyco Electronics	Alcoswitch	Force	Actuator Packaging
1-1437565-6	FSM1LP	160	Bulk
1-1437565-7	FSM1LPA	260	Bulk
1-1437565-9	FSM1LPTR	160	Tape & Reel
1-1437565-8	FSM1LPATR	260	Tape & Reel
1571621-1	FSM4LP	260	Bulk
4-1437565-3	FSM4LPTR	260	Tape & Reel

Tactile Switches, .472 [12] x .472 [12], Flush or Extended Actuators

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, silver clad plate
Case.....PBT
Actuator ButtonPolyacetal Resin
Cover.....PET film
TerminalsCopper alloy, silver plate
Frame (R/A)Nylon

TYPICAL PERFORMANCE CHARACTERISTICS:

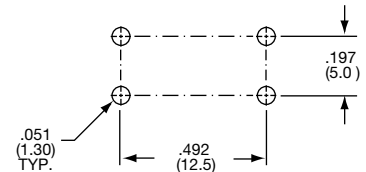
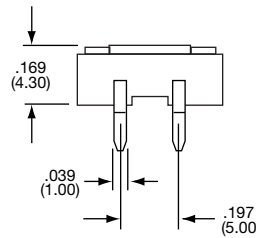
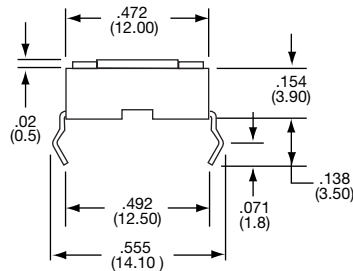
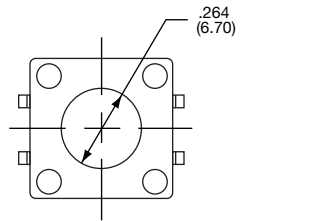
Contact Rating50 mA @ 12 VDC
Initial Contact Resistance100 Milliohms max.
Insulation Resistance100 Megohms min. @100 VDC
Dielectric Strength500 VAC for 1 minute
Actuation ForceSee below
Actuator Travel.....0.012"(0.3)
Life ExpectancyUp to 100,000 cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-22°F to +185°F (-30°C to +85°C)
Solder Heat ResistanceSee Page M3-4



FSM100

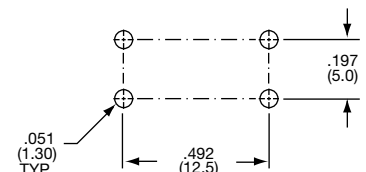
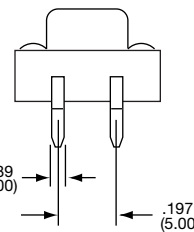
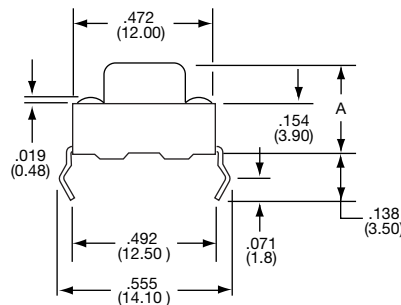
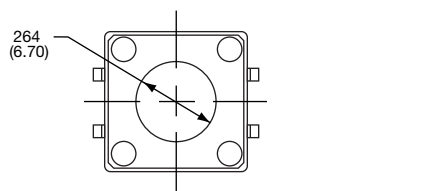


Tyco Electronics	Alcoswitch	Type			Force
1437565-2	FSM100	SPST	Off	(On)	160±50gf
1571139-1	FSM100A	SPST	Off	(On)	260±50gf

(On) indicates momentary position.



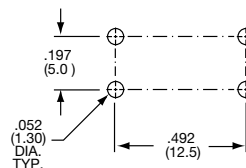
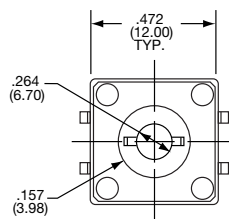
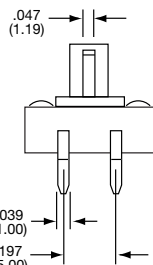
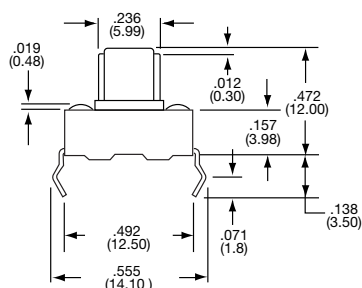
FSM101



Tyco Electronics	Alcoswitch	Type			Force	Dim A
1437565-3	FSM101	SPST	Off	(On)	160±50gf	.295 [7.5mm]
1571140-1	FSM201A	SPST	Off	(On)	260±50gf	.335 [8.5mm]

(On) indicates momentary position.

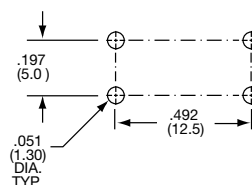
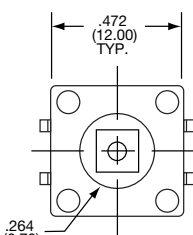
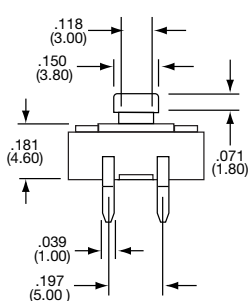
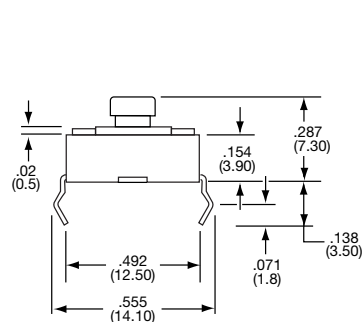
Tactile Switches, .472 [12] x .472 [12], Vertical or Right Angle



FSM102

Tyco Electronics	Alcoswitch	Type			Force
1437565-4	FSM102	SPST	Off	(On)	160±50gf
1571061-1	FSM102A	SPST	Off	(On)	260±50gf

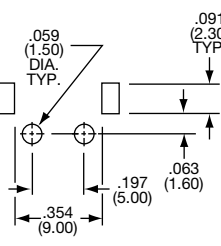
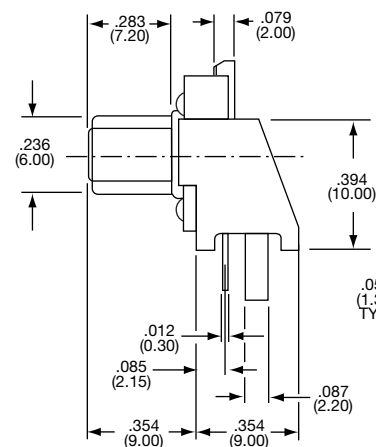
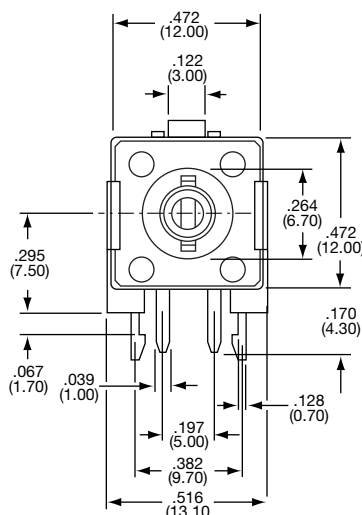
(On) indicates momentary position.



FSM103

Tyco Electronics	Alcoswitch	Type			Force
1437565-5	FSM103	SPST	Off	(On)	160±50gf

(On) indicates momentary position.



Tyco Electronics	Alcoswitch	Type			Force
1437565-6	FSM104	SPST	Off	(On)	160±50gf

(On) indicates momentary position.

Tactile Switches, Sealed .472 [12] x .472 [12], Surface Mount, Projected Actuator

MATERIAL SPECIFICATIONS:

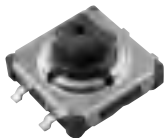
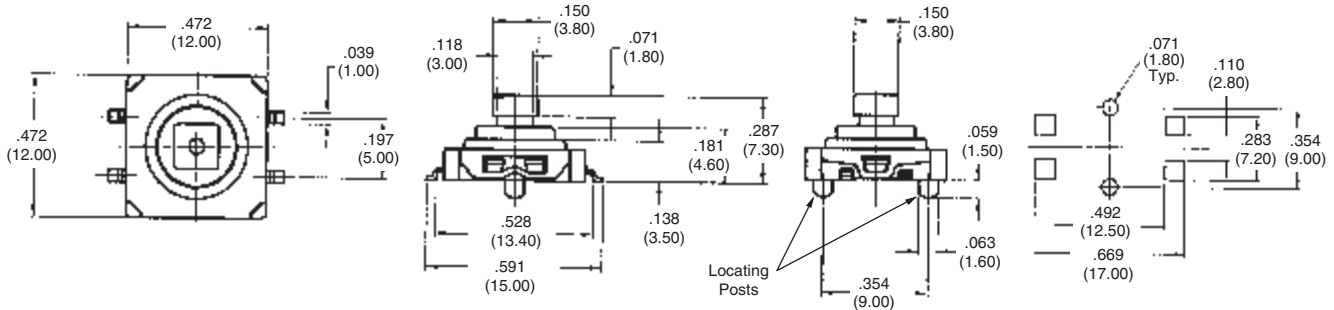
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +70°C)
 Storage Temperature-4 to +185°F (-20 to +70°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Locating Post	Packaging	Actuator Height	Force
1571217-1	No	Bulk	.287 (7.30)	160±70gf
1571217-2	Yes	Bulk	.287 (7.30)	160±70gf
1571217-3	No	T&R	.287 (7.30)	160±70gf
1571217-4	Yes	T&R	.287 (7.30)	160±70gf

Tactile Switches, Sealed .472 [12] x .472 [12], Surface Mount, Flush, Actuator

MATERIAL SPECIFICATIONS:

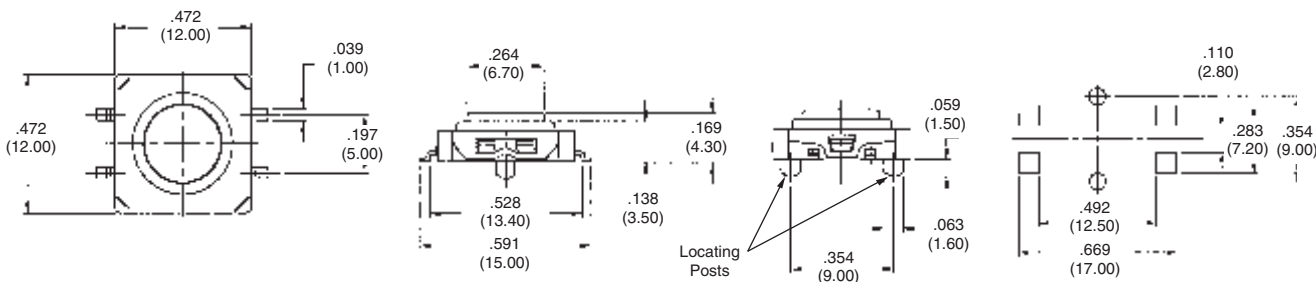
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Locating Post	Packaging	Actuator Height	Force
1571218-1	No	Bulk	.169 (4.30)	160±70gf
1571218-2	Yes	Bulk	.169 (4.30)	160±70gf
1571218-3	No	T&R	.169 (4.30)	160±70gf
1571218-4	Yes	T&R	.169 (4.30)	160±70gf

Tactile Switches, Sealed .472 [12] x .472 [12], Thru-Hole, Projected Actuator

MATERIAL SPECIFICATIONS:

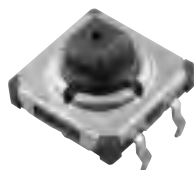
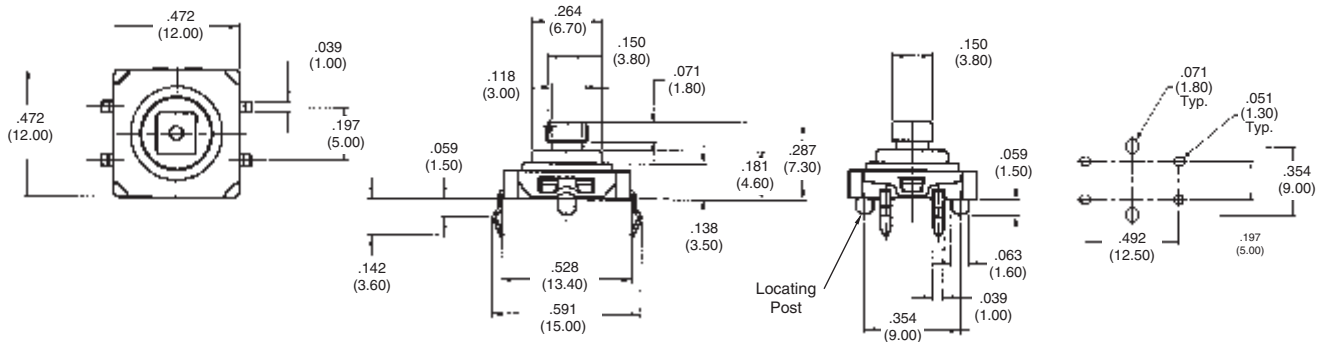
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 Life1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 3, Test Cond. B
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Locating Post	Packaging	Actuator Height	Force
1571219-1	No	Bulk	.287 (7.30)	160±70gf
1571219-2	Yes	Bulk	.287 (7.30)	160±70gf

Tactile Switches, Sealed .472 [12] x .472 [12], Thru-Hole, Flush Actuator

MATERIAL SPECIFICATIONS:

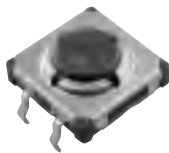
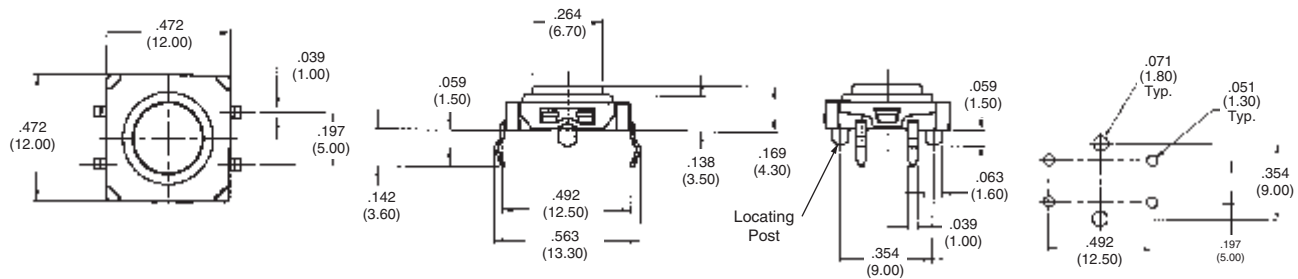
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 Life1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 3, Test Cond. B
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Locating Post	Packaging	Actuator Height	Force
1571220-1	No	Bulk	.169 (4.30)	160±70gf
1571220-2	Yes	Bulk	.169 (4.30)	160±70gf

Tactile Switches, Sealed .299 [7.6] x .287 [7.3], Surface Mount, Extended Actuator

MATERIAL SPECIFICATIONS:

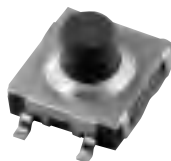
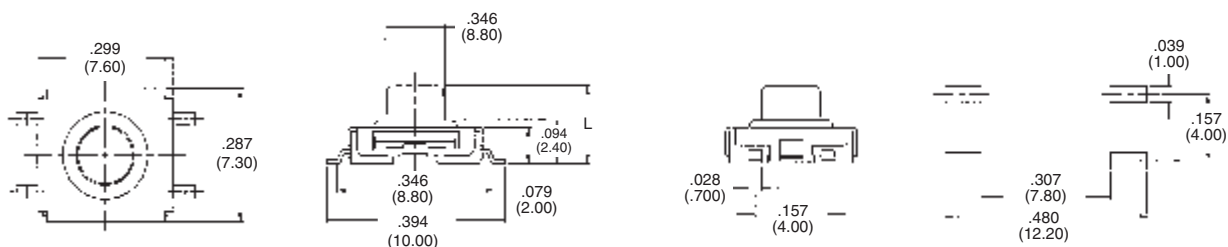
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	L	Force
1571294-1	Bulk	.169 (4.30)	160±50gf
1571294-2	T&R	.169 (4.30)	160±50gf
1571294-3	Bulk	.197 (5.00)	160±50gf
1571294-4	T&R	.197 (5.00)	160±50gf

Tactile Switches, Sealed .299 [7.6] x .287 [7.3], Surface Mount, Flush Actuator

MATERIAL SPECIFICATIONS:

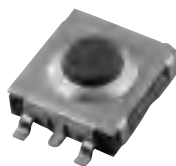
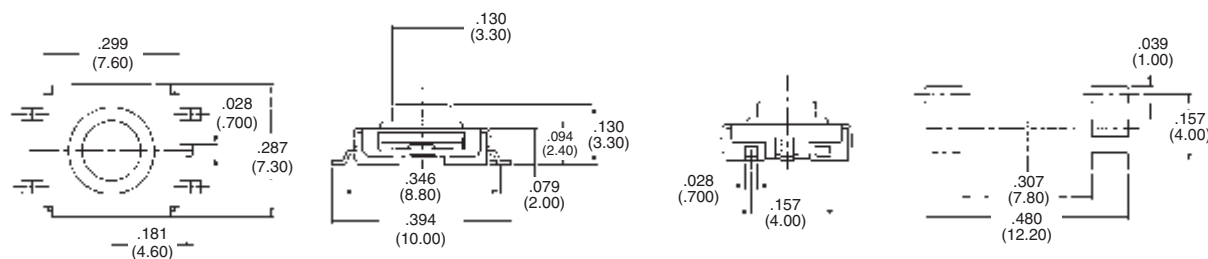
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	Actuator Height	Force
1571296-1	Bulk	.130 (3.30)	160±50gf
1571296-2	T&R	.130 (3.30)	160±50gf

Tactile Switches, Sealed .299 [7.6] x .287 [7.3], Thru-Hole, Extended Actuator

MATERIAL SPECIFICATIONS:

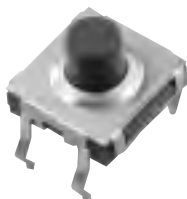
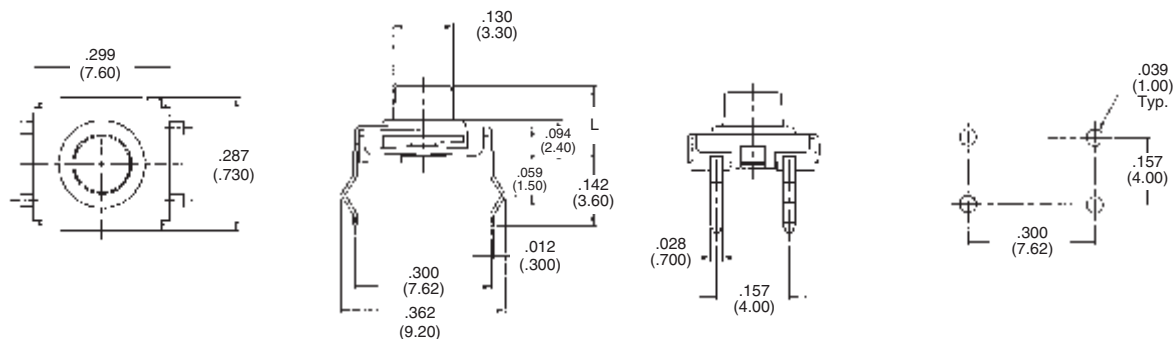
CaseThermoplastic, UL94V-0, Black
 ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/-0.008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 3, Test Cond.B
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	L	Force
1571295-1	Bulk	.169 (4.30)	160±50gf
1571295-2	Bulk	.197 (5.00)	160±50gf

Tactile Switches, Sealed .185 [4.7] x .268 [6.8], Surface Mount

MATERIAL SPECIFICATIONS:

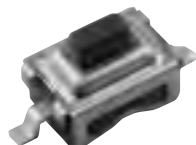
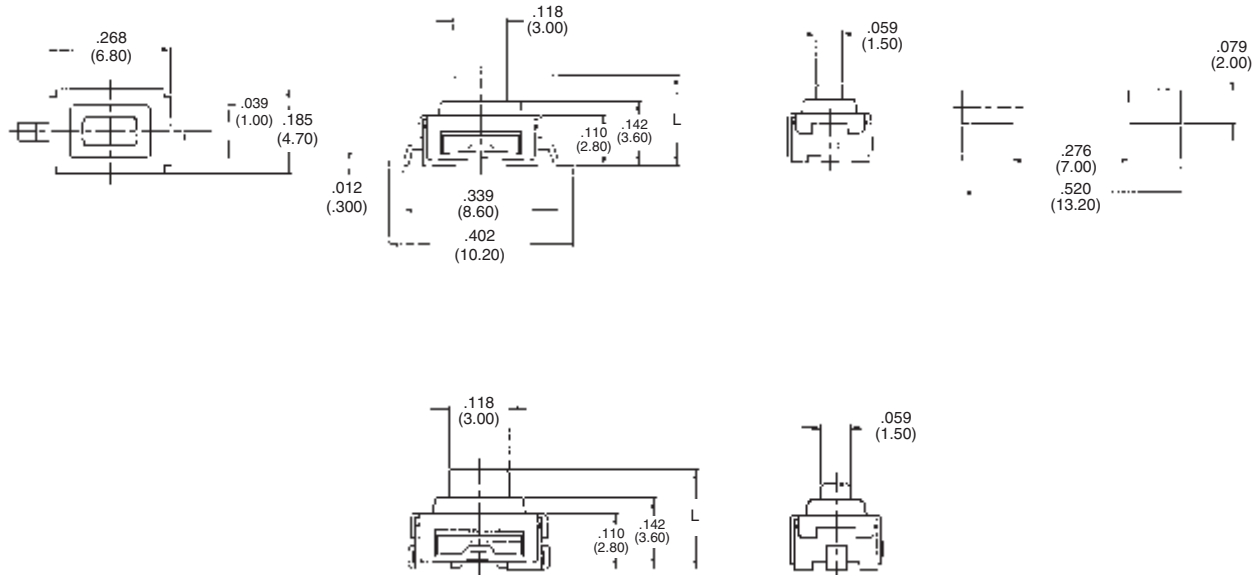
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/-0.008 (.35 +/- .20)
 LifeUp to 50,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	L	Operating Force	Lead Style
1571298-1	Bulk	.197 (5.00)	130 ± 50gf	Gull Wing
1571298-2	T&R	.197 (5.00)	130 ± 50gf	Gull Wing
1571299-1	Bulk	.169 (4.30)	130 ± 50gf	J Lead
1571299-2	T&R	.169 (4.30)	130 ± 50gf	J Lead
1571299-3	Bulk	.197 (5.00)	130 ± 50gf	J Lead
1571299-4	T&R	.197 (5.00)	130 ± 50gf	J Lead

Tactile Switches, Sealed .185 [4.7] x .268 [6.8], Thru-Hole

MATERIAL SPECIFICATIONS:

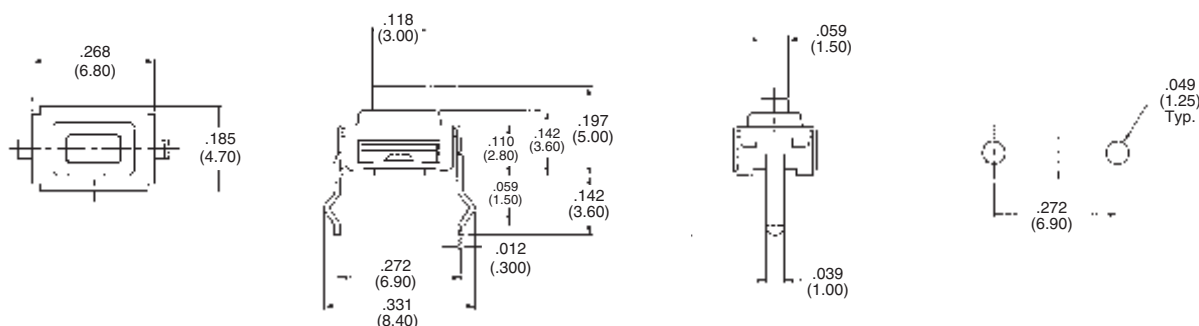
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 50,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4 to +185°F (-20 to +85°C)
 Storage Temperature-4 to +185°F (-20 to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 3, Test Cond. B
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	Actuator Height	Operating Force
1571297-1	Bulk	.197 (5.00)	130 ± 50gf

Tactile Switches, Sealed Right Angle, Surface Mount

MATERIAL SPECIFICATIONS:

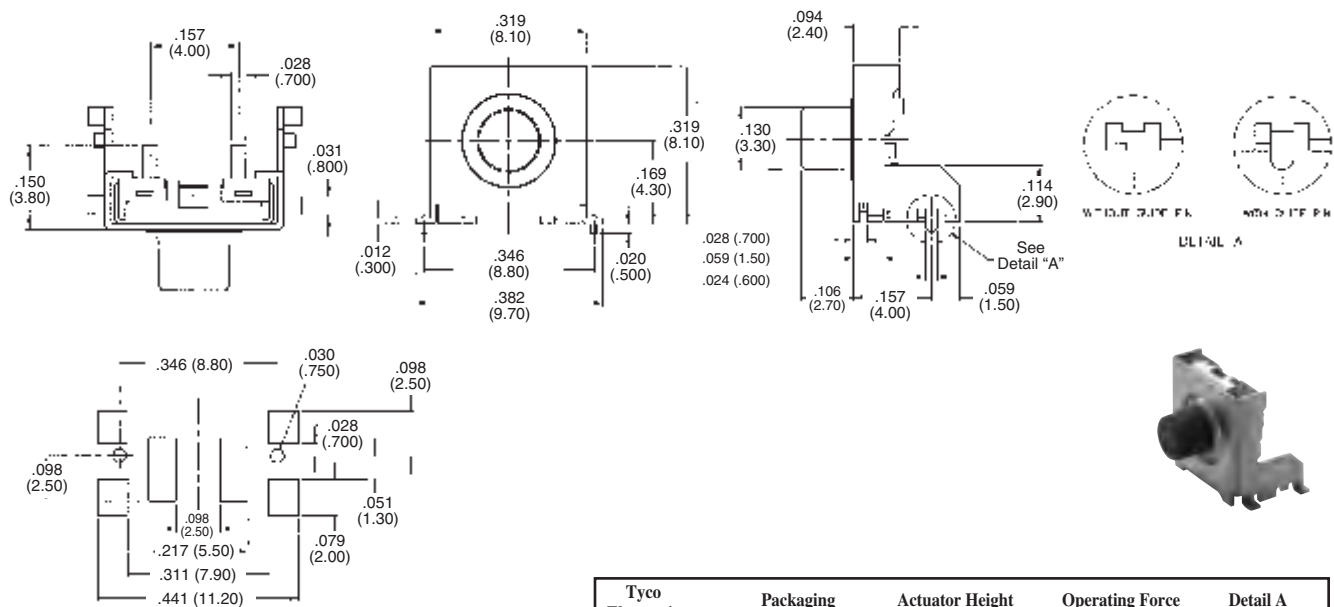
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver/Nickel

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/-0.008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4° to +185°F (-20°to +85°C)
 Storage Temperature-4° to +185°F (-20°to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	Actuator Height	Operating Force	Detail A
1571300-1	Bulk	.106 (2.70)	130 ± 50gf	Without Pin
1571300-2	Bulk	.106 (2.70)	130 ± 50gf	With Pin

Tactile Switches, Sealed Right Angle, Surface Mount

MATERIAL SPECIFICATIONS:

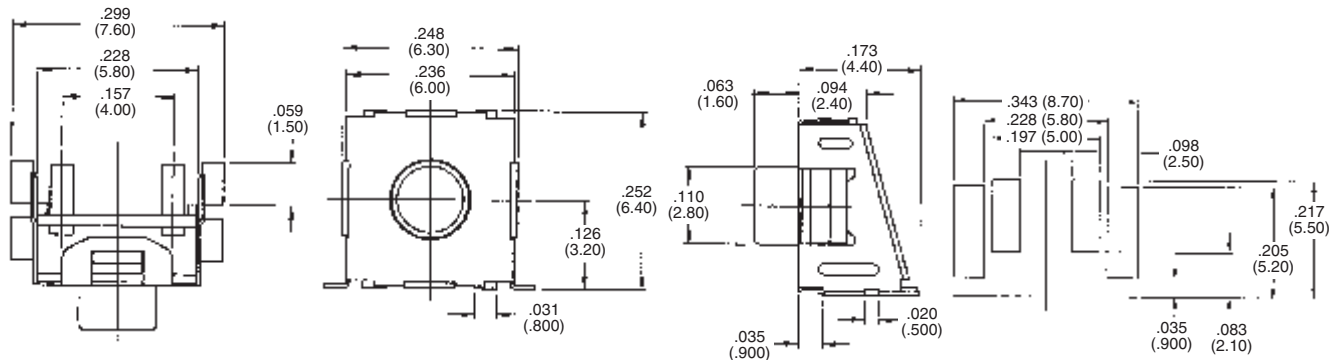
CaseThermoplastic, UL94V-0, Black
 Stem/ActuatorThermoplastic, UL94V-0, Black
 CoverStainless Steel
 SealSilicone Rubber, Black
 Contact.....Stainless Steel, Plating—Silver
 TerminalCopper Alloy, Plating—Silver

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC
 Actuation Travel0.014 +/- .008 (.35 +/- .20)
 LifeUp to 1,000,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4° to +185°F (-20°to +85°C)
 Storage Temperature-4° to +185°F (-20°to +85°C)
 Resistance to solder heatPer EIA-364-56, Procedure 4 & 5, Level 3
 SolderabilityPer EIA RS-186-9E
 SealPer IP67



Tyco Electronics	Packaging	Actuator Height	Operating Force
1571407-1	Bulk	.063 (1.60)	260 ± 100gf
1571407-2	T&R	.063 (1.60)	260 ± 100gf

Tactile Switches, Side Actuated, Surface Mount

MATERIAL SPECIFICATIONS:

CaseNylon 4/6, UL94V-0, Black
 Stem/ActuatorNylon 4/6, UL94V-0, Black
 CoverStainless Steel
 Contact PlateStainless Steel, Silver Clad Over
 Nickel Plate
 TerminalCopper Alloy, Silver Over Nickel Plate
 Masking TapeTeflon

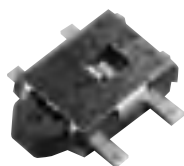
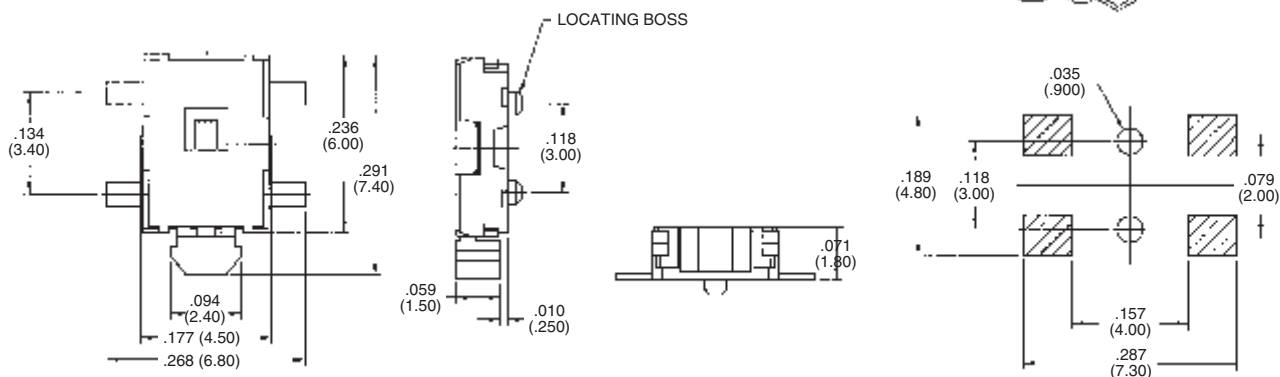
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50mA @ 12 V DC
 Initial Contact Resistance100MilliOhms Max
 Insulation Resistance100Megaohms @ 100VDC Min.
 Dielectric Strength500 VAC for 1 minute
 Force160 (+70/-40gm)
 Travel30 (+.1/- .2mm)
 LifeUp to 100,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4° to +185°F (-20°to +85°C)
 Storage Temperature-22° to +185°F (-30°to +85°C)
 Resistance to Solder HeatPer EIA-364-56A, procedure 4 and 5,
 Level 3
 SolderabilityPer EIA-364-52, Class 2, Category 1,
 Temp. 473°F (245°C) max., time 2.5 sec.
 max., 95% min. coverage.

E
 Side Actuated Tactile Switches



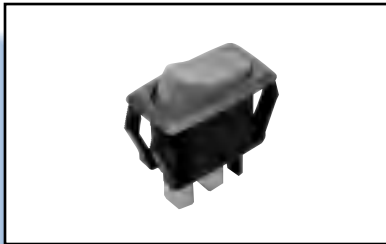
Tyco Electronics	Feature	Packaging
1571262-1	W/O Boss	Bulk
1571262-2	W/O Boss	T&R
1571262-3	with Boss	Bulk
1571262-4	with Boss	T&R



TRD Series - Page F3



Gemini Series - Page F7



Power Rocker Switches - Page F21

Rocker/Paddle

F

Rocker/Paddle Switches

Rocker/Paddle Switches, TRD Series Part Number Matrix

MATERIAL SPECIFICATIONS:

Movable Contacts	Copper alloy w/silver inlay contact or gold plate
Terminals/Fixed Contacts.....	Copper alloy w/silver inlay contact or gold plate
Terminal Seal	Epoxy
Housing/Beveled Frame	Polyamide, black matte finish

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-49°F to +199°F (-45°C to +93°C)
Solder Heat Resistance.....Meets MIL-STD-202, method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

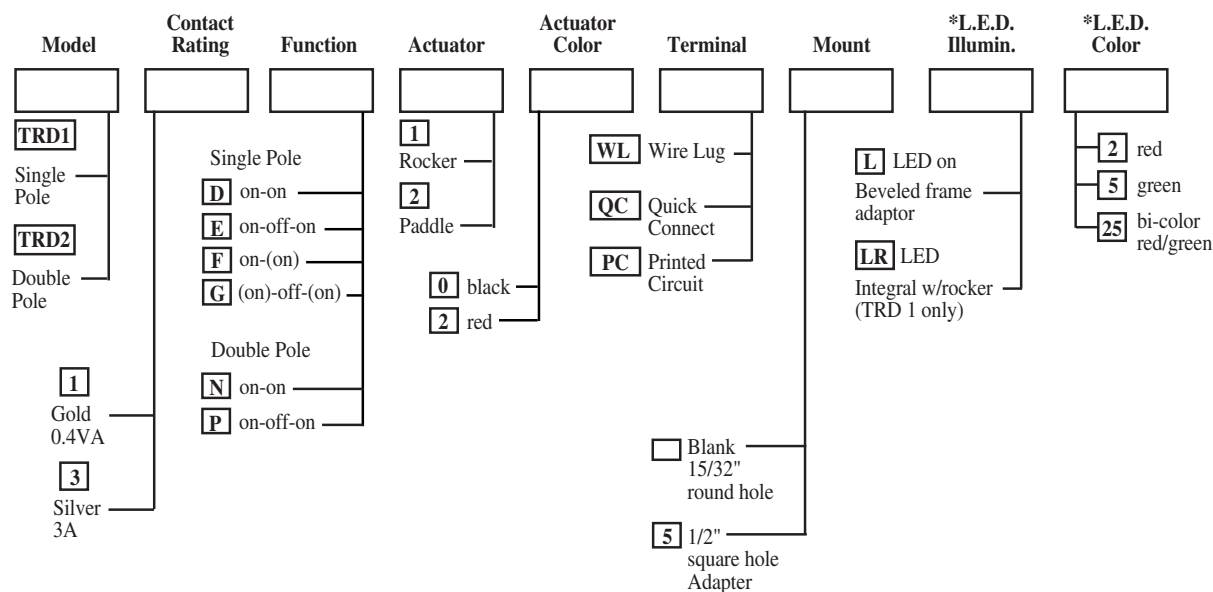
Contact Rating	Silver: 3A max. @ 125 VAC, option 3
	Gold: 0.4VA max. @ 20 VDC, option 1
Initial Contact Resistance	20 Milliohms max.
Static Withstanding	15KV, per IEC 801-2
Insulation Resistance	1,000 Megohms min. @ 500 VDC
Dielectric Strength	500 Volts RMS @ sea level
Electrical Life	2 Pos. 20K cycles @ full rated 3A load, 80K @ 0.4VA, 3 pos. 10K cycles @ full rated 3A load. 60K @ 0.4VA

***NOTICE:** Caution should be used when hand-soldering. Solder heat Resistance -550°-600°F for less than 5 seconds. Solder with the switch in the closed position.

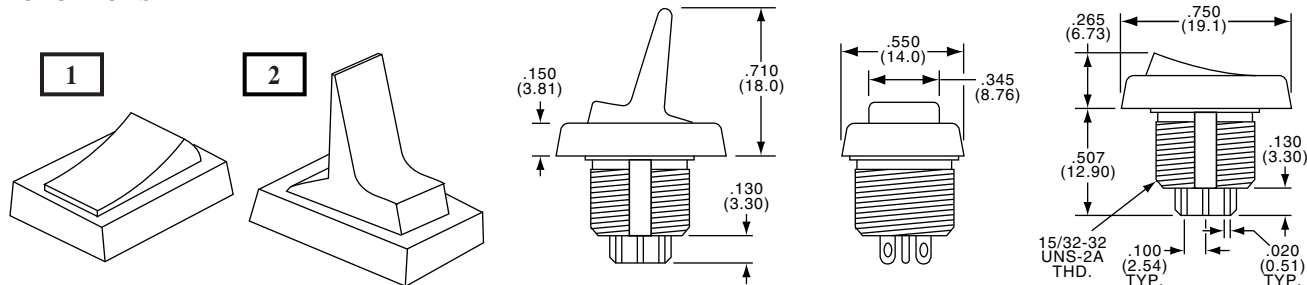
UL options available, consult Tyco Electronics Product Information Center

HOW TO ORDER

* Leave blank if LED not required.

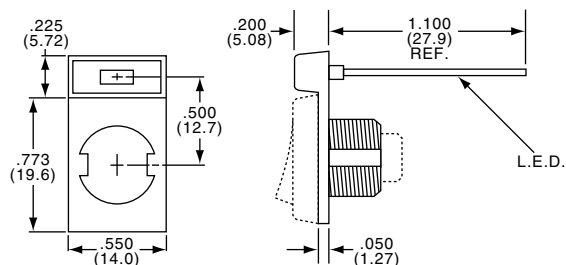


ACTUATORS



Rocker/Paddle Switches, TRD Series Options

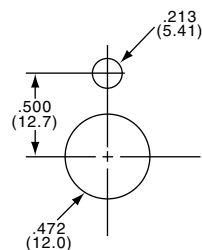
L L.E.D. BEVELED FRAME ADAPTOR (Accepts rectangular L.E.D.)



Material: Nylon 6/6
Color/Finish: Black, matte

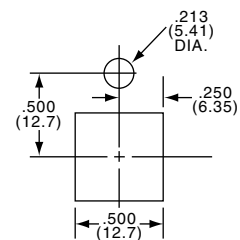
MOUNTING

15/32" HOLE STANDARD



**Recommended Panel
Thickness:** .030 to .220:

1/2" SQUARE CUTOUT



**Recommended Panel
Thickness:** .030 to .095"

FUNCTIONS

Single Pole	Double Pole			
		123 456	123 456	123 456
☐ D	☐ N	On	None	On
☐ E	☐ P	On	Off	On
☐ F		On	None	(On)
☐ G		(On)	Off	(On)
SPDT Terminals Connected		2-3	---	1-2
DPDT Terminals Connected		2-3 5-6	---	1-2 4-5

None No mechanical position

Off Mechanical position,
no electrical connection

(On) Momentary mechanical position, and
electrical connection

* Refer to Pages F3-F5 for
Other Options *

Rocker Switches, TRD Series Illuminated or Non-Illuminated, Wire Lug

MATERIAL SPECIFICATIONS:

ContactsGold over nickel or silver plate
Case MaterialPolyamide, black matte finish
Actuator MaterialPolyamide
Terminals/Fixed Contacts.....Copper alloy with gold or silver plate
Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

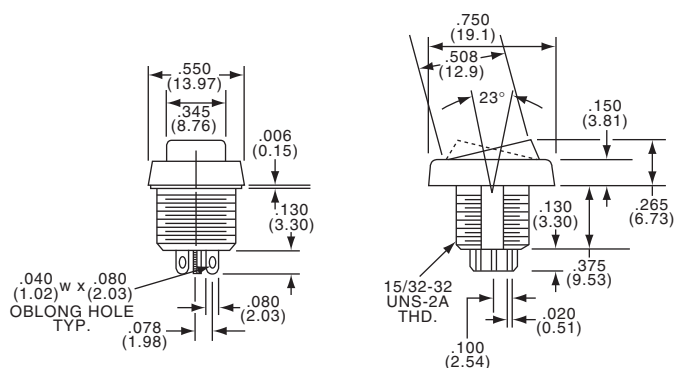
Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....-49°F to +199°F (-45°C to +93°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC or peak AC
3 A @ 125 VAC or 28 VDC (2 pos.) 2A
Initial Contact Resistance20 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength500 Volts RMS @ sea level
Actuator Travel.....23°
Life Expectancy2 Pos. - Up to 100,000 actuations
3 Pos. - Up to 50,000 actuations

NOTE: Part numbering matrix page F3

NOTE: When hand soldering, solder with switch in closed position.
Solder temperature 550-600°F less than 5 seconds.



DPDT

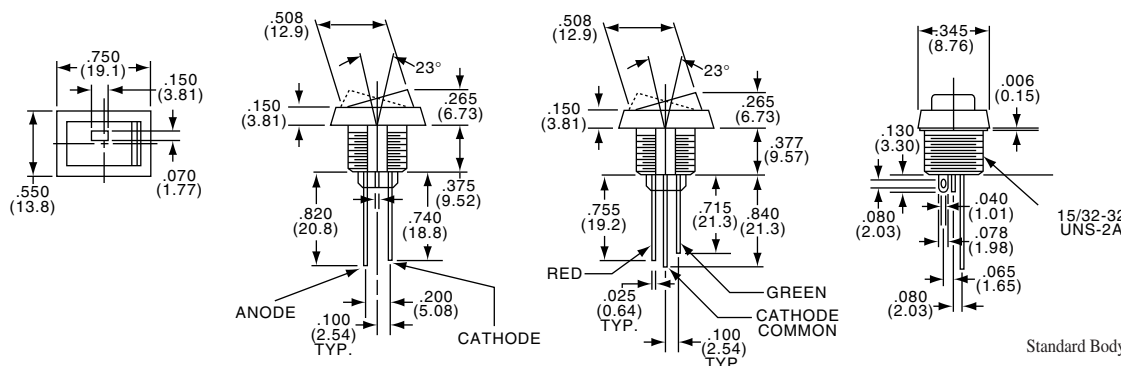


TRD21N10WL

Standard Body Color - (Black)

Model	Type	Function	Act. Code Pg. M5	Contact	Terminal	Model	Type	Function	Act. Code Pg. M5	Contact	Terminal
TRD11D1(*)WL	SPDT	On None On	1	Gold	Wire Lug	TRD13D1(*)WL	SPDT	On None On	1	Silver	Wire Lug
TRD11E1(*)WL	SPDT	On Off On	5	Gold	Wire Lug	TRD13E1(*)WL	SPDT	On Off On	5	Silver	Wire Lug
TRD11F1(*)WL	SPDT	On None (On)	1	Gold	Wire Lug	TRD13F1(*)WL	SPDT	On None (On)	1	Silver	Wire Lug
TRD21N1(*)WL	DPDT	On None On	2	Gold	Wire Lug	TRD23N1(*)WL	DPDT	On None On	2	Silver	Wire Lug
TRD21P1(*)WL	DPDT	On Off On	6	Gold	Wire Lug	TRD23P1(*)WL	DPDT	On Off On	6	Silver	Wire Lug

(*) Specify rocker color by adding suffix number: (0) Black (2) Red, (On) indicates momentary position.



SPDT



TRD11D10WLLR

Standard Body and Rocker Color - (Black)

ILLUMINATED

Model	Type	Function	Act. Code Pg. M5	Contact	Terminal
TRD11D10WLLR(*)	SPDT	On None On	1	Gold	Wire Lug
TRD11E10WLLR(*)	SPDT	On Off On	5	Gold	Wire Lug
TRD11F10WLLR(*)	SPDT	On None (On)	1	Gold	Wire Lug

(*) Specify LED color by adding suffix number: (2) Red, (5) Green, (25) Red/Green - Bi-color

ILLUMINATED

Model	Type	Function	Act. Code Pg. M5	Contact	Terminal
TRD13D10WLLR(*)	SPDT	On None On	1	Silver	Wire Lug
TRD13E10WLLR(*)	SPDT	On Off On	5	Silver	Wire Lug
TRD13F10WLLR(*)	SPDT	On None (On)	1	Silver	Wire Lug

(On) indicates momentary position.

