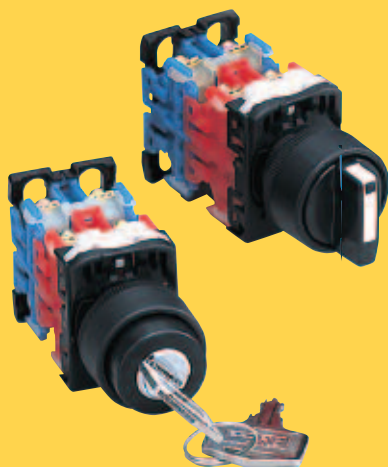




COMMAND SWITCHES

AR22•DR22/AR30•DR30
AH164•AH165•AH165-2

16mm/22mm/30mm Diameter



Preface

Fuji Electric manufactures FUJI COMMAND SWITCHES-pushbutton, illuminated pushbutton, and selector switches, and pilot lights.

FUJI COMMAND SWITCHES are used in machine tools, industrial machines, control panels, distribution panels, and instrumentation panels both in Japan and overseas.

COMMAND SWITCHES improve interfacing with better layout and wiring, easier installation, and increased safety.

Reliability is of course, built in to handle complex multifunctional control.

Table of Contents

Page

AR22 and DR22 series	Command Series General Information	1
	General Information	2
	Quick Reference Guide	3
	Part Number System	7
	Ratings and Specifications	12
	Illuminated Pushbuttons	17
	Pushbuttons	20
	Emergency Stop Pushbuttons	23
	Emergency Stop Illuminated Pushbuttons	24
	Selector Switches	25
	Illuminated Selector Switches	32
	Pilot Lights	34
	Joy Stick Selector Switches	38
	Buzzers	39
	Dimensions	40
AR30 and DR30 series	Notes on Use	50
	General Information	55
	Quick Reference Guide	56
	Part Number System	60
	Ratings and Specifications	65
	Illuminated Pushbuttons	71
	Pushbuttons	73
	Emergency Stop Pushbuttons	76
	Emergency Stop Illuminated Pushbuttons	77
	Selector Switches	78
	Illuminated Selector Switches	85
	Pilot Lights	87
	Joy Stick Selector Switches	90
	Buzzers	91
	Dimensions	92
AH164, AH165 and AH165-2	Notes on Use	103
	Accessories	106
	Special Products	119
	Mass	122
	General Information	126
	Quick Reference Guide	127
	Part Number System (AH164, AH165)	132
	Ratings and Specifications	134
	Illuminated Pushbuttons	136
	Pushbuttons	141
	Selector Switches	143
	Pilot Lights	148
	Buzzers	150
	Mounting Space	151
	Part Number System (AH165-2)	152
Terms and Conditions of Sale	Ratings and Specifications	154
	Illuminated Pushbutton Switches	155
	Pushbutton Switches	158
	Selector Switches	160
	Pilot Lights	164
	Mounting Space	165
	Notes on Use (AH164, AH165 and AH165-2)	166
	Accessories (AH164, AH165)	169
	Accessories (AH165-2)	171
	Accessories	173
	Mass	175
	AH-series Pushbutton Cross to AR-series Pushbutton	177
		184

■ Command series

AR22/DR22



AF94-320



AF94-310



AF98-88

- 22mm diameter hole
- Mountable even on panel cutout 25mm in diameter.
- Provided with newly developed release arm
- Provided with terminal cover for safety and security
- UL, CSA, TÜV and CCC approved

AH164, 165



SK-1103



SK-1138

- 16mm diameter hole, finger-sized button
- Incandescent, neon and LED lamps are available.
- Block type contact
- AH165 series is oil-tight
- UL, CSA, TÜV and CCC approved

AR30/DR30



AF95-4



AF95-6



AF98-195

- 30mm diameter hole
- Provided with terminal cover for safety and security
- UL, CSA, TÜV and CCC approved

