

Product Range



Snap Action Switches

- **Ultraminiature Snap Action Switch:**
UP Series
- **Sub Miniature Snap Action Switch:**
SP Series
- **Miniature Snap Action Switch:**
MP Series

Main features:

- C/O contact configuration
- Low current versions
- Different actuation forces
- Different levers
- PCB, solder or qick connect terminals
- Right angle versions



UP Ultraminiature Snap Action Switchpage H2



SP Subminiature Snap Action Switchpage H5



MP Miniature Snap Action Switchpage H8

UP Ultraminiature Snap Action Switch

Features

- SPDT Type
- PC mount both straight and right angle
- 2 different actuation forces
- With or Without levers



Typical performance characteristics

Contact Rating 3 A or 0.1 A @ 125 VAC
 Initial Contact Resistance max 100 milliohms
 Insulation Resistance min. 100M ohms
 Dielectric Withstanding Voltage 1,000 VAC
 Actuator Force, no lever 150 or 80 grams
 Actuator Force, normal lever 50 or 30 grams
 Life Expectancy up to 1,000,000 Cycles (electrical)
 up to 10,000,000 Cycles (mechanical)

Environmental specification

Operating Temperature 0.1 A version: -40°C to +85°C
 3 A version: -40°C to +55°C
 Storage Temperature -40°C to +85°C

Material specifications

Terminal copper alloy w/ gold plating
 Housing nylon UL 94V-0
 Cover pbt UL 94V-0
 Button nylon UL 94V-0
 Spring Contact copper alloy
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		UP	01	DT	A	OL	A	04
Type	UP	Ultraminiature snap action switch								
Rating	01	.1 A @ 30 VDC								
	3	3A @ 125 VAC								
Function	DT	double throw								
Terminal type	A	PCB		B	PCB left		C	PCB right		
Lever type	OL	no lever		NL	normal lever					
Operating force		no lever			normal lever					
	A	1.5N (150gf)		A	0.5N (50gf)					
	B	0.8N (80gf)		B	0.3N (30gf)					
Material	04	RoHS compliant								

UP Ultraminiature Snap Action Switch (Continued)