Rocker/Paddle Switches, A Series, Part Number Matrix

MATERIAL SPECIFICATIONS:

Contacts/Terminals.....Gold/gold flash
Silver/tin lead
Case MaterialThermoset 94V-0
Actuator MaterialPolyamide
Terminal SealEpoxy

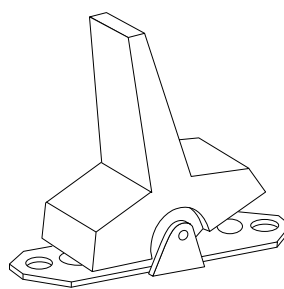
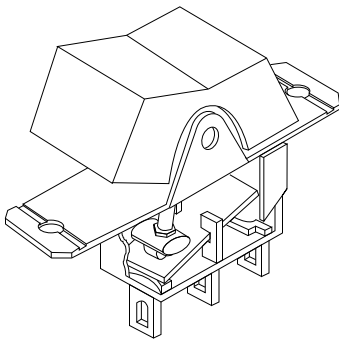
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....-49°F to +212°F (-45°C to +100°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 AC/DC
Silver: 2 A @ 250 VAC; 5 A @ 125 VAC
Silver: 2 A @ 30 VDC
Initial Contact Resistance30 Milliohms max.
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms @ 500 VDC
Dielectric Strength1,000 Volts RMS @ sea level
Actuator Travel.....25°
Life ExpectancyUp to 30,000 Cycles

DESIGN



PART NUMBERING

Model	Function	Actuator	Terminal	Contact	Actuator Color	Beveled Frame Color	Option
[A1] Single Pole		[J1] Small	[Z] Wire Lug	[Q] Silver	[0] Black (Std.)	[0] Black (Std.)	UL (Q or G) contacts only
[A2] Double Pole		[J3] Large	[A] Right Angle	[B] Gold	[2] Red		
[01] On-On		[J15] Snap-in	[AV2] Vert. Right Angle	[G] Gold over Silver			
[03] On-Off-On		[J16] Snap-in w/beveled frame	[C] Printed Circuit				
[05] (On)-Off-(On)		[J50] Snap-in	[V5] Vertical Right Angle				
		[J51] Snap-in w/beveled frame	[V3] Vertical Support Bracket				
		[J52] Snap-in w/beveled frame LED	[V4] Vertical Support Bracket				
		[J2] Small	[W] Wire Wrap				
		[J4] Large	[Z3] Quick Connect				
		[J5] Large					
		[J60] Snap-in					
		[J61] Snap-in w/beveled frame					
		[J62] Snap-in w/beveled frame & LED					

OPTIONAL:

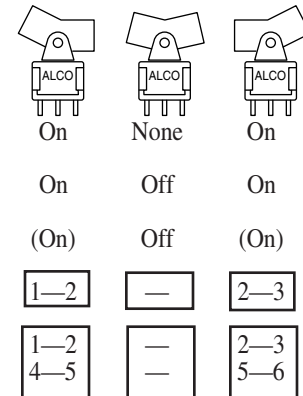
UL recognized under the Component Program of Underwriters Laboratories Inc. File # E46765
CSA Certified File #LR65901

Rocker/Paddle Switches, A Series, Options

FUNCTIONS

The following functions available in SP or DP.

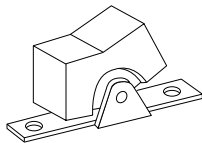
01	2 Positions	None indicates no mechanical position
03	3 Positions	Off indicates a mechanical position with no electrical connection.
05	3 Positions	(On) indicates momentary operation.
SPDT, connect terminals:		
DPDT, connect terminals:		



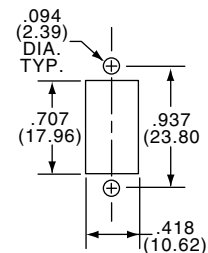
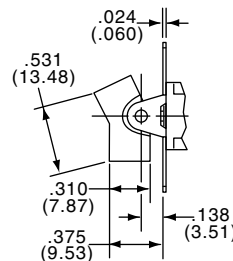
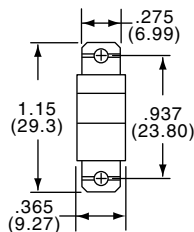
ACTUATORS

J1 Rockers

Small

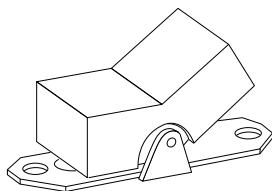


Mounting Type Standard with C or Z Terminal Type

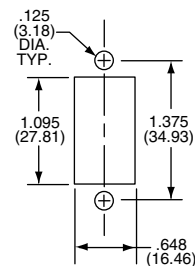
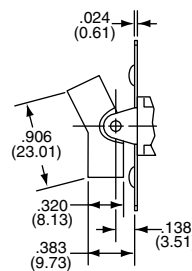
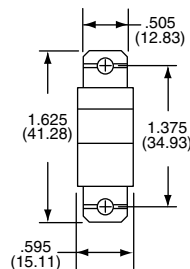


J3

Large



Mounting Type Standard with C or Z Terminal Type

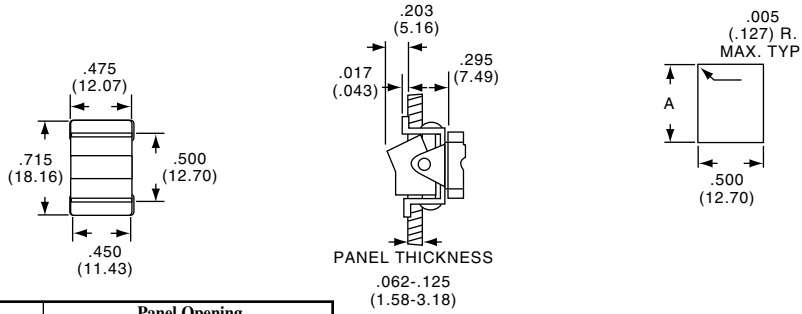
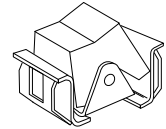


Rocker/Paddle Switches, A Series, Options

ROCKER

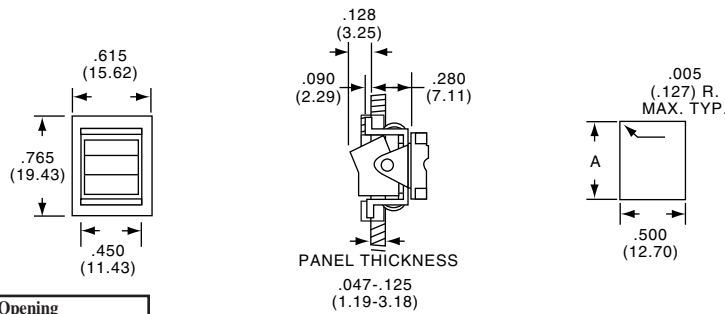
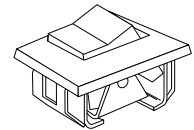


Snap-in



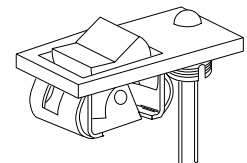
	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625

Snap-in with beveled frame

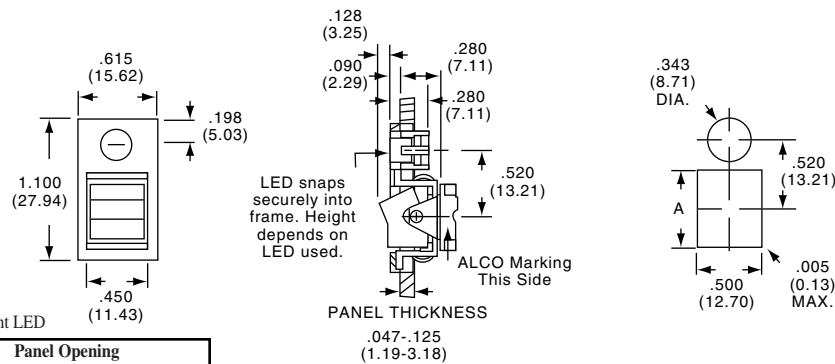


	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625

Snap-in with beveled frame/LED.



L.E.D. Not supplied.



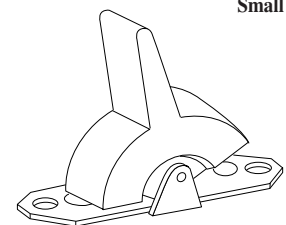
Accepts BL-17 or equivalent LED

	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625

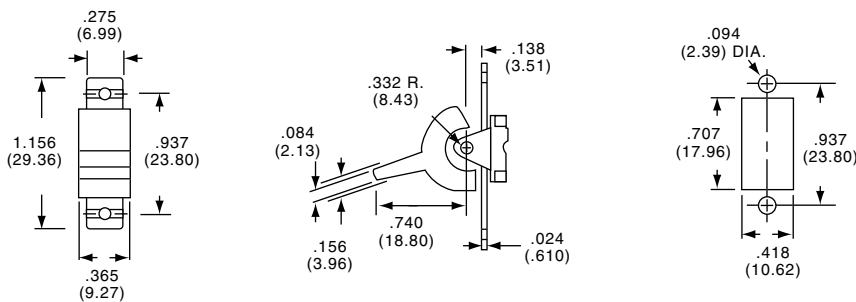
PADDLE



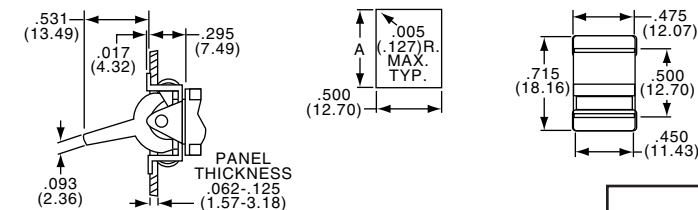
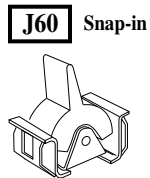
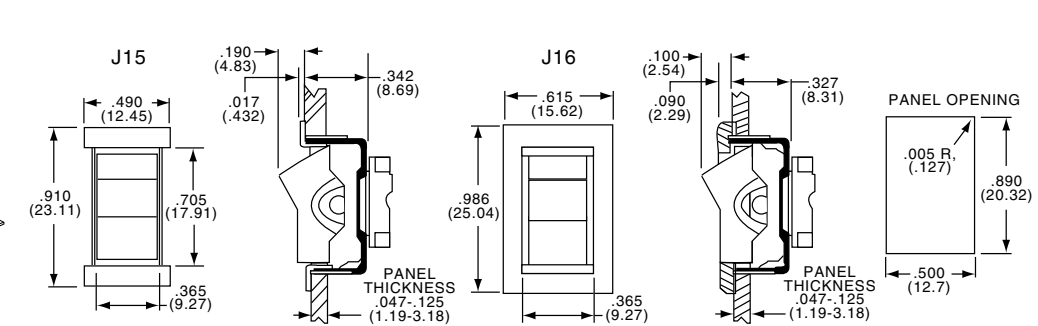
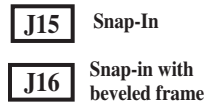
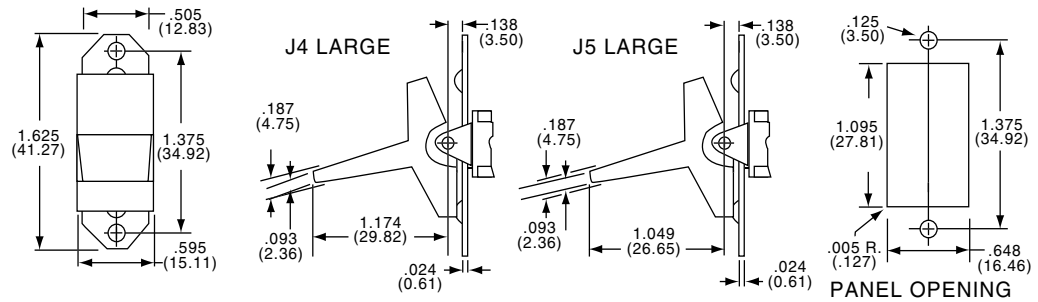
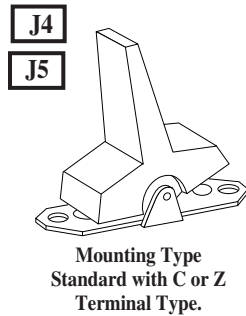
Small



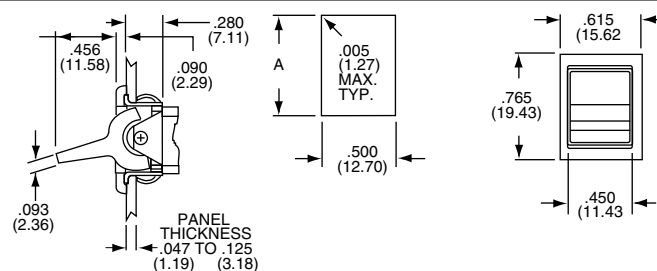
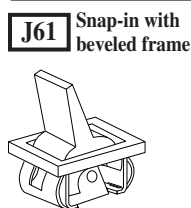
Mounting Type Standard with C or Z Terminal Type.



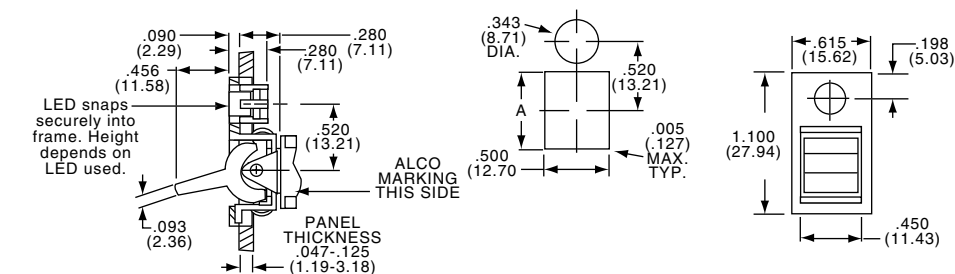
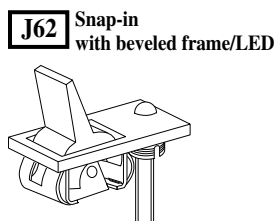
Rocker/Paddle Switches, A Series, Options



	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625



	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625



	Panel Opening		
Panel Thickness	.062	.093	.125
"A"	.600-.605	.610-.615	.620-.625

Accepts BL-17 or equivalent LED

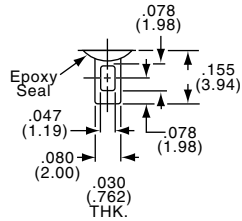
L.E.D. not supplied

Rocker/Paddle Switches, A Series, Termination Options

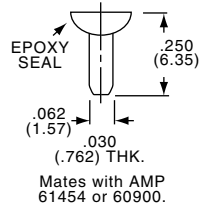
TERMINALS



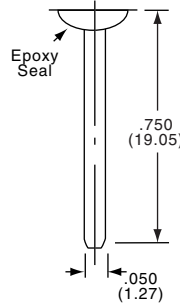
Wire Lug Standard



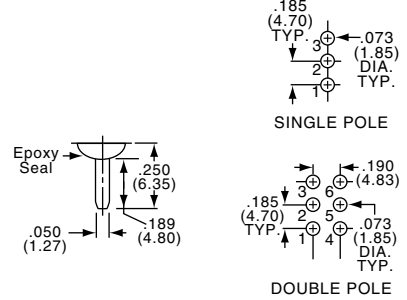
Quick Connect



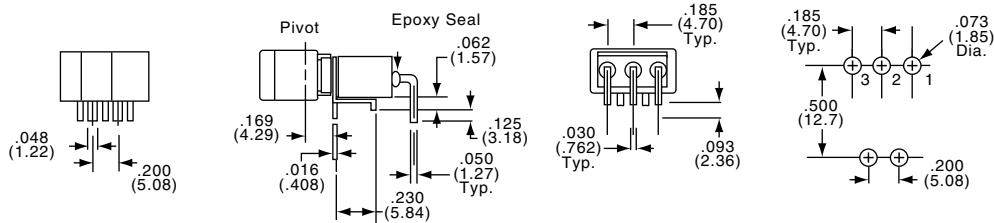
Wire Wrap



Printed Circuit



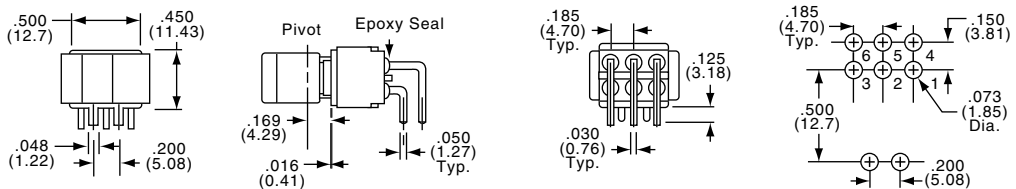
Right Angle
Single Pole



NOTE: Terminal numbers viewed from top of P.C. board.



Right Angle
Double Pole

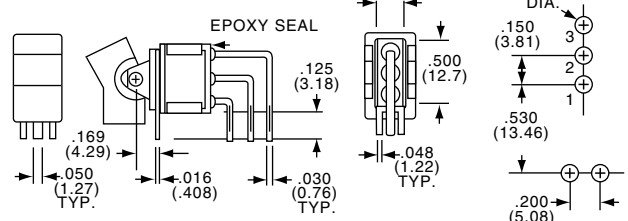
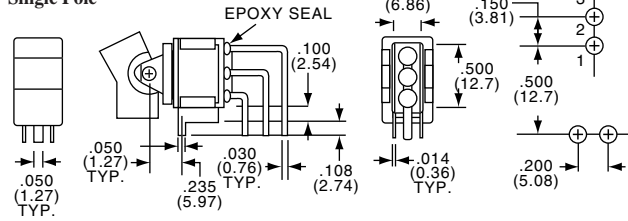


NOTE: Terminal numbers viewed from top of P.C. board.

Rocker/Paddle Switches, A Series, Options

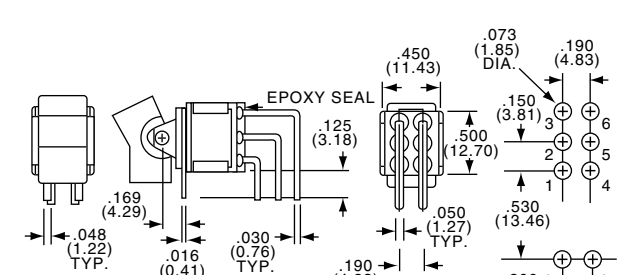
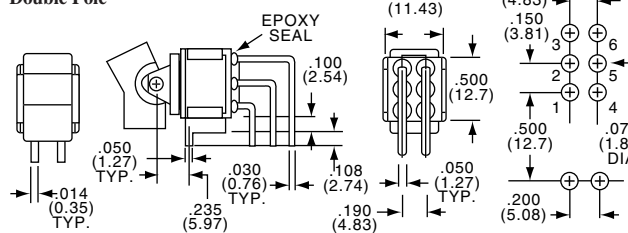


Vertical Right Angle Single Pole



NOTE: Terminal numbers viewed from top of P.C. board.

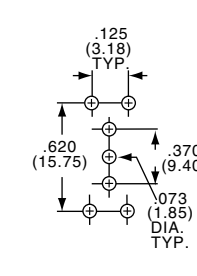
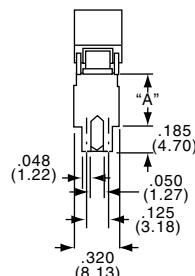
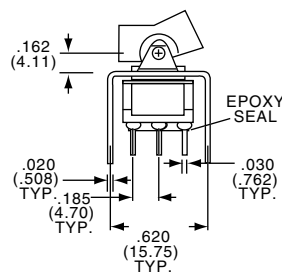
Right Angle Double Pole



NOTE: Terminal numbers viewed from top of P.C. board.

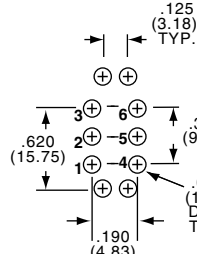
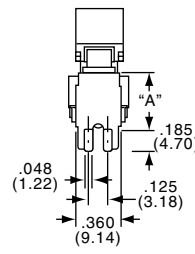
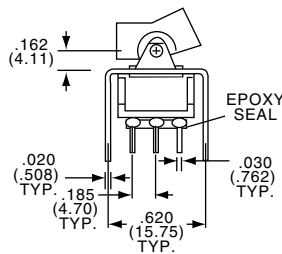


Vertical Support Bracket Single Pole



Option Code	Dim. "A"
V3	.460 (11.68)
V4	.630 (16.00)

Vertical Support Bracket Double Pole



Option Code	Dim. "A"
V3	.460 (11.68)
V4	.630 (16.00)

CONTACTS

B CONTACTS: Copper alloy with gold plate, welded button.

TERMINALS: Copper alloy with gold plate.

ELECTRICAL RATING: 0.4VA @ 20 VAC/DC.

Q CONTACTS: Copper alloy with silver, welded button.

TERMINALS: Copper alloy with tin/lead plate.

ELECTRICAL RATING: 5 A @ 125 VAC, 2 A @ 250 VAC, 2 A @ 30 VDC.
UL/CSA RATING: 5A @ 125 VAC, 3 @ 250 VAC (Specify "UL" option code)

G CONTACTS: Copper alloy with gold plate over silver, welded button.

TERMINALS: Copper alloy with gold plate.

ELECTRICAL RATING: 0.4 VA @ 20 VAC/DC or 5 A @ 125 VAC, 2 A @ 250 VAC, 2 A @ 30 VDC.

Note: This contact option can be used for low-level or power switching. If level is above 0.4 VA @ 20 VAC/DC, the switch is rendered usable only for power switching due to arc-removal of gold plate.

UL/CSA RATING: 5A @ 125 VAC, 3 @ 250 VAC (Specify "UL" option code)

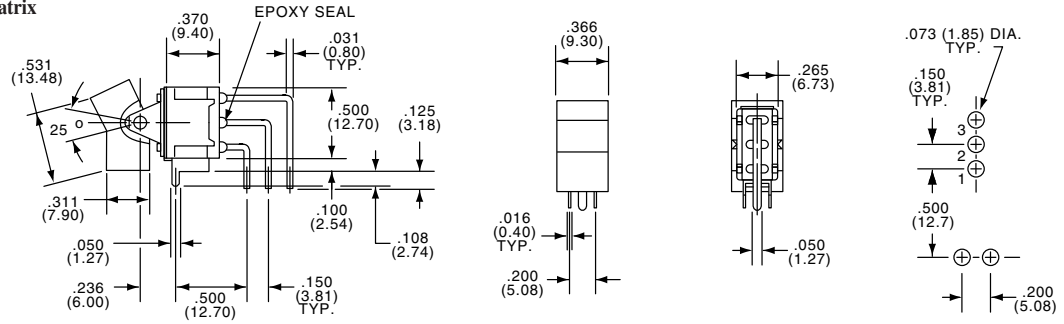
Rocker Switches, A Series, PC Tail, Straight or Vertical Right Angle

* Refer to Pages F7 for Product Specifications and Part Matrix

SPDT



A101J1AV2Q0

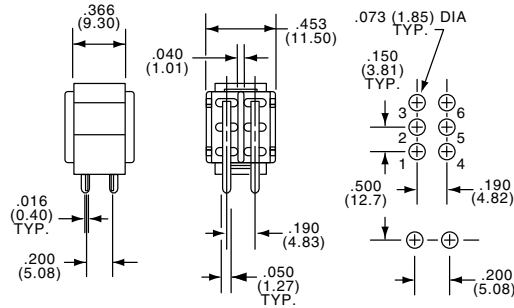


DPDT



A205J1AV2Q0

Standard Rocker Color - (Black)



Silver Contacts		Type	Act. Code.	P. M5			
Tyco Electronics	Alcoswitch						
1-1437591-1	A101J1AV2Q0	SPDT	1	On	None	On	
4-1437591-7	A105J1AV2Q0	SPDT	5	(On)	Off	(On)	
7-1437591-1	A201J1AV2Q0	DPDT	2	On	None	On	
9-1437591-6	A205J1AV2Q0	DPDT	6	(On)	Off	(On)	

SPDT



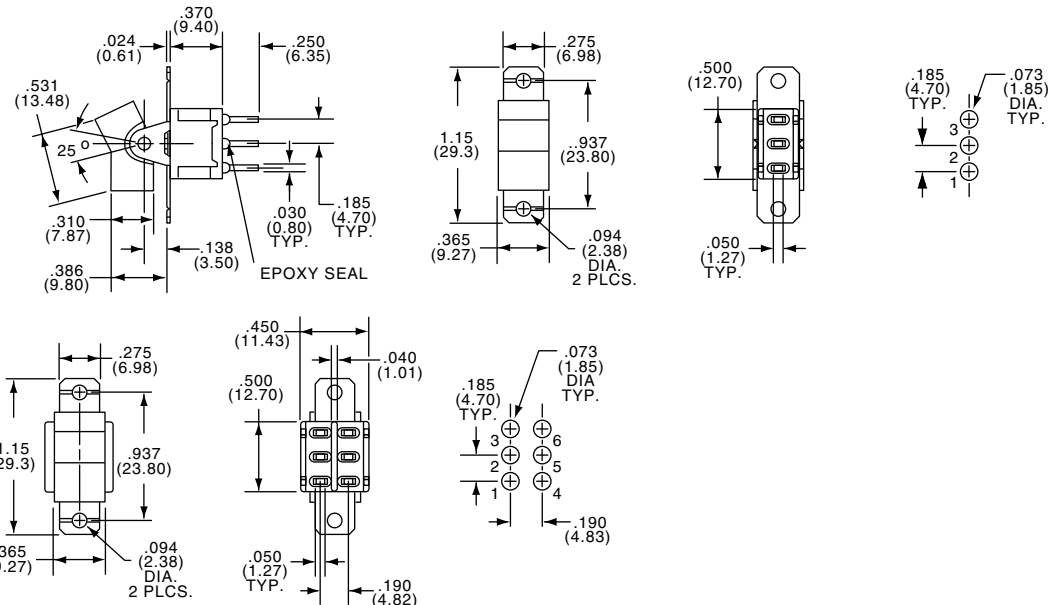
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DPDT



A201J1CQ0

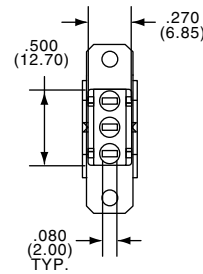
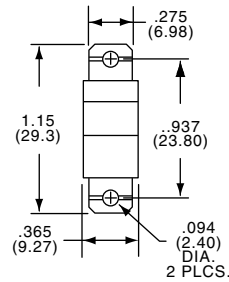
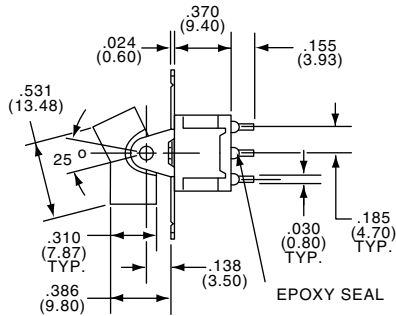
Standard Rocker Color - (Black)



Silver Contacts		Type	Act. Code.	P. M5			
Tyco Electronics	Alcoswitch						
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4-1437591-8	A105J1CQ0	SPDT	5	(On)	Off	(On)	
7-1437591-2	A201J1CQ0	DPDT	2	On	None	On	
—	A203J1CQ0	DPDT	6	On	Off	On	
—	A205J1CQ0	DPDT	6	(On)	Off	(On)	

Rocker Switches, A Series, Wire Lug or Right Angle

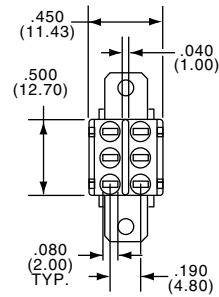
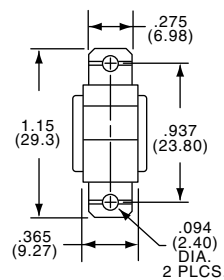
SEE PAGE F7 FOR PRODUCT SPECIFICATIONS AND PART MATRIX



SPDT



A101J1ZQ0



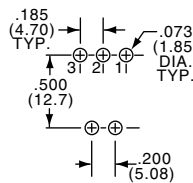
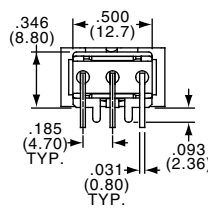
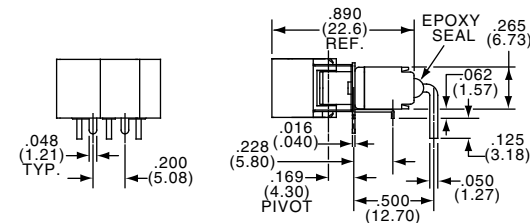
DPDT



A201J1ZQ0

Standard Rocker Color - (Black)

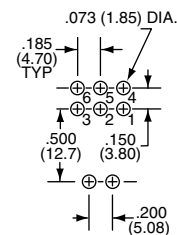
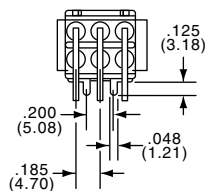
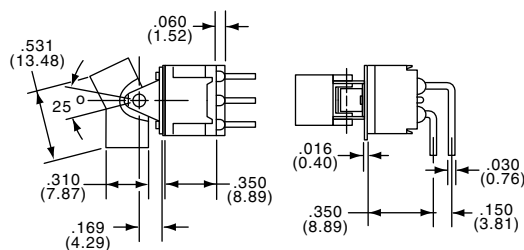
Silver Contacts								Silver Contacts									
Tyco Electronics	Alcoswitch	Type	Act.	Code.	P. M5				Tyco Electronics	Alcoswitch	Type	Act.	Code.	P. M5			
1-1437591-7	A101J1ZQ0	SPDT	1	On	None	On			7-1437591-4	A201J1ZQ0	DPDT	2	On	None	On		
3-1437591-8	A103J1ZQ0	SPDT	5	On	Off	On			9-1437591-1	A203J1ZQ0	DPDT	6	On	Off	On		
5-1437591-0	A105J1ZQ0	SPDT	5	(On)	Off	(On)			9-1437591-7	A205J1ZQ0	DPDT	6	(On)	Off	(On)		



SPDT



A101J1AQ0



DPDT



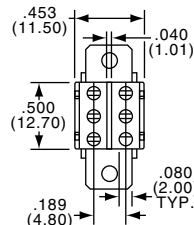
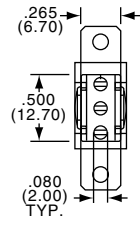
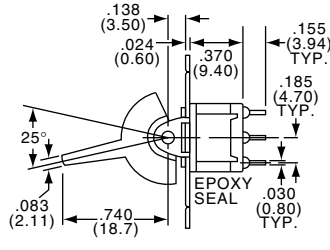
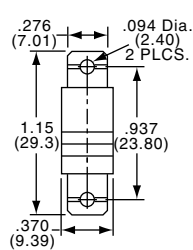
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Standard Rocker Color - (Black)

Silver Contacts								Silver Contacts								
Tyco Electronics	Alcoswitch	Type	Act.	Code.	P. M5			Tyco Electronics	Alcoswitch	Type	Act.	Code.	P. M5			
1437591-8	A101J1AQ0	SPDT	1	On	None	On		6-1437591-9	A201J1AQ0	DPDT	2	On	None	On		
4-1437591-6	A105J1AQ0	SPDT	5	(On)	Off	(On)		8-1437591-7	A203J1AQ0	DPDT	6	On	Off	On		
								—	A205J1AQ0	DPDT	6	(On)	Off	(On)		

* Refer to Pages F7 for Product Specifications and Part Matrix

Paddle Switches, A Series, Wire Lug or Right Angle



SPDT

DPDT

SPDT

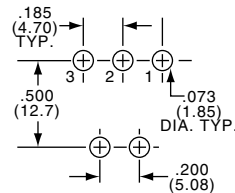
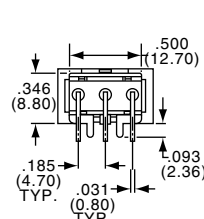
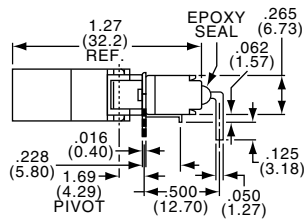
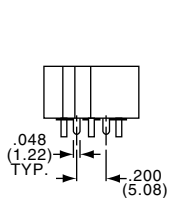
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DPDT

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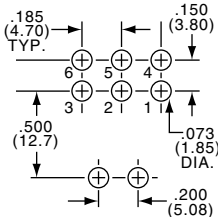
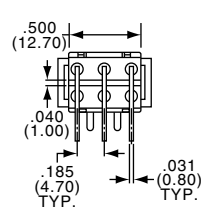
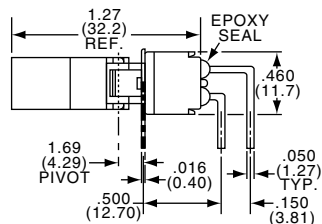
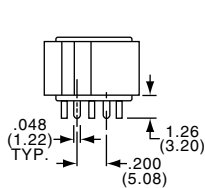
Standard Paddle Color - (Black)

Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off
1-1437591-9	A101J2ZQO	SPDT	1		On	None	On	7-1437591-6	A201J2ZQO	DPDT	2		On	None	On
4-1437591-0	A103J2ZQO	SPDT	5		On	Off	On	—	A203J2ZQO	DPDT	6		On	Off	On
5-1437591-3	A105J2ZQO	SPDT	5		(On)	Off	(On)	9-1437591-9	A205J2ZQO	DPDT	6		(On)	Off	(On)



SPDT / DPDT

A201J2AQO



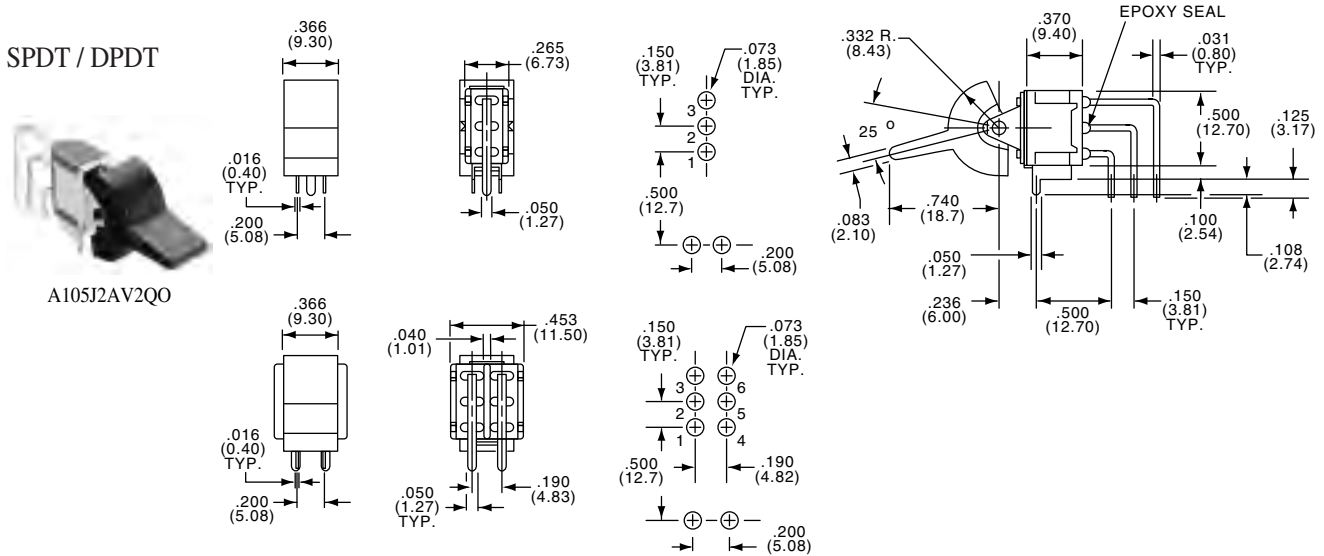
Standard Paddle Color - (Black)

Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off
—	A101J2AQO	SPDT	1		On	None	On	—	A201J2AQO	DPDT	2		On	None	On
—	A103J2AQO	SPDT	5		On	Off	On	—	A203J2AQO	DPDT	6		On	Off	On
5-1437591-1	A105J2AQO	SPDT	5		(On)	Off	(On)	—	A205J2AQO	DPDT	6		(On)	Off	(On)

Paddle Switches, A Series, PC Tail, Straight or Vertical Right Angle

SEE PAGE F7 FOR PRODUCT SPECIFICATIONS AND PART MATRIX

SPDT / DPDT



A105J2AV2Q0

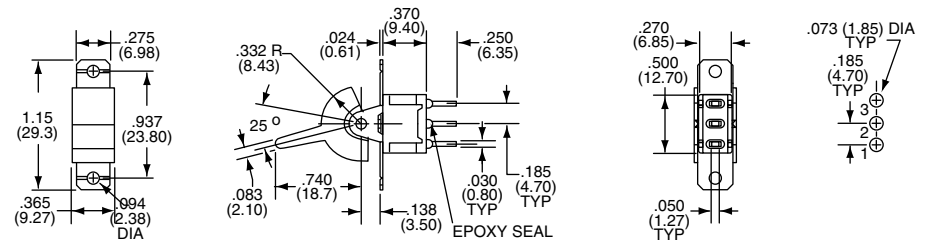
Standard Paddle Color - (Black)

Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	On	Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	On
1-1437591-8	A101J2AV2Q0	SPDT	1	On	None	On	On	On	—	A201J2AV2Q0	DPDT	2	On	None	On	On	On
5-1437591-2	A105J2AV2Q0	SPDT	5	(On)	(On)	(Off)	(On)	(On)									

SPDT



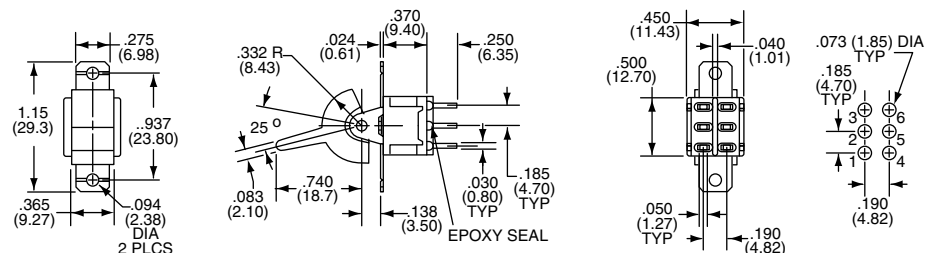
A105J2CQ0



DPDT



A205J2CQ0



Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	On	Silver Contacts Tyco Electronics	Alcoswitch	Type	Act. Code	P. M5	On	None	Off	On
—	A103J2CQ0	SPDT	5	(On)	(On)	(Off)	(On)	(On)	7-1437591-5	A201J2CQ0	DPDT	2	On	None	On	On	On
—	A105J2CQ0	SPDT	5	(On)	(On)	(Off)	(On)	(On)	9-1437591-8	A205J2CQ0	DPDT	6	(On)	(On)	(Off)	(On)	(On)

Rocker/Paddle Switches, AE Series, Process Sealed, Part Number Matrix

MATERIAL SPECIFICATIONS:

Terminal Seal	Epoxy (standard)
Process Sealing	Seals will withstand wave soldering and subsequent cleaning operations.
Contact/Terminals	Gold/gold flash over tin/lead Silver/tin lead
Case Material	Thermoplastic
Actuator Material	Polyamide

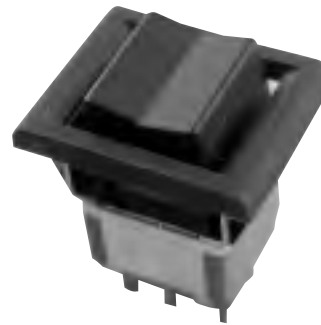
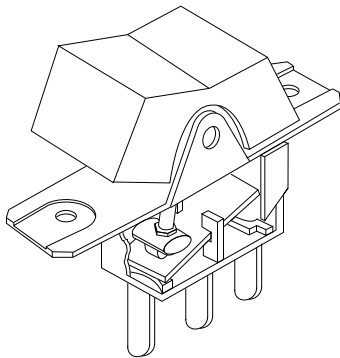
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....	-4°F to +185°F (-20°C to +85°C)
Storage Temperature.....	-49°F to +212°F (-45°C to +100°C)
Meets MIL-STD-202, method 112C, Test Condition A & D	85°C.

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	Silver: 2 A @ 250 VAC, 5 A @ 125 VAC Silver: 2 A @ 30 VDC Gold: 0.4 VA @ 20 VDC max.
Contact Resistance	30 Milliohms max. initial
Insulation Resistance	1,000 Megohms min. @ 500 VDC.
Dielectric Strength	1,000 Volts RMS @ sea level initial
Static Withstanding.....	15KV Per IEC 801-2.
Electrical Life	Up to 30,000 Cycles
Actuator Travel.....	.25°
Contact Timing	Break before make

DESIGN



PART NUMBERING

Model	Function	Actuator	Terminal	Contact	Actuator Color	Option
AE1 Single Pole		Rocker	Z Wire Lug	B Gold	0 Black (Std.)	UL (Q or G) contacts only
AE2 Double Pole		J1 Standard	A Right Angle	Q Silver	2 Red	
01 On-On		J50 Small	AV2 Vert. Right Angle	G Gold over Silver		
03 On-Off-On		Paddle	C Printed Circuit			
05 (On)-Off-(On)		J2 Standard	V5 Vertical Right Angle			
		J60 Small	V3 V4 Vertical Support Bracket			
			W Wire Wrap			
			Z3 Quick Connect			

U.L. Available upon request

OPTIONAL:

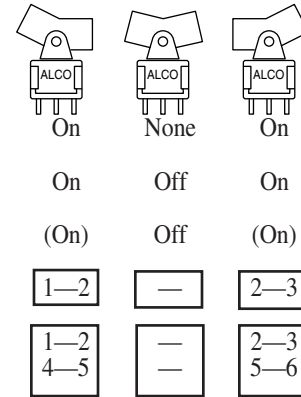
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File #E46765
CSA Certified File #LR65901

Rocker/Paddle Switches, AE Series, Process Sealed, Options

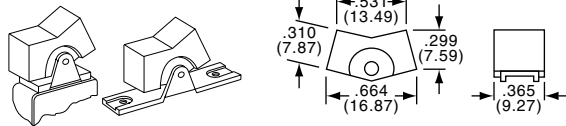
FUNCTIONS

The following functions available in SP or DP.

01	2 Positions	None indicates no mechanical position
03	3 Positions	Off indicates a mechanical position with no electrical connection.
05	3 Positions	(On) indicates momentary operation
SPDT, connect terminals:		
DPDT, connect terminals:		



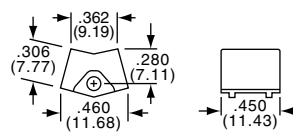
J1 Rocker



Mounting Provided with
C or Z Terminal Type.

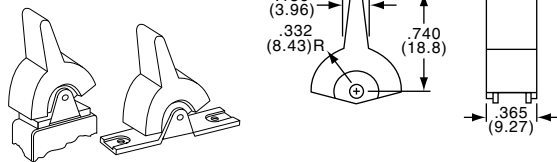
ACTUATORS

J50 Rocker



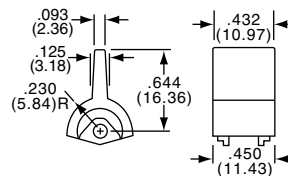
Mounting Provided with
C or Z Terminal Type.

J2 Paddle



Mounting Provided with
C or Z Terminal Type.

J60 Paddle

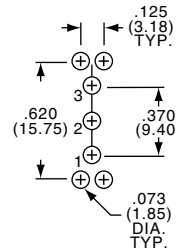
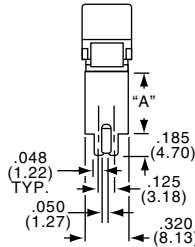
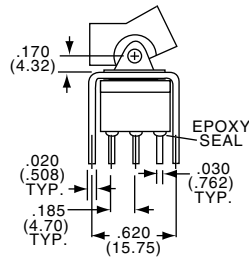


Mounting Provided with
C or Z Terminal Type.

Rocker/Paddle Switches, AE Series, Process Sealed, Options

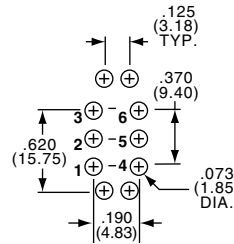
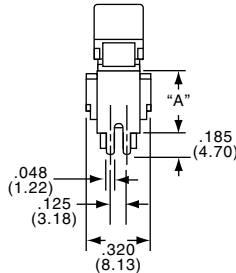
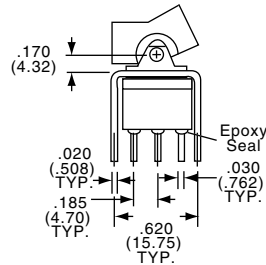


**Vertical Support Bracket
Single Pole**



Option Code	Dim. "A"
V3	.460 (11.68)
V4	.630 (16.00)

**Vertical Support Bracket
Double Pole**



Option Code	Dim. "A"
V3	.460 (11.68)
V4	.630 (16.00)

CONTACTS

B CONTACTS: Copper alloy with gold plate, welded button.

TERMINALS: Copper alloy with gold plate.

ELECTRICAL RATING: 0.4VA @ 20 VAC/DC.

Q CONTACTS: Copper alloy with silver, welded button.

TERMINALS: Copper alloy with tin/lead plate.

ELECTRICAL RATING: 5 amps @ 125 VAC, 2 amps @ 250 VAC, 2 amps @ 30 VDC.

UL/CSA RATING: 5A @ 125 VAC, 3 @ 250 VAC (Specify "UL" option code)

G CONTACTS: Copper alloy with gold plate over silver, welded button.

TERMINALS: Copper alloy with gold plate.

ELECTRICAL RATING: 0.4 VA @ 20 VAC/DC or 5 amps @ 125 VAC, 2 amps @ 250 VAC, 2 amps @ 30 VDC.

Note: This contact option can be used for low-level or power switching. If level is above 0.4 VA @ 20 VAC/DC, the switch is rendered usable only for power switching due to arc-removal of gold plate.