AH165-2



AF87-211



AF87-208

- 16mm diameter hole
- AH165-2 series are about twice as large as the AH165 series
- Incandescent, neon and LED lamps are available.
- Block type contact
- AH165-2 series is oil-tight
- UL, CSA, TÜV and CCC approved

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

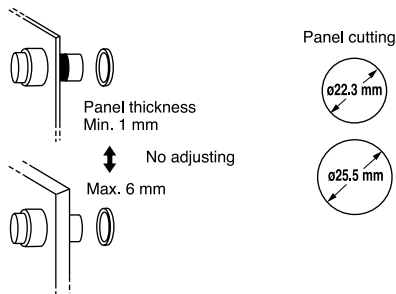
General information

The AR22 now uses a release arm with a wedge mechanism developed by Fuji Electric FA. This enables you to mount or remove the operator and contact block without using any tools. When fitting the switch to a panel, you can ignore the panel thickness. You have only to secure the operator with a locking nut from behind the panel without any need for adjustment. The improved locking nut is capable of mounting the operator in both 22.3mm and 25.5mm dia. panel cutout holes.

■ Features

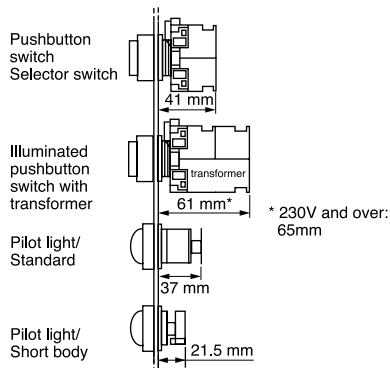
Facilitated mounting

- No adjusting of panel thickness is necessary.
- The button and lens can be mounted on a panel while the operator is engaged.
- Mountable even on a panel cutout 25.5mm in diameter.



Miniaturization

- Pushbuttons and selector switches with 1NO+1NC: 41mm deep
- Pilot lights: 37mm deep
- The transformer now occupies far less space.



Illuminated pushbuttons



Pushbuttons



Pilot lights

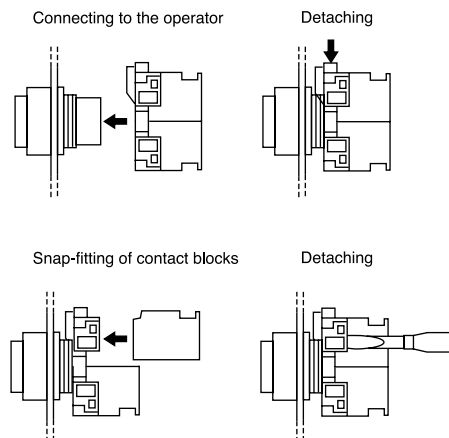


Selectors



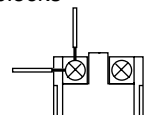
Easy replacing contact block and transformer

- Because of a snap-on mounting, replacement or addition of the contact block and transformer unit is very simple.
- The contact block is common to all the pushbuttons of this series.
- Contact block is easily replaced even when the pushbuttons are mounted closely together.
- Replacement of the contact block can be done with a screwdriver, without the need for any special tool.



Wiring

- Wiring from two directions is possible.
- Wiring in both vertical and lateral directions facilitates wiring in narrow spaces.
- Color coding of contact blocks makes wiring easy.
1NO: Blue, 1NC: Red
Lamp terminal and transformer unit: Black



Safety

- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.
- Reliability of safety functions increased by integrated operator and contact block construction. (AR22VG)

Protection

- Excellent oil-tight construction (IP65) of the operator.
- Closure of the contact block has been improved.