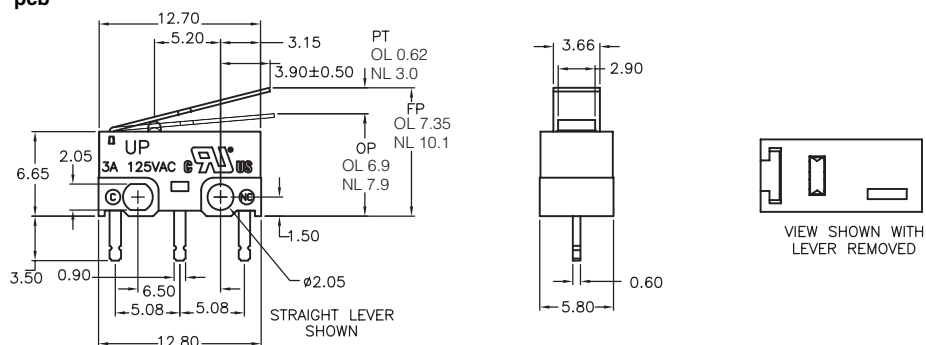
Terminal type



A

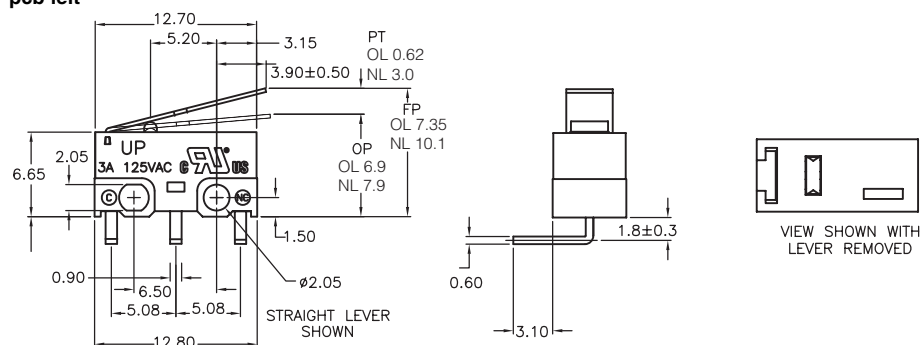


pcb



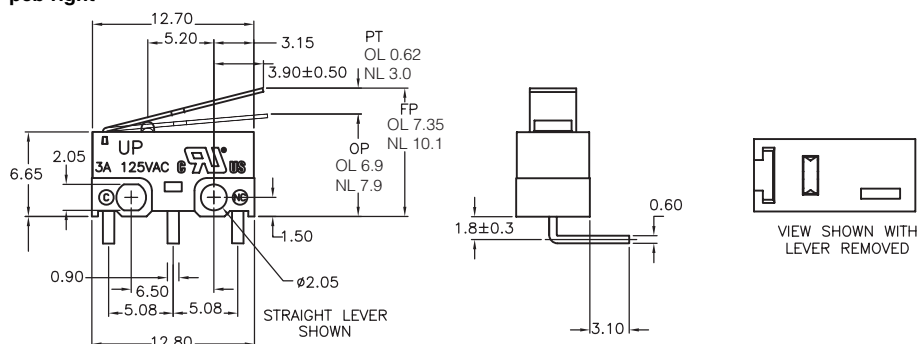
B

pcb left



C

pcb right



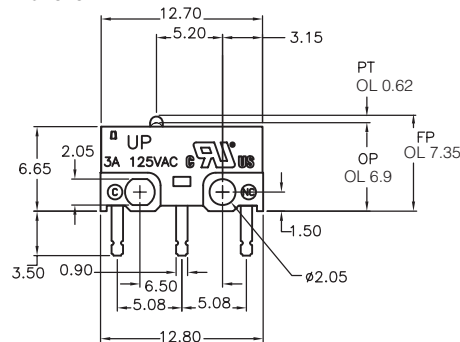
UP Ultraminiature Snap Action Switch (Continued)

Lever type



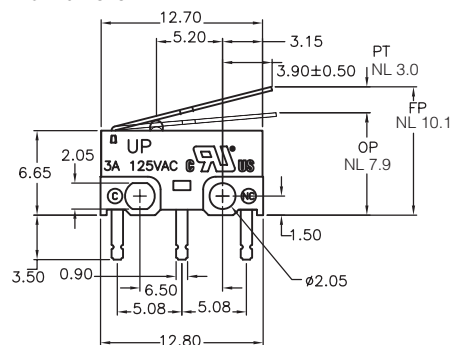
OL

no lever



NL

normal lever



Product key	Rating	Function	Terminal	Lever	Operating force	Material	Part Number
UP01DTAOLA04	.1 A@30 VDC	double throw	pcb	none	1.5N (150gf)	RoHS compliant	1825043-1
UP01DTAOLB04					0.8N (80gf)		1825043-2
UP01DTANLA04				normal lever	0.5N (50gf)		1825043-3
UP01DTANLB04					0.3N (30gf)		1825043-4
UP01DTBOLA04			pcb left	none	1.5N (150gf)		1825043-5
UP01DTBOLB04					0.8N (80gf)		1825043-6
UP01DTBNLA04				normal lever	0.5N (50gf)		1825043-7
UP01DTBNLB04					0.3N (30gf)		1825043-8
UP01DTCOLA04			pcb right	none	1.5N (150gf)		1825043-9
UP01DTCOLB04					0.8N (80gf)		1-1825043-0
UP01DTCNLA04				normal lever	0.5N (50gf)		1-1825043-1
UP01DTCNLB04					0.3N (30gf)		1-1825043-2
UP3DTAOLA04	3 A@125 VAC		pcb	none	1.5N (150gf)		1-1825043-3
UP3DTAOLB04					0.8N (80gf)		1-1825043-4
UP3DTANLA04				normal lever	0.5N (50gf)		1-1825043-5
UP3DTANLB04					0.3N (30gf)		1-1825043-6
UP3DTBOLA04			pcb left	none	1.5N (150gf)		1-1825043-7
UP3DTBOLB04					0.8N (80gf)		1-1825043-8
UP3DTBNLA04				normal lever	0.5N (50gf)		1-1825043-9
UP3DTBNLB04					0.3N (30gf)		2-1825043-0
UP3DTCOLA04			pcb right	none	1.5N (150gf)		2-1825043-1
UP3DTCOLB04					0.8N (80gf)		2-1825043-2
UP3DTCNLA04				normal lever	0.5N (50gf)		2-1825043-3
UP3DTCNLB04					0.3N (30gf)		2-1825043-4

Preferred parts in bold print

SP Sub Miniature Snap Action Switches

Features

- Various actuator and mounting options
- 5 different standard lever styles
- 3 different terminal types
- high reliability and low costs



Typical performance characteristics

Contact configuration SPDT
 Contact rating 5A @ 250 VAC
 Electrical life min. 10,000 ops
 Mechanical life min. 1,000,000 ops
 Contact resistance max. 50 mOhm
 Insulation resistance min. 100 MOhm
 Dielectric strength 1,000 VAC
 Actuation force 1.6 N
 Standards and specs UL, ENEC