UL/CSA RATING: 5A @ 125 VAC, 3 @ 250 VAC (Specify "UL" option code)

Series PRA, PRB and PRD

Product Facts

- Full line of single or double-pole power rocker switches for three different industry compatible panel cut-out sizes
- Easy to install snap-in mounting
- Dust resistant
- Dual color rocker option
- Full-illuminated rocker option
- LED or neon window illuminated option
- Wide range of marking options and functions available
- Solder lugs or .187 & .250 FASTON Tab terminals
- Cost competitive

Electrical Characteristics

Current: 16A@125 VAC 1/3 HP

10A@250 VAC 1/2 HP

PRA Series Double Pole:

7A@125 VAC

6A@250 VAC

PRA Series Single Pole:

6 (3)A 250V ~ 10A 125V ~

μ 25T85

Inrush Current: 50A/3msec

(capacitive load)

Contact Resistance (initial): <50m

Ohms

Dielectric Strength (initial): >1000

VAC, 1 min.

Insulation Resistance (initial):

>100Mohms min.

Electrical Life Endurance:

>6000 operations

Voltage drop <100 mV

Mechanical Characteristics

Operating Life Endurance: up to

>100,000 operations

Actuating Force:

Series PRA 150g min., 650g max.

Series PRB 300g min., 700g max.

Series PRD 850g min., 1250g max.



Materials and Finish

Housing: Nylon 6/6 UL 94V-2

Rocker: Nylon 6/6 UL 94V-2 or

Polycarbonate UL 94V-2

Contact: Silver-tin Oxide

Terminals, Active Contactor: Silver

plated copper alloy

Plunger: Nickel plated copper alloy

Spring: Steel Wire

Standards & Specs

UL Approved - File No. E46765

ENEC/VDE approval - File No.

40006757 (PRA Single Pole Series

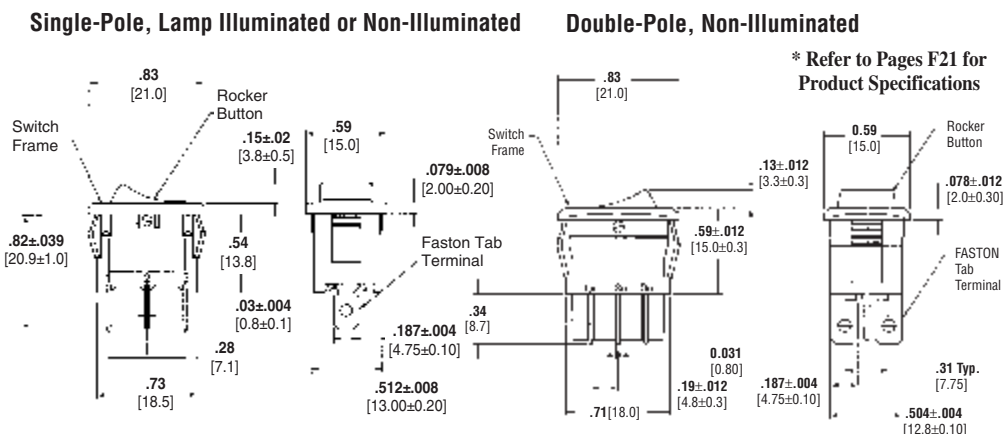
only)

.51 [13.0] x .76 [19.2] Panel Cutout



Product Facts

- **Easy to install snap-in mounting**
- **Dust resistant**
- **Dual color rocker option**
- **Full-illuminated rocker option**
- **LED or neon window illuminated option**
- **Wide range of marking options and functions available**
- **Solder lugs or .187 FASTON Tab terminals**
- **Cost competitive**



Non-Illuminated Version Shown

Alcoswitch Part Number[illegible]

Part No.

Tyco Electronics		Alcoswitch	
1571076-9	PRASA1-16F-BB000	1571079-7	PRASD3-16F-BB000
1-1571076-0	PRASA1-16F-BB0BW	1571079-8	PRASD3-16F-BB0FW
1-1571076-1	PRASA1-16F-BB0CW	1571079-9	PRASD3-16F-BB0GW
1-1571076-2	PRASA1-16L-BB000	1-1571079-0	PRASD2-16F-BB000
1-1571076-3	PRASA1-16L-BB0BW	1-1571079-1	PRASD2-16F-BB0DW
1-1571076-4	PRASA1-16L-BB0CW	1-1571079-2	PRASD2-16F-BB0EW
1-1571076-5	PRASA1-16F-BR000	1-1571079-3	PRASD4-16F-BB000
1-1571076-6	PRASA1-16L-BR000	1-1571079-4	PRASD4-16F-BB0FW
1-1571076-7	PRASA2-16F-BBRBR	1-1571079-5	PRASD4-16F-BB0GW
2-1571076-0	PRASA1-16F-BB0HW	1571083-2	PRASC1-16F-BBR00
2-1571076-1	PRASA3-16F-BB0JW	1571084-1	PRADA1-07F-BB000
1571078-2	PRASB1-16F-BR000	1571084-2	PRADA1-07F-BB0BW
1571078-4	PRASB2-16F-BBR00	1571084-3	PRADA1-07F-BB0CW
1571079-4	PRASD1-16F-BB000	1571084-4	PRADA1-07F-BR000
1571079-5	PRASD1-16F-BB0DW		
1571079-6	PRASD1-16F-BB0EW		

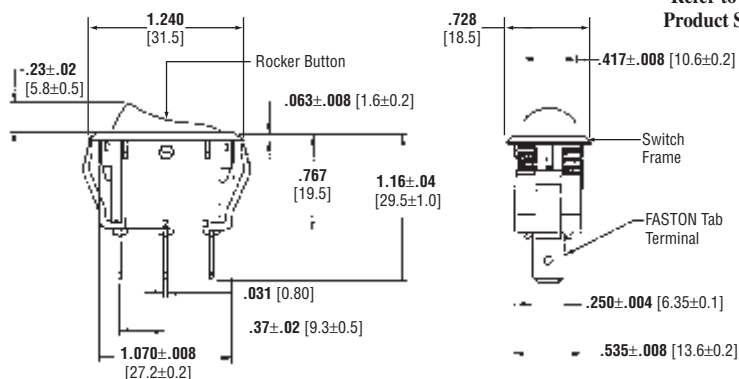
PVC Waterproof Cover: 1571786-

PVC Waterproof Cover: 1571786-1



Product Facts

- **Easy to install snap-in mounting**
- **Dual color rocker option**
- **Full-illuminated rocker option**
- **Lamp window illuminated option**
- **Wide range of marking options and functions available**
- **Solder lugs or .250 FASTON Tab terminals**
- **Cost competitive**



*** Refer to Pages F21 for Product Specifications**

Alcoswitch Part Number

Switch Type
PR Power Rockers

Panel Cut-out Size
B .54 [13.8] x 1.09 [27.6]

Number of Poles
S Single Pole

Switch Functions
A1 ON-OFF; opaque, single-color rocker button
A2 ON-OFF; opaque, dual-color rocker button
B1 ON-OFF; transparent, lamp-illuminated rocker button
(100-125 V lamp voltage)
B3 ON-OFF; transparent, lamp-illuminated rocker button
(200-250 V lamp voltage)
C1 ON-OFF; opaque, with LED window, LED-illuminated rocker button
D1 ON-ON; opaque, single-color rocker button
D3 ON-OFF-ON; opaque, single-color rocker button

Power Rating
16 16A, 1/3 Hp @ 125 VAC
10A, 1/2 Hp @ 250 VAC

Terminal Type
F FASTON Tab
L Solder Lug

Legend Text Color			
0	Not Applicable	R	Red
B	Black	W	White
G	Green		

Legend Text Pattern	
0 Not Applicable	E I
A Dot	F -- o =
B o --	G o
C o	H ON OFF

Secondary Rocker Color, Window Color, or LED Color

0 Not Applicable	C Clear
A Amber	G Green
B Black	R Red
	W White

Rocker Color	
A Amber	G Green
B Black	R Red
C Clear	W White

Frame Color
B Black
W White

Part No.

Tyco Electronics	Alcoswitch
1571087-1	PRBSC1-16F-BBR00
1571087-2	PRBSC1-16L-BBR00
1571091-1	PRBSA1-16F-BB000
1571091-2	PRBSA1-16F-BB0BW
1571091-3	PRBSA1-16F-BB0CW
1571091-4	PRBSA1-16L-BB000
1571091-5	PRBSA1-16L-BB0BW
1571091-6	PRBSA1-16L-BB0CW
1571091-7	PRBSA1-16F-BR000
1571091-8	PRBSA1-16L-BR000
1571091-9	PRBSA1-16F-BB0HW
1-1571091-0	PRBSA1-16F-BR0HW
1-1571091-1	PRBSA1-16F-BW000
1-1571091-2	PRBSA1-16F-BW0HB

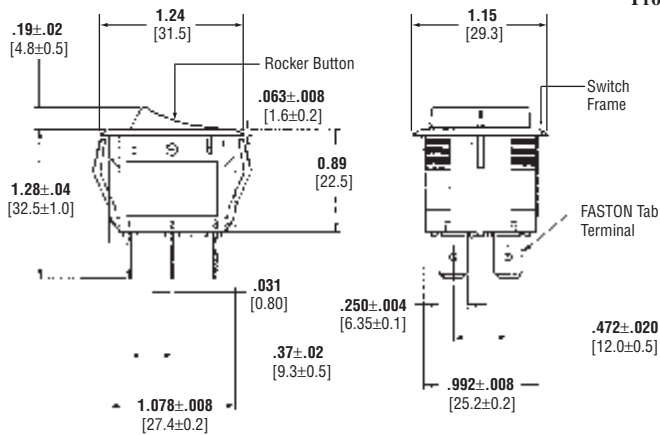
Tyco Electronics	Alcoswitch
1571092-1	PRBSB1-16F-BR000
1571092-2	PRBSB1-16F-BR0BW
1571092-3	PRBSB1-16F-BA000
1571092-4	PRBSB1-16F-BC000
1571094-1	PRBSD1-16F-BB000
1571094-2	PRBSD1-16F-BB0DW
1571094-3	PRBSD1-16F-BB0EW
1571094-4	PRBSD3-16F-BB000
1571094-5	PRBSD3-16F-BB0FW
1571094-6	PRBSD3-16F-BB0GW
1571094-7	PRBSD3-16F-BW000

1.00 [25.4] x 1.09 [27.6] Panel Cutout



Product Facts

- Easy to install snap-in mounting
- Full illuminated rocker option
- Wide range of marking options and functions available
- FASTON .250 Tab terminals
- Cost competitive



* Refer to Pages F21 for Product Specifications

Alcoswitch Part Number

Switch Type	PR	D	D	XX	XX	X	X	X	X	X	X
PR Power Rockers											
Panel Cut-out Size											
B 1.00 [25.4] x 1.09 [27.6]											
Number of Poles											
S Double Pole											
Switch Functions											
A1 ON-OFF; opaque, single-color rocker button											
B1 ON-OFF; transparent, lamp-illuminated rocker button (100-125 V lamp voltage)											
B3 ON-OFF; transparent, lamp-illuminated rocker button (200-250 V lamp voltage)											
D1 ON-ON; opaque, single-color rocker button											
D3 ON-OFF-ON; opaque, single-color rocker button											
Power Rating											
16 16A, 1/3 Hp @ 125 VAC											
10A, 1/2 Hp @ 250 VAC											
Terminal Type											
F FASTON Tab											
Legend Text Color											
0 Not Applicable											
B Black											
G Green											
R Red											
W White											
Legend Text Pattern											
0 Not Applicable											
A Dot											
B o--											
C o l											
D -											
E l l l											
F - o -											
G l o l l											
H ON OFF											
Secondary Rocker Color, Window Color, or LED Color											
0 Not Applicable											
Rocker Color											
A Amber											
B Black											
C Clear											
G Green											
R Red											
W White											
Frame Color											
B Black											
W White											

Part No.

Tyco Electronics	Alcoswitch
1571103-1	PRDDA1-16F-BB000
1571103-2	PRDDA1-16F-BB0BW
1571103-3	PRDDA1-16F-BB0CW
1571103-4	PRDDA1-16F-BR000
1571103-5	PRDDA1-16F-BB0HW
1571103-6	PRDDA1-16F-BR0HW
1571113-7	PRDDD3-16F-BR000

Tyco Electronics	Alcoswitch
1571112-1	PRddb1-16F-BR000
1571112-2	PRddb1-16F-BA000
1571113-1	PRddd1-16F-BB000
1571113-2	PRddd1-16F-BB0DW
1571113-3	PRddd1-16F-BB0EW
1571113-4	PRddd3-16F-BB000
1571113-5	PRddd3-16F-BB0FW
1571113-6	PRddd3-16F-BB0GW



MRC Series - Page G3



MRJ Series - Page G4



MRJE Series - Page G4



MRJB Series - Page G4



6000 Series - Page G5



3100 Series - page G9



Rotary Switches Part Number Index

MRC110	G3
MRC110S	G3
MRC25	G3
MRC25S	G3
MRC33	G3
MRC33S	G3
MRC42	G3
MRC42S	G3
MRJ112.....	G4
MRJ26	G4
MRJ34	G4
MRJ43	G4
MRJB112	G4
MRJB26	G4
MRJB34	G4
MRJB43	G4
MRJE112	G4
MRJE26	G4
MRJE34	G4
MRJE43	G4
435005	G6
435123	G6
435128	G6
435167	G7
435174	G6
435697	G7
435984	G10
435986	G10
435987	G10
436022	G10
436024	G10
436028	G10
436037	G10
436287	G11

Rotary Switches, 500m Amp, Adjustable Stop, 36° Throw

MATERIAL SPECIFICATIONS:

ContactsSilver
Case MaterialAluminum
Actuator MaterialBrass
Terminals/Fixed Contacts.....Silver plated brass
Terminal SealInsert molded, DAP bas

ENVIRONMENTAL SPECIFICATIONS:

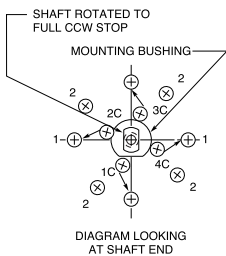
Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature-4°F to +212°F (-20°C to +100°C)
Solder Heat Resistance.....Manual: 270°C for 3 seconds
Wave: 245°C for 3 seconds

NOTICE: Set stop positions by presetting external pin plate provided.

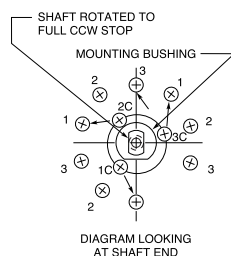
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating500 Milliamps @ 125 VAC or
28 VDC resistive
Initial Contact Resistance.....50 Milliohms max.
Contact Timing.....Non-shorting
Insulation Resistance100 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Rotation Torque14 Inch ounce max.
High Torque Bushing ShoulderNickle plated brass
Plunger/Actuator Travel.....36°
Life ExpectancyUp to 10,000 Cycles @ full contact
rating
Up to 25,000 Cycles @ 150 mA @
125 VAC or 250 mA @ 28 VDC

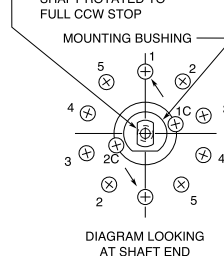
4 Pole, 2 Positions



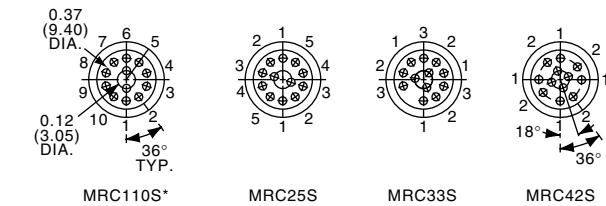
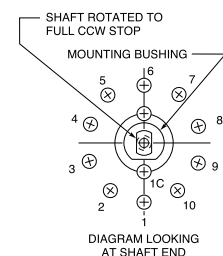
3 Pole, 2-3 Positions, Adjustable



2 Pole, 2-5 Positions, Adjustable

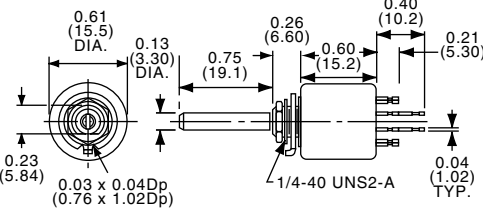


1 Pole, 2-10 Positions, Adjustable



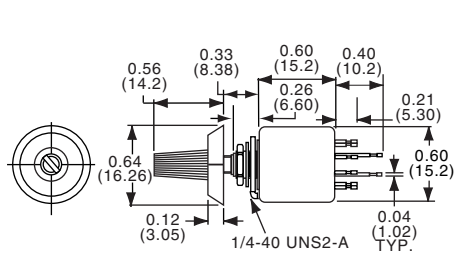
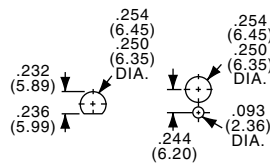
* Two common terminals are internally shorted. Use either one.

36° ANGLE OF THROW



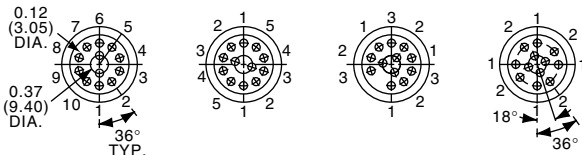
MRC33S

Part Number		No. Poles	Adjustable Positions
Tyco Electronics	Alcoswitch		
1437629-2	MRC110S	1 Pole	2 to 10 Positions
1437629-4	MRC25S	2 Poles	2 to 5 Positions
1437629-6	MRC33S	3 Poles	2 to 3 Positions
1437629-8	MRC42S	4 Poles	2 Positions (fixed)



NOB NOT SOLD SEPARATELY

36° ANGLE OF THROW



* Two common terminals are internally shorted. Use either one.



MRC25

Part Number		No. Poles	Adjustable Positions
Tyco Electronics	Alcoswitch		
1437629-1	MRC110	1 Pole	2 to 10 Positions
1437629-3	MRC25	2 Poles	2 to 5 Positions
1437629-5	MRC33	3 Poles	2 to 3 Positions
1437629-7	MRC42	4 Poles	2 Positions (fixed)

Rotary Switches, .4VA, PC Mount, 30° Throw

MATERIAL SPECIFICATIONS:

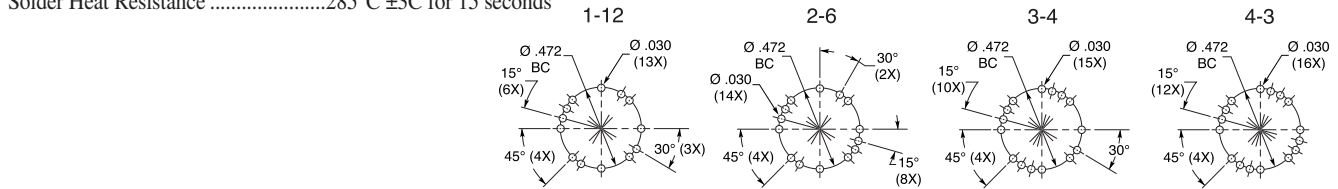
Contacts.....Gold plate over nickel plate
Case MaterialZinc die cast
Actuator MaterialBrass
Terminals/Fixed ContactsGold plated
Terminal SealMolded-in epoxy base
Process SealMRJB and MRJE

ENVIRONMENTAL SPECIFICATIONS:

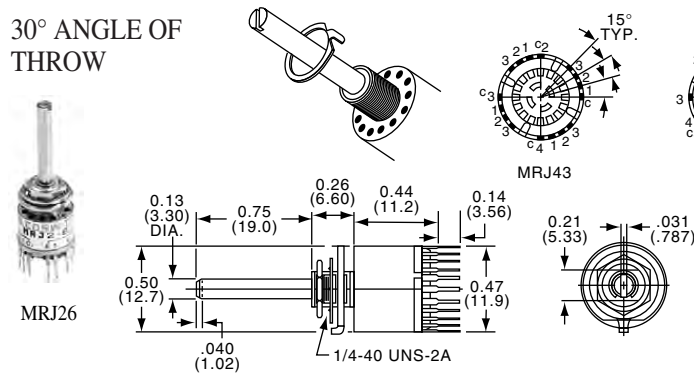
Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
Storage Temperature.....-4°F to +158°F (-20°C to +70°C)
Solder Heat Resistance285°C ±3C for 15 seconds

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4VA max. @ 20 VDC or peak AC
Initial Contact Resistance30 Milliohms max.
Contact TimingNon-shorting
Insulation Resistance10,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Actuation Force.....14 Inch oz. max.
Plunger/Actuator Travel30°
Life ExpectancyUp to 10,000 Cycles @ full contact rating
Up to 30,000 Cycles @ 0.1 mA, 12 VDC



30° ANGLE OF THROW



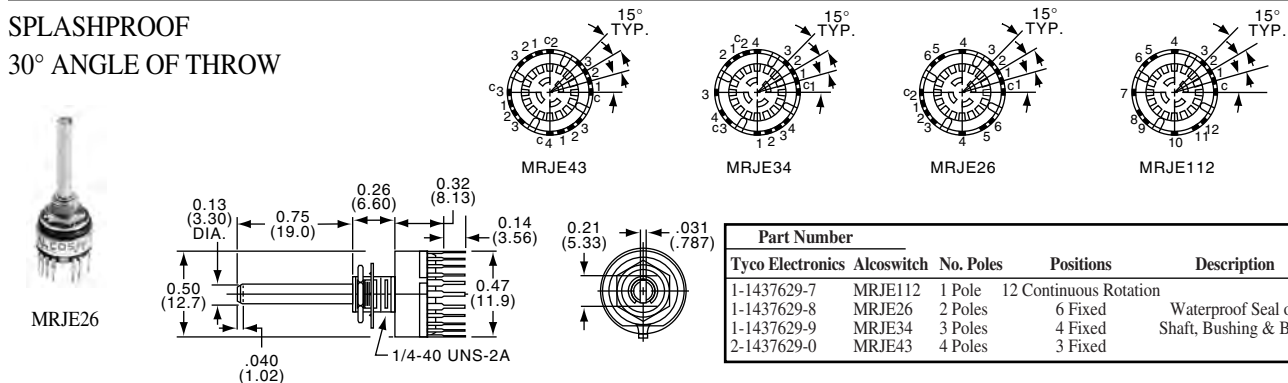
Part Number		No. Poles	Positions	Description
Tyco Electronics	Alcoswitch			
1-1437629-9	*MRJ112	1 Pole	2 to 12, Adjustable	
1-1437629-0	MRJ26	2 Poles	2 to 6, Adjustable	3/4" long, 1/8" Diameter shaft.
1-1437629-1	MRJ34	3 Poles	2 to 4, Adjustable	
1-1437629-2	MRJ43	4 Poles	2 to 3, Adjustable	

* Also usable as continuous rotation.

Application Note: Set stop positions by presetting external pin plate provided.

SPLASHPROOF

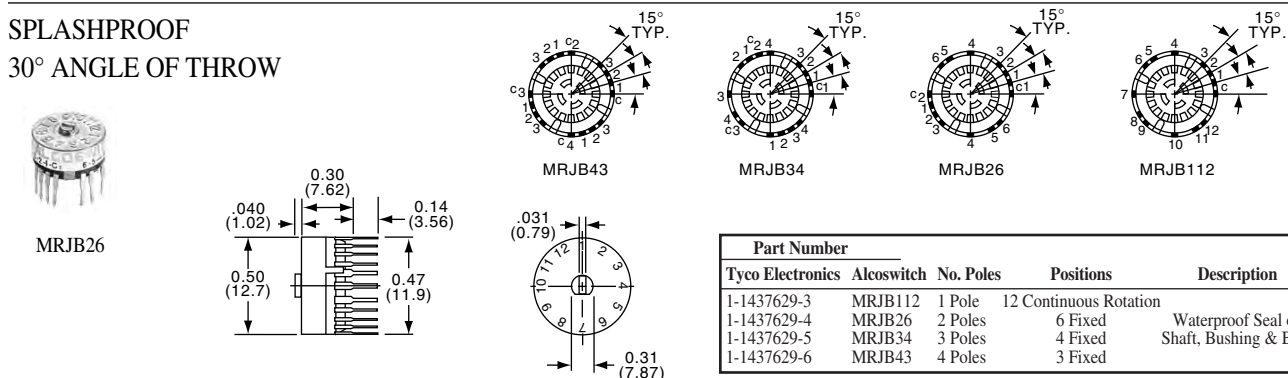
30° ANGLE OF THROW



Part Number		No. Poles	Positions	Description
Tyco Electronics	Alcoswitch			
1-1437629-7	MRJE112	1 Pole	12 Continuous Rotation	
1-1437629-8	MRJE26	2 Poles	6 Fixed	Waterproof Seal on Shaft, Bushing & Base
1-1437629-9	MRJE34	3 Poles	4 Fixed	
2-1437629-0	MRJE43	4 Poles	3 Fixed	

SPLASHPROOF

30° ANGLE OF THROW



Part Number		No. Poles	Positions	Description
Tyco Electronics	Alcoswitch			
1-1437629-3	MRJB112	1 Pole	12 Continuous Rotation	
1-1437629-4	MRJB26	2 Poles	6 Fixed	Waterproof Seal on Shaft, Bushing & Base
1-1437629-5	MRJB34	3 Poles	4 Fixed	
1-1437629-6	MRJB43	4 Poles	3 Fixed	

Rotary Switches, 6000 Series

Alcoswitch 6000 Series Rotary Switches are used in programming electrical and mechanical circuits in machine tools, test equipment, and input data terminals. These manually operated switches are specifically designed to be mounted on a pc board and offer output capabilities which include: 8-position binary-coded octal (BC), 10-position binary-coded decimal (BCD), 16-position hexadecimal plus 10- and 16-position single pole decimal. All switches feature a small diameter and very low profile.

In addition to varied output capabilities, these versatile Alcoswitch switches can also be supplied in three different styles, allowing you to select the operation method best suited to your specific application. One version incorporates a slot which accepts a screwdriver, coin or other similar device. This particular style permits operation of the switch without sacrificing overall height. Its height of .220 [5.59] above the pc board is no greater than the usual board-mounted discrete components. The other two versions have either a bar-type knob or thumbwheel for their operation. All three styles can be rotated bidirectionally.

Rugged construction, positive detent action contacts plus large, readable characters are additional features of the Alcoswitch 6000 Series PC Board Rotary Switches. All these features, coupled with a fully enclosed design for better environmental protection, provide excellent electrical and mechanical performance.

PERFORMANCE CHARACTERISTICS

Current/Voltage Rating—
Signal application only.
Dielectric Breakdown Voltage—
500 VDC min.
Insulation Resistance—
1 x 10⁸ ohms
Initial Contact Resistance—
25 milliohms (at 50 millivolts, 100 milliamperes) closed circuit
Circuit Capacitance—
5 picofarads (at 100 KHz)
Durability—
1000 cycles
Operating Torque—
2 - 12 inch-ounces initial and after durability
Temperature Rating—
Operating — -18°C to +88°C
Storage — -45°C to +88°C
Humidity—
Withstands an environment of +40°C and 95% RH for 96 hours

MATERIALS

Contacts—
Phosphor bronze, gold over nickel plated
Solder Tabs and Pins—
Coded Switches — Beryllium copper, tin plated
Single Pole Switches — Brass, tin plated
Structural Parts — Thermoplastic

Technical Documents

Product Specification—
108-7514
Instruction Sheet—
408-07523
Application Specification—
114-7005

Product Facts

- n **Compact design** — small diameter, low profile switches are ideal for pc board mounting
- n **Wide choice of outputs:** 8-position binary-coded octal, 10-position binary-coded decimal, 16-position hexadecimal and 10- and 16-position single pole
- n **Versatile application** — styles include slotted, bar-type and thumbwheel versions for hand rotation
- n **Positive switching** — contacts have positive detent action
- n **All positions are easily identified** by large readable characters or dots
- n **Optimum reliability** — fully enclosed design protects contacts against contamination

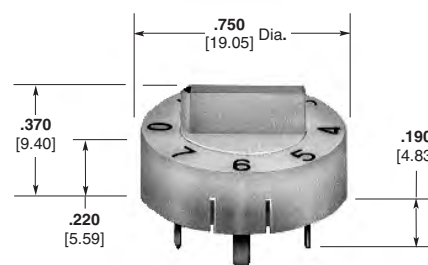
Rotary Switches, PC Mount, 8 or 10 Positions

Switch Position	Common to:
0	1 2 3
1	
2	
3	
4	
5	
6	
7	

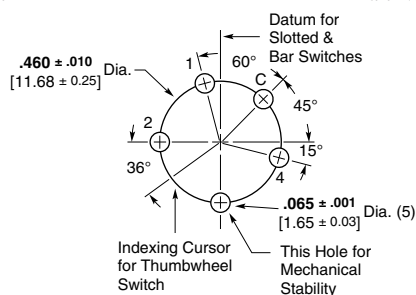


Screwdriver/Coin Actuated
Part No. 435174-1

8-POSITION BINARY CODED OCTAL (BCO)



Bar-Type Knob
Part No. 1- 435174-1 (Shown)



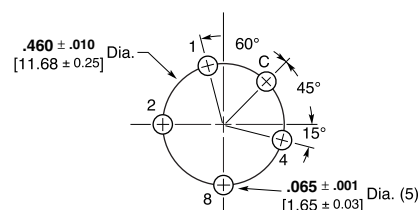
Recommended PC Board Hole Pattern
(Switch Side)

Switch Position	Common to:
0	1 2 4 8
1	
2	
3	
4	
5	
6	
7	
8	
9	

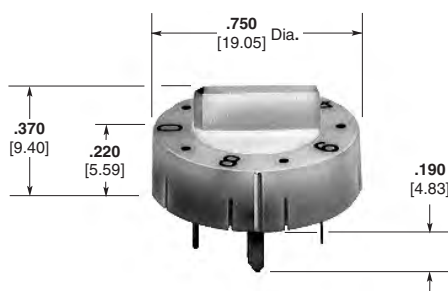


Screwdriver/Coin Actuated
Part No. 435005-1

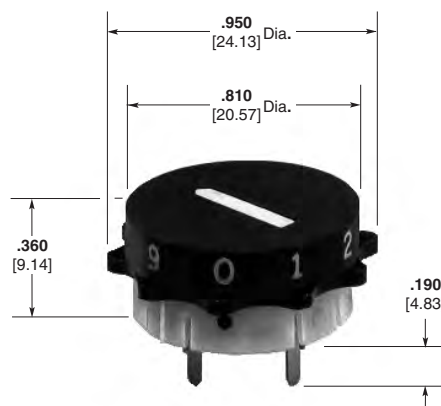
10-POSITION BINARY CODED DECIMAL (BCD)



Recommended PC Board Hole Pattern
(Switch Side)



Bar-Type Knob
Part No. 435123-1

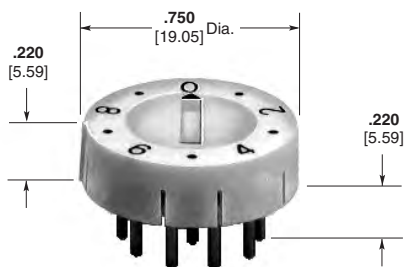


Thumbwheel
Part No. 435128-1

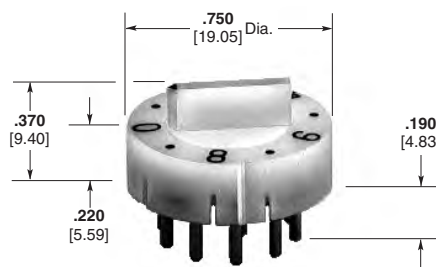
Rotary Switches, PC Mount, 10 or 16 Position

10-POSITION SINGLE POLE

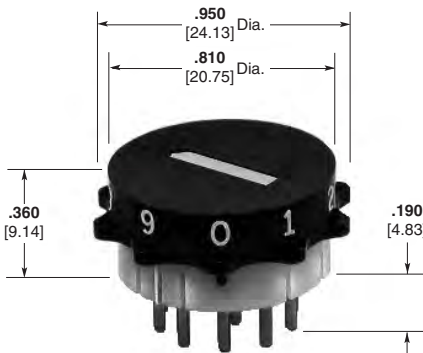
Switch Position	Common to:
	0 1 2 3 4 5 6 7 8 9
0	•
1	•
2	•
3	•
4	•
5	•
6	•
7	•
8	•
9	•



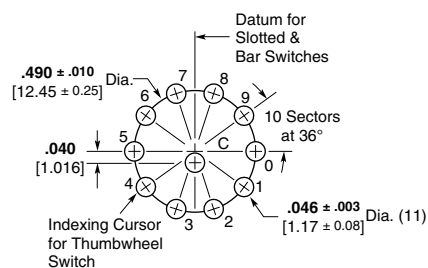
Screwdriver/Coin Actuated
Part No. 1-435097-1



Bar-Type Knob
Part No. 2-435097-1



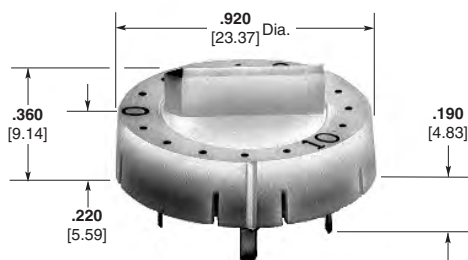
Thumbwheel
Part No. 435097-1 (Shown)
Part No. 435097-2 (With Numbers 1 - 10)



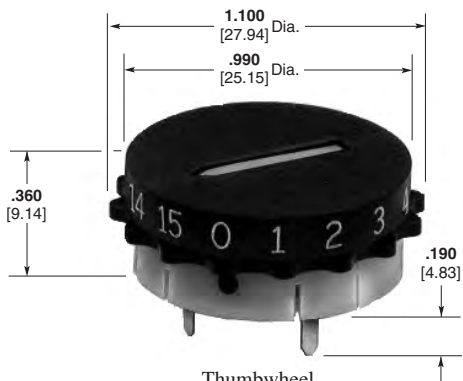
Recommended PC Board Hole Pattern
(Switch Side)

16-POSITION HEXADECIMAL

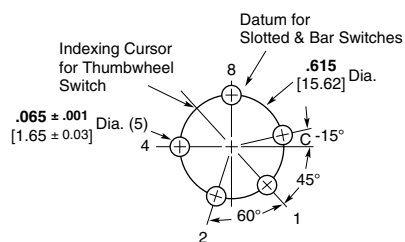
Switch Position	Common to:
	1 2 4 8
0	
1	•
2	•
3	•
4	•
5	•
6	•
7	•
8	•
9	•
10	•
11	•
12	•
13	•
14	•
15	•



Bar-Type Knob
Part No. 1-435167-1



Thumbwheel
Part No. 2-435167-1 (Shown)



Recommended PC Board Hole Pattern
(Switch Side)

3100 Series Rotary Switches

Alcoswitch Rotary Switches provide a highly reliable means of manually programming various types of electronic equipment. They are specifically designed for logic level circuitry, but are capable of controlling electrical circuits that operate at current ratings of 2 amperes, 115 VAC (nonswitching) and up to 125 milliamperes, 115 VAC (switching).

Positive detent action, with a quick make/break operation, is provided by durable stainless steel balls and springs as well as the detents which form an integral part of the housing. All contact surfaces are fully enclosed within the housing, thus greatly reducing operational failures due to dirty contacts. The contacts are made of phosphor bronze with gold-over-nickel plating.

Alcoswitch Rotary Switches can be supplied with a variety of options to afford complete application versatility and adaptability. Output codes include decimal, BCD and BCD complement with 10, 12, 16, 24 and 32 switching positions.

Interconnection of switches may be achieved by the use of AMPMODU receptacles. Stops supplied with the switches may be customer installed when it is desired to limit rotation to less than 360°.

PERFORMANCE CHARACTERISTICS

Circuit Current Rating—

Nonswitching — 2.0 amperes at 115 VAC max.

Switching (Resistive Load) — 125 milliamperes at 115 VAC max.

Dielectric Withstanding Voltage—

500 VDC

Insulation Resistance—

1 x 10⁸ ohms min. at 100 VDC

Initial Contact Resistance—

150 milliohms (input terminal to output terminal)

Initial Operating Force—

1/2 to 2 in.-lbs.

Contact Life Expectancy—

25,000 rotations at rated load

Operating Temperature—

-18°C to +88°C

MATERIALS

Housing—

Polyester, black

Detent Ball and Spring—

Stainless steel

Operating Shaft and Detent—

Thermoplastic, 94V-0 rated, black

Printed Circuit Board—

Flame retardant, glass epoxy laminate, copper clad

Contacts—

Phosphor bronze, gold-over-nickel plated

Hardware—

Brass or corrosion resistant steel

TECHNICAL DOCUMENTS

Product Specification—

108-7518

Instruction Sheet—

408-07936

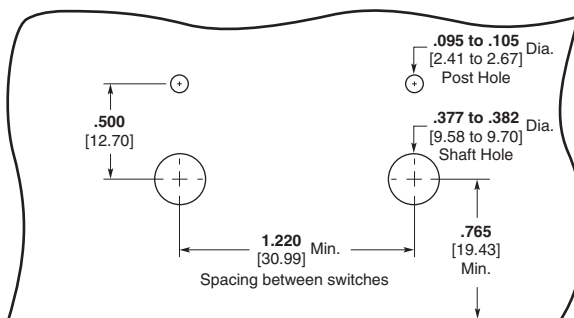
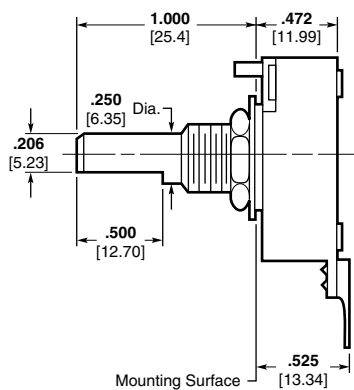
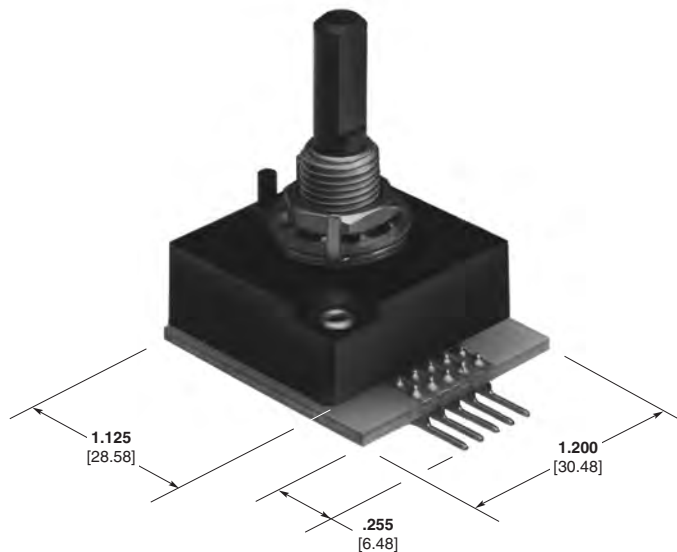
Product Facts

- ▮ **Code flexibility** — switch output capabilities include decimal, BCD and BCD complement, and various other codes
- ▮ **Positive switching** — positive detent action of stainless steel detent balls and springs assures error-free operation
- ▮ **Enclosed contacts** — contact surfaces are better protected against dirt, dust and other environmental hazards



Rotary Switches, PC Mount, 10, 12 or 16 Position

10-, 12- AND 16-POSITION
SWITCHES

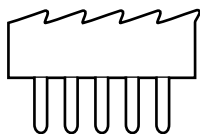


Panel Cutout

Note: See Section K for knob selection.

Rotary Switches, PC Mount, 10, 12 or 16 Position

CODING



Part No.

2	1	C	8	4	435984-1,7
8	2	4	1	C	436037-1
1	2	C	8	4	435986-1
2	C	1	8	4	436022-1
C	4	8	1	2	436024-1
8	2	4	C	1	435987-1

10-Position
36° Throw
BCD

Part No. 435984-1 (Shown)

Part No. 435984-7 (Right Angle)

Switch Position	Common to:
	1 2 4 8
0	
1	•
2	•
3	• •
4	•
5	• •
6	• •
7	• • •
8	•
9	• •

12-Position
30° Throw
BCD

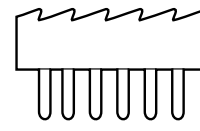
Part No. 436037-1

Switch Position	Common to:
	1 2 4 8
0	
1	•
2	•
3	• •
4	•
5	• •
6	• •
7	• • •
8	•
9	• •
10	• •
11	• • •

16-Position
22½° Throw
Hexadecimal

Part No. 435986-1

Switch Position	Common to:
	1 2 4 8
0	
1	•
2	•
3	• •
4	•
5	• •
6	• •
7	• • •
8	•
9	• •
10	• •
11	• • •
12	• •
13	• • •
14	• • •
15	• • •



C 16 2 4 1 8

10-Position
36° Throw
BCD Complement

Part No. 436022-1

Switch Position	Common to:
	1 2 4 8
0	• • • •
1	• • • •
2	• • • •
3	• • • •
4	• • • •
5	• • • •
6	• • • •
7	• • • •
8	• • • •
9	• • • •

12-Position
30° Throw
BCD Complement

Part No. 436024-1

Switch Position	Common to:
	1 2 4 8
0	• • • •
1	• • • •
2	• • • •
3	• • • •
4	• • • •
5	• • • •
6	• • • •
7	• • • •
8	• • • •
9	• • • •
10	• • • •
11	• • • •

16-Position
22½° Throw
HEX Complement

Part No. 435987-1

Switch Position	Common to:
	1 2 4 8
0	• • • •
1	• • • •
2	• • • •
3	• • • •
4	• • • •
5	• • • •
6	• • • •
7	• • • •
8	• • • •
9	• • • •
10	• • • •
11	• • • •
12	• • • •
13	• • • •
14	• • • •
15	• • • •

24-Position
15° Throw BCD

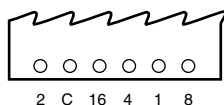
Part No. 436028-1

Switch Position	Common to:
	1 2 4 8 16
0	
1	•
2	•
3	• •
4	•
5	• •
6	• •
7	• • •
8	•
9	• •
10	• •
11	• • •
12	• •
13	• • •
14	• • •
15	• • • •
16	•
17	• •
18	• •
19	• • •
20	• •
21	• • •
22	• • •
23	• • • •

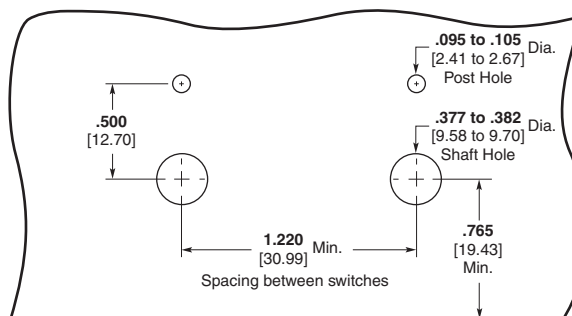
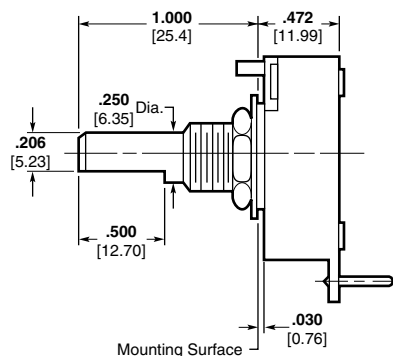
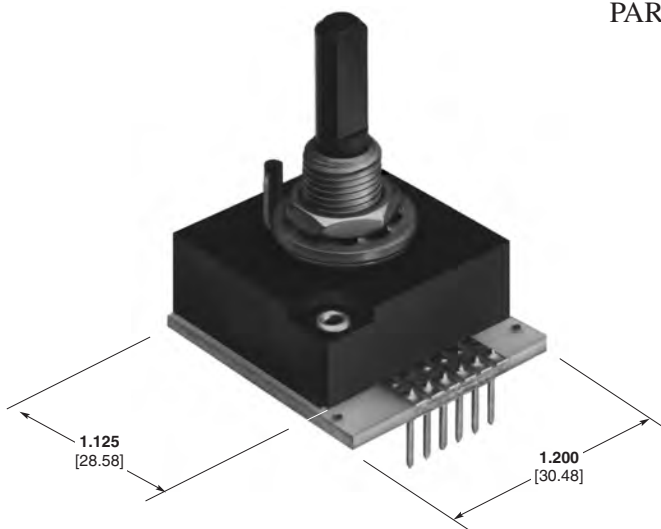
Note: See Section K for knob selection.

Rotary Switches, PC Mount, 32 Position

32-POSITION
11 1/4° THROW BCD
PART NO. 436287-1



Switch Position	Common to:				
	1	2	4	8	16
0					
1	•				
2		•			
3	•	•			
4			•		
5	•		•		
6		•	•	•	
7	•	•	•		
8				•	
9	•			•	
10		•		•	
11	•	•		•	
12			•	•	
13	•		•	•	
14		•	•	•	
15	•	•	•	•	
16					•
17	•				•
18		•			•
19	•	•			•
20			•		•
21	•		•		•
22		•	•		•
23	•	•	•		•
24				•	•
25	•			•	•
26		•			•
27	•	•			•
28			•	•	•
29	•		•	•	•
30		•	•	•	•
31	•	•	•	•	•



Note: See Section K for knob selection.