■ Approvals



Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Quick reference guide

■ Illuminated pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Flush round head	AR22F0L, F5L  AF94-318	Extended with full guard (24mm dia. with openings)	AR22G2L, G7L  AF99-319	Flush round head with square bezel	AR22F0P, F5P  AF94-315
Extended round head	AR22E0L, E5L  AF94-317	Extended with full guard (24mm dia.)	AR22G1L, G6L  AF02-70	Extended round head with square bezel	AR22E0P, E5P  AF94-314
Mushroom head (40mm dia.)	AR22M0L, M5L  AF94-367	Push-lock, turn-reset (40mm dia. with white arrow)	AR22V5L  AF97-72	Mushroom head with square bezel (29mm dia.)	AR22M4P  AF94-440
Mushroom head (29mm dia.)	AR22M4L, M9L  AF94-369	Flush square head	AR22F0M, F5M  AF97-68		
Extended with transparent full guard (24mm dia.)	AR22G4L, G9L  AF94-294	Extended square head	AR22E0M, E5M  AF94-357		

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Flush round head	AR22F0R, F5R  AF94-320	Flush round head Symbol mark type	AR22FAR, FBR  AF98-193	Mushroom head (40mm dia.)	AR22M0R, M5R  AF94-293
Extended round head	AR22E0R, E5R  AF94-319	Extended round head Symbol mark type	AR22EAR, EBR  AF98-192	Mushroom head (29mm dia.)	AR22M4R, M9R  AF94-321

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Quick reference guide

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Extended with full guard (24mm dia.)	AR22G3R, G8R  AF94-292	Pushbutton with selector ring (2-position)	AR22S1R, S2R, S3R, S6R  AF97-507	Flush round head with square bezel	AR22F0Y, F5Y  AF94-295
Flush with full guard (24mm dia.)	AR22G2R, G7R  AF02-68	Push-lock, turn-reset (40mm dia. with white arrow)	AR22V5R  AF97-70	Extended round head with square bezel	AR22E0Y, E5Y  AF94-297
Extended with half guard	AR22G0R, G5R  AF96-236	Flush square head	AR22F0S, F5S  AF94-316	Mushroom head with square bezel (29mm dia.)	AR22M4Y  AF94-298
Mushroom head with full guard (40mm dia.)	AR22M3R, M8R  AF94-372	Extended square head	AR22E0S, E5S  AF94-296		

Note: AR22M8R: Not approved standard

■ Emergency stop pushbutton switches (conform to EN418)

Operator	Type	Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR22V0R  AF97-70	Push-lock, turn-reset (29mm dia.)	AR22V4R  AF95-53	Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR22VGE  KK03-037
Push-lock, turn-reset (40mm dia.)	AR22V2R  AF94-432	Key release push-lock, turn-reset (40mm dia.)	AR22V7R  AF98-37		
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)	AR22VSR  AF99-317	Push-lock, pull-reset (35mm dia.)	AR22Q2R  AF95-52		

Notes: Provided with the  (Direct opening action)

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Quick reference guide

■ Emergency stop illuminated pushbutton switches (conform to EN418)

Operator	Type	Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR22V0L  AF97-72	Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors with white arrow)	AR22VDL  AF97-77	Push-lock, turn-reset (Soft touch 29mm dia. with white arrow)	AR22VSL  AF99-316
					
Push-lock, turn-reset (40mm dia.)	AR22V2L  AF94-307	Push-lock, turn-reset (40mm dia. transparent in all colors)	AR22VAL  AF94-365	Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR22VGF  KK03-036
					

Note: Provided with the  (Direct opening action)

■ Selector switches

Operator	Type	Operator	Type	Operator	Type
Knob	AR22PR, PCR  AF94-310	Key	AR22JR, JCR  AF94-311	Lever with square bezel	AR22WY, WCY  AF94-323
					
Lever	AR22WR, WCR  AF94-324	Key (Long durability)	AR22JAR  AF94-311	Cylindrical knob with square bezel	AR22RY, RCY  AF94-362
					
Cylindrical knob	AR22RR, RCR  AF94-308	Knob with square bezel	AR22PY, PCY  AF94-309	Key with square bezel	AR22JY, JCY  AF94-322
					