Environmental specification

Operating temperature -25°C to +85°C

Material specifications

Case and Cover PBT
 Contacts silver alloy
 Terminals copper alloy / silver plating
 Housing PBT
 Plunger PBT
 Lever stainless steel
 RoHS compliance compliant

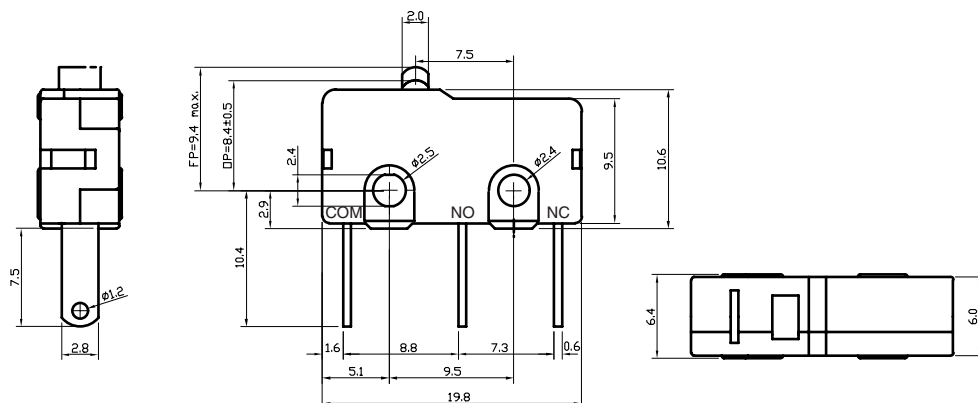
Product key		Typical product key		SP	5	DT	C	OL	E
Type									
SP	Sub miniature snap action switch								
Rating									
5	5 A @ 250 VAC								
Function									
DT	single pole, double throw, SPDT								
Terminal type									
A	solder terminal								
B	pcb terminal								
C	.110 quick connect								
Lever type									
OL	no lever		NR	normal roller					
NL	normal lever		SM	simulated roller					
LL	long lever								
Operating force (without lever)									
E	1.6N (160gf)								

SP Sub Miniature Snap Action Switches (Continued)

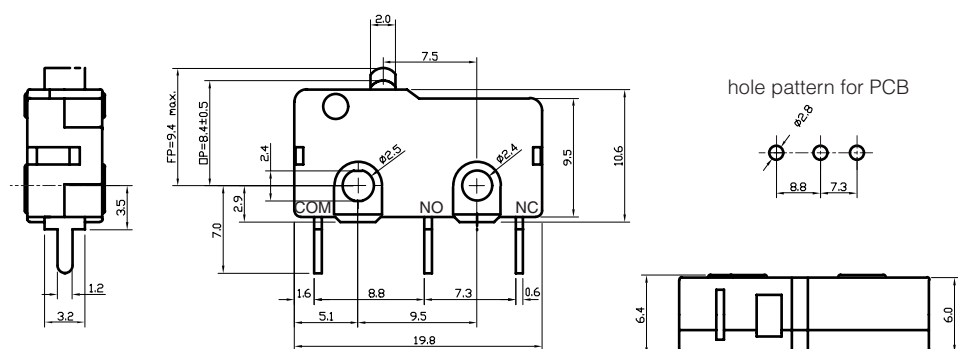
Terminla type



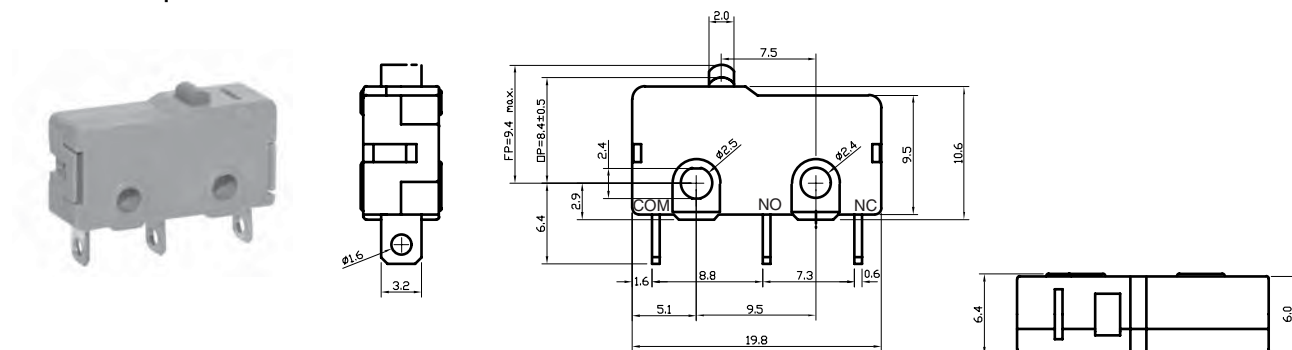
A solder terminal



B pcb terminal



C .110 quick connect terminal



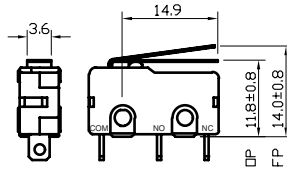
SP Sub Miniature Snap Action Switches (Continued)