Panel Cutout

Engineering Notes

G

Engineering Notes

G12

Catalog 1308390
Issued 9-04

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Dimensions are in inches and millimeters unless otherwise specified. Values in parentheses or brackets are metric equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-141-810-8967



2SWK Series - Page H2



SKF Series - Page H4



SKT Series - Page H3



SWK Series - Page H5

Keylock Part Number Index

2SKF131AEL01	H4	SKT132AEL01	H3
2SKF132AEL01	H4	SKT132GAEL01	H3
2SKF133AEL01	H4	SKT331AEL01	H3
2SKF231AEL01	H4	SKT331GAEL01	H3
2SWK131AL101	H2	SKT332AEL01	H3
2SWK132AL101	H2	SKT332GAEL01	H3
2SWK231AL101	H2	SWK12	H5
SKF1323AEL01	H4	SWK121F315	H5
SKT13	H3	SWK123F315	H5
SKT131AEL01	H3	SWK12F315	H5
SKT131GAEL01	H3	SWK12KF315	H5
SKT1323AEL01	H3	SWK1323AL101	H2

KEYLOCK

H

Keylock

Key Switches, Medium Security

MATERIAL SPECIFICATIONS

ContactsSilver
 Cylinder Material.....Zinc alloy
 Lock BodyZinc alloy
 Key MaterialBrass
 Terminals/Fixed ContactsScrew type
 Beveled Frame Finish302 Stainless steel

ENVIRONMENTAL SPECIFICATIONS

Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS

Contact Rating1A at 120 VAC resistive
 Initial Contact Resistance50 Milliohms max.
 Contact Timing.....Non-shorting
 Plunger/Actuator Travel90°
 Key Changes25 Standard
 Life ExpectancyUp to 10,000 Cycles

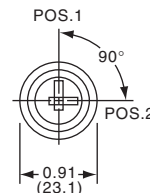
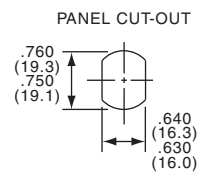
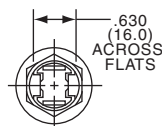
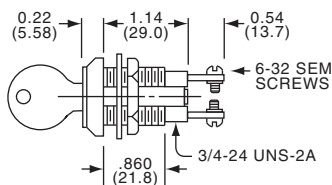
NOTE: All Keylocks are supplied with 2 brass keys on a ring.

SPST

5 Disc Tumblers



2SWK131



Part Number						Part Number					
Tyco Electronics	Alcoswitch	Type	Pos. 1	Pos. 2	Remove Key	Tyco Electronics	Alcoswitch	Type	Pos. 1	Pos. 2	Remove Key
1-1437597-7	2SWK131AL101	SPST	Off	On	Position 1	2-1437597-7	2SWK231AL101	SPST	Off	(On)	Position 1
2-1437597-3	2SWK132AL101	SPST	Off	On	Position 1 or 2	4-1437597-3	SWK1323AL101	Spare Key for SWK Series (On) indicates momentary position.			

2 Position Key Switch

MATERIAL SPECIFICATIONS

Contacts	Gold or silver plate
Cylinder Material	Zinc alloy
Lock Body	Zinc alloy
Key Material	Brass
Terminals/Fixed Contacts	Tin lead plate
Terminal Seal	SP epoxy

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C to +85°C (-22°F to +185°F)
Storage Temperature	-30°C to +85°C (-22°F to +185°F)
Solder Heat Resistance	See page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS

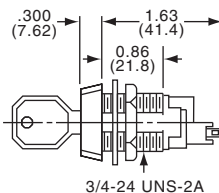
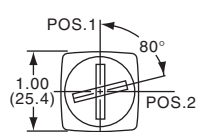
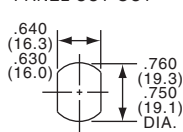
Contact Rating	Gold: 0.4 VA max. @ 20 VDC or peak AC Silver: 3A @ 125 VAC or 28 VDC resistive
Initial Contact Resistance	20 Milliohms max.
Contact Timing	Non-shorting
Insulation Resistance	1,000 Megohms @ 500 VDC min.
Dielectric Strength	1,000 Volts @ sea level
Actuator Travel	80°

Note: All keylocks are supplied with 2 brass keys on a ring.

SPDT/DPDT

4 Disc Tumblers

PANEL CUT-OUT



SKT131

Tyco Electronics	Alcoswitch	Type	①	②	Remove Key	Contacts
1437598-4	SKT131AEL01	SPDT	On	On	1 Only	Silver
1437598-5	SKT131GAEL01	SPDT	On	On	1 Only	Gold
1437598-7	SKT132AEL01	SPDT	On	On	1 or 2	Silver
1437598-8	SKT132GAEL01	SPDT	On	On	1 or 2	Gold
1437598-9	SKT331AEL01	DPDT	On	On	1 Only	Silver
1-1437598-0	SKT331GAEL01	DPDT	On	On	1 Only	Gold
1-1437598-1	SKT332AEL01	DPDT	On	On	1 or 2	Silver
1-1437598-3	SKT332GAEL01	DPDT	On	On	1 or 2	Gold
3-1437598-4	SK1323AEL01	Spare key for SKT13 Series				

H

SKT Series

Medium Security Key Switch

MATERIAL SPECIFICATIONS

ContactsSilver
 Cylinder MaterialZinc alloy
 Lock BodyZinc alloy
 Key MaterialBrass
 Terminals/Fixed Contacts ...Screw type
 Beveled Frame FinishBrushed chrome

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature-22°F + 185° F (-30°C to +85°C)
 Storage Temperature-22°F + 185° F (-30°C to +85°C)
 Solder Heat ResistanceSee page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS

Contact Rating1 A @ 120 VAC resistive
 Initial Contact Resistance ...50 Milliohms max.
 Contact TimingNon-shorting
 Actuator Travel90°
 Key Changes10 Standard
 Life ExpectancyUp to 10,000 Cycles

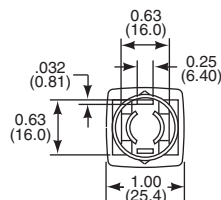
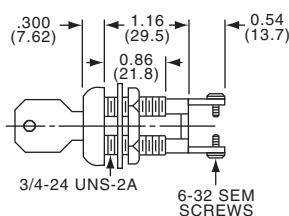
NOTE: All Keylocks are supplied with 2 brass keys on a ring.

SPST

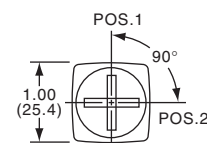
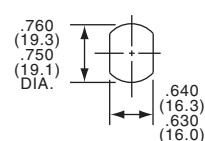
4 Disc Tumblers



SKF131



PANEL CUT-OUT



Tyco Electronics	Alcoswitch	Type	Pos. 1	Pos. 2	Remove Key	Tyco Electronics	Alcoswitch	Type	Pos. 1	Pos. 2	Remove Key
1437597-1	2SKF131AEL01	SPST	Off	On	Position 1	1-1437597-1	2SKF231AEL01	SPST	Off	(On)	Position 1
1437597-7	2SKF132AEL01	SPST	Off	On	Position 1 or 2	3-1437597-4	SK1323AEL01	Spare key for SK Series			
1-1437597-0	2SKF133AEL01	SPST	On	Off	Position 1			(On) indicates momentary position.			

High Security Key Switch

MATERIAL SPECIFICATIONS

ContactsSilver
 Cylinder MaterialZinc alloy
 Lock BodyZinc alloy
 Actuator MaterialBrass key
 Terminals/Fixed Contacts.....Screw type
 Beveled Frame FinishPolished chrome

ENVIRONMENTAL SPECIFICATIONS

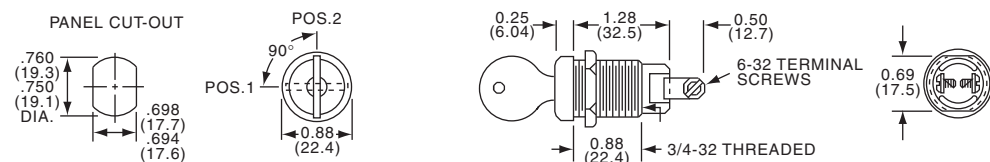
Operating Temperature.....-22°F to +185° (-30°C to +85°C)
 Storage Temperature-22°F to +185° (-30°C to +85°C)
 Solder Heat Resistance.....See page M3-4

TYPICAL PERFORMANCE CHARACTERISTICS

Contact Rating5A @ 115 VAC, 15A @ 24 VDC
 resistive
 Initial Contact Resistance ...50 Milliohms max.
 Contact TimingNon-shorting
 Dielectric Strength1,000 VAC @ sea level
 Actuator Travel90°
 Key Changes25 Standard
 Life ExpectancyUp to 20,000 Cycles

NOTE: All Keylocks are supplied with 2 brass keys on a ring.

SPST
 8 Disc Tumblers



SWK12

Tyco Electronics	Alcoswitch	Type	Pos. 1	Pos. 2	Remove Key
4-1437597-0	SWK12F315	SPST	On	Off	Position 1 or 2
3-1437597-6	SWK121F315	SPST	On	Off	Position 2
3-1437597-8	SWK123F315	SPST	On	Off	Position 1
4-1437597-2	SWK12KF315	Spare key for SWK12 Series			

Engineering Notes



H

Engineering Notes

H6

Catalog 1308390
Issued 9-04

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and millimeters unless otherwise
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Specifications subject
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Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-141-810-8967



RT Series - Page I3
22mm Mounting



QT Series - Page I4
22mm Mounting



RM Series - Page I5
22mm Mounting



Block Assemblies - Page I8



6000 Series - Page I11
30mm Mounting



164/165 Command Series - Page I16
16mm Mounting

Industrial Controls

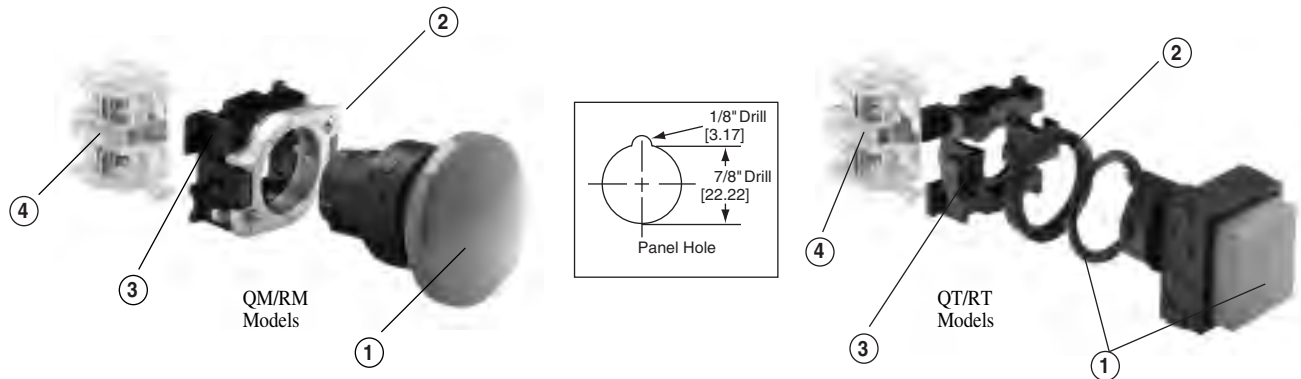
Industrial Controls Part Number Index

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570I6,I7,I15	165J3E33I17	QM010I5	VR0I8,I9,I14
616I19	165J7A22I17	QM020I5	
668I19	165P2B11I17	QM120I7,I15	
669I19	165P2B22I17	QM122I7,I15	
755I15	165P2B33I17	QM600I6,I15	
757I15	165P3B22I17	QT010I5	
7333I20	165P3B33I17	QT01201I4	
164EL11I16	165SL11I16	QT012STSTHI4	
164EL22I16	165SL22I16	QT020I5	
164EL33I16	165SL33I16	RM010I3	
164EL511I16	165SL511I16	RM015I3	
164EL522I16	165SL522I16	RM020I3	
164EL533I16	165SL533I16	RM030I4	
164EZI18	165SZI18	RM0450I4	
164JA11I17	165TL11I16	RM0452I4	
164JA22I17	165TL22I16	RM0500I4	
164JA33I17	165TL33I16	RM0502I4	
164JA11I17	165TL511I16	RM0532I4	
164JA22I17	165TL522I16	RM0552I4	
164JA33I17	165TL533I16	RM0652I4	
164JB11I17	165TZI18	RM120I6	
164JB22I17	327-AGI20	RM122I6	
164JB33I17	381-AGI20	RM130I6	
164JA22I17	382-AGI20	RM145I6	
164JA33I17	5B0I6,I7,I15	RM150I6	
164J3C22I17	601-AGI19	RM1652I6	
164J3C33I17	618-AGI19	RM200I5	
164J3E22I17	64EI18	RM201I5	
164J3E33I17	64SI18	RM204I5	
164JA22I17	64TI18	RM205I5	
164KAI17	671-AGI19	RM210I6	
164P0B22I17	697-PLI20	RM220I6	
164P0B33I17	815-AGI20	RM222I6	
164P2B11I17	E1I5,I6	RM230I6	
164P2B22I17	F40I8,I9,I14	RM232I6	
164P2B33I17	F50I8,I9,I14	RM233I6	
164P3B22I17	FA0I8,I9,I14	RM240I6	
164P3B33I17	FR0I8,I9,I14	RM243I6	
164SL11I16	G001I13	RM250I5	
164SL22I16	M25310I10	RM270I6	
164SL33I16	M25500I10	RM272I6,I9	
164SL511I16	M25510I10	RM273I6	
164SL522I16	M6010I11	RM280I6	
164SL533I16	M6020I11	RM3040I5	
164SZI18	M60532I11	RM3100I5	
164TL11I16	M6057I11	RM3120I5	
164TL22I16	M60582I11	RM3130I5	
164TL33I16	M60652I11	RM3700I5	
164TL511I16	M6080I11	RM3800I5	
164TL522I16	M6120(*)406I13	RM3830I5	
164TL533I16	M6150(*)406I13	RM4040I5	
164TZI18	M6153(*)406I13	RM4100I5	
165EL11I16	M6200I13	RM4120I5	
165EL22I16	M6201I13	RM4130I5	
165EL33I16	M6210I13	RM4700I5	
165EL511I16	M6250I13	RM4800I5	
165EL522I16	M6270I13	RM600I6,I15	
165EL533I16	M6280I13	RM650I6	
165EZI18	M6402I12	RM653I6	
165JA11I17	M6410I12	RT010I3	
165JA22I17	M6412I12	RT020I3	
165JA33I17	M6470I12	RT050I4	
165JB11I17	M6480I12	RT0500I4	
165JB22I17	M65310I12	RT0502I4	
165JB33I17	M65500I12	RT120I7	
165JA22I17	M65510I12	SR601I6	
165JA33I17	M65810I12	T6632I15	
165J3C22I17	M6650I14	V40I8,I9,I14	

Pushbutton Switches, 22mm, Oil-Tight, Round

FEATURES

- Fits 7/8" (22mm) diameter holes
- Full size buttons
- Meets NEMA 1, 12 and 13
- Rugged heavy-duty metal bushing, or thermoplastic bushings for full installation
- Matte black beveled frame finish
- IP65 protection level
- Snap-block contacts
- 6A @ 600VAC, 6A @ 125VDC V40, V50, F40, F50
6A @ 600VAC, 4A @ 125VDC VAO, VRO, FAO, FRO
- Easy "no tool" mounting
- Choice of screw terminals or dual .110/.250 quick connects
- Double-break silver contacts standard, gold plated optional
- Stackable



INSTALLATION & ASSEMBLY

- Engage the operator (1) into the 22.5mm dia. mounting hole.
- Engage metal ring (2) with operator (bayonet lock). Tighten set screws against back of panel.
- Snap the contact blocks (4) on the support (3).
- Snap the support (3) complete with contact blocks (4) on the metal ring (2).

- Engage the operator and seal (1) into the 22.5mm dia. mounting hole.
- Mount back-up nut (2) on bushing and then tighten against panel.
- Snap the contact blocks (4) on the support (3).
- Snap the support (3) complete the contact blocks (4) onto operator (1).

MOMENTARY

Metal Bushings

Contact blocks not supplied, order separately.
(See page I8.)

Model	Type
RM010(*)	Flush Button
RM020(*)	Extended Button
RM015(*)	Extended Guard

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.

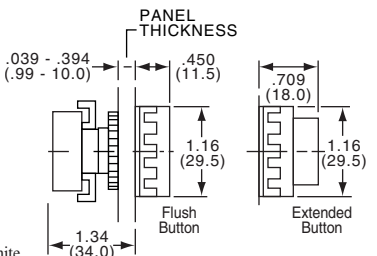
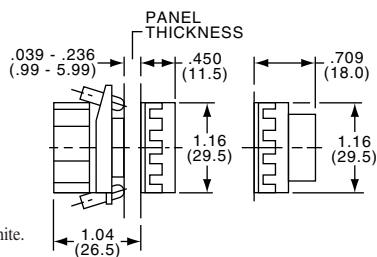
Thermoplastic Bushings (Threaded)

Contact blocks not supplied, order separately.
(See page I8.)

Model	Type
RT010(*)	Flush Button
RT020(*)	Extended Button

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.

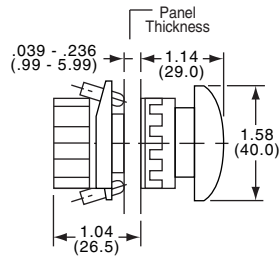


RT020

Pushbutton Switches, 22mm, Oil-Tight, Round or Mushroom or Dual Button



RM0502



MOMENTARY

Mushroom

Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Type	Bushing
3-1437614-7	RM0502	Mushroom, Red	Metal, Bayonet
1437615-2	RT0502	Mushroom, Red	Thermoplastic, Threaded Bushing
3-1437614-6	RM0500	Mushroom, Black	Metal, Bayonet
1437615-1	RT0500	Mushroom, Black	Thermoplastic, Threaded Bushing
3-1437614-9	RM0552	Mushroom, Red	Metal, Bayonet (Wobble)
	RT050(*)	Mushroom	

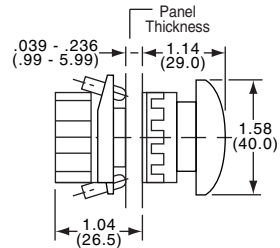
(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue.

Note: Front beveled frame is black.



RM0652



PUSH-TO-LOCK, TWIST-RELEASE

Metal Bushings

Contact blocks not supplied, order separately. (See page I8.)

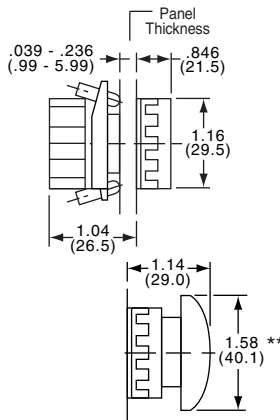
Note: Use F40/V40 for N.C. contacts, and FAO/VAO for N.O. contacts.

Tyco Electronics	Alcoswitch	Type	Arrow
4-1437614-0	RM0652	Mushroom, Red	White

Note: Front beveled frame is black.



RM030(*)



MAINTAINED

Contact blocks not supplied, order separately. (See page I8.)

Note: Use F40/V40 for N.C. contacts and FAO/VAO for N.O. contacts.

Tyco Electronics	Alcoswitch	Type
—	RM030(*)	Flush Button
3-1437614-4	RM0450	Mushroom, Black
3-1437614-5	RM0452	Mushroom, Red
3-1437614-8	RM0532	Push-Pull, Mushroom, Red

(*) Specify color by adding suffix number:

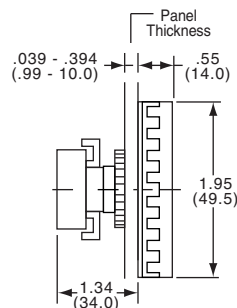
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.

**** Note: RM0532 mushroom 35mm Dia. (1.38)**



QT01201



MOMENTARY DUAL OPERATOR*

Threaded Thermoplastic bushing

Contact blocks not supplied, order separately. (See page I8.)

Black buttons available.

Tyco Electronics	Alcoswitch	Color	Legend
1437614-9	QT01201	Green, Red	As Shown
—	QT012STSTH	Green, Red	Start & Stop Horizontal

*Not oil tight construction, not sealed; meets NEMA 1 only.

Note: Front beveled frame is black.

Pushbutton or Keylock or Selector Switches, 22mm, Oil-Tight

MOMENTARY

Metal Bushings

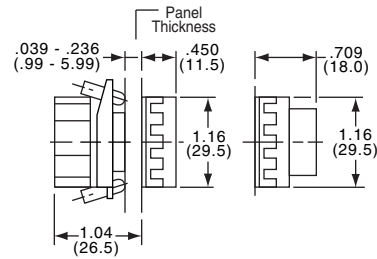
Contact blocks not supplied, order separately. (See page I8.)

Model	Type
QM010(*)	Flush Button
QM020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



QM010(*)

Thermoplastic Bushings (Threaded)

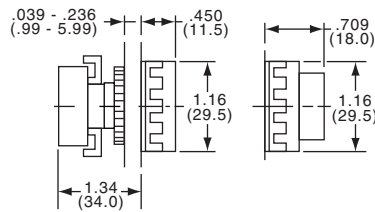
Contact blocks not supplied, order separately. (See page I8.)

Model	Type
QT010(*)	Flush Button
QT020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



QT010(*)

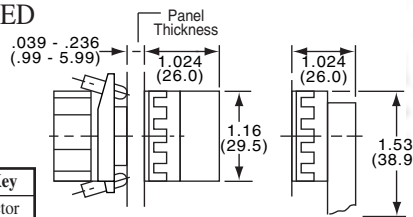
2 POSITION SELECTORS/KEYLOCK MAINTAINED

Metal Bushings

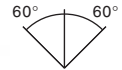
Contact blocks not supplied, order separately.
(See page I8.)

Tyco Electronics	Alcoswitch	Action	Throw	CAM	Remove Key
7-1437614-7	RM4040	Maintained, Black	120°	1	Long Selector
7-1437614-0	RM3040	Maintained, Black	120°	1	Selector
5-1437614-4	RM200	Maintained	60°	1	⊙
5-1437614-5	RM201	Maintained	60°	1	⊗
6-1437614-5	RM250	Momentary, Right	60°	1	⊙
5-1437614-6	RM204	Maintained	120°	1	⊗
5-1437614-7	RM205	Maintained	120°	1	⊗
1437614-1	E1	Spare Key			⊗

Note: Front beveled frame is black.



RM4040



RM3040



RM200/201 with 2 keys

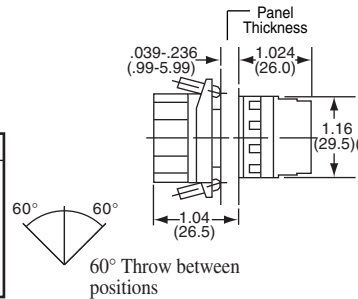
3 POSITION SELECTORS

Short Handle, Metal Bushings

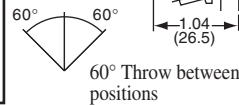
Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Action	CAM	Tyco Electronics	Alcoswitch	Action	CAM
7-1437614-1	RM3100	Maintained, Black	2	7-1437614-4	RM3700	Momentary, Right Side, Black	2
7-1437614-2	RM3120	Maintained, Black	3	7-1437614-5	RM3800	Double Momentary, Black	2
7-1437614-3	RM3130	Maintained, Black	4	7-1437614-6	RM3830	Double Momentary, Black	4

Note: Front beveled frame is black.



RM3100



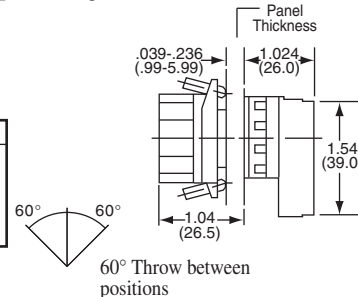
60° Throw between positions

Long Handle, Metal Bushings

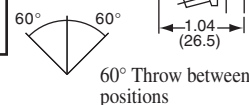
Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Action	CAM	Tyco Electronics	Alcoswitch	Action	CAM
7-1437614-8	RM4100	Maintained	2	—	RM4700	Momentary, Right Side	2
—	RM4120	Maintained	3	7-1437614-9	RM4800	Double Momentary	2
—	RM4130	Maintained	4				

Note: Front beveled frame is black.

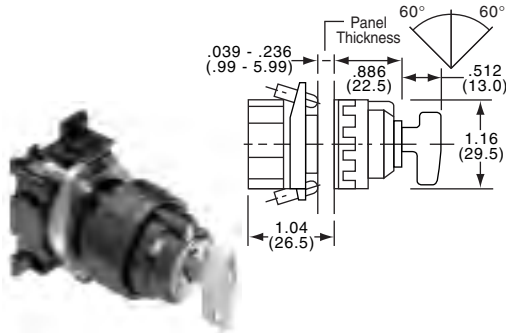


RM4100



60° Throw between positions

Keylock or Pushbutton Switches, 22mm, Oil-Tight or Pilot Lights



Supplied with 2 keys

3 POSITION KEYLOCK SELECTOR MAINTAINED OR MOMENTARY

Metal Bushings

Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Action	CAM	Remove Key	Tyco Electronics	Alcoswitch	Action	CAM	Remove Key
5-1437614-8	RM210	Maintained	2	⊙	6-1437614-4	RM243	Maintained	4	⊙
5-1437614-9	RM220	Maintained	2	⊙	6-1437614-6	RM270	Mom. Right Side	2	⊙
6-1437614-0	RM222	Maintained	3	⊙	6-1437614-7	RM272	Mom. Right Side	3	⊙
6-1437614-1	RM230	Maintained	2	⊙	6-1437614-8	RM273	Mom. Right Side	4	⊙
6-1437614-2	RM232	Maintained	3	⊙	6-1437614-9	RM280	Mom. Both Sides	2	⊙
6-1437614-3	RM233	Maintained	4	⊙	1437614-1	E1	Spare Key		⊙
—	RM240	Maintained	2	⊙					

Note: Front beveled frame is black.

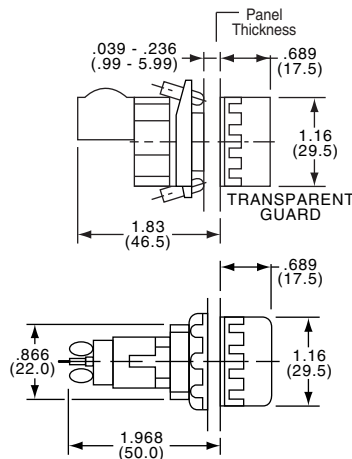


QM600
(RM600)

Metal Bushing



SR601
Threaded
Thermoplastic
Bushing Front lampable



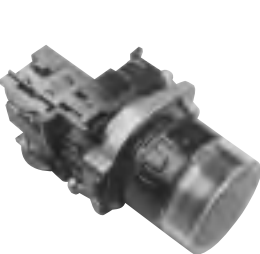
PILOT LIGHTS (FULL VOLTAGE TYPE)

Lamps: order separately, miniature bayonet base. (See page I15.)

Lamps: use G3 1/2 on QM600(*), use T3 1/4 on SR601(*), RM600(*). Custom legends available.

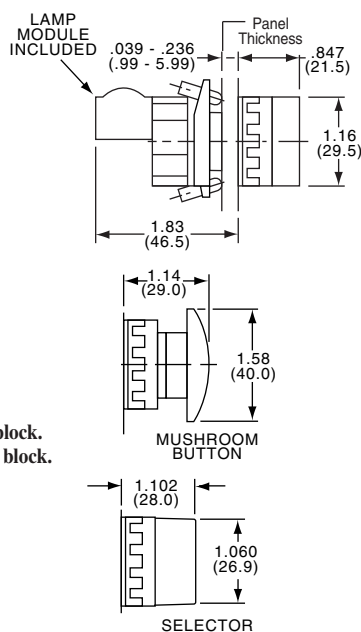
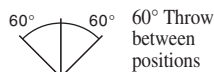
Model	Type
QM600(*)	Square pilot light, metal bushing
SR601(*)	Round pilot light, plastic bushing screw turn
RM600(*)	Round pilot light, metal bushing

(*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.



RM120(*)

Application Note:
+V40/F40 used for N.C contact block.
+VA0/FA0 used for N.O. contact block.



ILLUMINATED/ROUND MOMENTARY/MAINTAINED

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Lamp circuit isolated. Order lamp separately. (See page I15.)

Lamps: Use T-3 1/4 or G3 1/2 incandescent or neon lamps.

Tyco Electronics	Alcoswitch	Action	Type	Cam Type
—	RM120(*)	Momentary	Extended Button	
—	RM122(*)	Momentary	Guarded Button	
—	+RM130(*)	Maintained	Flush Button	} Push-On - Push-Off See Application Note
—	+RM145(*)	Maintained	Mushroom	
—	RM150(*)	Momentary	Mushroom	
5-1437614-3	RM1652	Twist Release	Mushroom, Red	
Illuminated Selectors				
—	RM650(*)	Maintained	2-Pos. Selector**1	
—	RM653(*)	Maintained	3-Pos. Selector**2	

When operating from line voltage use step down transformers 5BO or 570. (See page I15.)

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: RM145 and RM150 available only in red, yellow, green.

**Use G3 1/2 lamps only.

Note: Front beveled frame is black.

Pushbutton Switches, 22mm, Oil-Tight, Round or Square Buttons

SQUARE, MOMENTARY ILLUMINATED

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Lamp circuit isolated. Order lamps separately.

Lamps: Use G3 1/2. (See page I15.)

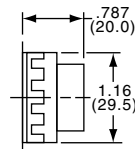
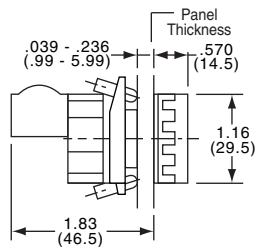
Custom legends available.

Model	Type
QM122(*)	Flush Button
QM120(*)	Extended Button

When operating from line voltage use step down transformers 5B0 or 570. (See page I15.)

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: Front beveled frame is black.



QM122(*)



QM120(*)

ROUND, MOMENTARY ILLUMINATED

Thermoplastic

Contact blocks not supplied, order separately. (See page I8.)

Lamp circuit isolated. Order lamps separately. (See page I15.)

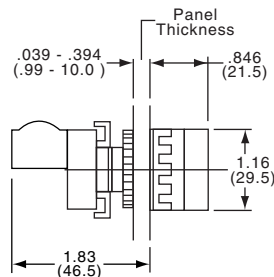
Lamps: use T-3 1/4 or G3 1/2 incandescent or neon lamps.

Model	Action	Type
RT120(*)	Momentary	Extended Button

When operating from line voltage use step down transformers 5B0 or 570. (See page I15.)

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: Front beveled frame is black.



RT120(*)

Standard Contact Blocks

An almost unlimited number of circuit control options are possible using various combinations of contact blocks. 8 different "V" or "F" family modular blocks may be used with any operator in the Reliant 22, 2200 or 6000 series, depending on circuit requirements and operator design. The exclusive SNAP-BLOC design permits assembly without the use of tools – no screws or hardware to get lost. Choose either screw terminals or dual

male .110"/.250" quick connect terminals. Plunger color indicates closure mode. The double break silver contacts are enclosed in a tough transparent polycarbonate housing, permitting visual inspection of contacts. Designed-in rocking action for long, reliable life; over several million operations in normal use. Operating temperature range: -25°C to +60°C. Storage temp. -40°C to +80°C.

Application Notes

1. A total of 4 (2 upper and 2 lower) contact blocks may be stacked and snap-mounted in either the upper and/or lower position on the back on any Reliant 22, Series 4000 or 6000 operator.
2. In order to maintain optimum insulating distances when contact blocks are stacked, wiring connections should be in same polarity for operation above 300VAC.
3. Blocks may be prewired and snapped into place for easier assembly.
4. Remove blocks by simply prying tabs. Small screwdriver is all that is necessary.

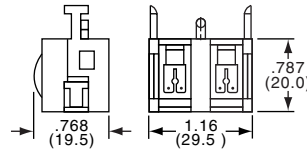
F&V Contact blocks are UL recognized. File Number E-60363
CSA LR-20785-19 CE MARK

ELECTRICAL CONTACT RATINGS

Condition	Function	Standard Series (600 VAC Max.)		
		120V	300V	600V
AC Operation	Inductive Loads	Make	30A	12A
		Continuous	6A	6A
	.350 P.F. min.	Break	3A	1.2A
Resistive Loads	Make, Continuous	6A	6A	0.6A
	.750 P.F. min.	Carry & Break		
DC Operation	Inductive &	Make	1.1A	
	Resistive	Continuous Carry	6A	6A
	Loads	Break	1.1A	



F Series



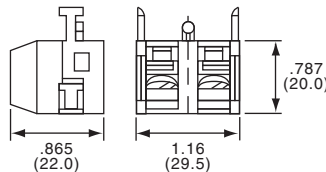
QUICK CONNECT

Tyco Electronics	Alcoswitch	Contacts	Plunger Color
1437612-9	F40	Normally Closed	Red
1-1437612-0	F50	Normally Open	Green
1-1437612-1	FA0	N.O. Early Make	Yellow
1-1437612-2	FR0	N.C. Late Break	Black

Note: FA0 and FR0 contacts "overlap."



V Series



SCREW TERMINAL

Tyco Electronics	Alcoswitch	Contacts	Plunger Color
1-1437612-3	V40	Normally Closed	Red
1-1437612-5	V50	Normally Open	Green
1-1437612-8	VA0	N.O. Early Make	Yellow
1-1437612-9	VR0	N.C. Late Break	Black

Note: "V" Series is available with gold plated contacts; order V40G, V50G, VA0G, VR0G. Note: VAO and VRO contacts "overlap."

Series 6000 and Reliant'22 Contact Selection

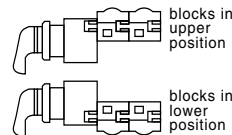
- Determine how many contacts are required for the application, and what contact closure sequence is needed for each contact.
 - 2-Position Operators: There are only two practical possibilities for contact closure sequence. Using "O" to indicate an open and "X" to indicate a closed contact, the options are shown in the table to the right. All Reliant 22 and Series 6000 2-position selection selector and keylock operators provide these options.
 - 3-Position Operators: There are six practical possibilities for contact closure sequence. Using "O" to indicate an open contact, and "X" to indicate a closed contact, the options are shown in the table to the right. Four different cam types are available to provide various combinations of contact closure sequence. Cam Type 2 (see table below) provides the most popular closure sequence, and Cam Type 3 provides all six possibilities, depending on the contact block models chosen. Note that each operator has an upper and lower contact block location, and that the cam profiles are different for upper and lower locations, except for Cam Type 2.
- Make a truth table similar to that shown in the example at the bottom of the page, in which each contact required by the circuit of the application is represented. Up to 12 contacts may be used for each operator, depending on the sequences required and the types of contact blocks chosen.
- Refer to the contact sequence table (below). Find the cam type that will provide all of the required contact closure sequences, and note which contact block model will be needed for each circuit contact.
- Now refer to the tables on pages I5-I6 for 22mm and pages I12-I13 for 30mm to find the operator model that has the cam type needed in the application and that provides the desired features with respect to action (maintained or momentary) type of actuator (lever or key), etc.

2 Position Operators	
0	1
left	right
O	X
X	O

3 Position Operators		
2	0	1
left	center	right
O	O	X
X	O	O
O	X	X
X	X	O
O	X	O
X	O	X

SELECTOR & KEYLOCK OPERATORS

ALCOSWITCH selector and keylock operators, in combination with the contact blocks listed on page I8, are designed to fulfill the circuit requirements of almost any 2- or 3-position control application. Each operator has two locations (upper and lower) into which contact blocks may be snap-mounted. Up to four contact blocks may be stacked in each location, the maximum number depending on the contact block models chosen and the contact closure sequences required. (Note: only one logic level block may be used in each location.)



CONTACT CLOSURE SEQUENCE CHART

Contact Blocks		2-Position Operators		3-Position Operators									
Model	CAM Type 1 upper & lower locations	CAM Type 2				CAM Type 3				CAM Type 4			
		upper location		lower location		upper location		lower location		upper location		lower location	
	0 1	2 0 1	2 0 1			2 0 1	2 0 1			2 0 1	2 0 1		
V40 or F40 Red	X 0	X 0 0	X 0 0			X 0 0	0 X 0			0 X X	X X 0		
V50 or F50 Green	0 X	0 0 X	0 0 X			0 0 X	0 0 X			X 0 0	0 0 X		
VA0 or FA0 Yellow	0 X*	0 X X	0 X X			0 X X	X 0 X			X 0 0	0 0 X		
VR0 or FR0 Black	X 0*	X X 0	X X 0			X X 0	X X 0			0 X X	X X 0		

X = Closed 0 = Open

*VA0 and FA0 contacts overlap with VR0 and FR0 contacts between position of 2 position operators providing "Make Before Break" action.

Example: An "Off-On-Reset" circuit control requires a 3-position or 2-position keylock switch. The key is to be removable in the "OFF" and "ON" position and the "Reset" position must be momentary (spring return from right to center). All contacts are open in the "Off" position, and two contacts are closed in the "On" position. In the "Reset" position a third contact must close and one of the contacts

in the "on" position must open. This contact closure sequence is shown by the following truth table:

Contact Number	Off (2)	On (0)	Reset (1)
1	O	X	X
2	O	X	O
3	O	O	X

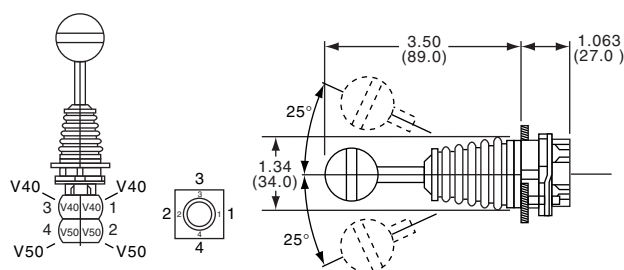
Referring to the Contact Closure Sequence Table, it is seen that cam Type 3 provides these sequences. In addition, the contact block models that should be used are given; model VA0 (or FA0) for contact No. 1, to be installed in the upper contact block location; model V40 (or F40) for contact No. 2, to be installed in the lower

contact block location; and model V50 (or F50) for contact No. 3, which may be used in either the upper or lower contact block location, behind one of the other two blocks. Reference to the operator model listings shows that model RM272 provides cam Type 3 and has desired momentary action and key removability.

Joystick, 22mm



M25310



5 POSITION JOYSTICK (4 Action + Center-Off)

Metal Bushing

Maintained or momentary models, inherent design requires use of N.O. and N.C. contact blocks. Supplied with legend plate, and black knob. Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Description					
1437609-2	M25310	Momentary, 3 Position	—	(ON)	OFF	(ON)	—
1437609-3	M25500	Maintained, 5 Position	ON	ON	OFF	ON	ON
1437609-4	M25510	Momentary, 5 Position	(ON)	(ON)	OFF	(ON)	(ON)

(ON) indicates momentary position

Note: All positions are mutually exclusive and action must pass through neutral for all changes of operator level.

CONTACT ARRANGEMENT

Contact blocks should be placed as shown. All contacts are held open in neutral position. Each numbered contact closed when activated. M25310 operators require one N.O. and one N.C. contact block, and M25500 and M25510 require two N.O. and two N.C. blocks.

Pushbutton Switches, 30mm, Round or Mushroom Buttons

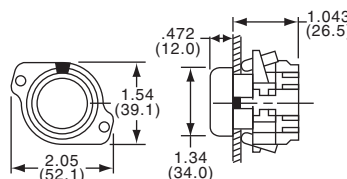
FLUSH GUARD MOMENTARY

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Model	Special Details
M6010(*)	Momentary

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



M6010(*)

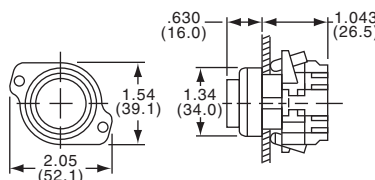
EXTENDED BUTTON MOMENTARY

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Model	Special Details
M6020(*)	Momentary

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



M6020(*)

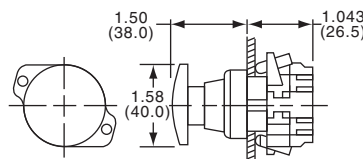
MUSHROOM HEAD MOMENTARY PUSH MAINTAINED

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Special Details	Color
—	M6057(*)	Momentary	(*)
1437610-6	M60532	Push-Pull	Red
1-1437610-3	M60652	Push-Lock/Twist To Release	Red

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.



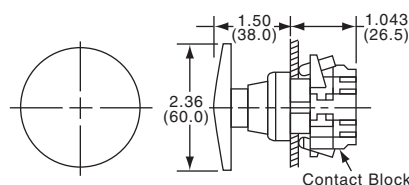
M6057(*)

LARGE MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.)

Tyco Electronics	Alcoswitch	Special Details	Color
1-1437610-2	M60582	Momentary	Red



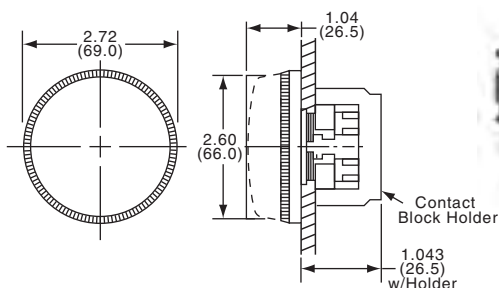
M60582

LARGE GUARDED MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing. Heavy duty metal bushing and guard.
Contact blocks not supplied, order separately. (See page I8.)

Model	Special Details
M6080(*)	Momentary

(*) Specify color by adding suffix number: (0) Black, (2) Red, (5) Green.

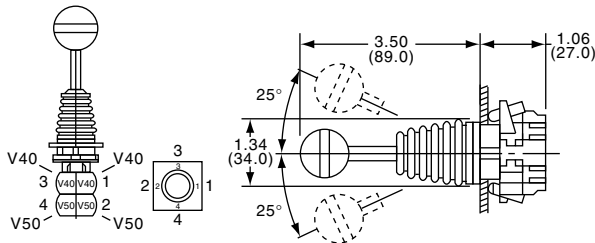


M6080(*)

Selector Switches or Joysticks, 30mm



M65510



5-POSITION JOYSTICK (4 Active & Center-Off)

Metal Bushing

Maintained or momentary model with or without mechanical latch. Inherent design requires use of N.O. and N.C. Contact blocks not supplied, order separately. (See page I8.) Supplied with legend plate (1-2-3-4), black knob.

CONTACT ARRANGEMENT

Contact blocks should be placed as shown. All contacts are held open in neutral position. Each number contact closed when activated. Model M65310 has only two active positions, requires one N.O. and one N.C. contact block.

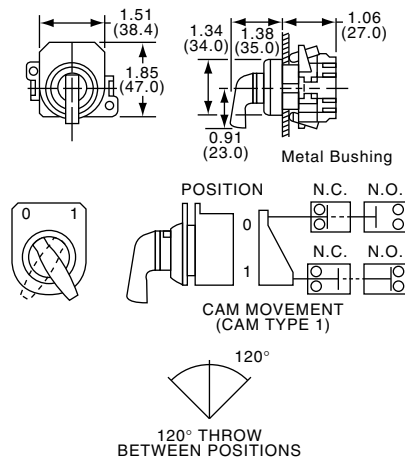
Note: All positions are mutually exclusive and action must pass through neutral for all changes of operator level.

Tyco Electronics	Alcoswitch	Action					
3-1437610-5	M65310	Momentary, No Latch	(On)	Off	(On)		
—	M65500	Maintained, No Latch	On	On	Off	On	On
3-1437610-6	M65510	Momentary, No Latch	(On)	(On)	Off	(On)	(On)
3-1437610-7	M65810	Momentary w/Latch	(On)	(On)	Off	(On)	(On)

(On) indicates momentary position.



M6402(*)



2-POSITION SELECTOR MAINTAINED

Metal Bushing

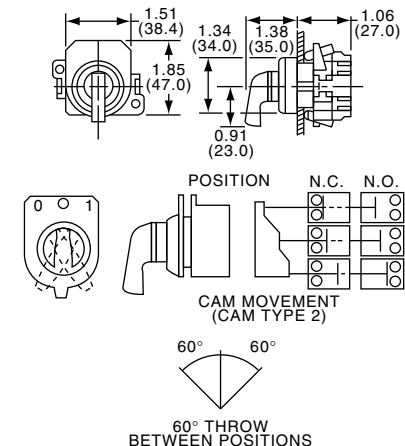
Contact blocks not supplied, order separately. (See page I8.) Legend plant included.

Model	Action	Lever	Position Number
M6402(*)	Maintained	Long	0 1

(*) Specify color by adding suffix number: (0) Black, (2) Red.



M6412(*)



3-POSITION SELECTOR MAINTAINED OR MOMENTARY

Metal Bushing

Contact blocks not supplied, order separately. (See page I8.) Legend plate included.

Model	Action	Lever	Cam	Position Number
M6410(*)	Maintained	Long	2	2 0 1
M6412(*)	Maintained	Long	3	2 0 1
M6470(*)	Mom. 1 Side	Long	2	2 0 ← 1
M6480(*)	Mom. 2 Sides	Long	2	2 → 0 ← 1

Indicates momentary return position

(*) Specify color by adding suffix number: (0) Black, (2) Red.

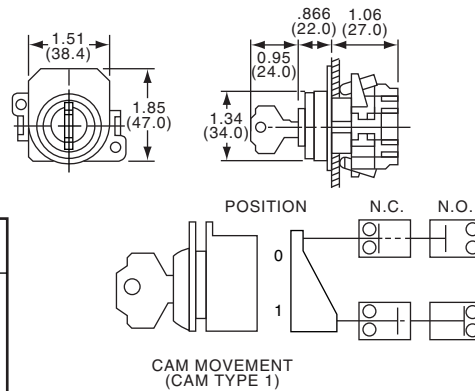
Keylock or Pushbutton Switches, 30mm

2 POSITION KEY SELECTOR MAINTAINED OR MOMENTARY

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page I8)

Tyco Electronics	Alcoswitch	Action	Cam	Position Number	Throw	Remove Key
2-1437610-2	M6200	Maintained	1	0 1	60°	⊙
2-1437610-3	M6201	Maintained	1	0 1	60°	⊗
2-1437610-6	M6250	Momentary	1	0 ← 1	60°	⊙
1437617-1	G001	Additional Keys				

← Indicates momentary return position

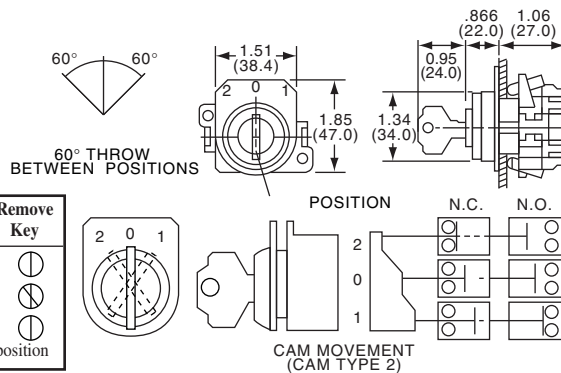


3 POSITION KEY SELECTOR MAINTAINED OR MOMENTARY

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page I8.)