■ Illuminated selector switches

Operator	Type	Operator	Type
Knob	AR22PL  AF94-306	Knob with square bezel	AR22PP  AF94-318
			

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Quick reference guide

■ Pilot lights

Lens	Type	Lens	Type	Lens	Type
Dome	DR22D0L  AF94-333	Flush square	DR22F3M  AF94-330	Extended square	DR22E3M  AF94-380
Extended round	DR22E3L  AF94-332	Flush square (Transparent lens)	DR22F4M  AF94-443	Flush rectangular	DR22E3N  AF96-237
Faceted	DR22K0L  AF96-189	Flush square (12mm high frame)	DR22F5M  AF95-658	Extended round with square bezel	DR22E3P  AF94-331

Note: With resistor unit type: Not approved standard

■ Joy stick selector switches

Handle	Type	Handle	Type	Handle	Type
Ball type	AR22A0, A5  AF97-49	Ball type with lock	AR22A1, A6  AF97-45	Rubber cap type	AR22A2, A7  AF97-56

■ Buzzers

Sound	Type	Sound	Type	Sound	Type
Electronic sound	DR22B5 *  AF96-377	Magnetic sound	DR22B3  AF96-376	Electronic sound (IP54)	DR22B8 *  AF96-244

Note: * 6V AC, 110V DC types: Not approved standard

■ Numerical indicators

Display	Type	Display	Type
One-digit	DR22N1  KK02-548	Two-digit	DR22N2  KK02-16B

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Part number system

Illuminated pushbuttons

AR22 E0L – 10 E3 R ☐

① ② ③ ④ ⑤ ⑥

① Product category

AR22: 22mm-dia. illuminated pushbutton
22mm-dia. emergency stop illuminated pushbutton

② Operator

- Illuminated pushbutton
- F0L: Flush round head
- F5L: Flush round head (Alternate)
- E0L: Extended round head
- E5L: Extended round head (Alternate)
- M0L: Mushroom head (40mm dia.)
- M5L: Mushroom head (40mm dia. alternate)
- M4L: Mushroom head (29mm dia.)
- M9L: Mushroom head (29mm dia. alternate)
- G4L: Extended with transparent full guard (24mm dia.)
- G9L: Extended with transparent full guard (24mm dia. alternate)
- G2L: Extended with full guard (24mm dia. with openings)
- G7L: Extended with full guard (24mm dia. with openings, alternate)
- G1L: Extended with full guard (24mm dia.)
- G6L: Extended with full guard (24mm dia. alternate)
- V5L: Push-lock, turn-reset (40mm dia. with white arrow) *1
- F0M: Flush square head
- F5M: Flush square head (Alternate)
- E0M: Extended square head
- E5M: Extended square head (Alternate)
- F0P: Flush round head with square bezel
- F5P: Flush round head with square bezel (Alternate)
- E0P: Extended round head with square bezel
- E5P: Extended round head with square bezel (Alternate)
- M4P: Mushroom head with square bezel (29mm dia.)
- Emergency stop illuminated pushbutton
- V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2L: Push-lock, turn-reset (40mm dia.)
- VDL: Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors with white arrow)
- VAL: Push-lock, turn-reset (40mm dia. transparent in all colors)
- VSL: Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)
- VGf: Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