Lever type 

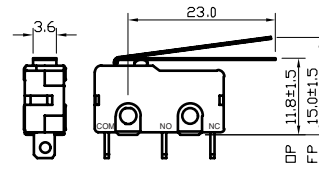
Codes NL, LL normal and long lever



normal lever



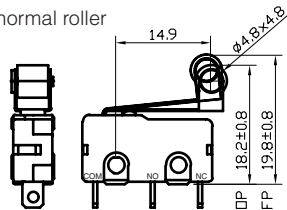
long lever



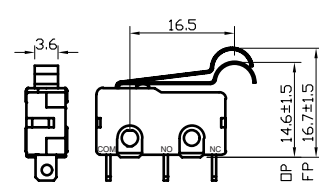
Codes NR, SM normal and simulated roller



normal roller



simulated roller



Operating force, displacement

Lever style	OP	PT	OF	RF
OL No Lever	8.4 mm	0.6 mm	160 gf	35 gf
NL Normal Lever	9.4 mm	3.0 mm	45 gf	8 gf
LL Long Lever	10.0 mm	3.7 mm	25 gf	5 gf
NR Normal Roller	15.0 mm	2.5 mm	40 gf	8 gf
SM Simulated Roller	10.8 mm	2.6 mm	45 gf	10 gf

OF - operating force; OP - operating position; PT - pre-travel; RF - release force

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
SP5DTCOLE	5 A @ 250 VAC	SPDT	.110 quick connect	no lever	1,6N (160gf)	1-1478600-1
SP5DTCNLE				normal lever	0,45N (45gf)	1-1478600-2
SP5DTCNLE				long lever	0,25N (25gf)	1-1478600-3
SP5DTCNRE				normal roller	0,40N (40gf)	1-1478600-4
SP5DTCNRE				simulated roller	0,45N (45gf)	1-1478600-5
SP5DTBOLE			pcb terminal	no lever	1,6N (160gf)	1-1478601-1
SP5DTBNLE				normal lever	0,45N (45gf)	1-1478601-2
SP5DTBLLE				long lever	0,25N (25gf)	1-1478601-3
SP5DTBNRE				normal roller	0,40N (40gf)	1-1478601-4
SP5DTBSME				simulated roller	0,45N (45gf)	1-1478601-5
SP5DTAOLE			solder terminal	no lever	1,6N (160gf)	1-1478602-1
SP5DTANLE				normal lever	0,45N (45gf)	1-1478602-2
SP5DTALLE				long lever	0,25N (25gf)	1-1478602-3
SP5DTANRE				normal roller	0,40N (40gf)	1-1478602-4
SP5DTASME				simulated roller	0,45N (45gf)	1-1478602-5

Preferred parts in bold print

MP Miniature Snap Action Switches

Features

- available in a current range from 0,1A up to 16A
- SPDT, SPNO, SPNC circuitry
- 7 different standard lever styles
- 2 different terminal types
- high reliability and low costs



Typical performance characteristics

Contact configuration SPDT, SPNO, SPNC
Contact rating 16A or 0,1A @ 250 VAC
Electrical life min 50,000 ops
Mechanical life min 1,000,000 ops
Contact resistance max 50 mOhm
Insulation resistance min 100 MOhm
Dielectric strength 1000 VAC
Actuation force 1.0...3.5 N
Standards and Specs UL, ENEC

Environmental specification

Operating temperature -25°C to +130°C

Material specifications

Case and Cover PBT
Contacts silver alloy
Terminals copper alloy / silver plating
Housing 0.1 A version: PET, 16 A version: PBT
Plunger 0.1 A version: PPS, 16 A version: PBT
Lever stainless steel
RoHS compliance compliant