Tyco Electronics	Alcoswitch	Action	Cam	Position Number	Remove Key
2-1437610-5	M6210	Maintained	2	2 0 1	⊙
2-1437610-7	M6270	Mom. 1 Side	2	2 0 ← 1	⊗
2-1437610-8	M6280	Mom. 2 Sides	2	2 → 0 ← 1	⊙
1437617-1	G001	Additional Keys			

← Indicates momentary return position

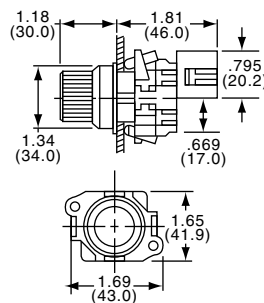


ILLUMINATED EXTENDED BUTTON MOMENTARY

Metal Bushing
Lamp not supplied, order separately. (See page I15.) Uses T31/4 miniature bayonet base lamps. Lamp circuit is isolated. Contact blocks not supplied, order separately. (See page I8)

Model	Special Details
M6120(*)406	Momentary

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.

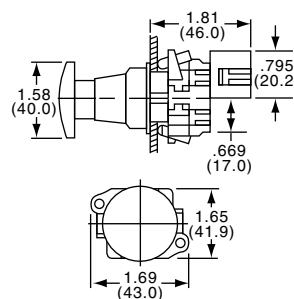


ILLUMINATED MUSHROOM MAINTAINED OR MOMENTARY

Metal Bushing
Lamp not supplied, order separately. (See page I15.)
Uses miniature bayonet base lamps. Lamp circuit is isolated.
Contact block not supplied, order separately. (See page I8.)

Model	Special Details
M6150(*)406	Momentary
M6153(*)406	Maintained, Push-Pull

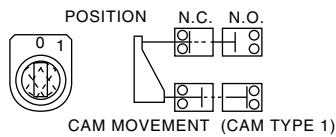
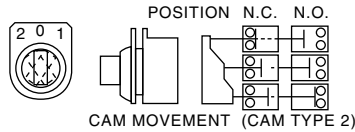
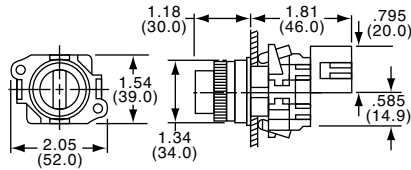
(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.



Selector Switches, 30mm, Illuminated



M6650(*)06



ILLUMINATED MAINTAINED SELECTOR

Metal Bushing

Lamp not supplied, order separately. (See page I15.)

G31/2 lamps. Lamp circuit is isolated. Contact blocks not supplied, order separately. (See page I8.)

Model	Number Position	Action	Position Number
M6653(*)406	3	Maintained	2 0 1
M6650(*)406	2	Maintained	0 1

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green.

Model	Action	2-Position Operator			3-Position Operator		
V40 or F40	N.C.	O	1	1	O	2	
V50 or F50	N.O.	X	O	X	O	O	
VA0 or FA0	N.O. Early	O	X	O	X	X	
VR0 or FR0	N.C. Make	X	O	X	X	O	
	N.C. Break						

O=Open
X = Closed

KEY TO SELECTION OF CONTACT BLOCKS

Contact closure variations depend on the contact block models chosen. For these operators listed use this table for guidance in selecting blocks.

Lamps/Transformers

LAMPS

The lamps with G31/2 bulbs fit all Reliant 22, Series 6000 illuminated operators and pilot lights. Lamps with T31/4 Bayonet Base fit all Reliant 22 and Series 6000 illuminated models (except QM120, QM122, and M6650, and M6655).

Tyco Electronics	Alcoswitch	Bulb	Rated Volts	Design Amps	MSCP	Average Rated Hours
1-1437620-5	755	T31/4	6.3	.15	.33	20,000
1-1437620-6	757	T31/4	28	.08	.62	7,500

*Not recommended for use with green or blue lenses.



NE51HR

755

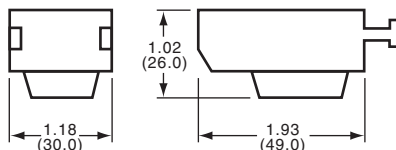
Application Note: For additional specifications, see page K10

STEP-DOWN TRANSFORMERS

AC LINE TO 6V/6.3V

Snap mount on lighted operators and QM600, T6632 and RM600 pilot lights. Spade tipped leads connect to lamp terminals on operator. Screw terminals on primary. Use 6-6.3V lamps. 0-9 to 1.35 watts. Secondary winding is energy-limited.

Tyco Electronics	Alcoswitch	Primary Voltage
1437612-8	5B0	110-120 VAC
1437612-7	570	220-240 VAC



U.L.
Recognized

5B0

Panel Layouts

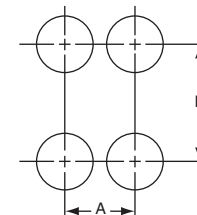
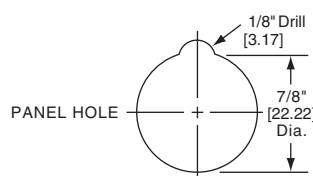
RELIANT 22 MINIATURE MODELS

Recommended hole mounting dimensions*

Minimum Center-To-Center Spacing
Inches/(mm)

Operator Type	A	B
Pushbuttons, Pilots	1.19/30.2	1.66/42.2
Mushroom, Selector	1.50/37.8	1.66/42.2
Others	1.94/49.3	1.94/49.3

*Check dimensions for layouts using legend plates.



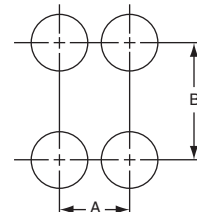
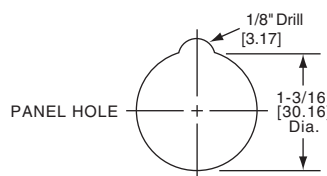
SERIES 6000 STANDARD MODELS

Recommended hole mounting dimensions*

Minimum Center-To-Center Spacing
Inches/(mm)

Operator Type	A	B
Pushbuttons, Pilots	1.88/47.8	1.97/50.0
Mushroom, Selector	2.25/57.2	2.25/57.2
Large Mushroom	3.00/76.2	3.00/76.2

*Check dimensions for layouts using legend plates.



Pushbutton Switches, 16mm, Illuminated

FEATURES:

Command Series Illuminated Pushbuttons are instrument-grade switches having snap-acting double break contacts, silver clad and gold plated to satisfy the requirements of logic level and power switching. **Contacts are electrically independent of one another and are isolated from the lamp circuit.** Tactile feel is excellent and maintained models have latching feature for visible indication of status. Uses T1-3/4 midget flanged base lamp, relampable from front of panel. Legends may be provided using printed transparent tape affixed to inner button. UL Recognized, File E-51302, CSA LR-20479

Note: Recommended panel thickness 4mm max.

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
5 A @ 250 VAC or 24 VDC (Resistive)
Initial Contact Resistance20 Milliohms max.
Insulation Resistance100 Megohms min.
Dielectric Strength1,500 VAC
Life Expectancy100,000 Operations @ rated current

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)
OiltightIP65, NEMA 1, 12 & 13
Non-oiltight.....IP40

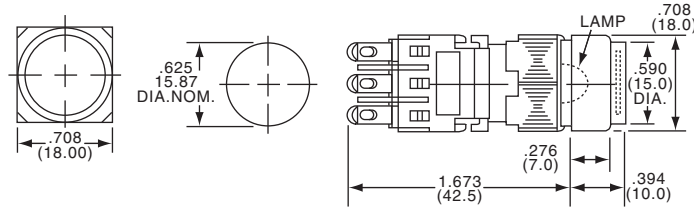
ROUND

Lens set and lamps not supplied.



164EL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
1437569-2	164EL11	4-1437569-2	165EL11	1 N.O. & N.C.	Momentary
1437569-3	164EL22	4-1437569-3	165EL22	2 N.O. & N.C.	Momentary
—	164EL33	—	165EL33	3 N.O. & N.C.	Momentary
1437569-5	164EL511	4-1437569-4	165EL511	1 N.O. & N.C.	Push on/Push off
1437569-6	164EL522	4-1437569-5	165EL522	2 N.O. & N.C.	Push on/Push off
1437569-7	164EL533	—	165EL533	3 N.O. & N.C.	Push on/Push off

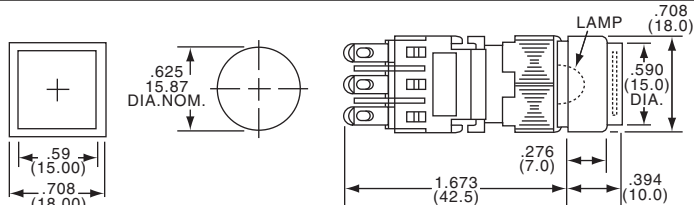
SQUARE

Lens set and lamps not supplied.



164SL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
2-1437569-5	164SL11	4-1437569-9	165SL11	1 N.O. & N.C.	Momentary
2-1437569-6	164SL22	5-1437569-0	165SL22	2 N.O. & N.C.	Momentary
2-1437569-7	164SL33	—	165SL33	3 N.O. & N.C.	Momentary
2-1437569-9	164SL511	5-1437569-1	165SL511	1 N.O. & N.C.	Push on/Push off
3-1437569-0	164SL522	5-1437569-2	165SL522	2 N.O. & N.C.	Push on/Push off
3-1437569-1	164SL533	—	165SL533	3 N.O. & N.C.	Push on/Push off

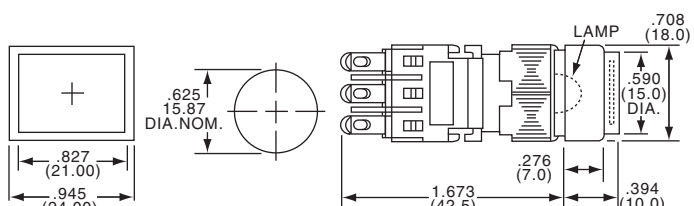
RECTANGULAR

Lens set and lamps not supplied.



164TL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
3-1437569-4	164TL11	5-1437569-4	165TL11	1 N.O. & N.C.	Momentary
3-1437569-5	164TL22	5-1437569-5	165TL22	2 N.O. & N.C.	Momentary
3-1437569-6	164TL33	—	165TL33	3 N.O. & N.C.	Momentary
3-1437569-8	164TL511	5-1437569-6	165TL511	1 N.O. & N.C.	Push on/Push off
3-1437569-9	164TL522	5-1437569-7	165TL522	2 N.O. & N.C.	Push on/Push off
4-1437569-0	164TL533	5-1437569-8	165TL533	3 N.O. & N.C.	Push on/Push off

Selector or Keylock Switches, 16mm

FEATURES:

Command Series Selector & Keylock Switches are 2 & 3-position rotary types with snap-acting double break contacts. All models have 90° throw. Contacts are silver-clad and gold-plated to provide reliable operation at logic levels as well as for power switching applications. Contacts are electrically isolated from one another. Keylock types are supplied with two keys. Oiltight models meet NEMA 1, 12 & 13 requirements.

UL Recognized File E-51302

CSA LR-20479

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

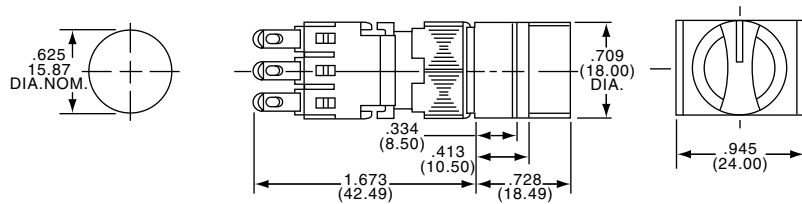
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
5 A @ 250 VAC or 24 VDC (Resistive)
Initial Contact Resistance20 Milliohms max.
Insulation Resistance100 Megohms min.
Dielectric Strength1,500 VAC
Life Expectancy100,000 Operations at rated current

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)

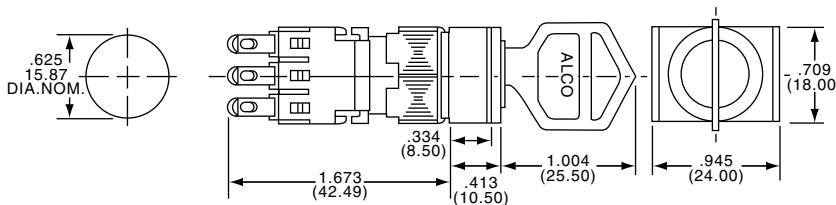
SELECTORS



164P2B11

Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
2-1437569-0	164P2B11	4-1437569-8	165P2B11	1N.O. & N.C.	2 Pos. Maintained
2-1437569-1	164P2B22	—	165P2B22	2N.O. & N.C.	2 Pos. Maintained
—	164P2B33	—	165P2B33	3N.O. & N.C.	2 Pos. Maintained
1-1437569-9	164P0B22	—	—	2N.O. & N.C.	2 Pos. Momentary Right
—	164P0B33	—	—	3N.O. & N.C.	2 Pos. Momentary Right
2-1437569-2	164P3B22	—	165P3B22	2N.O. & N.C.	3 Pos. Center Off/Maintained
2-1437569-3	164P3B33	—	165P3B33	3N.O. & N.C.	3 Pos. Center Off

KEYLOCKS



164J2A11

2 Position Keylocks						3 Position Keylocks					
Non-Oiltight		Oiltight		Contact	Action	Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
1-1437569-1	164J2A11	4-1437569-7	165J2A11	1N.O. & N.C.	Maintained, key pull left	—	164J3A22	—	165J3A22	2N.O. & N.C.	Maintained, key pull left
1-1437569-2	164J2A22	—	165J2A22	2N.O. & N.C.	Maintained, key pull left	1-1437569-5	164J3A33	—	165J3A33	3N.O. & N.C.	Maintained, key pull left
—	164J2A33	—	165J2A33	3N.O. & N.C.	Maintained, key pull left	—	164J3E22	—	165J3E22	2N.O. & N.C.	Maintained, key pull center
1-1437569-3	164J2B11	—	165J2B11	1N.O. & N.C.	Maintained, key pull both	—	164J3E33	—	165J3E33	3N.O. & N.C.	Maintained, key pull center
1-1437569-4	164J2B22	—	165J2B22	2N.O. & N.C.	Maintained, key pull both	1-1437569-6	164J3C22	—	165J3C22	2N.O. & N.C.	Maintained, key pull all
—	164J2B33	—	165J2B33	3N.O. & N.C.	Maintained, key pull both	—	164J3C33	—	165J3C33	3N.O. & N.C.	Maintained, key pull all
1437569-9	164J0A11	—	—	1N.O. & N.C.	Momentary right, key pull left	—	164J7A22	—	165J7A22	2N.O. & N.C.	Momentary right, key pull left
1-1437569-0	164J0A22	—	—	2N.O. & N.C.	Momentary right, key pull left	1-1437569-8	164KA	—	—	—	Spare Keys
—	164J0A33	—	—	3N.O. & N.C.	Momentary right, key pull left	—	—	—	—	—	—

Pilot Light Indicators or Lens Sets, 16mm

FEATURES

Command Series Pilot Light Indicators match the appearance of both lighted and unlighted Command Series pushbuttons. The same lens buttons are snapped into place and legends may be easily inserted. Illumination is from T - 1 3/4 midget flange based lamps, which are installed from the front panel. Lenses and lamps are ordered separately. Oiltight models meet NEMA 1, 12 & 13 requirements. UL File No. E-51302
CSA LR-20479

TYPICAL PERFORMANCE CHARACTERISTICS:

LAMP DISSIPATION 1.2W MAX.
Insulation Resistance100 Megohms min.
Dielectric Strength1,500 VAC

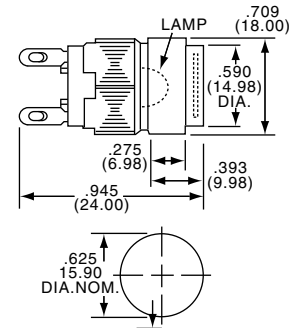
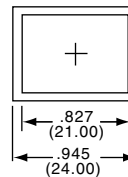
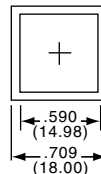
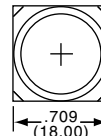
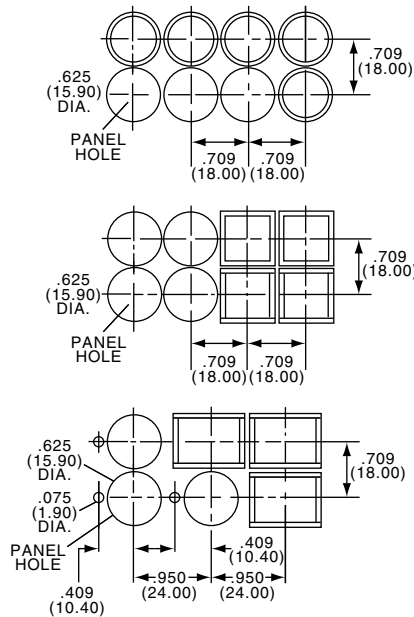
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

PILOT LIGHT INDICATORS



164EZ



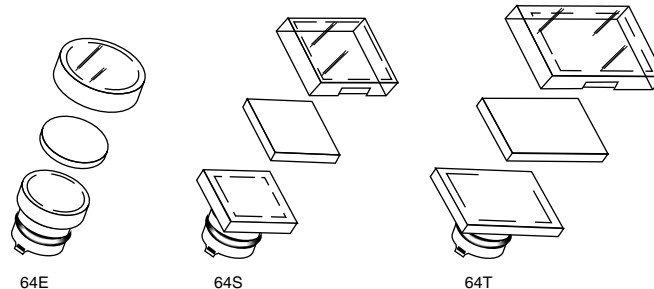
Non-Oiltight		Oiltight		Description
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	
1437569-8	164EZ	—	165EZ	Round
3-1437569-2	164SZ	—	165SZ	Square
4-1437569-1	164TZ	—	165TZ	Rectangular

Lens set and lamp not supplied,
order separately, see below.
U.L. Recognized E-51302

LENS SET



64E



Model	Description
64E(*)	Round lens set
64S(*)	Square lens set
64T(*)	Rectangular lens set
All fit oiltight and non-oiltight indicators.	
(*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White/Clear.	

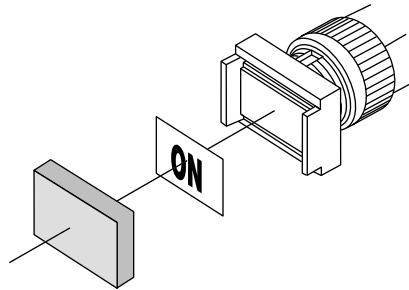
Application Note:
Lens sets include, button, diffuser and cap.

Accessories and Tools, 16mm

FEATURES:

Standard Legends on Transparent Adhesive Tape are available for Illuminated Command Series switches and pilot lights. Legends are easily affixed to the translucent white button and are protected by the lens cap. The black lettering is back-lit by the lamp and the inscription is visible through the lens cap. This method of providing legends is also suitable in some applications using non-illuminated white (clear), yellow or orange lens caps.

Standard legends, listed below, are intended to be used with round, square or rectangular pushbuttons and pilot lights. Sold only in sheets of 10 identical legends.



Tyco Electronics	Alcoswitch	
6-1437569-3	616	On
6-1437569-2	616	Off

Note: Model numbers must include complete legend nomenclature.

LEGEND MODEL NUMBERS



Legend (film)

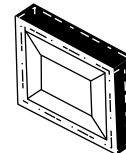
Accessories

MOUNTING WRENCH

Sturdy tubular brass wrench fits mounting nuts on all Command Series switches.



Tyco Electronics	Alcoswitch
6-1437569-0	601-AG



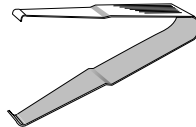
SPLASH PROOF SEAL

Flexible clear seal fits all rectangular pushbuttons and pilot lights.

Tyco Electronics	Alcoswitch
9-1437569-2	668

LENS REMOVER

Dual purpose metal tool facilitates removal of lenses, buttons.

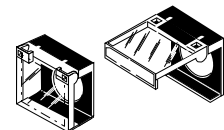


Tyco Electronics	Alcoswitch
6-1437569-9	618-AG

FLIP COVER SWITCH GUARD

669 used with rectangular series pushbutton switches.
671 used with square and round series pushbutton switches.

Tyco Electronics	Alcoswitch
9-1437569-4	669 Rectangular
9-1437569-3	671-AG Square and Round

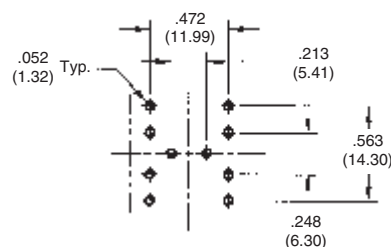
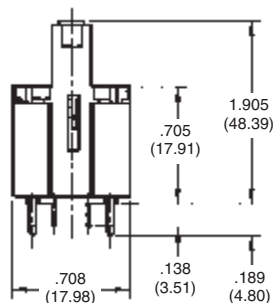


Socket for 16mm Command Series Switches

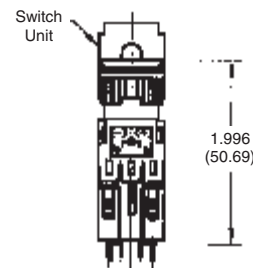
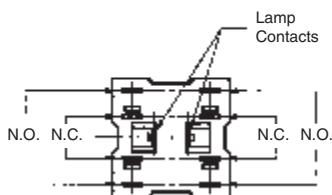
697-PL



9-1437569-5



Recommended PCB Footprint



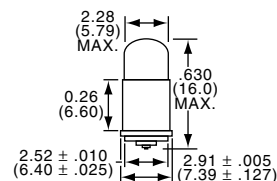
T1 3/4 Series Midget Incandescent Lamps

Average Life ratings indicate the lamp life obtained in controlled laboratory conditions while operating lamps at the design voltage (AC) (DC will shorten life by 50%). The life of a subminiature lamp is inversely proportional to the 12th power of the applied voltage.

ALCOSWITCH subminiature lamps are a "T" class, meaning that the envelopes are made of glass tubing, the "T" number indicating the diameter of the tubing in eighths of an inch.

Tyco Electronics	Alcoswitch	Rated Volts	Design Amps	Rated MSCP	Average Rated Hours
9-1437620-6	7333	5.0	.060	.05	40,000
1-1437620-8	815-AG	—	.115	.147	40,000
1437620-7	381-AG	6.3	.20	.40	50,000
1437620-8	382-AG	14.0	.08	.30	50,000
1437620-9	385	28.0	.04	.20	50,000
1-1437620-1	387	28.0	.04	.30	25,000
1437620-5	327-AG	28.0	.04	.34	7,000

FLANGE BASE- T1 3/4





SH6 Series - Page J3



PICOD Series - Page J4

Pushwheel

J

Pushwheel Switches

Pushwheel Switches Part Number Index

B11LS	J9,J10	SMCADP	J9
B12L	J11	SMCD	J4,J6,J8
B12LS	J11	SMCD111AK	J9
B5L	J7	SMCD131AK	J9
B5LS	J7,J8	SMCD131AKLS	J9
B9L	J9,J10	SMCD131ALD	J9
B9LS	J9,J10	SMCD137AK	J9
B9LS5PIN	J9	SMCD301AK	J9
DPS	J6	SMCL	J9
DPS10	J5,J11	SMCPK	J9
DPS10111AK	J11	SP1.2	J9, J10
DPS10131AK	J11	SP1.5	J11
DPS10131ALD	J11		
DPS10137AK	J11		
DPS10141AK	J11		
DPS10301AK	J11		
DPS10L	J11		
DPS8	J5,J10		
DPS8111AK	J10		
DPS8131AK	J10		
DPS8131AKLS	J10		
DPS8131AKULS	J10		
DPS8131ALD	J10		
DPS8137AK	J10		
DPS8137AKLS	J10		
DPS8137AKU	J10		
DPS8137AKULS	J10		
DPS8301AK	J10		
DPS8301AKULS	J10		
DPS8A	J10		
DPS8L	J10		
DPS8P	J10		
DPS8PW	J10		
DPS9	J5,J11		
DPS910A	J11		
DPS910P	J11		
DPS9111AK	J11		
DPS9131AK	J11		
DPS9131AL	J11		
DPS9131ALD	J11		
DPS9137AK	J11		
DPS9301AK	J11		
DPS9307AK	J11		
DPS9L	J11		
PICOA	J7		
PICOADP	J7		
PICOBG	J7		
PICOD	J4,J6,J8		
PICOD111AL	J7		
PICOD131AK	J7		
PICOD131ALD	J7		
PICOD131ALULS	J7,J8		
PICOD137AK	J7		
PICOD137ALULS	J7,J8		
PICOD301AK	J7		
PICOD301ALD	J7		
PICOD301ALULS	J7,J8		
PICOP	J7		
SH131AK	J6		
SH6	J4,J6		
SH6131AK	J6		
SH6131AKK2	J6		
SMCA	J9		

Order Description and Code Tables (Wiring Diagram)

DPS10 - 131 - AK

Series/types	Codes	Connections
SH6	111 = Decimal	AK = pcb short
PICOD	131 = BCD	AL = pcb long
SMCD	137 = BCD Complement	LS = solder pin
DPS8	141 = BCD + Complement	AL/D = pcb long, interrupted
DPS9	301 = Hexadecimal	AKU = pcb long downward
DPS10	307 = Hexa. Complement	ALU = pcb long downward
	400 = Switch-over	

FACTORY ASSEMBLED GROUP

Special type numbers will be assigned for customers requiring delivery of assembled groups of code switches. These will be pre-tested, identified and individually packaged. Consult factory for details.

CUSTOM SWITCHES

Contact factory for information concerning the feasibility, pricing and delivery of special switches, including non-standard codes, limit stopping, special markings, PC terminals and optional colors.

Code tables (wiring diagram)

Code 131

BCD				
	C	1	2	4 8
0	•			
1	•	•		
2	•		•	
3	•	•	•	
4	•			•
5	•	•		
6	•		•	•
7	•	•	•	
8	•			•
9	•	•		•

Code 137

BCD Complement				
	C	1	2	4 8
0	•	•	•	•
1	•	•	•	•
2	•	•	•	•
3	•	•	•	•
4	•	•	•	•
5	•	•	•	•
6	•	•	•	•
7	•	•	•	•
8	•	•	•	•
9	•	•	•	•

Code 141

BCD + Compl.									
	C	1	2	4	8	1	2	4	8
0	•					•	•	•	•
1	•	•				•	•	•	•
2	•		•			•	•	•	•
3	•	•	•			•	•	•	•
4	•			•		•	•	•	•
5	•	•			•	•	•	•	•
6	•	•	•		•	•	•	•	•
7	•	•	•	•		•	•	•	•
8	•				•	•	•	•	•
9	•	•		•	•	•	•	•	•

Code 400

change-over switch			
	C	A+	A-
+	•	•	
-	•		•
+	•	•	
-	•		•
+	•	•	
-	•		•
+	•	•	
-	•		•
-	•		•

Code 301

Hexadecimal				
	1	2	4 8	C
0				•
1	•			•
2		•		•
3	•	•		•
4			•	•
5	•		•	•
6	•	•	•	•
7	•	•	•	•
8			•	•
9	•		•	•
A	•	•	•	•
B	•		•	•
C			•	•
D	•	•	•	•
E	•	•	•	•
F	•	•	•	•

Code 307

Hexadecimal Compl.				
	C	1	2	4 8
0	•	•	•	•
1	•	•	•	•
2	•	•	•	•
3	•	•	•	•
4	•	•	•	•
5	•	•	•	•
6	•	•	•	•
7	•	•	•	•
8	•	•	•	•
9	•	•	•	•
A	•	•	•	•
B	•	•	•	•
C	•	•	•	•
D	•	•	•	•
E	•	•	•	•
F	•	•	•	•

Code 111

Decimal										
	C	0	1	2	3	4	5	6	7	8 9
0	•	•								
1	•		•							
2	•			•						
3	•				•					
4	•					•				
5	•						•			
6	•							•		
7	•								•	
8	•									•
9	•									•

Specifications

Series/Types Catalog Page			SH6 J6	PICOD J7-8	SMC-D J9
Dimensions/type of mounting					
panel / height x width			15x6 mm	15x7.62 mm	24x7.62mm
installed depth width PCB, short/long			23.5/30.8 mm	24/34.5 mm	32/42mm
insertion from the front			x	x	x
insertion from the rear			x		
Codes					
Code	switching position	printing			
111 decimal	10	0-9		x	x
131 BCD	10	0-9	x	x	x
137 BCD complement	10	0-9	x	x	x
141 BCD + complement	10	0-9			x
301 hexadecimal	16	0-9-A-F (0-15)		x	x
307 hexadecimal compl.	16	0-9-A-F (0-15)			
400 change-over switch	10	+, -, +-, etc.		x	
Electrical data					
operating voltage max.			40V	40V	40V
contact load, static max.			0.5A	0.5A	1A
contact load, dynamic (resistive) max.			100mA	100mA	100mA
contact resistance type AK (measured from the supply line to the output)			< 100 mOhm	< 100 mOhm	< 100 mOhm
Technical data					
permissible ambient temperature			-20...+80°C	-20...+60°C	-20...+80°C
expected life (switching cycles)			> 10 ⁵	> 10 ⁵	> 10 ⁶
actuating force approx.			4 N	3 N	4 N
weight approx.			1.5 g	2 g	4 g
digit height 10-/16-digit			3.1mm	3.1/2.4mm	4.9/3.4mm
click action (working point)			x	x	x
vibration DIN EN 60068-2-6			x	x	x
shock DIN EN 60068-2-27			x	x	x
Material					
housing: PPO UL94V-0			x	x	x
pc board: base material FR 4 respectively CEM3 DIN IEC 249-2, contact surface Au over Ni on Cu			x	x	x
Connections					
AK: short			x	x	x
AL: long			x	x	x
LS: solder point			x	x	x
AL/D: long/interrupted				x	
ALU: long downward				x	x

Specifications

Series/Types Catalog Page			DPS8 J10	DPS9 J11	DPS10 J11
Dimensions/type of mounting					
panel / height x width			18x8mm	33x8mm	33x10mm
installed depth width PCB, short/long			32/41mm	39/50mm	39/50mm
insertion from the front			x	x	
insertion from the rear				x	
Codes					
Code	switching position	printing			
111 decimal	10	0-9	x	x	x
131 BCD	10	0-9	x	x	x
137 BCD complement	10	0-9	x	x	x
141 BCD + complement	10	0-9	x		
301 hexadecimal	16	0-9-A-F (0-15)	x	x	x
307 hexadecimal compl.	16	0-9-A-F (0-15)			
400 change-over switch	10	+, -, +, -, etc.			
Electrical data					
operating voltage max.			40V	40V	40V
contact load, static max.			1A	1A	1A
contact load, dynamic (resistive) max.			100mA	100mA	100mA
contact resistance type AK (measured from the supply line to the output)			< 100 mOhm	< 100 mOhm	< 100 mOhm
Technical data					
permissible ambient temperature			-20...+80°C	-20...+80°C	-20...+80°C
expected life (switching cycles)			> 10 ⁶	> 10 ⁶	> 10 ⁶
actuating force approx.			4 N	4 N	4 N
weight approx.			4 g	6.5 g	7.5 g
digit height 10-/16-digit			4.9/3.4mm	6.8/4.3mm	7.0/4.3mm
click action (working point)			x	x	x
vibration DIN EN 60068-2-6			x	x	x
shock DIN EN 60068-2-27			x	x	x
Material					
housing: PPO UL94V-0			x	x	x
pc board: base material FR 4 respectively CEM3 DIN IEC 249-2, contact surface Au over Ni on Cu			x	x	x
Connections					
AK: short			x	x	x
AL: long			x	x	x
LS: solder point			x	x	x
AKU: short downward					x
ALU: long downward			x		

Pushwheel Switches, Subminiature, Panel Mount, Dual Button

SH6 Series pushwheel switches are the smallest panel mounted dual pushbutton code switches available. They have a snap-action detent with an audible click. The dual-purpose finger terminals may be used for direct mounting on printed circuit boards, or wire may be soldered directly to the gold-plated conductors. The SH6 is designed for several means of panel mounting: groups of any number of switches may be snapped into panel holes of proper size and retained by the integral clips (front mounting), or groups may be held in place in a panel hole by being supported from rear when the switches are PC mounted. These reliable switches are made to the same exacting requirements as the SMCD, PICOD and DPS Series.

MATERIAL SPECIFICATIONS

Moving Contacts Gold-clad Ni over copper alloy
Fixed Contacts AU over Ni
PC Board FR4 Glass Epoxy
Molded Parts Noryl-SE1, black matte finish
Window Thermoplastic resin

TYPICAL PERFORMANCE CHARACTERISTICS

Contact Rating 0.4 VA @ 20 VDC (max.)
Contact Circuit Resistance 0.12 ohm max.

PERFORMANCE CHARACTERISTICS

Operating Force Approx. 11 oz.
PC Terminal Spacing 0.100"
Character Height/Color 0.118" White
Life Expectancy More than 10⁵ operations
Operating Temperature -20°C to +80°C

SH6 SERIES



SH6131AK

SH6 - 131 - AK

Codes

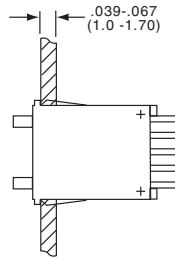
131 = BCD
137 = BCD Complement

Connections

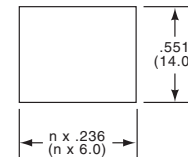
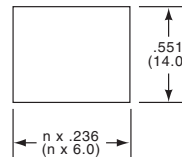
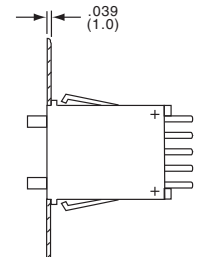
AK = pcb short
AL = pcb long
LS = solder pin

See Code Tables on Page J3

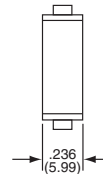
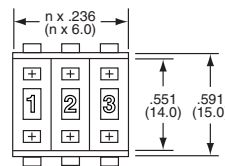
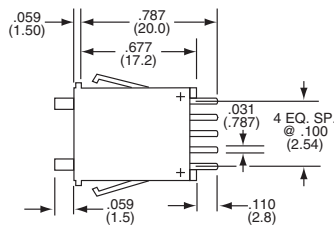
FRONT MOUNTING (See note below)



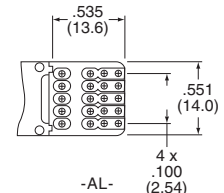
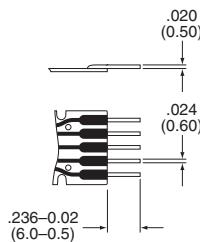
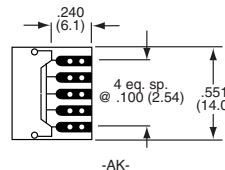
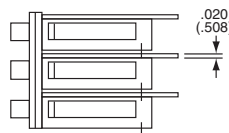
REAR MOUNTING



n = Number of switches



131	1	2	4	8	C
137	2	8	C	1	4



Note: Remove locating lugs from side of last switch to enable mounting from the front panel.

Note: Use Card Edge Connector B5LS or B5L with AK type.

Pushwheel Switches, Subminiature, Panel Mount, Dual Button

The PICOD family offers small panel-mounted pushwheel code switches, ideally suited for high density applications. They are used for the controlling and programming of frequency synthesizers, counters and timers, data comparators, security encoders, weighing machines, etc. The dependable pushbutton action allows narrow 0.3 inch width on panel. Changes to higher or lower settings are accomplished rapidly by successive operation of the appropriate buttons. The featherweight PICOD is less than 0.6 inch high, yet rugged enough for hand-held and portable instruments that may be subjected to field abuse. Heavy gold plating on wiping contacts affords low contact resistance for reliable operation over long periods of service. Easy-to-read characters are viewed through dust-sealed window. Installation costs are minimized by snap-together design – no inconvenient hardware.

MATERIAL SPECIFICATIONS:

Fixed Contacts1 microns AU over Ni over Cu
Moving ContactsGold-clad Ni over copper alloy
PC BoardFR4 Glass epoxy
Molded PartsNoryl-SE1, Black matte finish
WindowThermoplastic resin

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC max.
Contact Circuit Resistance0.15 Ohm max.
Operating ForceApprox. 11 oz.
PC Terminal Spacing0.100"
Character Height/Color122" White (.094" for hex codes)
Life ExpectancyMore than 10⁵ operations
Operating temperature-10° C to + 60° C

PICOD - 131 - AK

Codes	Connections
111 = Decimal	AK = pcb short
131 = BCD	AL = pcb long
137 = BCD Complement	LS = solder pin
301 = Hexadecimal	AL/D = pcb long, interrupted
307 = Hexa. Complement	ALU = pcb long downward
400 = Switch-over	

See Code Tables on Page J3



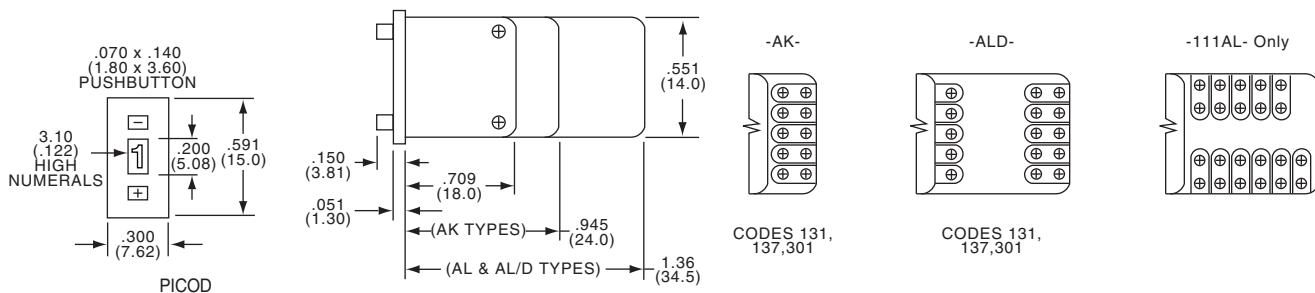
PICOD111AL

ACCESSORIES

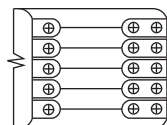
Front Mount Snap Detent	Description	Wheel Marks
PICOA	Spacer, 0.1" wide	
PICOADP	Spacer, 0.1" wide, with decimal point	
PICOBG	Spacer, 0.3" wide (same size as switch)	
PICOP	End-plate pair	
B5LS	5 pin connector with PC pins for AK types	
B5L	5 pin connector with wire lug termination for AK types	

Pushwheel Switches, Options

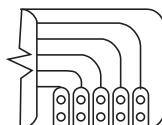
PICOD



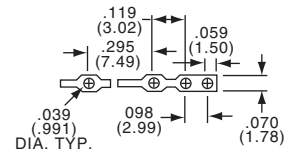
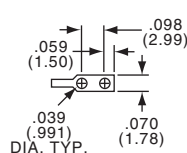
-AL-



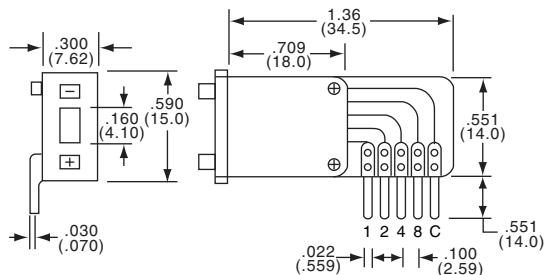
-ALU-



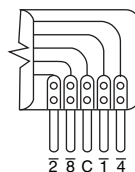
AL TYPES BOARD TRACE DETAIL ALD TYPES



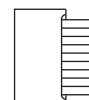
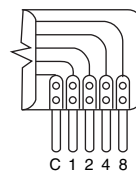
PICOD
131ALULS



PICOD
137ALULS



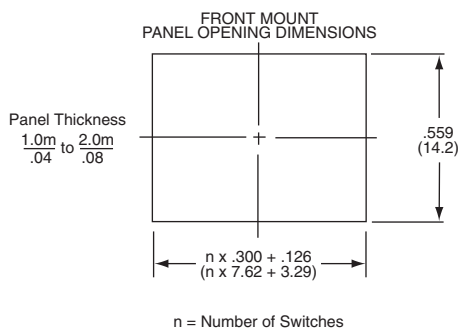
PICOD
301ALULS



B5LS

Connector with PC terminals for PICO family switches with AK terminal configuration.

PICOD



n = Number of Switches

Pushwheel Switches, Mini, Front Mount

SMCD Series have large visible readout characters despite it's small size. This popular family is used in measurement and test instrumentation for range setting, data programming and count controlling; and in communications equipment for digital tuning. The simple, reliable bi-direction pushbutton mechanism permits rapid changes to either higher or lower numerical settings. Instrument-grade performance and long service life are enhanced by the heavy gold wiping contacts. Large readout characters are protected by dust-sealed windows. Snap-together grouping and snap-in panel mounting minimize installation time and cost. SMCD models have snap detent with slight audible click.

SMCD bi-directional code switches may be easily assembled into groups of any number. The tabs or pins of one decade section press fit into the holes in the adjacent section. Spacers and end mounting plates may be included in the same manner as desired.

Groups of SMCD switches with end plates snap into panel holes of the recommended size and are retained by plastic clips. Again, tools and additional hardware items are not required.

MATERIAL SPECIFICATIONS:

PC Board.....	Glass epoxy type, FR4
PC Terminals	Gold over Ni on Cu
Character Height/Color.....	White on black background
	SMC .197/.134; SMCD .193/.134
	Except 301 & SG558: .140 and
	SG557 .120
Molded parts	Noryl-SE1, Black matte finish
Housing.....	Black matte finish

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating	0.4 VA @ 20 VDC or Peak AC
Contact Circuit Resistance	0.12 Ohm max. (Total internal ckt. res.)
Mechanical Life	More than 10 ⁶ operations
Operational Force	Approx. 14 oz.

ENVIRONMENTAL SPECIFICATIONS

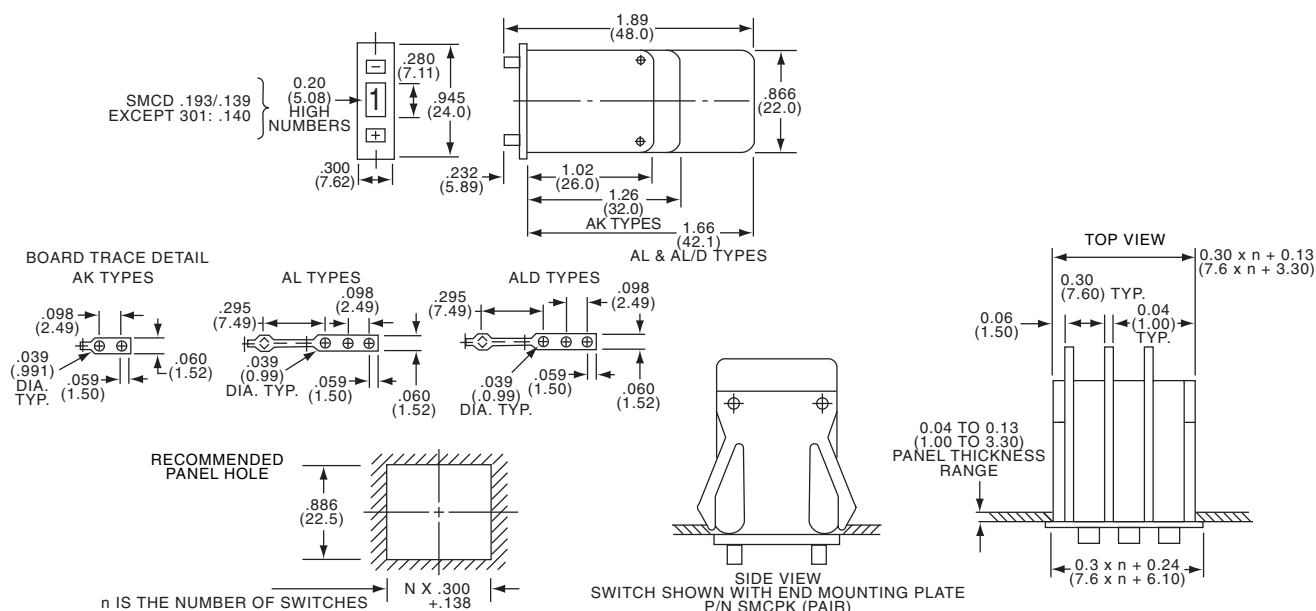
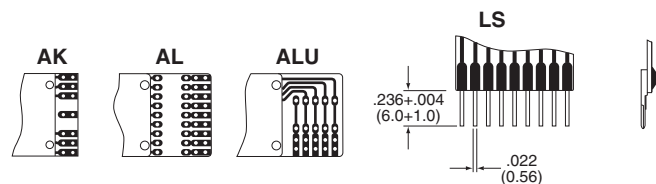
Operating Temperature.....	(-20°C to +80°C)
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Model	Description
SMCPK	End mounting plates (pair)
SMCL	300" spacer section
SMCA	.100" spacer (with mounting clips)
SMCADP	.100" spacer, decimal point (with mounting clips)
B9L	Connector, 9 contacts, solder lug terminals
B9LS	Connector, 9 contacts, PC pins
B9LS5PIN	Connector, 5 contacts, PC pins
B11LS	Connectors, 11 contacts, PC pins (for 111)
SP1.2	Limit stop pin for SMD 10 position only

SMCD - 131 - AK

Codes	Connections
111 = Decimal	AK = pcb short
131 = BCD	AL = pcb long
137 = BCD Complement	LS = solder pin
141 = BCD + Complement	ALU = pcb long downward
301 = Hexadecimal	

See Code Tables on Page J3



Pushwheel Switches, Mini, Rear Mount

The DPS8 Series is a compact, lower cost family of instrument grade, pushbutton code switches for numerical input applications. DPS8 models are similar in size to those of the SMCD Series and also feature a fast-snap-together assembly with conventional behind-the-panel mounting. A simple reliable bidirectional pushbutton mechanism allows rapid changes to either higher or lower numerical setting. Reliable performance in logic level circuits and long service life are provided by gold clad wiping contacts. A dust-sealed window protects the readout characters, which are larger than those of comparable thumbwheel switches. DPS8 switches have snap-action detent.