③ Contact arrangement

10: 1NO	30: 3NO
01: 1NC	03: 3NC
11: 1NO+1NC	40: 4NO
20: 2NO	04: 4NC
02: 2NC	50: 5NO
22: 2NO+2NC	05: 5NC

④ Lamp voltage

- Incandescent lamp
- S4: 5.5V AC/DC, without transformer
- C4: 15V AC/DC, without transformer
- D4: 20V AC/DC, without transformer
- E4: 24V AC/DC, without transformer
- H4: 100-110V AC, with transformer
- L4: 115-127V AC, with transformer
- M4: 200-220V AC, with transformer
- Q4: 230-254V AC, with transformer
- S4: 350-380V AC, with transformer
- T4: 400-440V AC, with transformer
- V4: 480V AC, with transformer
- W4: 500-550V AC, with transformer
- LED lamp
- A3: 6V AC, without transformer
- 63: 6V DC, without transformer
- B3: 12V AC/DC, without transformer
- C3: 15V AC/DC, without transformer
- E3: 24V AC/DC, without transformer
- H3: 100-110V AC, with transformer
- L3: 115-127V AC, with transformer
- M3: 200-220V AC, with transformer
- Q3: 230-254V AC, with transformer
- S3: 350-380V AC, with transformer
- T3: 400-440V AC, with transformer
- V3: 480V AC, with transformer
- W3: 500-550V AC, with transformer

- Neon lamp (For AR22VGf)
- H1: 110V AC, without transformer
- K1: 120V AC, without transformer
- M1: 220V AC, without transformer
- P1: 240V AC, without transformer

⑤ Color of lens

G: Green	Y: Yellow
R: Red *2	A: Orange
W: White	S: Blue

⑥ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

Notes: *1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

*2 Button color of emergency stop illuminated switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Part number system

Pushbuttons

AR22 E0R – 10 R  

① ② ③ ④ ⑤ ⑥

① Product category

AR22: 22mm-dia. pushbutton
22mm-dia. emergency stop pushbutton

② Operator

- Pushbutton switch
- F0R: Flush round head
- F5R: Flush round head (Alternate)
- E0R: Extended round head
- E5R: Extended round head (Alternate)
- FAR: Flush round head (Symbol mark type)
- FBR: Flush round head (Symbol mark type, alternate)
- EAR: Extended round head (Symbol mark type)
- EBR: Extended round head (Symbol mark type, alternate)
- M0R: Mushroom head (40mm dia.)
- M5R: Mushroom head (40mm dia. Alternate)
- M4R: Mushroom head (29mm dia.)
- M9R: Mushroom head (29mm dia. Alternate)
- G3R: Extended with full guard (24mm dia.)
- G8R: Extended with full guard (24mm dia. Alternate)
- G2R: Flush with full guard (24mm dia.)
- G7R: Flush with full guard (24mm dia. Alternate)
- G0R: Extended with half guard
- G5R: Extended with half guard (Alternate)
- M3R: Mushroom head with full guard (40mm dia.)
- M8R: Mushroom head with full guard (40mm dia. Alternate)
- S1R: Push-button with selector ring (2-position)
- S2R: Push-button with selector ring (2-position)
- S3R: Push-button with selector ring (2-position)
- S6R: Push-button with selector ring (2-position)
- V5R: Push-lock, turn-reset (40mm dia. with white arrow) *¹
- F0S: Flush square head
- F5S: Flush square head (Alternate)
- E0S: Extended square head
- E5S: Extended square head (Alternate)
- F0Y: Flush round head with square bezel
- F5Y: Flush round head with square bezel (Alternate)
- E0Y: Extended round head with square bezel
- E5Y: Extended round head with square bezel (Alternate)
- M4Y: Mushroom head with square bezel (29mm dia.)
- Emergency stop pushbutton switch
- V0R: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2R: Push-lock, turn-reset (40mm dia.)
- VSR: Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)
- V4R: Push-lock, turn-reset (29mm dia.)
- V7R: Key-release push-lock, turn-reset (40mm dia.)
- Q2R: Push-lock, pull-reset (35mm dia.)
- VGE: Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

③ Contact arrangement

10: 1NO	30: 3NO
01: 1NC	03: 3NC
11: 1NO+1NC	33: 3NO+3NC
20: 2NO	40: 4NO
02: 2NC	04: 4NC
22: 2NO+2NC	50: 5NO
	05: 5NC

④ Color of button

G: Green	Y: Yellow
R: Red ²	A: Orange
B: Black	S: Blue
W: White	C: Clear
T: Green, Red, Black (For AR22F0R)	(For AR22FAR, FBR, EAR, EBR)