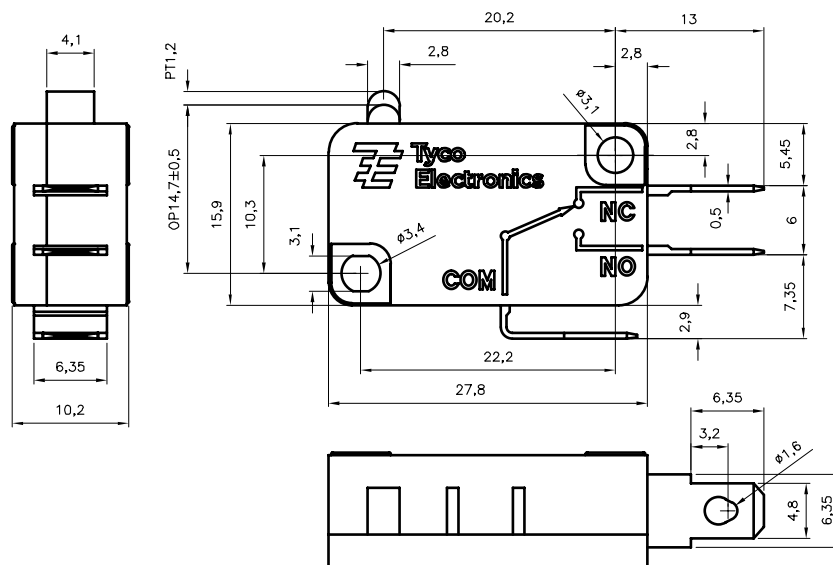
Product key		Typical product key		MP	16	DT	C	OL	D
Type									
MP	Miniature snap action switch								
Rating									
01	.1 A @ 250 VAC								
16	16 A @ 250 VAC								
Function									
DT	single pole, double throw, SPDT								
NC	single pole, normally closed, SPNC								
NO	single pole, normally open, SPNO								
Terminal type									
A	.187 qick connect for solder use								
C	.250 qick connect								
Lever type									
OL	no lever			SR	short roller				
SL	small lever			NR	normal roller				
NL	normal lever			SM	simulated roller				
LL	long lever								
Operating force (without lever)									
D	1.0N (100gf) for MP01 only			G	2.0N (200gf)				
E	1.6N (160gf)			K	3.5N (350gf)				
note: not all combinations actuation force - lever style available									

MP Miniature Snap Action Switches (Continued)

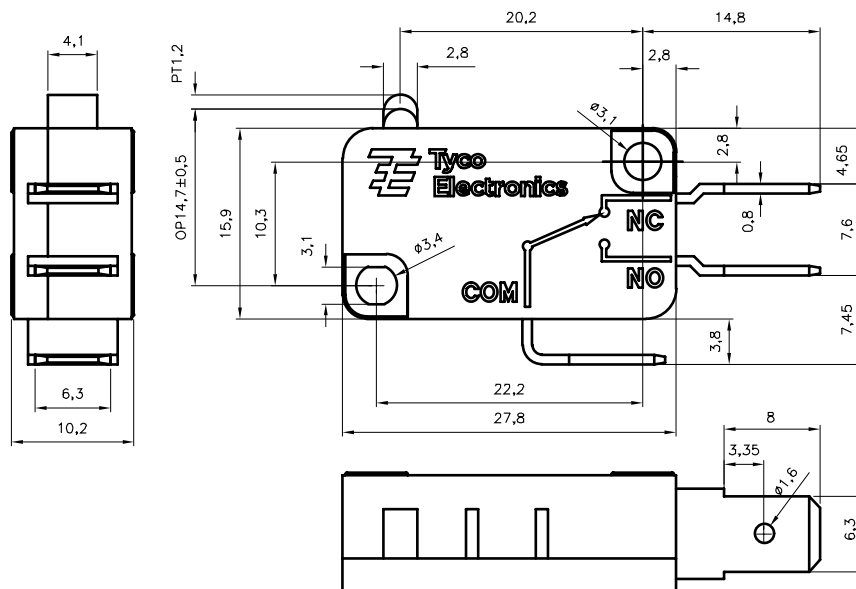
Terminal type



A .187 quick connect for solder use



C .250 quick connect



Snap Action Switches

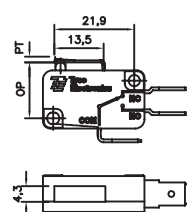
MP Miniature Snap Action Switches (Continued)