MATERIAL SPECIFICATIONS

PC BoardGlass epoxy type, FR4
PC Terminal SpacingDSP811: .079", 131,137, 141: .100"
Character Height/Color0.193" White on black background
HousingNoryl-SE1, Black, matte finish
Operating ForceApprox. 14 oz.

TYPICAL PERFORMANCE CHARACTERISTICS

Contact Rating0.4 VA @ 20 VDC or Peak AC
Contact Circuit Resistance ...0.15 ohms max.
Mechanical LifeMore than 10⁶ operations

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature(-20°C to +80°C)

MODULE ASSEMBLY METHOD

DPS bi-directional code switches may be easily assembled into groups of any number. Each switch, spacer or end-plate pair has appropriate snap-together assembly. No tools are required, little time consumed.

Groups of DPS8 switches, with end-plates mount into panel holes of the recommended size using four screws plus nuts and washers.

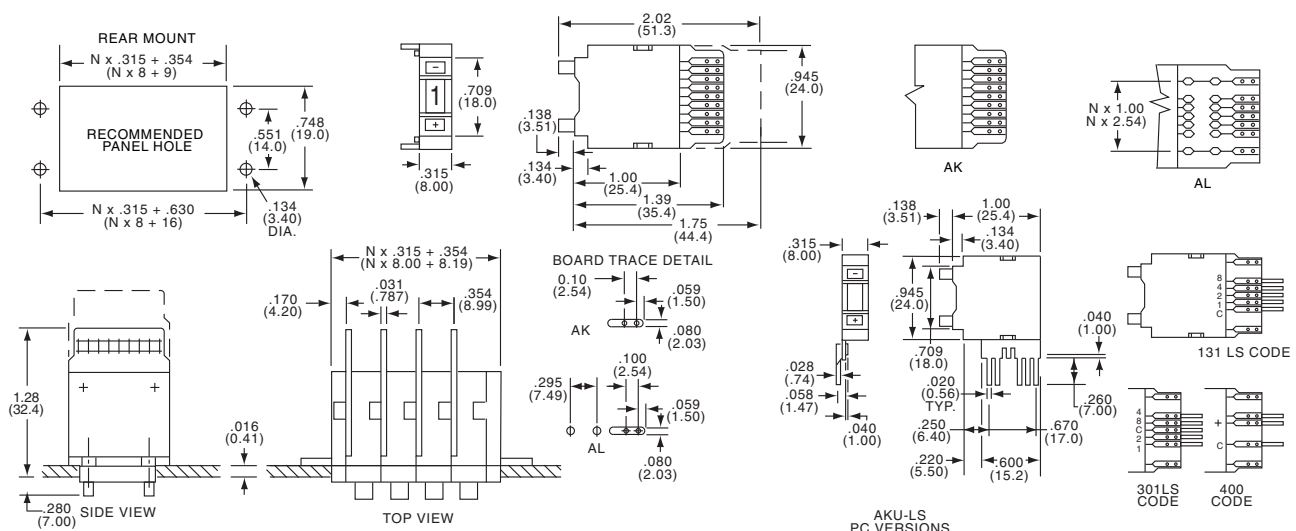
ACCESSORIES

Model	Description
DPS8A	Spacer .157" (4mm)
DPS8L	.315" spacer section
DPS8P	End mounting plates, decorative only (pair)
DPS8PW	End mounting plates, flanged with mounting holes (pair)
B9L	Connector, 9 contacts, solder lug terminals
B9LS	Connector, 9 contacts, pc terminals
B11LS	Connector, 11 contacts, PC terminals (for Code III Switch)
SP1.2	Limit stop pin for 10 position only.

DPS8 - 131 - AK

Codes	Connections
111 = Decimal	AK = pcb short
131 = BCD	AL = pcb long
137 = BCD Complement	LS = solder pin
141 = BCD + Complement	AKU = pcb short downward
301 = Hexadecimal	ALU = pcb long downward

See Code Tables on Page J3



Pushwheel Switches, Front Mount

DPS9 and DPS10 dual pushbutton code switches have identical heights but differ in width. These switches provide silent, reliable state-of-the-art bi-directional operation and can directly retrofit common thumbwheel switches. The readout characters are up to 60% larger than those of comparable thumbwheels. DPS9 models have the popular .315" per section width, and DPS10 types are .395" wide.

A simple reliable dual pushbutton mechanism permits rapid change to a higher or a lower numerical setting. Gold clad wiping contacts provide dependable low-level operation and extended life expectancy. Snap-together modular design enables fast assembly hardware. Wheel markings are protected by a dust-sealed window.

MATERIAL SPECIFICATIONS:

PC BoardGlass epoxy type, FR4
PC Terminal Spacing100" Centers on integral multiples
Character Height/ColorSee below
HousingNoryl-SE1, Black, matte finish

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
Contact Circuit Resistance ...0.20 Ohm max.
Mechanical LifeMore than 10⁶ operations
Operating ForceApprox. 16 oz.

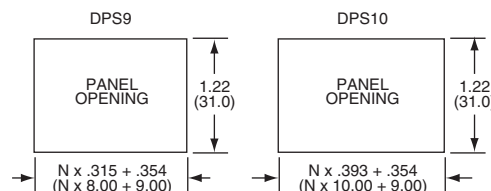
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature(-20°C to +80°C)

ACCESSORIES

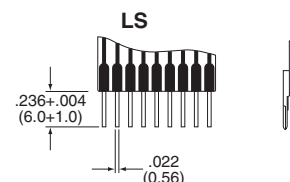
DPS9 Model	DPS10 Model	Description
DPS910A	DPS910A	Spacer, 0.1 inch
	DPS10	*Dummy switch (no electrical function)
DPS9L	DPS10L	Spacer, same width as switch
**DPS910P	**DPS910P	End mounting plate pair
B12L	B12L	Connector, 12 contacts, solder lugs
B12LS	B12LS	Connector, 12 contacts, PC terminals
SP1.5	SP1.5	Limit stop pin for 10 position switch

* Indicates switch mechanically operable, optionally available with wheel in fixed position.; ** Indicates sold in pairs only.

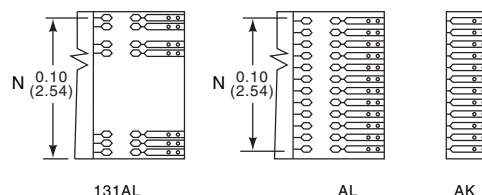
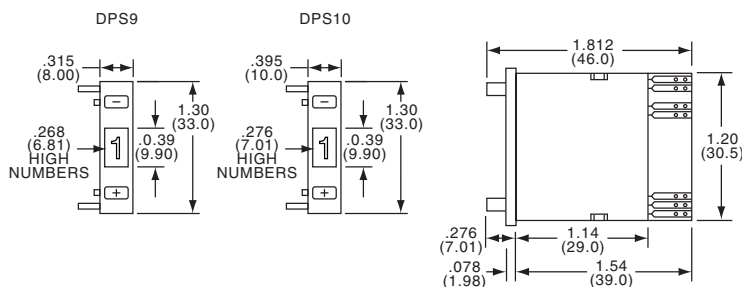


DPS9 - 131 - AK

Series/types	Codes	Connections
DPS9	111 = Decimal	AK = pcb short
DPS10	131 = BCD	AL = pcb long
	137 = BCD Complement	LS = solder pin
	301 = Hexadecimal	



See Code Tables on Page J3



Character height . . .	Model DPS9	10 digit .268
		16 digit .169
	Model DPS10	10 digit .276
		16 digit .169

Engineering Notes



K Series - Page K4



KCB Series - Page K5



KE Series - Page K6



KLNS Series - Page K8



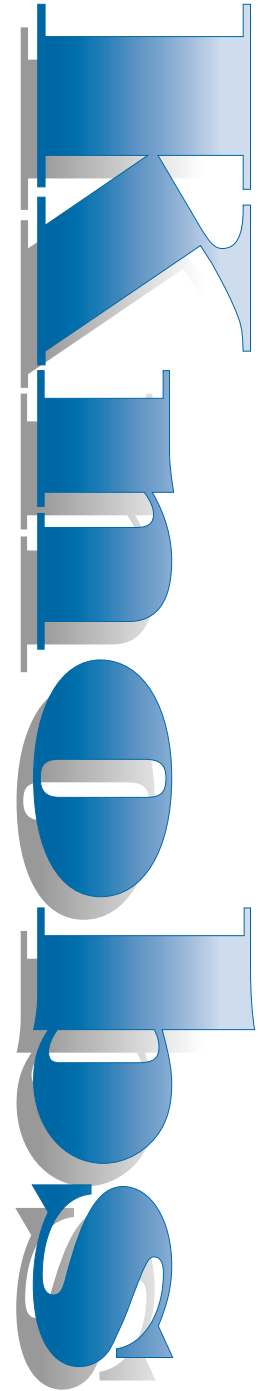
KN Series - Page K8



PK Series - Page K13



PKD Series - Page K14



Alcoknob Part Number Index

K1250A1/4	K4	KES500AB1/4	K6	KN701BA1/4	K8	PKD70B1/4	K14
K1250B1/4	K4	KES500AB1/8	K6	KN701BA1/8	K8	PKD70B101/4	K14
K1251B1/4	K4	KES700AB1/4	K6	KN900A1/4	K9	PKDT100B1/4	K15
K1255AS1/4	K4	KES900AB1/4	K6	KN900AB1/4	K9	PKDT100B101/4	K15
K1255BS1/4	K4	KFS400B1/8	K7	KN900B1/4	K9	PKDT60B101/8	K15
K500A1/4	K4	KFS500B1/4	K7	KN900BA1/4	K9	PKDT70B1/4	K15
K500A1/8	K4	KFS500B1/8	K7	KNS501A1/4	K10	PKDT70B101/4	K15
K500B1/4	K4	KFS600B1/4	K7	KNS501A1/8	K10	PKE60B1/4	K15
K500B1/8	K4	KHF1250A1/4	K7	KNS501B1/4	K10	PKE60B1/8	K15
K700A1/4	K4	KHF500A1/4	K7	KNS501B1/8	K10	PKE90B1/4	K15
K700B1/4	K4	KHF700A1/4	K7	KNS501BA1/4	K10	PKES120B1/4	K15
K900A1/4	K4	KHF900A1/4	K7	KNS501BA1/8	K10	PKES140B1/4	K15
K900B1/4	K4	KLN1250A1/4	K7	KNS701A1/4	K10	PKES150B1/4	K15
KA1250A1/4	K4	KLN1250B1/4	K7	KNS701B1/4	K10	PKES60B1/4	K15
KA1250B1/4	K4	KLN500A1/4	K7	KNS701BA1/4	K10	PKES60B1/8	K15
KA500A1/4	K4	KLN500A1/8	K7	KNS701BA1/8	K10	PKES70B1/4	K15
KA500A1/8	K4	KLN500B1/4	K7	KPN500A1/4	K10	PKES90B1/4	K15
KA500B1/4	K4	KLN500B1/8	K7	KPN500A1/8	K10	PKF50B1/8	K16
KA500B1/8	K4	KLN500S1/4	K7	KPN500B1/4	K10	PKG100B1/4	K17
KA700A1/4	K4	KLN700A1/4	K7	KPN500B1/8	K10	PKG1255B1/4	K17
KA700B1/4	K4	KLN700B1/4	K7	KPN700A1/4	K10	PKG40B1/8	K16
KA900A1/4	K4	KLN700B1/8	K7	KPN700B1/4	K10	PKG50B1/4	K16
KA900B1/4	K4	KLN700S1/4	K7	KPN900A1/4	K10	PKG50B1/8	K16
KAS500A1/4	K4	KLN900A1/4	K7	KPN900B1/4	K10	PKG60B1/4	K17
KAS500A1/8	K4	KLN900B1/4	K7	KR1	K21	PKG60B1/8	K17
KAS500B1/4	K4	KLN900S1/4	K7	KR2	K21	PKG70B1/4	K17
KAS500B1/8	K4	KLNS500A1/4	K8	KR3	K21	PKG70B1/8	K17
KAS700A1/4	K4	KLNS500A1/8	K8	KS500A1/4	K10	PKG90B1/4	K17
KAS700B1/4	K4	KLNS500B1/4	K8	KS500A1/8	K10	PKG90B1/8	K17
KAS900A1/4	K4	KLNS500B1/8	K8	KS500B1/4	K10	PKG90B1/8	K17
KAS900B1/4	K4	KLNS500B1/8	K8	KS500B1/8	K10	PKGP100B1/4	K17
KB500A1/4	K5	KLNS700A1/4	K8	KS700A1/4	K10	PKGP70B1/4	K17
KB500A1/8	K5	KLNS700B1/4	K8	KS700B1/4	K10	PKGP90B1/4	K17
KB500B1/4	K5	KLNS900A1/4	K8	KS700B1/8	K10	PKJ50B1/4	K17
KB500B1/8	K5	KLNS900B1/4	K8	KS900A1/4	K10	PKJ50B1/8	K17
KB700A1/4	K5	KN1250A1/4	K9	KS900B1/4	K10	PKJ60B1/4	K17
KB700B1/4	K5	KN1250AB1/4	K9	KT500A1/4	K11	PKJ70B1/4	K17
KB900A1/4	K5	KN1250B1/4	K9	KT500B1/4	K11	PKJT50B1/4	K18
KB900B1/4	K5	KN1250BA1/4	K9	KT500B1/8	K11	PKJT50B1/8	K18
KBS500A1/4	K5	KN1251A1/4	K9	KT700A1/4	K11	PKJT60B1/4	K18
KBS500A1/8	K5	KN1251B1/4	K9	KT700B1/4	K11	PKJT70B1/4	K18
KBS500A101/4	K5	KN1750A1/4	K8	KT900A1/4	K11	PKN60B1/4	K18
KBS500A101/8	K5	KN1750B1/4	K8	KT900B1/4	K11	PKN60B1/8	K18
KBS500B1/4	K5	KN1751A1/4	K8	KU401B1/8	K11	PKN70B1/4	K18
KBS500B1/8	K5	KN1751AB1/4	K8	KU402B1/8	K11	PKN90B1/4	K18
KBS500B101/4	K5	KN1751AS1/4	K8	KU500B1/4	K11	PKNT60B1/4	K18
KBS500B101/8	K5	KN1751B1/4	K8	KU500B1/8	K11	PKNT60B1/8	K18
KCB500A1/4	K5	KN1751BA1/4	K8	KU700B1/4	K11	PKNT70B1/4	K18
KCB500A1/8	K5	KN1751BS1/4	K8	KUS402B1/8	K11	PKNT90B1/4	K18
KCB500B1/4	K5	KN1755ABS1/4	K9	KUS500B1/4	K11	PKS1103B101/4	K18
KCB500B1/8	K5	KN1755AS1/4	K9	KUS500B1/8	K11	PKS1104B1/4	K19
KCB600A1/4	K5	KN1755BAS1/4	K9	KUS700B1/4	K11	PKS1105B101/4	K19
KCB600A1/8	K5	KN1755BS1/4	K9	PH15181/4	K12	PKS1106B1/4	K19
KCB600B1/4	K5	KN500A1/4	K9	PK1100B1/8	K12	PKS1132B1/4	K19
KCB600B1/8	K5	KN500A1/8	K9	PK50B1/4	K12	PKS1132B101/4	K19
KCB700A1/4	K5	KN500AB1/4	K9	PK50B1/8	K12	PKS1132B51/4	K19
KCB700B1/4	K5	KN500AB1/8	K9	PK70B1/4	K12	PKS1132B91/4	K19
KCB900A1/4	K5	KN500B1/4	K9	PK90B1/4	K12	PKS90B1/4	K20
KCB900B1/4	K5	KN500B1/8	K9	PKA50B1/4	K13	PKS90B101/4	K20
KD1250A1/4	K6	KN500BA1/4	K9	PKA50B1/8	K13	PKX100B1/4	K20
KD1250B1/4	K6	KN500BA1/8	K9	PKA55B1/4	K13	PKX110B1/4	K20
KD500A1/4	K6	KN501A1/4	K8	PKA55B1/8	K13	PKX130B1/4	K20
KD500A1/8	K6	KN501A1/8	K8	PKA70B1/4	K13	PKX50B1/4	K20
KD500B1/4	K6	KN501B1/4	K8	PKA90B1/4	K13	PKX50B1/8	K20
KD500B1/8	K6	KN501B1/8	K8	PKAP50B1/4	K13	PKX60B1/4	K20
KD700A1/4	K6	KN501BA1/4	K8	PKAP50B1/8	K13	PKX60B1/8	K20
KD700B1/4	K6	KN501BA1/8	K8	PKAP70B1/4	K13		
KD900A1/4	K6	KN5700A1/4	K9	PKB70B1/4	K14		
KD900B1/4	K6	KN5700B1/4	K9	PKB90B1/4	K14		
KE1250AB1/4	K6	KN700A1/4	K9	PKD100B1/4	K14		
KE500AB1/4	K6	KN700AB1/4	K9	PKD100B101/4	K14		
KE500AB1/8	K6	KN700B1/4	K9	PKD60B1/4	K14		
KE700AB1/4	K6	KN700BA1/4	K9	PKD60B1/8	K14		
KE900AB1/4	K6	KN701A1/4	K8	PKD60B101/4	K14		
		KN701B1/4	K8	PKD60B101/8	K14		

General Knob Information

SPECIFICATIONS

A. STANDARD KNOB TYPES

1. INSPECTION CRITERIA - Normal inspection is performed without magnification while holding knob at a distance of 12 to 14 inches for a period of 5 seconds, under normal light. The following imperfections are not acceptable:
 Finish: visible marks or scratches, runs, or non-uniform coverage.
 Artwork: voids, specks, bleeding or other inconsistencies
2. MATERIALS - K Series: Machined aluminum alloy stock
 Finish: gloss anodize
 Setscrews: Stainless steel, type 303, hex head, cup point
 P Series: General purpose phenolic (thermoset) (Max. Temp. 120-125°C continuous)
 Finish: Gloss (except PKX, matte)
 Insert: Brass
 Setscrews: Stainless steel, hex head, cup point
 Inlays: Skirts: Aluminum alloy, spun finish

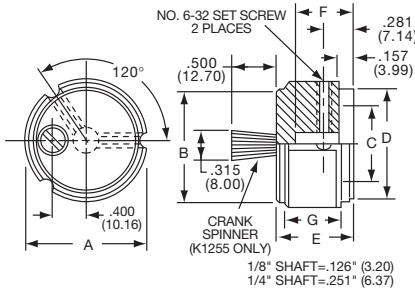
B. CUSTOM TYPES

1. ALUMINUM Configuration - most semi-standard or custom designs can be machined. A drawing is required to provide a quotation. Non-standard shaft hole diameters are available also.
 Finish - Anodizing or paint of various colors can be provided. A color chip is required to ensure proper color shade.
 Artwork - alpha-numeric lettering, indicator lines, markings, etc. can be provided.
 Silkscreening and other processes are available.
2. PHENOLIC Configuration - most custom styles can be molded.
 Colors - various custom colored standard knobs can be provided. Color chip is required.
 Artwork - lettering, markings, etc. can be provided.

Knobs, Machined Aluminum

K SERIES

K700B1/4



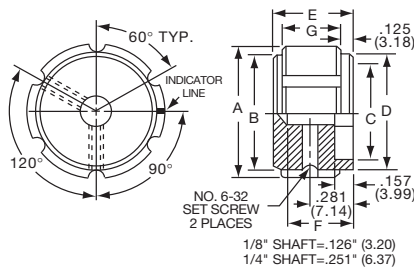
3 Flute Design with and without Indicator Line									
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	E	F
1437621-7	K500A1/8	Natural		.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)
1437621-6	K500A1/4	Natural		.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)
1437621-9	K500B1/8	Black		.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)
1437621-8	K500B1/4	Black		.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)
1-1437621-0	K700A1/4	Natural		.740(18.8)	.655(16.6)	.591(15.0)	.655(16.6)	.625(15.9)	.429(10.9)
1-1437621-1	K700B1/4	Black		.740(18.8)	.655(16.6)	.591(15.0)	.655(16.6)	.625(15.9)	.429(10.9)
1-1437621-3	K900A1/4	Natural		.937(23.8)	.817(20.8)	.709(18.0)	.817(20.8)	.625(15.9)	.429(10.9)
1-1437621-4	K900B1/4	Black		.937(23.8)	.817(20.8)	.709(18.0)	.8827(20.8)	.625(15.9)	.429(10.9)
1437621-2	K1250A1/4	Natural		1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)
1437621-3	K1250B1/4	Black		1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)
Less Indicator									
1437621-4	K1251B1/4	Black		1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)
With Crank Spinner + Less Indicator									
	K1255AS1/4	Natural		1.25(21.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)
1437621-5	K1255BS1/4	Black		1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)

KA SERIES



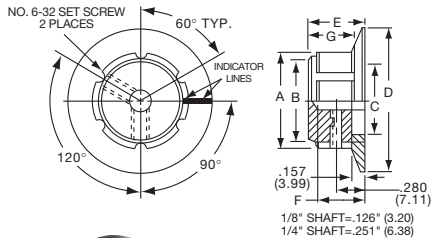
KA500A1/4

KA700B1/4



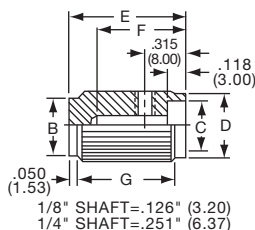
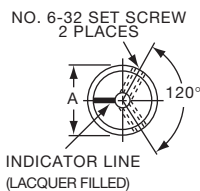
6 Flute Design with Indicator Line									
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	E	F
2-1437621-0	KA500A1/8	Natural		.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.430(10.9)
1-1437621-9	KA500A1/4	Natural		.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.430(10.9)
2-1437621-2	KA500B1/8	Black		.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.430(10.9)
2-1437621-1	KA500B1/4	Black		.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.430(10.9)
2-1437621-3	KA700A1/4	Natural		.750(19.1)	.655(16.6)	.590(15.0)	.655(16.6)	.625(15.9)	.430(10.9)
2-1437621-4	KA700B1/4	Black		.750(19.1)	.655(16.6)	.590(15.0)	.655(16.6)	.625(15.9)	.430(10.9)
2-1437621-5	KA900A1/4	Natural		.937(23.8)	.817(20.8)	.700(17.8)	.817(20.8)	.625(15.9)	.430(10.9)
2-1437621-6	KA900B1/4	Black		.937(23.8)	.817(20.8)	.700(17.8)	.817(20.8)	.625(15.9)	.430(10.9)
	KA1250A1/4	Natural		1.25(31.8)	1.11(28.2)	.985(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)
1-1437621-8	KA1250B1/4	Black		1.25(31.8)	1.11(28.2)	.985(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)

KAS SERIES



6 Flute Design with Aluminum Skirt and Indicator Lines									
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	E	F
2-1437621-8	KAS500A1/8	Natural		.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)
2-1437621-7	KAS500A1/4	Natural		.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)
3-1437621-0	KAS500B1/8	Black		.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)
2-1437621-9	KAS500B1/4	Black		.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)
3-1437621-1	KAS700A1/4	Natural		.750(19.1)	.650(16.5)	.590(15.0)	1.14(29.0)	.630(16.0)	.510(13.0)
3-1437621-2	KAS700B1/4	Black		.750(19.1)	.650(16.5)	.590(15.0)	1.14(29.0)	.630(16.0)	.510(13.0)
3-1437621-3	KAS900A1/4	Natural		.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.630(16.0)	.510(13.0)
3-1437621-4	KAS900B1/4	Black		.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.630(16.0)	.510(13.0)

Knobs, Machined Aluminum



KB SERIES

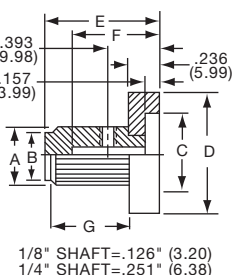
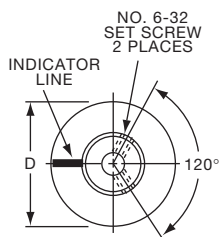


KB500A1/4



KB900B1/4

Control Knob with Straight Knurl and Top Line Indicator								
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	G
3-1437621-6	KB500A1/8	Natural	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.610(15.5)
3-1437621-5	KB500A1/4	Natural	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.610(15.5)
3-1437621-9	KB500B1/8	Black	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.610(15.5)
3-1437621-8	KB500B1/4	Black	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.610(15.5)
4-1437621-0	KB700A1/4	Natural	.750(19.0)	.673(17.1)	.581(15.0)	.705(17.9)	.787(20.0)	.610(15.5)
4-1437621-2	KB700B1/4	Black	.750(19.0)	.673(17.1)	.581(15.0)	.705(17.9)	.787(20.0)	.610(15.5)
4-1437621-4	KB900A1/4	Natural	.930(23.6)	.866(22.0)	.710(18.0)	.902(22.9)	.787(20.0)	.610(15.5)
4-1437621-5	KB900B1/4	Black	.930(23.6)	.866(22.0)	.710(18.0)	.902(22.9)	.787(20.0)	.610(15.5)

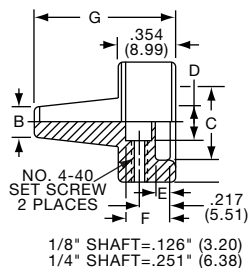
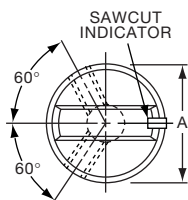


KBS SERIES



KBS500A101/4

Control Knob with Straight Knurl and Skirt								
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	G
With 0-9 Numerals (36°)								
4-1437621-9	KBS500A101/8	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
4-1437621-6	KBS500A101/4	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
5-1437621-3	KBS500B101/8	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
5-1437621-2	KBS500B101/4	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
With Indicator Line								
4-1437621-8	KBS500A1/8	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
4-1437621-1	KBS500A1/4	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
5-1437621-1	KBS500B1/8	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)
5-1437621-0	KBS500B1/4	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)



KCB SERIES



KCB500A1/4



KCB700B1/4

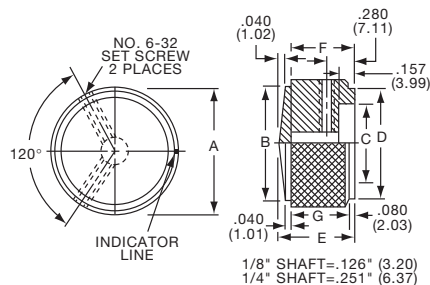
Control Knob with Sawcut Indicator								
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	G
5-1437621-7	KCB500A1/8	Natural	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)
5-1437621-6	KCB500A1/4	Natural	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)
5-1437621-9	KCB500B1/8	Black	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)
5-1437621-8	KCB500B1/4	Black	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)
6-1437621-0	KCB600A1/8	Natural	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)
6-1437621-1	KCB600A1/4	Natural	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)
6-1437621-2	KCB600B1/8	Black	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)
6-1437621-1	KCB600B1/4	Black	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)
6-1437621-3	KCB700A1/4	Natural	.746(18.8)	.197(5.08)	.512(13.0)	.250(6.35)	.118(3.00)	.335(8.51)
6-1437621-4	KCB700B1/4	Black	.746(18.8)	.197(5.08)	.512(13.0)	.250(6.35)	.118(3.00)	.335(8.51)
6-1437621-5	KCB900A1/4	Natural	.937(23.8)	.197(5.08)	.709(18.0)	.250(6.35)	.118(3.00)	.335(8.51)
6-1437621-7	KCB900B1/4	Black	.937(23.8)	.197(5.08)	.709(18.0)	.250(6.35)	.118(3.00)	.335(8.51)

Knobs, Machined Aluminum

KD SERIES



KD1250B1/4

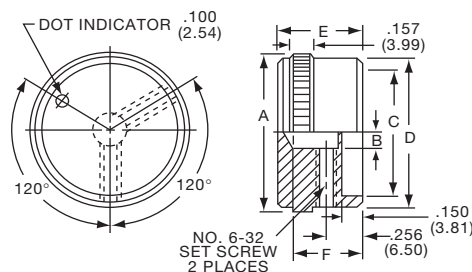


Tyco Electronics Alcoswitch Color									
Diamond Knurl with Indicator Line									
			A	B	C	D	E	F	G
7-1437621-1	KD500A1/8	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-0	KD500A1/4	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-3	KD500B1/8	Black	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-2	KD500B1/4	Black	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-4	KD700A1/4	Natural	.750(19.1)	.660(16.8)	.590(15.0)	.660(16.8)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-5	KD700B1/4	Black	.750(19.1)	.660(16.8)	.590(15.0)	.660(16.8)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-6	KD900A1/4	Natural	.940(23.9)	.820(20.8)	.710(18.0)	.820(20.8)	.630(16.0)	.510(13.0)	.470(11.9)
7-1437621-7	KD900B1/4	Black	.940(23.9)	.820(20.8)	.710(18.0)	.820(20.8)	.630(16.0)	.510(13.0)	.470(11.9)
6-1437621-8	KD1250A1/4	Natural	1.25(31.8)	1.11(28.2)	.980(24.9)	1.11(28.2)	.750(19.1)	.630(16.0)	.590(15.0)
6-1437621-9	KD1250B1/4	Black	1.25(31.8)	1.11(28.2)	.980(24.9)	1.11(28.2)	.750(19.1)	.630(16.0)	.590(15.0)

KE SERIES



KE900AB1/4



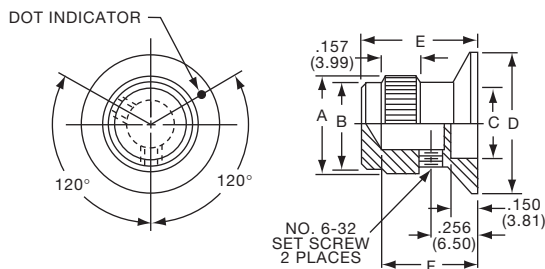
KE500AB1/4

Tyco Electronics Alcoswitch Color							
Knurl Grip with Top Dot Indicator							
			A	B	C	D	F
8-1437621-0	KE500AB1/8	Ntl. - Blk.	.500(12.7)	.126(3.20)	.382(9.70)	.460(11.7)	.625(15.9)
7-1437621-9	KE500AB1/4	Ntl. - Blk.	.500(12.7)	.126(3.20)	.382(9.70)	.460(11.7)	.625(15.9)
8-1437621-1	KE700AB1/4	Ntl. - Blk.	.740(18.8)	.251(6.38)	.630(16.0)	.708(18.0)	.625(15.9)
8-1437621-2	KE900AB1/4	Ntl. - Blk.	.93(23.8)	.251(6.38)	.787(20.0)	.900(22.9)	.625(15.9)
7-1437621-8	KE1250AB1/4	Ntl. - Blk.	1.25(31.8)	.251(6.38)	1.06(26.9)	1.17(29.7)	.625(15.9)

KES SERIES



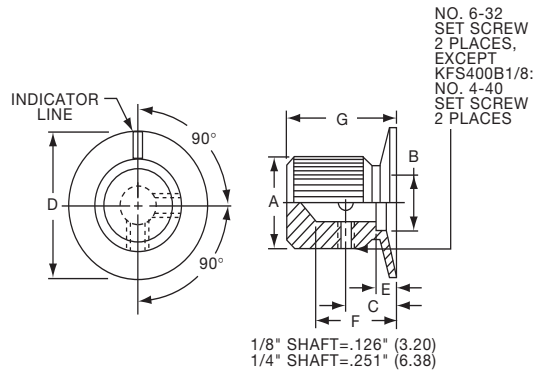
KES500AB1/4



Tyco Electronics Alcoswitch Color							
Knurl Grip with Dot Indicator on Skirt							
			A	B	C	D	F
8-1437621-4	KES500AB1/8	Ntl. - Blk.	.500(12.7)	.460(11.7)	.382(9.70)	.750(19.1)	.625(15.9)
8-1437621-3	KES500AB1/4	Ntl. - Blk.	.500(12.7)	.460(11.7)	.382(9.70)	.750(19.1)	.625(15.9)
8-1437621-5	KES700AB1/4	Ntl. - Blk.	.750(19.1)	.710(18.1)	.630(16.0)	1.13(28.7)	.625(15.9)
	KES900AB1/4	Ntl. - Blk.	.937(23.8)	.897(22.8)	.787(20.0)	1.44(36.6)	.625(15.9)

Knobs, Machined Aluminum

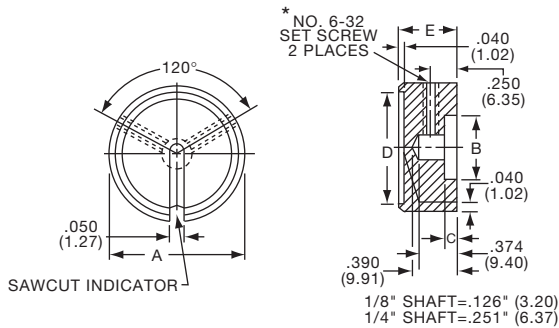
KFS SERIES



KFS400B1/8

Tyco Electronics Alcoswitch Color								
Straight Knurl with Indicator on Skirt								
			A	B	C	D	E	F
8-1437621-6	KFS400B1/8	Black Matte	.380(9.65)	.382(9.70)	.256(6.50)	.500(12.7)	.098(2.49)	.469(11.9)
8-1437621-8	KFS500B1/8	Black Matte	.500(12.7)	.382(9.70)	.252(6.48)	.630(16.0)	.161(4.09)	.469(11.9)
8-1437621-7	KFS500B1/4	Black Matte	.618(15.7)	.280(7.11)	.382(9.70)	1.00(25.4)	.161(4.09)	.630(16.0)
8-1437621-9	KFS600B1/4	Black Matte	.618(15.7)	.280(7.11)	.382(9.70)	1.00(25.4)	.161(4.09)	.630(16.0)

KHF SERIES



KHF500, 700, 900 1 set screw



KHF500A1/4

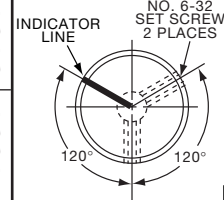


KHF900A1/4

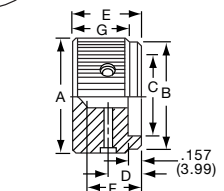
Tyco Electronics Alcoswitch Color					
Plain Body with Top and Side Sawcut Indicator					
			A	B	C
9-1437621-1	KHF500A1/4	Natural	.500(12.7)	.374(9.50)	.118(3.00)
9-1437621-2	KHF700A1/4	Natural	.740(18.8)	.590(15.0)	.118(3.00)
9-1437621-3	KHF900A1/4	Natural	.937(23.8)	.708(18.0)	.118(3.00)
*9-1437621-0	KHF1250A1/4	Natural	1.23(31.8)	.984(25.0)	.118(3.00)

KLN SERIES

Tyco Electronics Alcoswitch Color								
Straight Knurl with Top and Side Indicator								
			A	B	C	D	E	F
9-1437621-7	KLN500A1/8	Natural	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)
9-1437621-6	KLN500A1/4	Natural	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)
9-1437621-9	KLN500B1/8	Black	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)
9-1437621-8	KLN500B1/4	Black	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-1	KLN500S1/4	Smoke	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-2	KLN700A1/4	Natural	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-3	KLN700B1/4	Black	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-4	KLN700B1/8	Black	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-5	KLN700S1/4	Smoke	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-6	KLN900A1/4	Natural	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-7	KLN900B1/4	Black	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)
1437622-8	KLN900S1/4	Smoke	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)
9-1437621-4	KLN1250A1/4	Natural	1.252(31.80)	1.195(30.35)	.984(25.0)	.281(7.14)	.625(15.9)	.512(13.0)
9-1437621-5	KLN1250B1/4	Black	1.252(31.80)	1.195(30.35)	.984(25.0)	.281(7.14)	.625(15.9)	.512(13.0)



KLN500A1/4



1/8" SHAFT=.126" (3.20)
1/4" SHAFT=.251" (6.38)

Knobs, Machined Aluminum

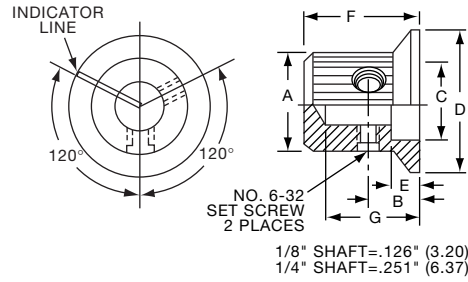
KLNS SERIES



KLNS500B1/8



KLNS900B1/4



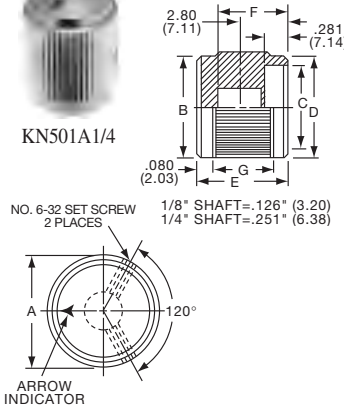
Straight Knurl with Indicator Line on Top, Side and Skirt

Tyco Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
1-1437622-6	KLNS500A1/8	Natural	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
1-1437622-5	KLNS500A1/4	Natural	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
1-1437622-8	KLNS500B1/8	Black	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
1-1437622-7	KLNS500B1/4	Black	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
2-1437622-0	KLNS700A1/4	Natural	.750(19.0)	.280(7.11)	.590(14.9)	1.13(28.7)	.160(4.07)	.630(16.0)	.510(13.0)
2-1437622-1	KLNS700B1/4	Black	.750(19.0)	.280(7.11)	.590(14.9)	1.13(28.7)	.160(4.07)	.630(16.0)	.510(13.0)
2-1437622-2	KLNS900A1/4	Natural	.940(23.9)	.280(7.11)	.710(18.0)	1.40(35.5)	.160(4.07)	.630(16.0)	.510(13.0)
2-1437622-3	KLNS900B1/4	Black	.940(23.9)	.280(7.11)	.710(18.0)	1.40(35.5)	.160(4.07)	.630(16.0)	.510(13.0)

KN SERIES



KN501A1/4



Straight Knurl with Arrowhead Indicator

Tyco Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
5-1437622-1	KN501A1/8	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
5-1437622-0	KN501A1/4	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
5-1437622-3	KN501B1/8	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
5-1437622-2	KN501B1/4	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
6-1437622-2	KN701A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.58)
6-1437622-3	KN701B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.58)
5-1437622-5	KN501BA1/8	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
5-1437622-4	KN501BA1/4	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.456(11.58)
6-1437622-5	KN701BA1/8	Blk. - Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.58)
6-1437622-4	KN701BA1/4	Blk. - Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.58)

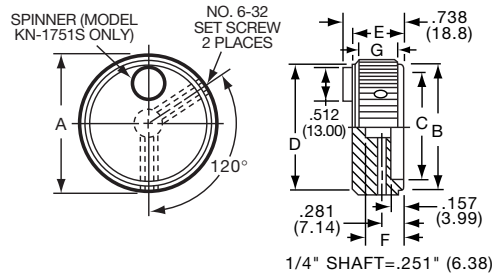
KN SERIES



KN1751AS1/4



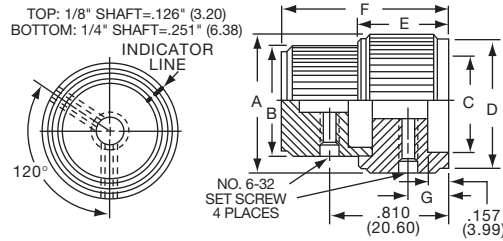
KN1751B1/4



Straight Knurl with & without "Fingertip" Spinner

Tyco Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
Less Indicator									
3-1437622-2	KN1751A1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.0)	.508(12.9)	.480(12.2)
3-1437622-6	KN1751B1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
Two Toned									
3-1437622-3	KN1751AB1/4	Ntl. - Blk.	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
3-1437622-7	KN1751BA1/4	Blk. - Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
With Indicator									
3-1437622-1	KN1750A1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
3-1437622-1	KN1750B1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
With Spinner/Less Indicator									
3-1437622-5	KN1751AS1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
3-1437622-8	KN1751BS1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)

Knobs, Machined Aluminum



KN SERIES



KN5700B1/4

Concentric Set with Straight Knurl with Indicator Lines									
Tyco Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
5-1437622-6	KN5700A1/4	Natural	.750(19.1)	.500(12.7)	.590(15.0)	.700(17.8)	.625(15.9)	1.16(29.5)	.281(7.14)
5-1437622-7	KN5700B1/4	Black	.750(19.1)	.500(12.7)	.590(15.0)	.700(17.8)	.625(15.9)	1.16(29.5)	.281(7.14)

Straight Knurl with & without Indicator Line Diameter Dimensions

Tyco Electronics	Alcoswitch	Color Body-Top	A	B	C	D	E	F	G
4-1437622-3	KN500A1/8	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-2	KN500A1/4	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-7	KN500B1/8	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-6	KN500B1/4	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
5-1437622-8	KN700A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-0	KN700B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-6	KN900A1/4	Natural	.949(24.1)	.894(22.7)	.696(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-8	KN900B1/4	Black	.949(24.1)	.894(22.7)	.696(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
2-1437622-5	KN1250A1/4	Natural	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
2-1437622-7	KN1250B1/4	Black	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
Two-Toned									
4-1437622-5	KN500AB1/8	Ntl - Blk.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-4	KN500AB1/4	Ntl - Blk.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-9	KN500BA1/8	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
4-1437622-8	KN500BA1/4	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
5-1437622-9	KN700AB1/4	Ntl - Blk.	.750(19.1)	.695(17.7)	.445(11.5)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-1	KN700BA1/4	Blk. - Ntl.	.750(19.1)	.695(17.7)	.445(11.5)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-7	KN900AB1/4	Ntl - Blk.	.949(24.1)	.894(22.7)	.695(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
6-1437622-9	KN900BA1/4	Blk. - Ntl.	.949(24.1)	.894(22.7)	.695(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
2-1437622-6	KN1250AB1/4	Ntl - Blk.	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
2-1437622-8	KN1250BA1/4	Blk. - Ntl.	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
Less Indicator									
2-1437622-9	KN1251A1/4	Natural	1.25(31.8)	1.20(30.5)	.984(25.0)	1.25(31.7)	.625(15.9)	.512(13.0)	.456(11.7)
3-1437622-0	KN1251B1/4	Black	1.25(31.8)	1.20(30.5)	.984(25.0)	1.25(31.7)	.625(15.9)	.512(13.0)	.456(11.7)

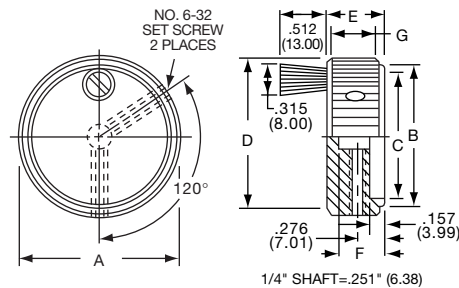
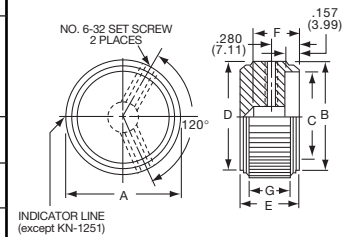
KN SERIES



KN500A1/4



KN900BA1/4



KN SERIES



KN1755BS1/4

Straight Knurl with "Crank" Spinner									
Tyco Electronics	Alcoswitch	Color Body-Top/Spin	A	B	C	D	E	F	G
4-1437622-1	KN1755AS1/4	Natural	1.76(44.7)	1.56(39.5)	.138(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
	KN1755BS1/4	Black	1.76(44.7)	1.56(39.5)	.138(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
3-1437622-9	KN1755ABS1/4	Ntl.-Blk./Blk.	1.76(44.7)	1.56(39.5)	1.38(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
4-1437622-0	KN1755BAS1/4	Blk.-Ntl. Blk.	1.76(44.7)	1.56(39.5)	1.38(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)

Knobs, Machined Aluminum

KNS SERIES

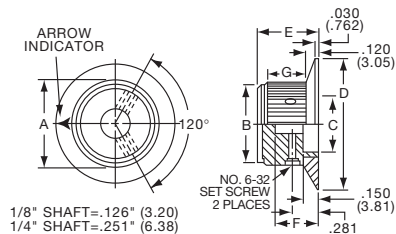


KNS501A1/4



KNS701B1/4

KNS701BA1/4

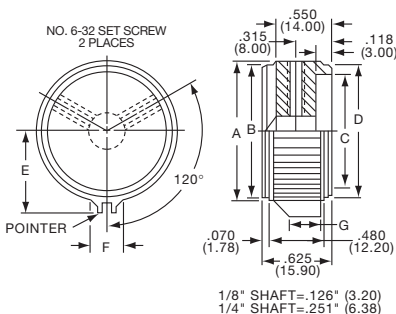


Tyco		Straight Knurl with Arrowhead Indicator on Skirt							
Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
7-1437622-3	KNS501A1/8	Natural	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-2	KNS501A1/4	Natural	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-5	KNS501B1/8	Black	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-4	KNS501B1/4	Black	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-8	KNS701A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-9	KNS701B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
Two-Toned	Body-Top/Skirt								
7-1437622-7	KNS501BA1/8	Blk.- Ntl.	.500(12.7)	.695(17.7)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
7-1437622-6	KNS501BA1/4	Blk.- Ntl.	.500(12.7)	.695(17.7)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
8-1437622-1	KNS701BA1/8	Blk.- Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
8-1437622-0	KNS701BA1/4	Blk.- Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)