Lever type

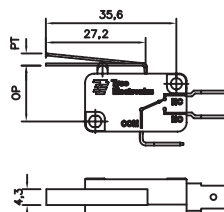


Codes SL, NL, LL small, normal lever and long lever

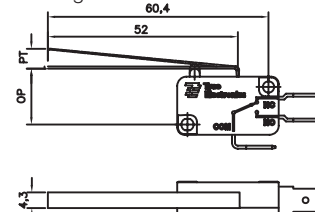
small lever



normal lever

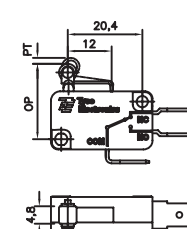


long lever

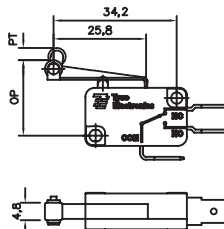


Codes SR, NR, SM short roller, normal roller and simulated roller

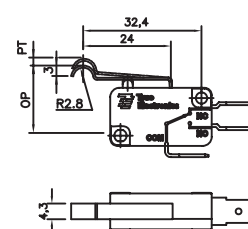
short roller



normal roller



simulated roller



Operating force, displacement

OF without lever

D	E	G	K
100gf	160gf	200gf	350gf

Lever style	OP	PT	OF	RF	OF	RF	OF	RF	OF	RF
OL No Lever	14.7 mm	1.2 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
SL Short Lever	15.3 mm	1.6 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
NL Normal Lever	15.3 mm	3.3 mm	50 gf	15 gf	75 gf	30 gf	95 gf	40 gf	170 gf	50 gf
LL Long Lever	15.3 mm	6.2 mm	25 gf	8 gf	40 gf	15 gf	50 gf	20 gf	85 gf	30 gf
SR Short Roller	20.7 mm	1.6 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
NR Normal Roller	20.7 mm	3.7 mm	40 gf	10 gf	60 gf	25 gf	75 gf	30 gf	140 gf	45 gf
SM Simulated Roller	18.7 mm	2.8 mm	55 gf	15 gf	85 gf	30 gf	105 gf	40 gf	180 gf	50 gf

OF - operating force; OP - operating position; PT - pre-travel; RF - release force

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
MP16DTAOLE	16 A @ 250 VAC	SPDT	.187 quick connect	no lever	1,6N (160gf)	1-1478603-1
MP16DTASLE				short lever	1,6N (160gf)	1-1478603-2
MP16DTANLE				normal lever	0,75N (75gf)	1-1478603-3
MP16DTALLE				long lever	0,4N (40gf)	1-1478603-4
MP16DTASRE				short roller	1,6N (160gf)	1-1478603-5
MP16DTANRE				normal roller	0,6N (60gf)	1-1478603-6
MP16DTASME				simulated roller	0,85N (85gf)	1-1478603-7
MP16DTAOLG				no lever	2,0N (200gf)	1-1478604-1
MP16DTASLG				short lever	2,0N (200gf)	1-1478604-2
MP16DTANLG				normal lever	0,95N (95gf)	1-1478604-3
MP16DTALLG				long lever	0,5N (50gf)	1-1478604-4
MP16DTASRG				short roller	2,0N (200gf)	1-1478604-5
MP16DTANRG				normal roller	0,75N (75gf)	1-1478604-6
MP16DTASMG				simulated roller	1,05N (105gf)	1-1478604-7
MP16DTAOLK				no lever	3,5N (350gf)	1-1478605-1
MP16DTASLK				short lever	3,5N (350gf)	1-1478605-2
MP16DTANLK				normal lever	1,7N (170gf)	1-1478605-3
MP16DTALLK				long lever	0,85N (85gf)	1-1478605-4
MP16DTASRK				short roller	3,5N (350gf)	1-1478605-5
MP16DTANRK				normal roller	1,4N (140gf)	1-1478605-6
MP16DTASMK				simulated roller	1,8N (180gf)	1-1478605-7

MP Miniature Snap Action Switches (Continued)

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
MP16DTCOLE	16 A @ 250 VAC		.250 quick connect	no lever	1,6N (160gf)	1-1478606-1
MP16DTCOLE				short lever	1,6N (160gf)	1-1478606-2
MP16DTCNLE				normal lever	0,75N (75gf)	1-1478606-3
MP16DTCNLE				long lever	0,4N (40gf)	1-1478606-4
MP16DTCNLE				short roller	1,6N (160gf)	1-1478606-5
MP16DTCNRE				normal roller	0,6N (60gf)	1-1478606-6
MP16DTCNRE				simulated roller	0,85N (85gf)	1-1478606-7
MP16DTCNRE				no lever	2,0N (200gf)	1-1478607-1
MP16DTCNRE				short lever	2,0N (200gf)	1-1478607-2
MP16DTCNRE				normal lever	0,95N (95gf)	1-1478607-3
MP16DTCNRE				long lever	0,5N (50gf)	1-1478607-4
MP16DTCNRE				short roller	2,0N (200gf)	1-1478607-5
MP16DTCNRE				normal roller	0,75N (75gf)	1-1478607-6
MP16DTCNRE				simulated roller	1,05N (105gf)	1-1478607-7
MP16DTCNRE				no lever	3,5N (350gf)	1-1478608-1
MP16DTCNRE				short lever	3,5N (350gf)	1-1478608-2
MP16DTCNRE				normal lever	1,7N (170gf)	1-1478608-3
MP16DTCNRE				long lever	0,85N (85gf)	1-1478608-4
MP16DTCNRE				short roller	3,5N (350gf)	1-1478608-5
MP16DTCNRE				normal roller	1,4N (140gf)	1-1478608-6
MP16DTCNRE				simulated roller	1,8N (180gf)	1-1478608-7
MP16NCAOLE		SPNC	.187 quick connect	no lever	1,6N (160gf)	1-1478609-1
MP16NCAOLE				short lever	1,6N (160gf)	1-1478609-2
MP16NCAOLE				normal lever	0,75N (75gf)	1-1478609-3
MP16NCAOLE				long lever	0,4N (40gf)	1-1478609-4
MP16NCAOLE				short roller	1,6N (160gf)	1-1478609-5
MP16NCAOLE				normal roller	0,6N (60gf)	1-1478609-6
MP16NCAOLE				simulated roller	0,85N (85gf)	1-1478609-7
MP16NCAOLE				no lever	2,0N (200gf)	1-1478610-1
MP16NCAOLE				short lever	2,0N (200gf)	1-1478610-2
MP16NCAOLE				normal lever	0,95N (95gf)	1-1478610-3
MP16NCAOLE				long lever	0,5N (50gf)	1-1478610-4
MP16NCAOLE				short roller	2,0N (200gf)	1-1478610-5
MP16NCAOLE				normal roller	0,75N (75gf)	1-1478610-6
MP16NCAOLE				simulated roller	1,05N (105gf)	1-1478610-7
MP16NCAOLE				no lever	3,5N (350gf)	1-1478611-1
MP16NCAOLE				short lever	3,5N (350gf)	1-1478611-2
MP16NCAOLE				normal lever	1,7N (170gf)	1-1478611-3
MP16NCAOLE				long lever	0,85N (85gf)	1-1478611-4
MP16NCAOLE				short roller	3,5N (350gf)	1-1478611-5
MP16NCAOLE				normal roller	1,4N (140gf)	1-1478611-6
MP16NCAOLE				simulated roller	1,8N (180gf)	1-1478611-7
MP16NCCOLE			.250 quick connect	no lever	1,6N (160gf)	1-1478612-1
MP16NCCOLE				short lever	1,6N (160gf)	1-1478612-2
MP16NCCOLE				normal lever	0,75N (75gf)	1-1478612-3
MP16NCCOLE				long lever	0,4N (40gf)	1-1478612-4
MP16NCCOLE				short roller	1,6N (160gf)	1-1478612-5
MP16NCCOLE				normal roller	0,6N (60gf)	1-1478612-6
MP16NCCOLE				simulated roller	0,85N (85gf)	1-1478612-7
MP16NCCOLE				no lever	2,0N (200gf)	1-1478613-1
MP16NCCOLE				short lever	2,0N (200gf)	1-1478613-2
MP16NCCOLE				normal lever	0,95N (95gf)	1-1478613-3
MP16NCCOLE				long lever	0,5N (50gf)	1-1478613-4
MP16NCCOLE				short roller	2,0N (200gf)	1-1478613-5
MP16NCCOLE				normal roller	0,75N (75gf)	1-1478613-6
MP16NCCOLE				simulated roller	1,05N (105gf)	1-1478613-7
MP16NCCOLE				no lever	3,5N (350gf)	1-1478614-1
MP16NCCOLE				short lever	3,5N (350gf)	1-1478614-2
MP16NCCOLE				normal lever	1,7N (170gf)	1-1478614-3
MP16NCCOLE				long lever	0,85N (85gf)	1-1478614-4
MP16NCCOLE				short roller	3,5N (350gf)	1-1478614-5
MP16NCCOLE				normal roller	1,4N (140gf)	1-1478614-6
MP16NCCOLE				simulated roller	1,8N (180gf)	1-1478614-7

Preferred parts in bold print

MP Miniature Snap Action Switches (Continued)