KPN SERIES



KPN500B1/8

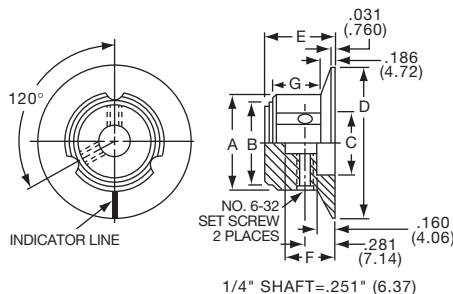


Straight Knurl with Pointer and Indicator Line									
Tyco		Color	A	B	C	D	E	F	G
Electronics	Alcoswitch	Body-Top							
9-1437622-1	KPN500A1/8	Natural	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
9-1437622-0	KPN500A1/4	Natural	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
9-1437622-3	KPN500B1/8	Black	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
9-1437622-2	KPN500B1/4	Black	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
9-1437622-5	KPN700A1/4	Natural	.750(19.1)	.695(17.65)	.590(15.0)	.695(17.7)	.515(13.1)	.234(5.94)	.394(10.0)
9-1437622-6	KPN700B1/4	Black	.750(19.1)	.695(17.65)	.590(15.0)	.695(17.7)	.515(13.1)	.234(5.94)	.394(10.0)
9-1437622-7	KPN900A1/4	Natural	.937(23.8)	.882(22.40)	.692(17.6)	.882(22.4)	.630(16.0)	.276(7.01)	.350(8.90)
9-1437622-9	KPN900B1/4	Black	.937(23.8)	.882(22.40)	.692(17.6)	.882(22.4)	.630(16.0)	.276(7.01)	.350(8.90)

KS SERIES

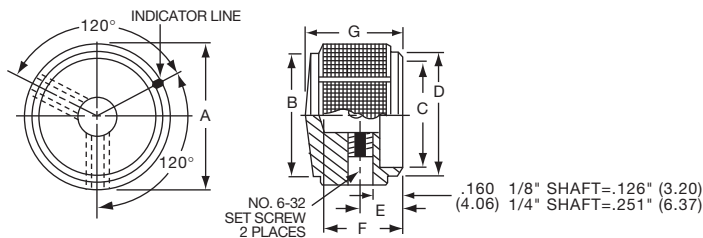


KS500A1/4



Tyco		3 Flute Design with Aluminum Skirt and Indicator Line							
Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
1437623-3	KS500A1/8	Natural	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-2	KS500A1/4	Natural	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-5	KS500B1/8	Black	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-4	KS500B1/4	Black	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-6	KS700A1/4	Natural	.750(19.0)	.650(16.5)	.590(14.9)	1.12(28.4)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-7	KS700B1/4	Black	.750(19.0)	.650(16.5)	.590(14.9)	1.12(28.4)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-8	KS900A1/4	Natural	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.620(15.8)	.510(13.0)	.430(10.9)
1437623-9	KS900B1/4	Black	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.620(15.8)	.510(13.0)	.430(10.9)

Knobs, Machined Aluminum



KT SERIES

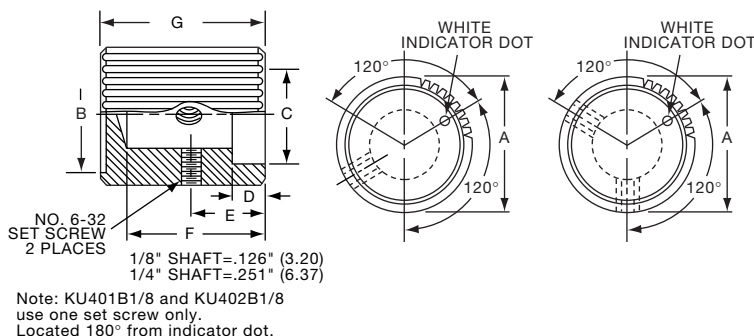


KT500A1/4



KT700A1/4

Square Serration with Indicator Line									
Tyco									
Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
1-1437623-2	KT500A1/4	Natural	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-4	KT500B1/8	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-3	KT500B1/4	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-6	KT700A1/4	Natural	.740(18.8)	.650(16.5)	.590(15.0)	.650(16.5)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-7	KT700B1/4	Black	.740(18.8)	.650(16.5)	.590(15.0)	.650(16.5)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-8	KT900A1/4	Natural	.940(23.9)	.816(20.7)	.710(18.0)	.816(20.7)	.280(7.11)	.510(13.0)	.630(16.0)
1-1437623-9	KT900B1/4	Black	.940(23.9)	.816(20.7)	.710(18.0)	.816(20.7)	.280(7.11)	.510(13.0)	.630(16.0)

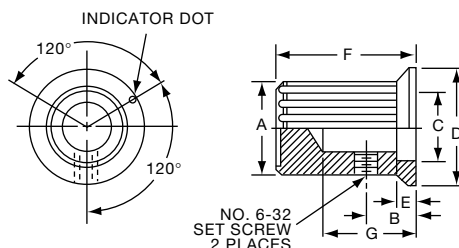


KU SERIES



KU402B1/8

Serrated Diamond Trim Cut with Dot Indicator									
Tyco									
Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
2-1437623-1	KU401B1/8	Black	.374(9.50)	.283(7.19)	.276(7.01)	.098(2.49)	.177(4.50)	.236(5.99)	.299(7.60)
2-1437623-2	KU402B1/8	Black	.374(9.50)	.283(7.19)	.276(7.01)	.098(2.49)	.197(5.00)	.354(8.99)	.449(11.40)
2-1437623-3	KU500B1/8	Black	.500(12.7)	.409(10.4)	.374(9.50)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)
	KU500B1/4	Black	.500(12.7)	.409(10.4)	.374(9.50)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)
2-1437623-4	KU700B1/4	Black	.740(18.8)	.650(16.5)	.591(15.0)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)



KUS SERIES



KUS402B1/8



KUS700B1/4

Serrated Diamond Trim Cut with Dot Indicator										
Tyco	Electronics	Alcoswitch	Color	A	B	C	D	E	F	G
2-1437623-9	KUS402B1/8		Black	.374(9.50)	.197(5.00)	.276(7.01)	.520(13.2)	.098(2.49)	.450(11.4)	.354(8.99)
3-1437623-0	KUS500B1/8		Black	.500(12.7)	.276(7.01)	.374(9.50)	.700(17.8)	.118(3.00)	.600(15.2)	.512(13.0)
	KUS500B1/4		Black	.500(12.7)	.276(7.01)	.374(9.50)	.700(17.8)	.118(3.00)	.600(15.2)	.512(13.0)
3-1437623-1	KUS700B1/4		Black	.740(18.8)	.276(7.01)	.591(15.0)	1.03(26.2)	.118(3.00)	.600(15.2)	.512(13.0)

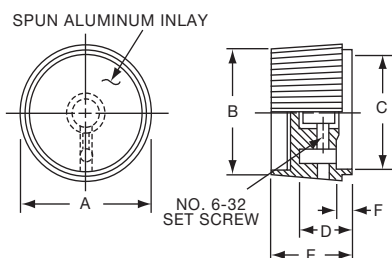
Note: KUS402B1/8 has #4.40 setscrew

Knobs, Molded Phenolic

PH SERIES



PH15181/4



Tyco		Straight Knurl Less Indicator Line					
Electronics	Alcoswitch	A	B	C	D	E	F
1437624-2	PH15181/4	.996(25.3)	.972(24.7)	.799(20.3)	.472(12.0)	.669(17.0)	.157(3.99)

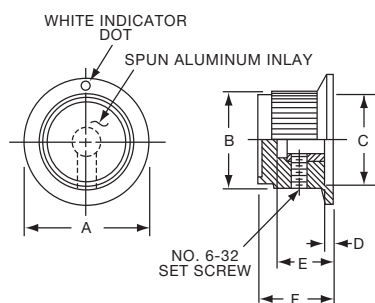
PK SERIES



PK50B1/8



PK701/4

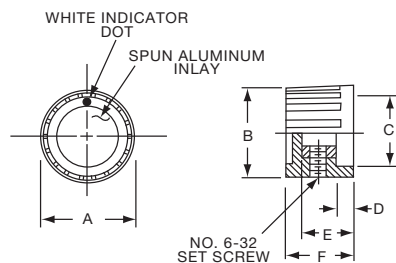


Tyco		Straight Knurl with Dot Indicator on Skirt					
Electronics	Alcoswitch	A	B	C	D	E	F
1437624-7	PK50B1/8	.748(19.0)	.570(14.5)	.500(12.70)	.055(1.40)	.460(11.7)	.550(13.97)
1437624-6	PK50B1/4	.748(19.0)	.570(14.5)	.500(12.70)	.055(1.40)	.460(11.7)	.550(13.97)
1437624-8	PK70B1/4	.984(25.0)	.728(18.5)	.710(18.03)	.079(2.01)	.500(12.7)	.590(14.99)
1437624-9	PK90B1/4	1.25(31.8)	.985(25.0)	.870(22.01)	.098(2.49)	.470(11.9)	.595(15.10)

PK SERIES

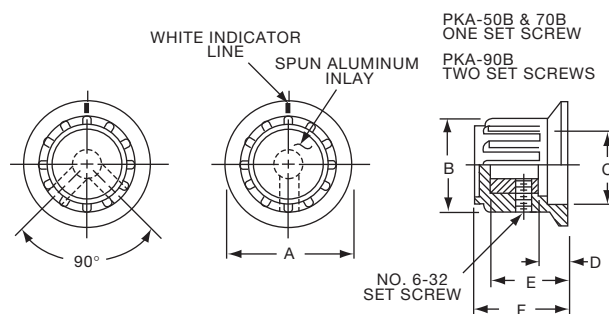


PK1100B1/4



Tyco		Serrated with Dot Indicator on Top					
Electronics	Alcoswitch	A	B	C	D	E	F
1437624-4	PK1100B1/8	.700(17.8)	.643(16.3)	.565(14.35)	.125(3.18)	.453(11.51)	.530(13.5)

Knobs, Molded Phenolic



PKA SERIES

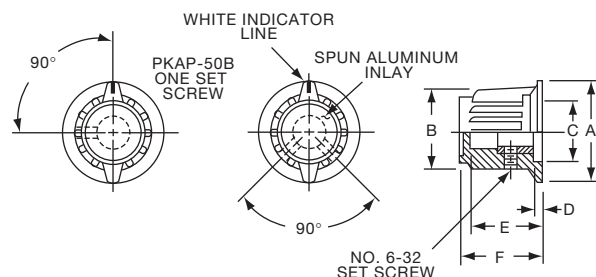


PKA50B1/4



PKA90B1/4

Tyco Electronics Alcoswitch		Ribbed with Line Indicator on Skirt					
		A	B	C	D	E	F
1-1437624-1	PKA50B1/8	.795(20.2)	.580(14.7)	.540(13.7)	.080(2.03)	.450(11.4)	.590(15.0)
1-1437624-0	PKA50B1/4	.795(20.2)	.580(14.7)	.540(13.7)	.080(2.03)	.450(11.4)	.590(15.0)
1-1437624-4	PKA55B1/8	.780(19.8)	.580(14.7)	.475(12.1)	.135(3.43)	.585(14.9)	.675(17.2)
1-1437624-3	PKA55B1/4	.780(19.8)	.580(14.7)	.475(12.1)	.135(3.43)	.585(14.9)	.675(17.2)
1-1437624-5	PKA70B1/4	.980(24.9)	.740(18.8)	.680(17.3)	.118(3.00)	.650(16.5)	.750(19.1)
1-1437624-7	PKA90B1/4	1.375(34.9)	.970(24.6)	.670(17.0)	.195(4.95)	.750(19.1)	.840(21.3)



PKAP SERIES



PKAP50B1/8



PKAP90B1/4

Tyco Electronics Alcoswitch		Ribbed with Skirt and Pointer with Indicator Line					
		A	B	C	D	E	F
1-1437624-8	PKAP50B1/4	.787(20.0)	.693(17.6)	.508(12.9)	.082(2.08)	.579(14.7)	.689(17.5)
1-1437624-9	PKAP50B1/8	.787(20.0)	.693(17.6)	.508(12.9)	.082(2.08)	.579(14.7)	.689(17.5)
2-1437624-0	PKAP70B1/4	.976(24.8)	.874(22.1)	.668(17.0)	.158(4.01)	.634(16.1)	.737(18.72)

K

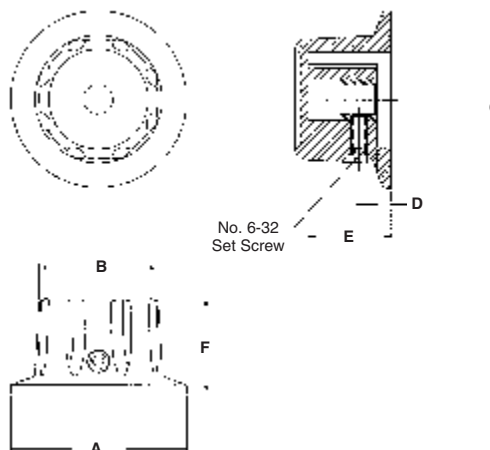
P Series

Knobs, Molded Phenolic

PKB SERIES



PKB90B1/4



		Fluted with Indicator Line On Skirt					
Tyco		A	B	C	D	E	F
Electronics	Alcoswitch						
2-1437624-3	PKB70B1/4	1.12(28.3)	.750(19.1)	.670(17.0)	.118(3.0)	.490(12.5)	.600(15.2)
2-1437624-4	PKB90B1/4	1.50(38.1)	1.02(25.8)	.800(20.3)	.118(3.0)	.705(17.9)	.820(20.8)

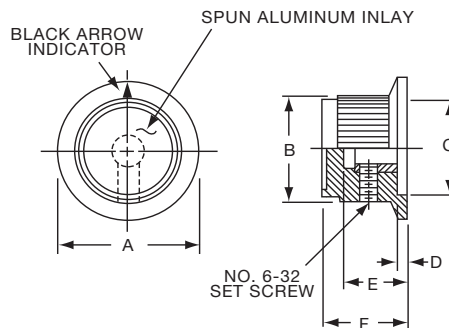
PKD SERIES



PKD60B1/4



PKD100B1/4



		Straight Knurl Aluminum Skirt w/Arrow Indicator					
Tyco		A	B	C	D	E	F
Electronics	Alcoswitch						
2-1437624-8	PKD60B1/8	.780(19.8)	.566(14.4)	.487(12.4)	.059(1.5)	.492(12.5)	.563(14.3)
2-1437624-7	PKD60B1/4	.780(19.8)	.566(14.4)	.487(12.4)	.059(1.5)	.492(12.5)	.563(14.3)
3-1437624-1	PKD70B1/4	1.02(25.9)	.750(19.1)	.700(17.8)	.080(2.0)	.490(12.5)	.610(15.5)
2-1437624-5	PKD100B1/4	1.29(32.8)	1.00(25.4)	.865(22.0)	.050(1.3)	.500(12.7)	.590(15.0)

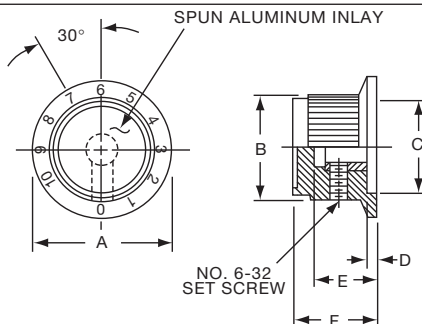
PKD SERIES



PKD60B101/8

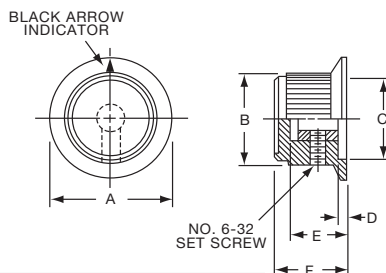


PKD100B101/4



		Straight Knurl Skirt w/0-10 Numerals					
Tyco		A	B	C	D	E	F
Electronics	Alcoswitch						
3-1437624-0	PKD60B101/8	.780(19.8)	.566(14.4)	.487(12.4)	.059(1.5)	.492(12.5)	.563(14.3)
2-1437624-9	PKD60B101/4	.780(19.8)	.566(14.4)	.487(12.4)	.059(1.5)	.492(12.5)	.563(14.3)
3-1437624-2	PKD70B101/4	1.02(25.9)	.750(19.1)	.700(17.8)	.080(2.0)	.490(12.5)	.610(15.5)
2-1437624-6	PKD100B101/4	1.29(32.8)	1.00(25.4)	.865(22.0)	.050(1.3)	.500(12.7)	.590(15.0)

Knobs, Molded Phenolic

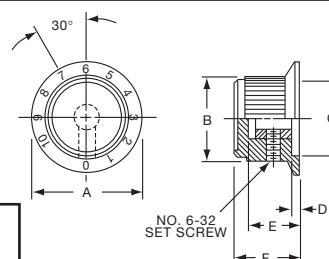


PKDT SERIES



PKDT100B1/4

Black Spin Cap with "Diamond Cut" and Arrow Indicator							
Tyco Electronics	Alcoswitch	A	B	C	D	E	F
3-1437624-9	PKDT70B1/4	1.03(26.0)	.738(18.8)	.720(18.3)	.098(2.49)	.500(12.7)	.635(16.1)
3-1437624-3	PKDT100B1/4	1.29(32.8)	1.02(25.9)	.860(21.8)	.042(1.07)	.500(12.7)	.638(16.2)

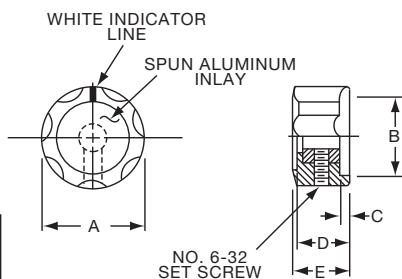


PKDT SERIES



PKDT100B101/4

Black Spin Cap with "Diamond Cut" & 0-10 Numerals							
Tyco Electronics	Alcoswitch	A	B	C	D	E	F
3-1437624-8	PKDT60B101/8	.778(19.8)	.605(15.4)	.560(12.5)	.060(1.53)	.392(9.96)	.562(14.3)
4-1437624-0	PKDT70B101/4	1.03(26.0)	.738(18.8)	.720(18.3)	.098(2.49)	.500(12.7)	.635(16.1)
3-1437624-4	PKDT100B101/4	1.29(32.8)	1.02(25.9)	.860(21.8)	.042(1.07)	.500(12.7)	.638(16.2)

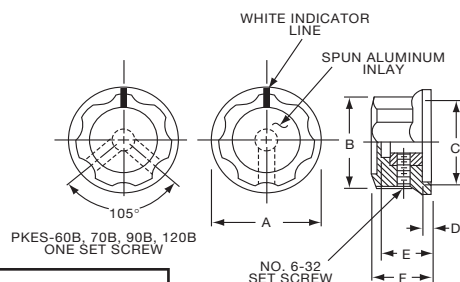


PKE SERIES



PKE90B1/4

Fluted with Indicator Line					
Tyco Electronics	Alcoswitch	A	B	C	D
4-1437624-4	PKE60B1/8	.626(15.9)	.472(12.0)	.091(2.31)	.394(10.0)
4-1437624-3	PKE60B1/4	.626(15.9)	.472(12.0)	.091(2.31)	.394(10.0)
4-1437624-5	PKE90B1/4	.890(22.6)	.724(18.4)	.098(2.49)	.480(12.2)



PKES SERIES



PKES60B1/4

Fluted with Skirt and Indicator Line						
Tyco Electronics	Alcoswitch	A	B	C	D	F
5-1437624-1	PKES60B1/8	.748(19.0)	.618(15.7)	.460(11.7)	.090(2.29)	.470(11.9)
5-1437624-0	PKES60B1/4	.748(19.0)	.618(15.7)	.460(11.7)	.090(2.29)	.470(11.9)
5-1437624-2	PKES70B1/4	.855(21.7)	.744(18.9)	.705(17.9)	.080(2.03)	.526(13.4)
5-1437624-3	PKES90B1/4	1.01(25.7)	.889(22.6)	.846(21.5)	.079(2.01)	.570(14.5)
4-1437624-6	PKES120B1/4	1.30(32.9)	1.16(29.5)	1.02(25.9)	.118(3.00)	.628(16.0)
4-1437624-7	PKES140B1/4	1.50(38.1)	1.37(34.9)	1.22(30.9)	.118(3.00)	.693(17.6)
4-1437624-8	PKES150B1/4	1.77(44.9)	1.55(39.4)	1.41(35.9)	.118(3.00)	.831(21.1)



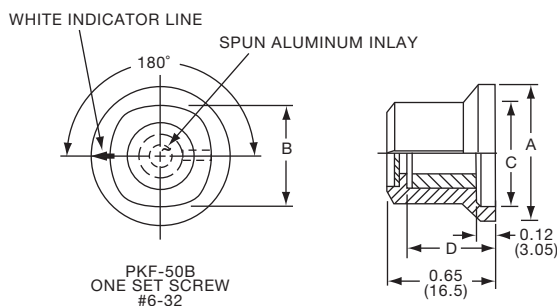
PKES70B1/4

Knobs, Molded Phenolic

PKF SERIES



PKF50B1/8

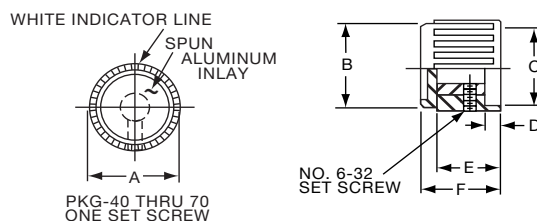


Tyco Plain Quadrate with Indicator Line & Arrow					
Electronics	Alcoswitch	A	B	C	D
5-1437624-5	PKF50B1/8	.670(17.0)	.454(11.53)	.570(14.48)	.520(13.2)

PKG SERIES



PKG40B1/8

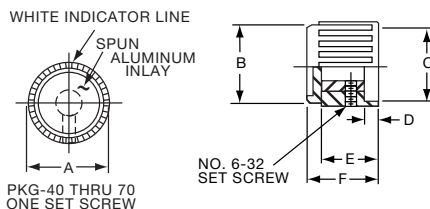


Tyco Ribbed with Indicator Line						
Electronics	Alcoswitch	A	B	C	D	E
5-1437624-9	*PKG40B1/8	.437(11.1)	.410(10.4)	.304(7.72)	.079(2.00)	.385(9.78)
6-1437624-1	PKG50B1/8	.551(14.0)	.500(12.7)	.442(10.7)	.056(1.42)	.395(10.03)
6-1437624-0	PKG50B1/4	.551(14.0)	.500(12.7)	.442(10.7)	.056(1.42)	.395(10.03)

*Note: Knob uses #4-40 set screw

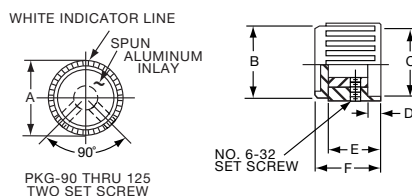
Knobs, Molded Phenolic

PKG SERIES



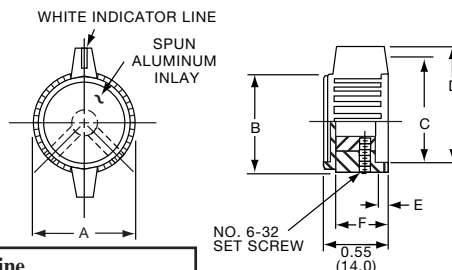
PKG70B1/8

Tyco		Ribbed with Indicator Line					
Electronics	Alcoswitch	A	B	C	D	E	F
6-1437624-6	PKG60B1/8	.660(16.8)	.615(15.6)	.551(14.0)	.080(2.03)	.430(10.9)	.551(14.0)
6-1437624-5	PKG60B1/4	.660(16.8)	.615(15.6)	.551(14.0)	.080(2.03)	.430(10.9)	.551(14.0)
6-1437624-8	PKG70B1/8	.740(18.8)	.698(17.7)	.591(15.0)	.080(2.03)	.453(11.5)	.559(14.2)
6-1437624-7	PKG70B1/4	.740(18.8)	.698(17.7)	.591(15.0)	.080(2.03)	.453(11.5)	.559(14.2)



PKG90B1/4

Tyco		Ribbed with Indicator Line					
Electronics	Alcoswitch	A	B	C	D	E	F
7-1437624-0	PKG90B1/8	.862(21.9)	.811(20.6)	.710(18.0)	.080(2.03)	.450(11.4)	.550(13.97)
6-1437624-9	PKG90B1/4	.862(21.9)	.811(20.6)	.710(18.0)	.080(2.03)	.450(11.4)	.550(13.97)
5-1437624-7	PKG100B1/4	1.055(26.80)	1.01(25.5)	.920(23.4)	.080(2.03)	.430(10.9)	.555(14.1)
5-1437624-8	PKG125B1/4	1.248(31.70)	1.20(30.4)	.690(17.5)	.080(2.03)	.430(10.9)	.565(14.4)

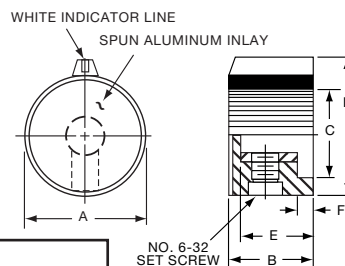


PKGP SERIES



PKGP70B1/4

Tyco		Ribbed with Bar Pointers and Indicator Line					
Electronics	Alcoswitch	A	B	C	D	E	F
7-1437624-2	PKGP70B1/4	.740(18.8)	.700(17.8)	.590(15.0)	.990(25.2)	.080(2.03)	.460(11.7)
7-1437624-3	PKGP90B1/4	.860(21.8)	.810(20.6)	.700(17.8)	1.28(32.5)	.080(2.03)	.460(11.7)
7-1437624-1	PKGP100B1/4	1.05(26.2)	1.00(25.4)	.900(22.9)	1.62(41.2)	.080(2.03)	.480(12.2)



PKJ SERIES



PKJ50B1/8

Tyco		Straight Knurl with Bar Pointers and Indicator Line					
Electronics	Alcoswitch	A	B	C	D	E	F
7-1437624-5	PKJ50B1/8	.500(12.7)	.512(13.0)	.420(10.7)	.577(14.7)	.429(10.9)	.113(2.9)
7-1437624-4	*PKJ50B1/4	.500(12.7)	.512(13.0)	.420(10.7)	.577(14.7)	.429(10.9)	.113(2.9)
7-1437624-6	PKJ60B1/4	.630(16.0)	.530(13.5)	.468(11.9)	.758(19.3)	.440(11.2)	.110(2.8)
7-1437624-7	PKJ70B1/4	.760(19.3)	.555(14.1)	.545(13.8)	.915(23.2)	.450(11.4)	.118(3.0)

*Note: Knob uses #4-40 set screw



PKJ70B1/4

Knobs, Molded Phenolic

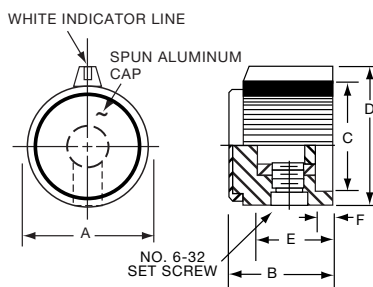
PKJT SERIES



PKJT50B1/4



PKJT70B1/4



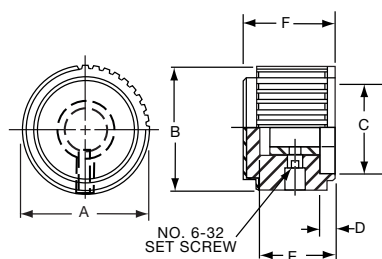
Straight Knurl with Bar Pointer & Indicator Line and Aluminum Spin Cap							
Tyco							
Electronics	Alcoswitch	A	B	C	D	E	F
7-1437624-9	PKJT50B1/8	.515(13.1)	.585(14.9)	.350(8.89)	.595(15.1)	.414(10.5)	.130(3.30)
7-1437624-8	*PKJT50B1/4	.515(13.1)	.585(14.9)	.350(8.89)	.595(15.1)	.414(10.5)	.130(3.30)
8-1437624-0	PKJT60B1/4	.640(16.3)	.605(15.4)	.470(11.9)	.760(19.3)	.445(11.3)	.118(3.00)
8-1437624-1	PKJT70B1/4	.760(19.3)	.625(15.9)	.550(14.0)	.915(23.2)	.445(11.3)	.118(3.00)

*Knob uses #4-40 set screw.

PKNT SERIES



PKNT60B1/4

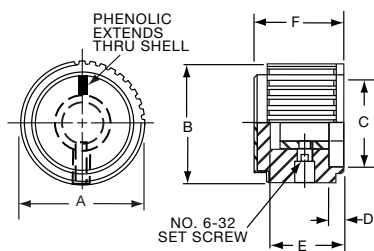


Black Spin Cap with "Diamond Cut" Less Indicator							
Tyco							
Electronics	Alcoswitch	A	B	C	D	E	F
8-1437624-6	PKNT60B1/8	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.472(11.9)
8-1437624-5	PKNT60B1/4	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.472(11.9)
8-1437624-7	PKNT70B1/4	.787(19.9)	.764(19.4)	.571(14.5)	.098(2.49)	.492(12.5)	.591(14.7)
8-1437624-8	PKNT90B1/4	.984(25.0)	.957(24.3)	.748(19.0)	.098(2.49)	.591(15.0)	.689(17.5)

PKN SERIES



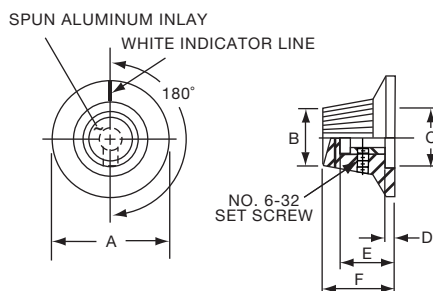
PKN60B1/8



Line Indicator on Natural Aluminum Spin Cap							
Tyco							
Electronics	Alcoswitch	A	B	C	D	E	F
8-1437624-2	PKN60B1/8	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.453(11.5)
	PKN60B1/4	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.453(11.5)
8-1437624-3	PKN70B1/4	.787(20.0)	.764(19.4)	.571(14.5)	.098(2.49)	.492(12.5)	.591(15.0)
8-1437624-4	PKN90B1/4	.984(25.0)	.957(24.3)	.748(19.0)	.098(2.49)	.591(15.0)	.689(17.5)

Knobs, Molded Phenolic

PKS SERIES



PKS1104B1/4

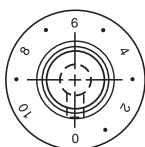
		Straight Knurl with Indicator Line on Skirt					
Tyco Electronics	Alcoswitch	A	B	C	D	E	F
9-1437624-5	PKS1104B1/4	1.12(28.5)	.567(14.4)	.620(15.8)	.090(2.29)	.510(12.95)	.670(17.0)

PKS SERIES

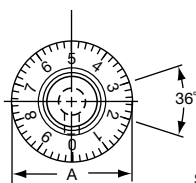
Straight Knurl Aluminum Skirt Has Line or 0-9 Numbers								
Tyco Electronics	Alcoswitch	A	B	C	D	E	F	Marking
9-1437624-4	PKS1103B101/4	1.17(29.6)	.571(14.5)	.620(15.7)	.098(2.49)	.516(13.1)	.670(17.0)	Numbers
9-1437624-7	PKS1106B1/4	1.17(29.6)	.571(14.5)	.618(15.7)	.098(2.49)	.516(13.1)	.670(17.0)	Line
9-1437624-6	PKS1105B101/4	1.17(29.6)	.571(14.5)	.618(15.7)	.098(2.49)	.516(13.1)	.670(17.0)	Numbers



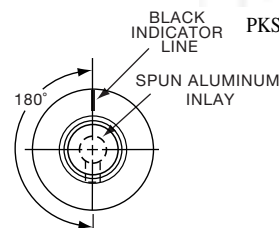
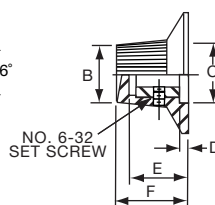
PKS1106B1/4



PKS1103B101/4

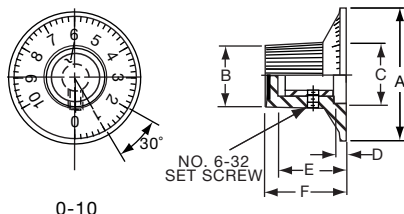


PKS1105B101/4



PKS SERIES

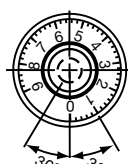
SPUN ALUMINUM INLAY



0-10



+5-5



0-9



Indicator Line



PKS1132B51/4

Tyco		Choice of Indicator Line or 0-9, 0-10, -5+5 Numerals						
Electronics	Alcoswitch	A	B	C	D	E	F	Marking
1437625-1	PKS1132B51/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.615(15.62)	.748(19.0)	+5-0-5
1437625-2	PKS1132B91/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.615(15.62)	.748(19.0)	0-9
9-1437624-9	PKS1132B101/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.615(15.62)	.748(19.0)	0-10
9-1437624-8	*PKS1132B1/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.615(15.62)	.748(19.0)	Indicator Line
*1 Set screw 180° from indicator line.								

*1 Set screw 180° from indicator line.



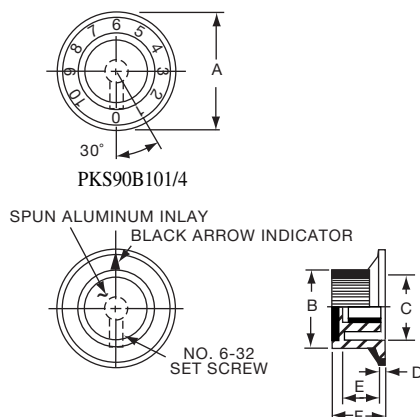
PKS1132B91/4

Knobs, Molded Phenolic

PKS SERIES



PKS90B1/4

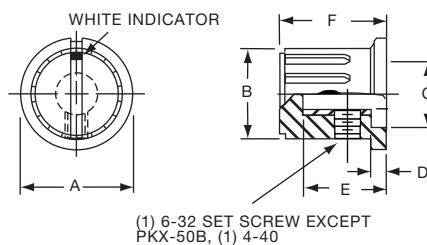


Tyco Electronics Alcoswitch Straight Knurl with Aluminum Skirt Choice of Arrow or 1-10 Numbers								
		A	B	C	D	E	F	Marking
1437625-5	PKS90B1/4	1.42(36.1)	.917(23.3)	.780(19.8)	.065(1.65)	.490(12.5)	.596(15.1)	Arrow
1437625-6	PKS90B101/4	1.42(36.1)	.917(23.3)	.780(19.8)	.065(1.65)	.490(12.5)	.596(15.1)	Numbers

PKX SERIES



PKX50B1/8

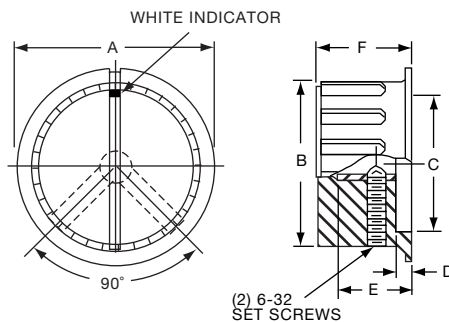


Tyco Electronics Alcoswitch Ribbed Body, Matte Finish with White Square Indicator on Top							
		A	B	C	D	E	F
1-1437625-5	PKX50B1/8	.590(15.0)	.472(12.0)	.374(9.49)	.059(1.50)	.463(11.76)	.551(14.0)
1-1437625-4	PKX50B1/4	.590(15.0)	.472(12.0)	.374(9.49)	.059(1.50)	.463(11.76)	.551(14.0)
1-1437625-7	PKX60B1/8	.787(20.0)	.625(15.9)	.472(12.0)	.078(1.98)	.510(13.0)	.598(15.2)
1-1437625-6	PKX60B1/4	.787(20.0)	.625(15.9)	.472(12.0)	.078(1.98)	.510(13.0)	.598(15.2)

PKX SERIES



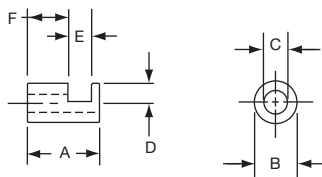
PKX110B1/4



Tyco Electronics Alcoswitch Ribbed Body, Matte Finish with White Square Indicator on Top							
		A	B	C	D	E	F
1-1437625-1	PKX100B1/4	1.17(29.7)	.970(24.6)	.780(19.81)	.114(2.90)	.570(14.48)	.674(17.12)
1-1437625-2	PKX110B1/4	1.37(34.8)	1.120(28.45)	.940(23.88)	.100(2.54)	.527(13.38)	.705(17.91)
1-1437625-3	PKX130B1/4	1.57(40.0)	1.308(33.22)	1.09(27.6)	.118(3.00)	.623(15.82)	.750(19.05)

Knob Accessories

ACCESSORIES



KR1

		Shaft Hole Size Adaptors					
Tyco	Alcoswitch	A	B	C	D	E	F
9-1437627-6	KR1 (1/4"TO1/8")	.374(9.50)	.250(6.35)	.128(3.25)	.122(3.10)	.217(5.51)	.122(3.10)
9-1437627-7	KR2 (1/4"TO3/16")	.375(9.53)	.250(6.35)	.190(4.83)	.122(3.10)	.216(5.49)	.123(3.12)
9-1437627-8	KR3 (1/4"TO4MM)	.375(9.53)	.248(6.30)	.161(4.09)	.122(3.10)	.216(5.49)	.123(3.12)

Engineering Notes



K

Engineering Notes

K22

Catalog 1308390
Issued 9-04

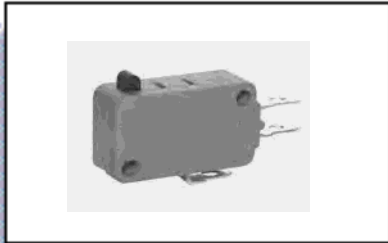
www.tycoelectronics.com

Dimensions are in inches
and millimeters unless otherwise
specified. Values in parentheses
or brackets are metric equivalents.

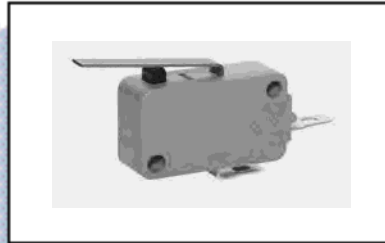
Dimensions are shown for
reference purposes only.
Specifications subject
to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

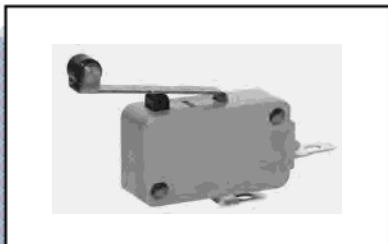
South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-141-810-8967



Miniature Pin Plunger - Page L3



Miniature Lever - Page L5



Miniature Roller - Page L7



Miniature Simulator Lever - Page L9



Subminiature Pin Plunger - Page L11



Subminiature Lever - Page L11



Subminiature Roller - Page L12



Subminiature Simulator Lever - Page

Microswitches

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1478603-5	L7	1478612-7	L9	1478668-2	L4
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1478603-7	L9	1478613-2	L4	1478668-4	L6
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1478606-2	L4	1478615-4	L6	1478670-6	L8
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1478606-5	L7	1478615-7	L9	1478671-2	L4
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1478608-1	L3	1478617-3	L5	1478672-5	L7
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Miniature Microswitch Introduction

Alcoswitch miniature microswitches are offered with many options to suit most typical applications.

These switches are available in a current range from 16A to .1A. Additional options available throughout the different current ratings include:

Pin Plunger

Short, normal and long lever

Short and normal roller

Simulated lever

SPDT, SPNO and SPNC circuitry

Within the 16A range, in addition to two different terminal options, there are three different actuation force options.

You can count on this offering of switches to be high reliability and low cost to fulfill your basic microswitch needs. Of course if you need something custom, we can offer that also. Contact your Tyco Electronics sales engineer for details.

Technical Information

Performance Information

Amp Rating	16	5	0.1
Insulation Resistance	Min. 100M ohm		
Contact Resistance	max 15M ohm		Max 50M ohm
Dielectric Strength	Between Non-consecutive terminals	AC 2,000V	
	Between each terminal & earth	AC 2,000V	
Operating Speed	0.2mm/sec - 1,000mm/sec		1mm/sec - 500mm/sec
Max Allowed Mechanical Open/close Frequencies	600 Cycles/min		300 Cycles/min
Shock Resistance (without lever)	300mm/sec ² (approx 30G)		
Vibration Resistance (without lever)	1.5mm 10 - 55Hz (2Hr)		1.5mm 10 - 20Hz (2Hr)
Electrical Life	100,000 Operations at rated load (max 20 Operations/min)		1,000,000 Operations
Mechanical Life	10,000,000 operations (Max 200 operations/min)		
Safety Approval	UL / CSA / VDE		
Operating Temperature Range	-20°C to +130°C RH85% Max		-30°C to +130°C RH90% Max

See drawings for DC ratings.

Materials

	5 & 16A	.1A
Case and Cover	P.B.T Resin, UL 94 V-0	P.B.T Resin, UL 94 V-0
Movable Contactor	Brass, Silver Plated	Phosphor Bronze
Guide Plate	Brass, Silver Plated	Brass, Silver Plated
Plate Spring	Beryllium Copper	Beryllium Copper
Terminal Aid	Brass	Brass
Contact	Silver Alloy	Gold Alloy
Common Terminal	Brass, Silver Plated	Brass, Silver Plated
Terminals	Brass, Silver Plated	Brass
Actuator	Phenolic Resin, UL 94 V-0	Phenolic Resin, UL 94 V-0
Lever	Stainless Steel	Stainless Steel

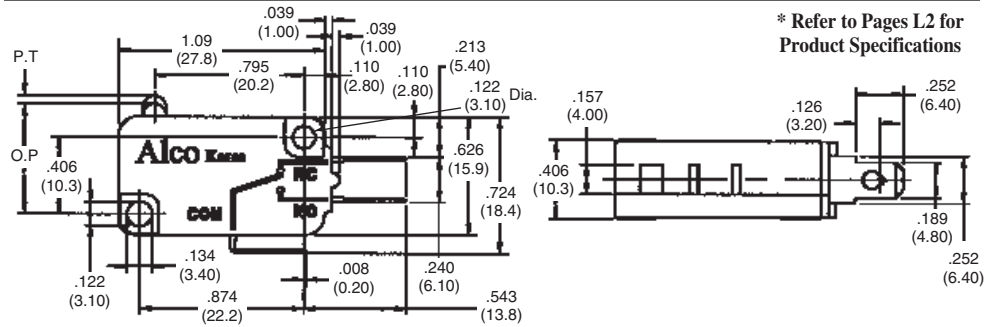
Miniature Pin Plunger

Spade/Solder Type Terminal



Product Facts

- .187 [4.75] tab with solder hole
- Use .187 [4.75] FASTON receptacles or solder wire directly to terminal



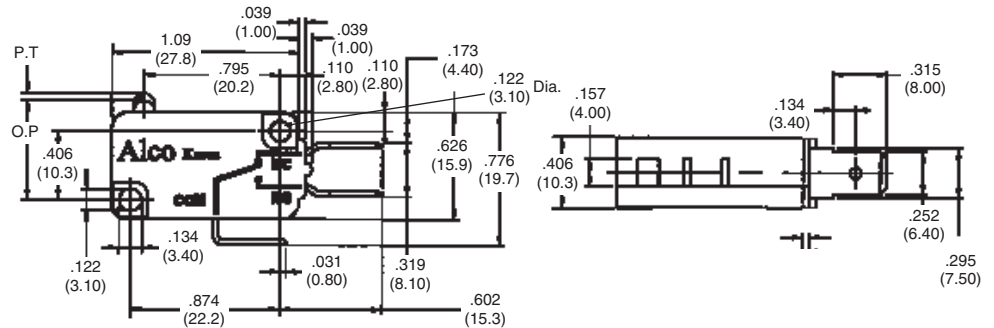
AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478603-1
		200g	50g					1478604-1
		300g	70g					1478605-1
	SPNC	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478609-1
		200g	50g					1478610-1
		300g	70g					1478611-1
5	SPNO	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478615-1
		200g	50g					1478616-1
		300g	70g					1478617-1
0.1	SPDT	60g	12g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478667-1
								1478668-1
								1478669-1
0.1	SPNC	60g	12g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478670-1
								1478671-1
								1478672-1

Spade Type Terminal



Product Facts

- .250 [6.35] tab for use with .250 [6.35] FASTON receptacles



AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478606-1
		200g	50g					1478607-1
		300g	70g					1478608-1
	SPNC	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478612-1
		200g	50g					1478613-1
		300g	70g					1478614-1
0.1	SPNO	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.582±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478618-1
		200g	50g					1478619-1
		300g	70g					1478620-1

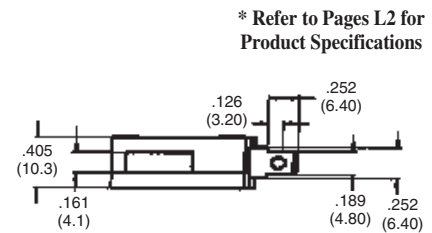
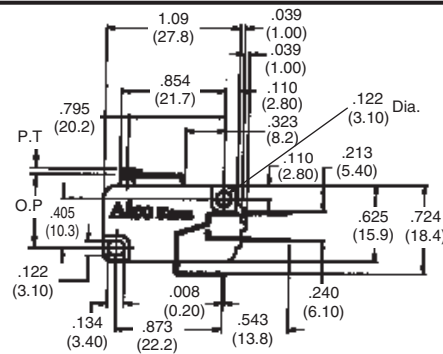
Miniature Short Lever

Spade/Solder Type Terminal



Product Facts

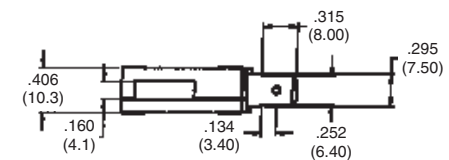
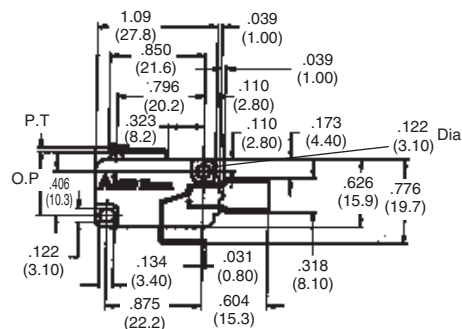
- n .187 [4.75] tab with solder hole
- n Use .187 [4.75] FASTON receptacles or solder wire directly to terminal
- n Short lever to increase operating position



* Refer to Pages L2 for Product Specifications

AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.606±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478603-2
		200g	50g					1478604-2
		330g	70g					1478605-2
	SPNC	120g	20g					1478609-2
		200g	50g					1478610-2
		330g	70g					1478611-2
5	SPNO	120g	20g	1.6 m/m [.063]	14.8 ±0.4 [.606±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478615-2
		200g	50g					1478616-2
		330g	70g					1478617-2
0.1	SPDT	60g	12g	1.6 m/m [.063]	14.8 ±0.4 [.606±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478667-2
	SPNC							1478668-2
	SPNO							1478669-2
	SPDT							1478670-2
	SPNC							1478671-2
								1478672-2

Spade Type Terminal



Product Facts

- n .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- n Short lever to increase operating positions

AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	120g	20g	1.6 m/m [.063]	15.4 ±0.4 [.606±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478606-2
		200g	50g					1478607-2
		330g	70g					1478608-2
	SPNC	120g	20g					1478612-2
		200g	50g					1478613-2
		330g	70g					1478614-2
	SPNO	120g	20g	1.6 m/m [.063]	15.4 ±0.4 [.606±.016]	0.8 m/m [.031]	0.4 m/m [.016]	1478618-2
		200g	50g					1478619-2
		330g	70g					1478620-2

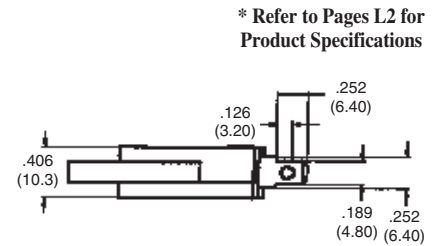
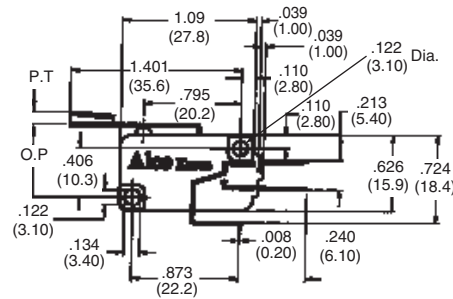
Miniature Normal Lever

Spade/Solder Type Terminal



Product Facts

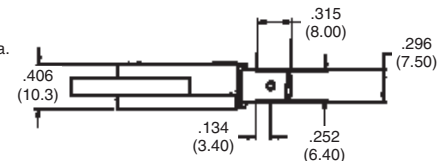
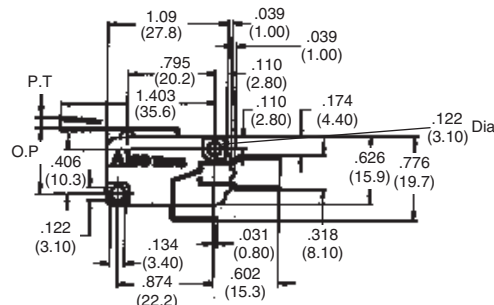
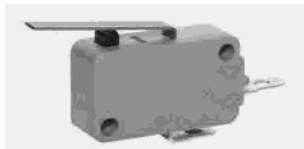
- n .187 [4.75] tab with solder hole
- n Use .187 [4.75] FASTON receptacles or solder wire directly to terminal
- n Lever to increase travel and operating position as well as reduce operating force



* Refer to Pages L2 for Product Specifications

AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478603-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478604-3
		180g	30g					1478605-3
	SPNC	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478609-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478610-3
		180g	30g					1478611-3
	SPNO	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478615-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478616-3
		180g	30g					1478617-3
5	SPDT	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478667-3
	SPNC							1478668-3
	SPNO							1478669-3
0.1	SPDT	35g	6g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478670-3
	SPNC							1478671-3
	SPNO							1478672-3

Spade Type Terminal



Product Facts

- n .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- n Lever to increase travel and operating position as well as reduce operating force

AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478606-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478607-3
		180g	30g					1478608-3
	SPNC	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478612-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478613-3
		180g	30g					1478614-3
	SPNO	60g	10g	4.0 m/m	15.4 ±1.4	1.3 m/m	1.2 m/m	1478618-3
		120g	20g	[.157]	[.606±.055]	[.051]	[.047]	1478619-3
		180g	30g					1478620-3

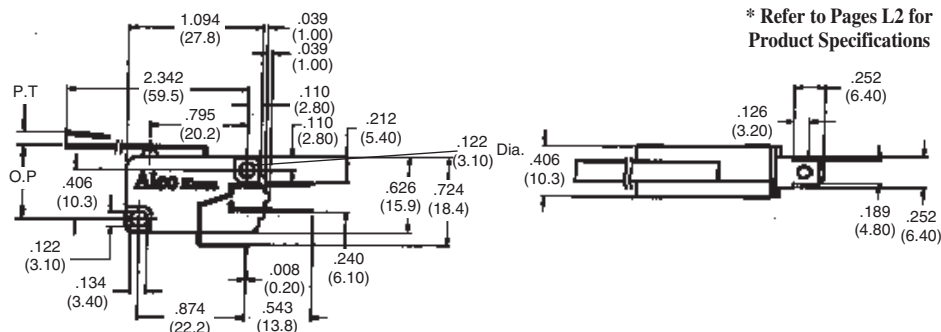
Miniature Long Lever

Spade/Solder Type Terminal



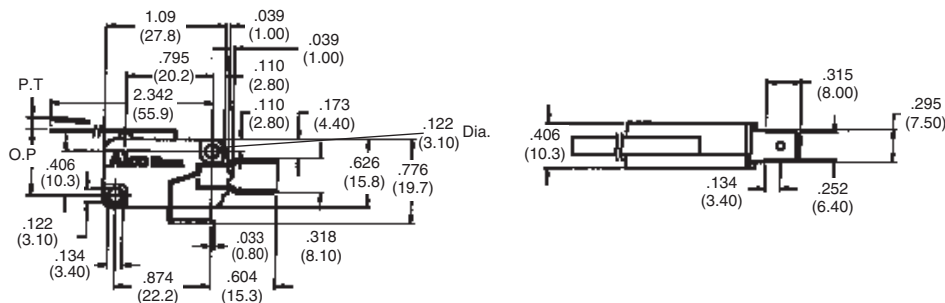
Product Facts

- .187 [4.75] tab with solder holes
- Use .187 [4.75] FASTON receptacles or solder wire directly to terminal
- Long lever to increase travel and reduce operating force



AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478603-4
		60g	10g					1478604-4
		90g	15g					1478605-4
	SPNC	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478609-4
		60g	10g					1478610-4
		90g	15g					1478611-4
	SPNO	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478615-4
		60g	10g					1478616-4
		90g	15g					1478617-4
5	SPDT	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478667-4
	SPNC							1478668-4
	SPNO							1478669-4
0.1	SPDT	15g	3g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478670-4
	SPNC							1478671-4
	SPNO							1478672-4

Spade Type Terminal



Product Facts

- .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- Long lever to increase travel and reduce operating force

AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478606-4
		60g	10g					1478607-4
		90g	15g					1478608-4
	SPNC	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478612-4
		60g	10g					1478613-4
		90g	15g					1478614-4
	SPNO	30g	5g	7.5 m/m [.295]	15.4 ±3.0 [.606±.118]	2.6 m/m [.102]	2.4 m/m [.094]	1478618-4
		60g	10g					1478619-4
		90g	15g					1478620-4

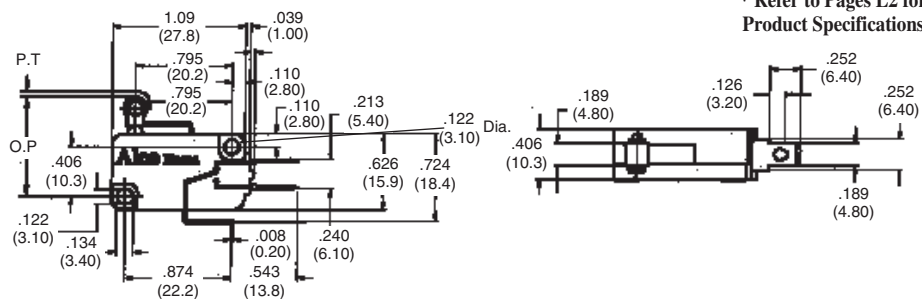
Miniature Short Roller

Spade/Solder Type Terminal



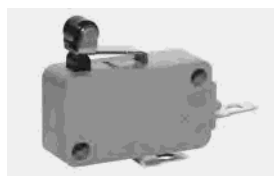
Product Facts

- .187 [4.75] tab with solder holes
- Use .187 [4.75] FASTON receptacles or solder wire directly to terminal
- Short roller to increase operating force and position



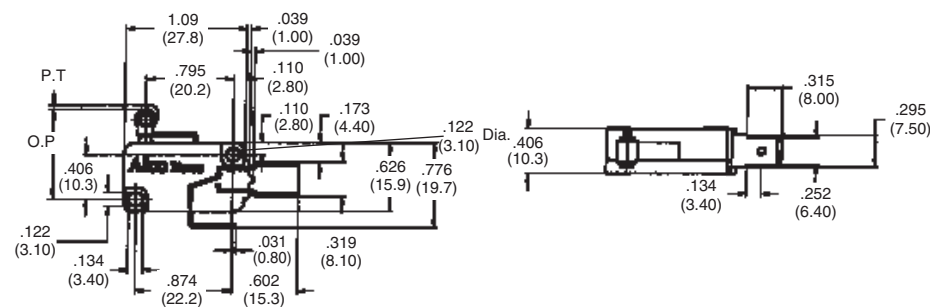
AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478603-5
		240g	50g					1478604-5
		350g	70g					1478605-5
	SPNC	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478609-5
		240g	50g					1478610-5
		350g	70g					1478611-5
	SPNO	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478615-5
		240g	50g					1478616-5
		350g	70g					1478617-5
5	SPDT	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478667-5
	SPNC							1478668-5
	SPNO							1478669-5
0.1	SPDT	60g	12g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478670-5
	SPNC							1478671-5
	SPNO							1478672-5

Spade Type Terminal



Product Facts

- .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- Short roller to increase operating force and position



AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478606-5
		240g	50g					1478607-5
		350g	70g					1478608-5
	SPNC	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478612-5
		240g	50g					1478613-5
		350g	70g					1478614-5
	SPNO	140g	20g	1.6 m/m [.063]	20.7 ±0.8 [.815±.003]	0.8 m/m [.031]	0.4 m/m [.016]	1478618-5
		240g	50g					1478619-5
		350g	70g					1478620-5

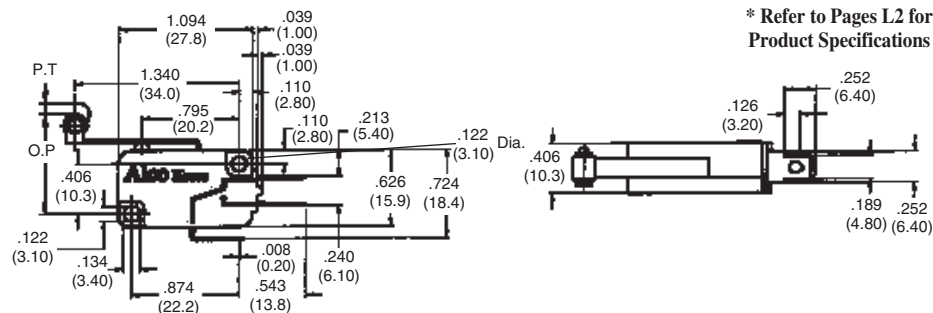
Miniature Normal Roller

Spade/Solder Type Terminal



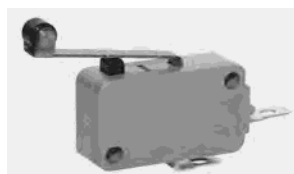
Product Facts

- .187 [4.75] tab with solder hole
- Use with .187 [4.75] FASTON receptacles or solder directly to terminal
- Roller to increase travel and operating position as well as reduce operating force



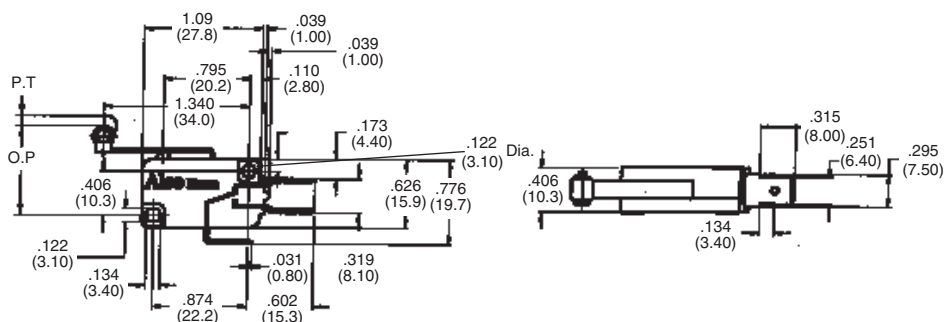
AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478603-6
		120g	20g					1478604-6
		180g	30g					1478605-6
	SPNC	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478609-6
		120g	20g					1478610-6
		180g	30g					1478611-6
5	SPNO	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478615-6
		120g	20g					1478616-6
		180g	30g					1478617-6
0.1	SPDT	35g	6g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478667-6
	SPNC							1478668-6
	SPNO							1478669-6
	SPDT							1478670-6
0.1	SPNC	35g	6g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478671-6
								1478672-6

Spade Type Terminal



Product Facts

- .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- Roller to increase travel and operating position as well as reduce operating force



AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478606-6
		120g	20g					1478607-6
		180g	30g					1478608-6
	SPNC	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478612-6
		120g	20g					1478613-6
		180g	30g					1478614-6
0.1	SPNO	60g	10g	4.0 m/m [.157]	20.7 ±1.6 [.815±.063]	1.3 m/m [.051]	1.2 m/m [.047]	1478618-6
		120g	20g					1478619-6
		180g	30g					1478620-6

Miniature Simulator Lever

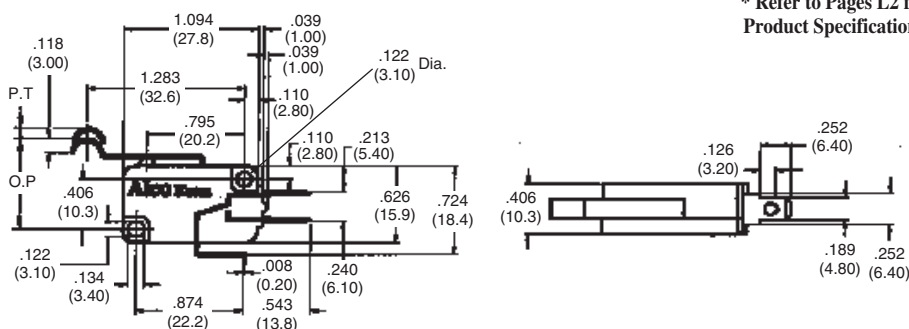
Spade/Solder Type Terminal



Product Facts

- .187 [4.75] tab with solder hole
- Use .187 [4.75] FASTON receptacles or solder directly to terminal
- Simulator lever for operating position between a roller and a lever

* Refer to Pages L2 for Product Specifications



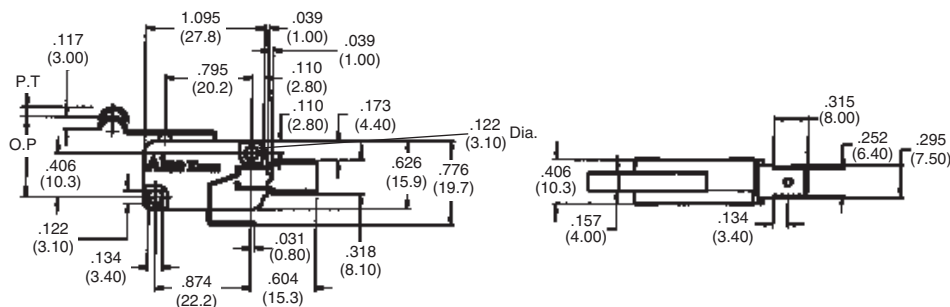
AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478603-7
		120g	20g					1478604-7
		180g	30g					1478605-7
	SPNC	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478609-7
		120g	20g					1478610-7
		180g	30g					1478611-7
	SPNO	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478615-7
		120g	20g					1478616-7
		180g	30g					1478617-7
5	SPDT	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478667-7
	SPNC							1478668-7
	SPNO							1478669-7
0.1	SPDT	35g	6g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478670-7
	SPNC							1478671-7
	SPNO							1478672-7

Spade Type Terminal



Product Facts

- .250 [6.35] tab for use with .250 [6.35] FASTON receptacles
- Simulator lever for operating position between a roller and a lever



AMP	Switch Position	Operating Force	Releasing Force	Pre Travel (P.T.)	Operating Position	Over Travel	Movement Differential	Part Number
16	SPDT	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478606-7
		120g	20g					1478607-7
		180g	30g					1478608-7
	SPNC	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478612-7
		120g	20g					1478613-7
		180g	30g					1478614-7
	SPNO	60g	10g	4.0 m/m [.157]	18.6 ±1.5 [.732±.059]	1.3 m/m [.051]	1.2 m/m [.047]	1478618-7
		120g	20g					1478619-7
		180g	30g					1478620-7

Subminiature Microswitches

Alcoswitch subminiature micro switches are available with many options to fit applications with limited space and a 5 Amp or less current draw.

With the options of levers, rollers and simulator, a variety of operating forces, operating positions and travel distances are available to fit most applications. In addition to tabs and solder terminals, this line is available with PC terminals to mount directly to your PC board.

If this offering doesn't fit your application needs, contact the product information center or your Tyco sales person to discuss a custom product.

Technical Information

Performance Information

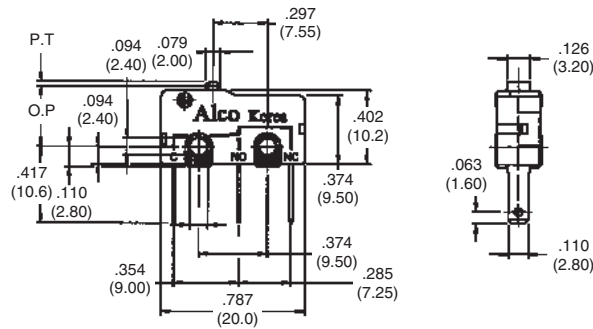
Amp Rating	5	
Insulation Resistance	Min. 100M ohm (at 500V DC)	
Contact Resistance	Max 50M ohm (by voltage drop, 1A 6V-8V DC)	
Dielectric Strength	Between terminals	1000Vrms for 1 min
	Between terminals & other exposed metal parts	1500Vrms for 1 min
	Between terminals and earth	1500Vrms for 1 min
Temperature Rise	30°C Max	
Terminal Strength	6kg pulling and push torque shall be applied for 1min	
Allowable Operating Speed	0.1 to 1,000 mm/sec	
Shock Resistance (without lever)	Min 30G (O.F. 100g. 150g)	Contact opening max 1msec
	Min 15G (O.F. 50g)	—
Vibration Resistance (without lever)	9G, 10 to 55 Hz at double amplitude of 1.5mm (contact opening, max 1msec)	
Electrical Life	50,000 at 20cpm	
Mechanical Life	500,000 at 60cpm	
Mechanical Repeatability	300 cpm	
Safety Approval	UL / CSA	
Ambient Temperature	-25°C to +85°C	

Materials

Case and Cover	P.B.T Resin, UL94 V-0 PA 66, UL94 V-0
Movable Contactor	Beryllium Copper, with or without silver plating
Button	Phenolic Resin, UL94 HB or UL94V0
Common Terminal	Brass, silver plated
Terminal (NC)	Brass
Terminal (NO)	Brass
Movable Contact	Silver alloy
Fixed Contact	Silver alloy, silver plated
Lever	Stainless Steel

Subminiature Pin Plunger

Pin Plunger



* Refer to Pages L10 for Product Specifications

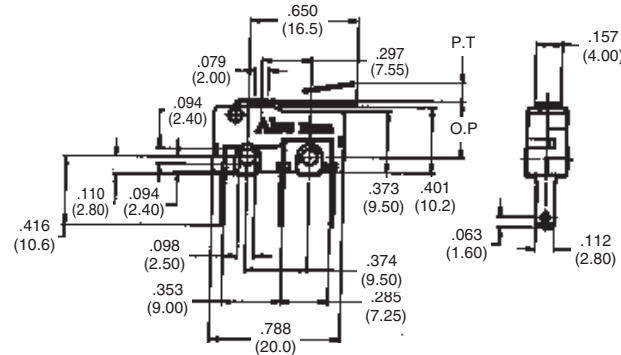
Product Facts

- Available in tab, PCB or solder terminals
- Versatile pin plunger option

Terminal Style	AMP	Switch Position	Operating Force	Releasing Force	Pre Travel	Operating Position	Over Travel	Movement Differential	Part Number
TAB	5	SPDT	150g	20g	0.6 m/m [.024]	8.4 ±0.4 [.331±.016]	0.3 m/m [.012]	0.2 m/m [.008]	1478600-1
PCB									1478601-1
Solder									1478602-1

Subminiature Normal Lever

Normal Lever



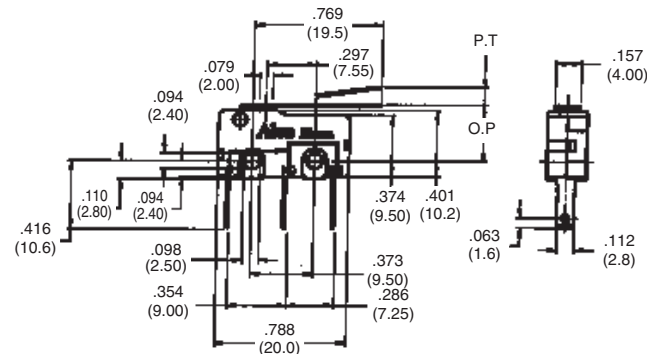
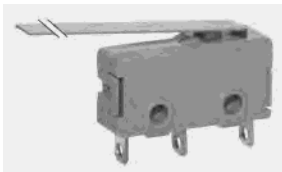
Product Facts

- Available in tab, PCB or solder terminals
- Lever length to reduce actuation force and increase travel

Terminal Style	AMP	Switch Position	Operating Force	Releasing Force	Pre Travel	Operating Position	Over Travel	Movement Differential	Part Number
TAB	5	SPDT	55g	3.5g	2.8 m/m [.110]	8.8 ±0.8 [.346±.031]	1.2 m/m [.047]	0.8 m/m [.031]	1478600-2
PCB									1478601-2
Solder									1478602-2

Subminiature Long Lever

Long Lever



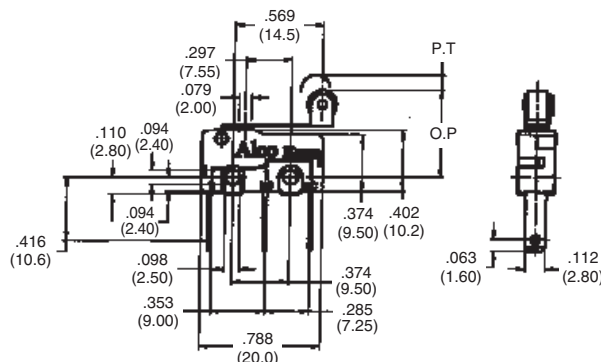
Product Facts

- Available in tab, PCB or solder terminals
- Long lever for increased travel and reduced force

Terminal Style	AMP	Switch Position	Operating Force	Releasing Force	Pre Travel	Operating Position	Over Travel	Movement Differential	Part Number
TAB	5	SPDT	45g	3.0g	3.5 m/m [.138]	8.8 ±1.2 [.346±.047]	1.6 m/m [.063]	1.0 m/m [.039]	1478600-3
PCB									1478601-3
Solder									1478602-3

Subminiature Roller Lever

Roller Lever



* Refer to Pages L10 for Product Specifications

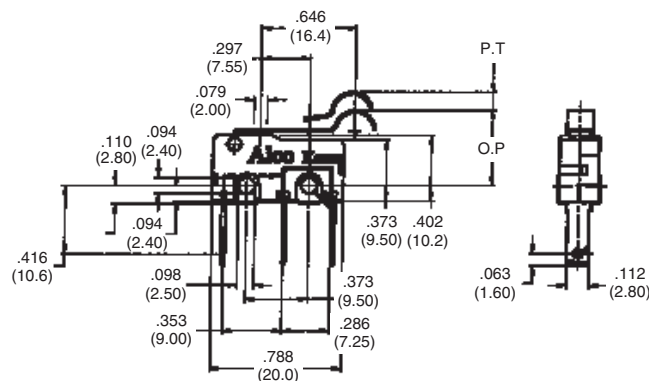
Product Facts

- Available in tab, PCB or solder terminals
- Roller lever for increased operating position

Terminal Style	AMP	Switch Position	Operating Force	Releasing Force	Pre Travel	Operating Position	Over Travel	Movement Differential	Part Number
TAB									1478600-4
PCB	5	SPDT	60g	4.0g	2.5 m/m [.098]	14.5 ±0.8 [.570±.031]	0.8 m/m [.031]	0.5 m/m [.020]	1478601-4
Solder									1478602-4

Subminiature Simulator Lever

Simulator Lever



Product Facts

- Available in tab, PCB, or solder terminals
- Simulator lever for operating position between a roller and a lever

Terminal Style	AMP	Switch Position	Operating Force	Releasing Force	Pre Travel	Operating Position	Over Travel	Movement Differential	Part Number
TAB									1478600-5
PCB	5	SPDT	40g	3.0g	3.6 m/m [.142]	11.6 ±0.8 [.457±.031]	0.8 m/m [.031]	0.6 m/m [.024]	1478601-5
Solder									1478602-5

Engineering Notes



L

Engineering Notes

L14

Catalog 1308390
Issued 9-04

www.tycoelectronics.com

Dimensions are in inches
and millimeters unless otherwise
specified. Values in parentheses
or brackets are metric equivalents.

Dimensions are shown for
reference purposes only.
Specifications subject
to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425

South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-141-810-8967

Solder Process Guide	M2 - M4
Actuator Code Chart	M5 - M6
Glossary	M7 - M9
Worksheet	M10
Alcoswitch to Tyco Electronics Part Number Cross Reference	M11 - M23
Tyco Electronics to Alcoswitch Part Number Cross Reference	M24 - M36

Index/Matrixes

Soldering Process Recommendation Guide

The majority of customers utilizing miniature or sub-miniature switches in the industry today have a great concern about the switches' capabilities during their soldering and cleaning cycles. This concern centers around the introduction of contaminants into the switch contact area which could cause the switch to experience various failure modes either immediately or during the life of the switch.

These failure modes can show in a number of manners. The following are just a few examples: high contact resistance, open contacts, low dielectric strength, and high actuation forces causing use-related malfunctions. Since most fluxes become active with the introduction of high temperatures used in all soldering techniques, the switch

must either prevent these fluxes from entering into its contact area or allow cleaning techniques to carry flux particles out. It must be understood that switch contamination can occur during any procedure: from hand soldering to Surface Mount systems for solder reflow.

We at Alcoswitch offer a wide range of switches to handle any soldering operations. However, certain soldering conditions will not apply to all switches. The following conditions and charts should help assist you in the soldering of our switches in your application. If you need additional information, please contact the factory.

SOLDERING TYPES

A. WAVE SOLDERING

Top & Bottom board preheat: 200°F (93°C) for approximately 3 to 4 minutes.

Solder Temperature & Dwell Time: 500°F (260°C) for approximately 3 to 5 seconds.

B. HAND SOLDERING

1. 500°F-600°F (260°C-316°C) Utilizing a controlled 40 watt iron for 3 to 5 seconds maximum.

2. 500°F (260°C) Utilizing a controlled 30 watt iron for 10 seconds maximum.

C. DIP SOLDERING

1. Solder Temperature & Dwell Time: 500°F (260°C) for 3-5 seconds maximum.

2. Mounted on PCB .060" thick - Solder Temperature & Dwell Time: 500°F (260°C) for 10 seconds maximum.

D. SURFACE MOUNT

Tyco Electronics performs testing of their Surface Mount switches in accordance with EIA-364-56, Resistance to Soldering Heat, test procedures 4 (Vapor Phase) and Procedure 5 (Infrared).

CLEANING TYPES

A. Solvent Wash (1.1.1 Trichlorethylene, T.M.S., T.M.C.)

B. Vapor Degreasing

C. Solvent Immersion

D. Aqueous Cleaning

Soldering Process Recommendation Guide

[illegible]

Soldering Process Recommendation Guide

[illegible]

Actuation Code Chart Toggles, Rockers and Paddles

									A		NONE	
									D		NONE	
									E			
			SINGLE MOMENTARY ON (WHERE APPLICABLE)				SINGLE MOMENTARY ON (WHERE APPLICABLE)		F		NONE	
1		NONE		8					K		NONE	
2		NONE		9	NONE				N		NONE	
3		NONE		10	NONE				P			
4		NONE		11					R		NONE	
5				12					PA*			
6												
7												

Note: Three throw function achieved with external jumpers installed by customer.

⊙ In (Common)

⊗ Out

Actuation Code Chart Pushbuttons and Slides

The following CODE CHARTS show schematically, the electrical contact closures of a switch relative to the actuator position. All diagrams represent a TOP view of the switch with the ALCO imprint facing and bushing slot, if any, pointing left. Terminal numbers are for reference only and may not appear on switches.

Code numbers are found throughout the catalog alongside part numbers. The same schematic may show either maintained or momentary action in some cases; momentary closures are indicated by the symbol (ON).

PUSHBUTTONS

13 N.O. MOMENTARY ON	21 MOMENTARY
14 N.C. MOMENTARY ON	22 MOM.
15 ON MOMENTARY ON	23 PUSH-ON PUSH-OFF
16 PUSH-ON PUSH-OFF	24 PUSH-ON PUSH-OFF
17 PUSH-ON PUSH-OFF	25 PUSH-ON PUSH-OFF
18 PUSH-ON PUSH-OFF	26 PUSH-ON PUSH-OFF
19 MOMENTARY	
20 MOMENTARY	

TP SERIES PUSHBUTTONS

C		NONE	
F FT		NONE	
M		NONE	
R		NONE	

TSS SERIES SLIDE SWITCHES

A		NONE	
D		NONE	
E		NONE	
K		NONE	
N		NONE	
P		NONE	
PA		NONE	

Glossary

- **Actuation Force (Operating Force):** The force required to change the actuator of a switch from one position to the other. Unit of Measure: Slides - lbs., oz. or grams. Toggles and pushbuttons - oz. Rotary products-torque.
- **Actuator:** A movable part of a switch which causes a change in the electrical configurations of the switch.
Example: Toggle Rocker Slider
 Plunger Paddle Shaft
- **Alternate Action:** See Push-Push.
- **Angle of Throw:** The angle or arc through which an actuator passes during actuation. Typically used to refer to the movement of toggle or rocker actuators. Unit of Measure: Degree.
- **Antistatic:** An antistatic device will withstand a specified potential without conducting between the actuator and any conducting element, usually the terminals or bushing. Unit of Measure: Typical value 15-20 kilovolts DC.
- **Bifurcated Contact:** A wiping movable contact consisting of two spring fingers that grip fixed contacts. Typically found in slide switches. Self-cleaning action. See Wiping Contact.
- **Bobbin Contact:** A movable contact shaped like a thread bobbin that rolls along the stationary contacts. Found only in slide switches.
- **Bounce:** See Contact Bounce.
- **Break-Before-Make (Non-shorting, Break First):** On actuation, the movable contact breaks contact with one fixed contact before making contact with another fixed contact. Contrast with make-before-break. Typical of toggle and pushbutton switches. (BBM)
- **Break First:** See Break-Before-Make.
- **Butt Contact:** A contact mechanism in which the movable contact makes contact with the fixed (stationary) contact without wiping motion between the surfaces. Typical of toggle and pushbutton switches. See Wiping Contact.
- **Capacitive Load:** A load in which the initial current on making (closing) of the contacts is higher than the steady state current on breaking (opening) of the contacts, the current is less than steady state. Current leads voltage in capacitive loads. See Resistive Load, Inductive Load, Power Factor and Inrush.
- **Carrying Current:** The maximum current that can be passed through the already closed contacts of a switch. Contrast with "Contact Rating."
- **Contact (Contact Area):** The metal surfaces that come into physical contact to complete an electrical circuit. These surfaces are found on moveable contacts (see) and terminals (see).
- **Contact Block:** A switching element which is added singly or in groups to an operator (see) to make a complete switch.
- **Contact Bounce (Bounce):** The time during switching in which electrical instability caused by the rebound of the contacts is observed. Unit of Measure: Millisecond.
- **Contact Gap:** The distance between a stationary contact and a moveable contact in the open position.
- **Contact Rating (Switching Rating):** The capacity to switch (connect or interrupt) an electrical load. Unit of Measure: Volts, amps, load characteristic (resistive, inductive, capacitive, power factor). Contrast with non-switching rating.
- **Contact Resistance:** The total resistance of the switch, comprised of the contact interface and terminals. Unit of Measure: Milliohms.
- **Cycles:** The number of times a switch can be actuated from one extreme position to the opposite extreme position and back to the original position.
- **Detent:** A mechanical stop that holds the contacts in a given position after the actuation force is removed or prevents the changing of contact position at less than a specified actuation force.
- **Detent Angle:** The angle or arc between detent positions in rotary switches. Unit of Measure: Degree.
- **Dielectric Strength (Dielectric Withstanding Voltage, DWV, Leakage Resistance, Breakdown Voltage):** The ability of an insulator to withstand a voltage without arcing across its surface. Most often applies to insulator between switch terminals and metal exposed to operator of switch. Unit of Measure: Volts RMS, Volts AC.
- **Dielectric Withstanding Voltage:** See Dielectric Strength.
- **DIP:** Dual-in-Line Package refers to a component with two rows of PC terminals. The terminals are most commonly on a 0.100" pitch with 0.300" between rows.
- **Double-Break Contacts:** A contact mechanism using two sets of contacts to make or break a given circuit. This provides better power handling capacity and longer switch life. Typical of high power industrial switches. See Single-Break Contacts.
- **Dry Circuit (Low Energy, Logic Level):** An application in which power levels do not cause arcing, melting or softening of contacts. Typically requires gold plated contacts for reliable switch operation. Typical Definition: 0.4VA max. @ 20 VDC or peak AC.
- **DWV:** See Dielectric Strength.
- **Electrical Life:** The number of operations at a given electrical load that does not result in a degradation of any electrical or mechanical parameter beyond the standard set by the applicable end-of-life criteria. Unit of Measure: Cycles (on-off operations) (rotations).

Glossary

- **End of Life Criteria:** Those specifications that a switch must meet at the end of its specified electrical life. Typically contact resistance and/or heat rise of contacts at full rated load at end of life.
- **Environmental Seal:** A seal that totally encapsulates the switch or relay providing a specified level of protection against intrusion of solids, liquids or gases into the body of the device.
- **Fixed Contact (Stationary or Statis Contact):** The non-moving contact. Typically integral to the end of the terminal inside the switch body.
- **Flux:** A material added during soldering to the metal surfaces which on heating prevents oxidation and aids the flowing of the solder.
- **Gas-Tight Contact:** A contact interface (movable to fixed contacts) in which the forces holding the contacts together are high enough to prevent gases from migrating between the members. This prevents static oxidation of the contact and subsequent intermittencies of high contact resistance. Typical forces are 280,000 PSI and higher.
- **Gold Flash:** A plating of gold typically less than 10 microinches (millionths) thick. Used only as a barrier to oxidation or corrosion of terminals to maintain solderability.
- **Heat Rise:** An indirect measurement of contact resistance used by rating agencies. The temperature rise over ambient of a contact set carrying a prescribed current is measured to determine whether it falls within safe limits.
- **Inductive Load:** A load in which the initial current on making (closing) of the contacts is lower than the steady state. On breaking (opening) of the contacts, the current is greater than the steady state. Current lags voltage in inductive loads. Motors are the most common inductive load. See Resistive Load, Capacitive Load, Power Factor.
- **Inrush:** A transitory high-level of current through a contact set on making (closing). A characteristic of capacitive and some resistive loads. The inrush currents can be large and long enough to cause severe degradation of the contacts. See Resistive Load, Capacitive Load, Power Factor.
- **Insert Molding:** In switches and relays used to refer to terminations that are placed in the mold so that plastic is molded around the terminations. The chief benefit is an inherent seal against the intrusion of flux into the body of the device. Therefore no epoxy terminal seal is required.
- **Insulation Resistance:** The resistance between insulated parts measured at a specified DC voltage. Unit of Measure: Megohm.
- **IP:** An industrial specification used in Europe (and worldwide) to indicate the degree of protection provided by a component against accidental contact, penetration of solids or liquids into or through the component. See NEMA.
- **Leakage Barrier:** A ridge or web molded into a switch housing between terminals or contacts to increase the surface distance between them.
- **Leakage Resistance:** Dielectric Strength.
- **Life:** See Electrical Life: Mechanical Life.
- **Logic Level:** Refers to power levels typical of solid state electronic circuits (TTL, CMOS, etc.). For switch selection see Dry Circuit.
- **Low Energy:** See Dry Circuit.
- **Maintained:** A position (throw) of a switch which remains unchanged when actuation force is removed from switch actuator. Contrast with Momentary.
- **Make-Before-Break (Shorting Contact, Make First):** Movable contact makes the next circuit before breaking the first circuit. Typically found in slide switches. Contrast with Break-Before-Make (MBB).
- **Make First:** See Make-Before-Break.
- **Mechanical Life:** The number of operations of a switch without electrical load that does not result in a degradation of parameters beyond the standard set by the applicable end-of-life criteria.
- **Momentary (Spring Return):** A momentary switch position (throw) is held only for duration of force applied to the switch actuator.
- **Movable Contact (Dynamic Contact):** The contact moved by the switch actuator into and away from contact with a fixed contact thus forming the electrical circuits possible for a given device.
- **N.C.:** See Normally Closed.
- **NEMA:** National Electrical Manufacturers Association. A US Standards setting group for switch products most often applied to switches mounted in various enclosures offering specified degrees of protection against intrusion of liquids, dust, corrosive elements, etc. NEMA ratings are common in industrial or outdoor applications. See IP.
- **NO:** See Normally Open.
- **Non-shorting:** See Break-Before-Make.
- **Non-switching Rating:** The power carrying capacity of a switch after contact closure and end of contact bounce. Typically far higher than the contact rating (switching rating) of a switch. Unit of Measure: Volts and Amps.
- **Normally Closed (NC):** Normally closed contacts are closed when switch actuator is in its unactuated position (e.g., the plunger is in the resting position in the case of a pushbutton switch).
- **Normally Open (NO):** Normally open contacts are open when the switch actuator is in its unactuated or resting position.

Glossary

- **Oil-tight:** A generic term for a panel seal (see) commonly used in industrial settings. Defined by NEMA (see) and IP (see) standards.
- **Operating Force:** See Actuation Force.
- **Operating Temperature:** The range of temperature within which the device may be used. Unit of Measure: Degrees celsius or fahrenheit (C or F).
- **Operator:** A panel mounted mechanical device (pushbutton, selector, keylock, etc.) without contacts to which one or more contact blocks (see) may be added to make a complete switch.
- **Overtravel:** The distance the actuator may move between initial contact position and the extreme mechanical position of the actuator without damage to the switch. See travel. Pretravel. Unit of Measure: Inch. Degree.
- **Panel Seal:** A panel seal provides a defined level of protection against penetration of liquids through which the switch and switch-to-panel interface to the rear of a panel. Unit of Measure: Inches/ft. of water.
- **Pole:** The number of separate circuits that can be active through a switch at any one time. A single pole switch allows one closed circuit at a time. A double pole switch allows two closed circuits, etc.
- **Power Factor (PF):** A measure of the inductive or capacitive character of an electrical load. Unit of Measure: 0 to 1 (e.g. 0.75)
- **Process Seal:** A seal that prevents damage to or contamination of the switch during the specified mechanical process. See wave solderable. Surface Mountable.
- **Push-On/Push-Off:** See Push-Push.
- **Push-Push (Alternative Action, Push-On/Push-Off):** A pushbutton switch style in which the electrical state of the switch is maintained between actuations of the plunger.
- **Quick-Connect Terminals:** Flat tab or blade style terminals designed to accept push-on female wire connectors (instead of soldering). The most popular sizes are: 0.250", 0.110" wide.
- **Resistive load:** A load in which the current and voltage are in phase. See Capacitive Load, Inductive Load, Power Factor, Inrush.
- **Shorting Contact:** See Make-Before-Break.
- **Single Break Contacts:** A contact mechanism using one set of contacts to make or break a given circuit. Typical of electronic or low power switches. See Double-Break Contacts.
- **Splashproof:** See panel Seal.
- **Spring Return:** See Momentary.
- **Storage Temperature:** The range of temperature within which the device may be stored. Typically this is a wider range than operating temperature. Unit of Measure: Degrees celsius or fahrenheit (C or F).
- **Surface Mount Devices:** Components that are compatible with surface mount PC board technology. Holes are not used for component mounting. Component leads are soldered to pads on the surface of the PC boards. For switches typically defined by surface mount terminations (e.g., J-bend, L-bend, butt, etc.) and compatibility with surface mount soldering (e.g., vapor phase reflow, infrared, etc.) and cleaning processes.
- **Tactile Feel (Feedback):** A mechanical signal (typically a "snap" or "click") that indicates contact closure to the operator.
- **Terminal:** The metal portion of the switch, exterior to the body, that is used to connect the switch to an electrical circuit. Examples: PC, wire lug, Turret, quick-connect, wire-wrap, etc.
- **Throws:** Number of circuits that can be controlled by any one pole of a switch. Example: In a single pole — double throw (SPDT) switch, only one circuit may be completed at a time. However, there are two possible circuits (throws) that can be made.
- **Travel:** The total distance the actuator moves to change electrical position. See Pretravel. Overtravel. Unit of Measure: Inches, degrees.
- **Washable:** Applied to PC board mounted devices indicating compatibility with cleaning processes used after soldering. No degradation of electrical or mechanical parameters occurs.
- **Wave Solderable:** Indicates the device is suitable for the wave soldering and cleaning processes as supplied. See Process Seal.
- **Wiping Contact:** A contact mechanism in which the movable contact with the fixed contact with a wiping motion. Typical to slide and rotary switches.

Alcoswitch & Tyco Electronics Power Tool Switches Application Worksheet

Required Information

Electrical Considerations:

Voltage of Applications: _____ Current of Application: _____

Circuitry Configuration: _____ Number of Poles: _____ Number of Throws: _____

Number of Operations anticipated: _____

Agency Approvals or Listings Desired: _____

Mechanical Considerations

Type of Switch (Actuator Type): ☐ Toggle ☐ Pushbutton ☐ Rotary ☐ Trigger ☐ Other

Switch Function: (On/Off/On) _____ On/Off _____ Momentary: _____

Termination: ☐ Thru-Hole (PC) ☐ Surface Mount ☐ Wire Lug ☐ Quick Connect ☐ Other

Sealing Contamination Requirements: _____

Product Processing Considerations

Anticipated Soldering Process: ☐ Hand ☐ Wave ☐ SMT ☐ Other

Required Information For Power Tool Switches Only

Output Characteristics:

Variable Speed, Two Speed, On/Off, etc.: _____ Reversing/Non-Reversing: _____

Lock-on, Lock-off, or Neither: _____

Hook-up wire size and configuration (i.e. stranded/solder tinned, fused, terminated, etc.) and retention force requirements (how many pounds pull force and what directions required): _____

Optional Information

Electrical Considerations:

Contact Resistance Requirements: Initial: _____ After Life Cycles: _____

Electrostatic Discharge: (E.S.D.) Requirements: _____

Contact Timing: ☐ Shorting (Make-Before-Break) ☐ Non Shorting (Break-Before-Make)

Other Electrical Considerations: _____

Mechanical Considerations

Actuation Force Requirements: _____

Actuator Travel Distance or Degrees of Throw: _____

Special Plating Requirements: _____ Flammability Rating: _____ Oxygen Index: _____

Special Material Requirements: _____ % Solder Coverage: _____

Marking Required: _____

Desired Product Color Options: _____

Other Mechanical Considerations: _____

Environmental Considerations

Operating Temperature Range: _____

Storage Temperature Range: _____

Chemical Resistance Requirements: _____

Other Environmental Considerations: _____

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1437572-2	TPBF11FGRAES0	D15
1437572-3	TPC11CGPC0	D8
1437572-4	TPC11CGPC2	D8
1437572-5	TPC11CGPCES0	D13
1437572-6	TPC11CGPCES2	D13
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