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number		
MP16NOAOLE	16 A @ 250 VAC	SPNO	.187 quick connect	no lever	1,6N (160gf)	1-1478615-1		
MP16NOASLE				short lever	1,6N (160gf)	1-1478615-2		
MP16NOANLE				normal lever	0,75N (75gf)	1-1478615-3		
MP16NOALLE				long lever	0,4N (40gf)	1-1478615-4		
MP16NOASRE				short roller	1,6N (160gf)	1-1478615-5		
MP16NOANRE				normal roller	0,6N (60gf)	1-1478615-6		
MP16NOASME				simulated roller	0,85N (85gf)	1-1478615-7		
MP16NOAOLG				no lever	2,0N (200gf)	1-1478616-1		
MP16NOASLG				short lever	2,0N (200gf)	1-1478616-2		
MP16NOANLG				normal lever	0,95N (95gf)	1-1478616-3		
MP16NOALLG				long lever	0,5N (50gf)	1-1478616-4		
MP16NOASRG				short roller	2,0N (200gf)	1-1478616-5		
MP16NOANRG				normal roller	0,75N (75gf)	1-1478616-6		
MP16NOASMG				simulated roller	1,05N (105gf)	1-1478616-7		
MP16NOAOLK				no lever	3,5N (350gf)	1-1478617-1		
MP16NOASLK				short lever	3,5N (350gf)	1-1478617-2		
MP16NOANLK				normal lever	1,7N (170gf)	1-1478617-3		
MP16NOALLK				long lever	0,85N (85gf)	1-1478617-4		
MP16NOASRK				short roller	3,5N (350gf)	1-1478617-5		
MP16NOANRK				normal roller	1,4N (140gf)	1-1478617-6		
MP16NOASMK				simulated roller	1,8N (180gf)	1-1478617-7		
MP16NOCOLE			.250 quick connect			no lever	1,6N (160gf)	1-1478618-1
MP16NOCOLE						short lever	1,6N (160gf)	1-1478618-2
MP16NOCNLE						normal lever	0,75N (75gf)	1-1478618-3
MP16NOCNLE						long lever	0,4N (40gf)	1-1478618-4
MP16NOCNLE						short roller	1,6N (160gf)	1-1478618-5
MP16NOCNRE						normal roller	0,6N (60gf)	1-1478618-6
MP16NOCNRE						simulated roller	0,85N (85gf)	1-1478618-7
MP16NOCOLG						no lever	2,0N (200gf)	1-1478619-1
MP16NOCOLG						short lever	2,0N (200gf)	1-1478619-2
MP16NOCNLG						normal lever	0,95N (95gf)	1-1478619-3
MP16NOCNLG						long lever	0,5N (50gf)	1-1478619-4
MP16NOCNRG						short roller	2,0N (200gf)	1-1478619-5
MP16NOCNRG						normal roller	0,75N (75gf)	1-1478619-6
MP16NOCNRG						simulated roller	1,05N (105gf)	1-1478619-7
MP16NOCOLK						no lever	3,5N (350gf)	1-1478620-1
MP16NOCOLK						short lever	3,5N (350gf)	1-1478620-2
MP16NOCNLK						normal lever	1,7N (170gf)	1-1478620-3
MP16NOCNLK						long lever	0,85N (85gf)	1-1478620-4
MP16NOCNRK						short roller	3,5N (350gf)	1-1478620-5
MP16NOCNRK						normal roller	1,4N (140gf)	1-1478620-6
MP16NOCNRK						simulated roller	1,8N (180gf)	1-1478620-7
MP01DTAOLD	0.1 A @ 250VAC	DT	.187 quick connect	no lever	1,0N (100gf)	1-1478670-1		
MP01DTASLD				short lever	1,0N (100gf)	1-1478670-2		
MP01DTANLD				normal lever	0,5N (50gf)	1-1478670-3		
MP01DTALLD				long lever	0,25N (25gf)	1-1478670-4		
MP01DTASRD				short roller	1,0N (100gf)	1-1478670-5		
MP01DTANRD				normal roller	0,4N (40gf)	1-1478670-6		
MP01DTASMD				simulated roller	0,55N (55gf)	1-1478670-7		
MP01NCAOLD		SPNC				no lever	1,0N (100gf)	1-1478671-1
MP01NCASLD						short lever	1,0N (100gf)	1-1478671-2
MP01NCANLD						normal lever	0,5N (50gf)	1-1478671-3
MP01NCALLD						long lever	0,25N (25gf)	1-1478671-4
MP01NCASRD						short roller	1,0N (100gf)	1-1478671-5
MP01NCANRD						normal roller	0,4N (40gf)	1-1478671-6
MP01NCASMD						simulated roller	0,55N (55gf)	1-1478671-7
MP01NOAOLD		SPNO				no lever	1,0N (100gf)	1-1478672-1
MP01NOASLD						short lever	1,0N (100gf)	1-1478672-2
MP01NOANLD						normal lever	0,5N (50gf)	1-1478672-3
MP01NOALLD						long lever	0,25N (25gf)	1-1478672-4
MP01NOASRD						short roller	1,0N (100gf)	1-1478672-5
MP01NOANRD						normal roller	0,4N (40gf)	1-1478672-6
MP01NOASMD						simulated roller	0,55N (55gf)	1-1478672-7