⑤ Symbol mark (For AR22FAR, FBR, EAR, EBR)

Symbol mark	○	I	Ⓢ	○	I	Ⓢ
Color of button	White	Black	White	Black	White	Black
Color of mark	Red	Green	Green	Green	Black	Black
Code	01	02	03	04	11	12

⑥ Special product

Z9: Resisting water-soluble cutting oils and heat
Z8: With a contact protection cover
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standards

Notes: *¹ Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

*² Button color of emergency stop switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Part number system

Selector and illuminated selector switches

AR22 PL – 2 ☐ **10 E3 G** ☐ ☐

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product category

AR22: 22mm dia. selector switch and illuminated selector switch

② Operator

•Selector switch

PR: Knob

PCR: Knob operated control type

WR: Lever

WCR: Lever operated control type

RR: Cylindrical knob

RCR: Cylindrical knob operated control type

JR: Key

JCR: Key operated control type

JAR: Key (Long durability)

PY: Knob with square bezel

PCY: Knob operated control type with square bezel

WY: Lever with square bezel

WCY: Lever operated control type with square bezel

RY: Cylindrical knob with square bezel

RCY: Cylindrical knob operated control type with square bezel

JY: Key with square bezel

JCY: Key operated control type with square bezel

•Illuminated selector switch

PL: Knob

PP: Knob with square bezel

③ Operation

2: 2-position, maintained

0: 2-position, spring return

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

4: 4-position, maintained (For AR22PCR, WCR, RCR)

5: 5-position, maintained (For AR22PCR, WCR, RCR)

④ Key removable position

A: Left

B: Left and right

C: Left, right and center

D: Right

E: Center

F: Right and center

G: Left and center

⑤ Contact arrangement

10: 1NO

30: 3NO

01: 1NC

03: 3NC

11: 1NO+1NC

33: 3NO+3NC

20: 2NO

40: 4NO

02: 2NC

04: 4NC

22: 2NO+2NC

50: 5NO

05: 5NC

⑥ Lamp voltage

•Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

•LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

⑦ Color of knob

B: Black (Not available for illuminated selector switch)

G: Green

R: Red

W: White (Not available for selector switch)

Y: Yellow (Not available for selector switch)

A: Orange (Not available for selector switch)

S: Blue (Not available for selector switch)

⑧ Key type No.

A, B, C, D, E or F

("A" is standard)

⑨ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Part number system

Pilot lights

DR22 D0L – E3 W

① ② ③ ④ ⑤

① Product category

DR22: 22mm dia. pilot light

② Lens

D0L: Dome

E3L: Extended round

K0L: Faceted

F3M: Flush square

F4M: Flush square (Transparent lens)

F5M: Flush square (12mm high frame)

E3M: Extended square

E3N: Flush rectangular

E3P: Extended round with square bezel

③ Lamp voltage

•Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

•LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

H7: 110V DC, with resistor unit

58: 5.5V AC/DC, short-body without transformer

C8: 15V AC/DC, short-body without transformer

D8: 20V AC/DC, short-body without transformer

E8: 24V AC/DC, short-body without transformer

H8: 100-110V AC, short-body with transformer

L8: 115-127V AC, short-body with transformer

M8: 200-220V AC, short-body with transformer

A9: 6V AC, short-body without transformer

69: 6V DC, short-body without transformer

B9: 12V AC/DC, short-body without transformer

C9: 15V AC/DC, short-body without transformer

E9: 24V AC/DC, short-body without transformer

H9: 100-110V AC, short-body with transformer

L9: 115-127V AC, short-body with transformer

M9: 200-220V AC, short-body with transformer

④ Color of lens

G: Green

Y: Yellow

R: Red

A: Orange

W: White

S: Blue

⑤ Special product

Z9: Resisting water-soluble cutting oils and heat

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Part number system

Joy stick selector switches

AR22A 0 N – A0A0 B

① ②③ ④ ⑤

① Product category

AR22A: 22mm-dia. Joy stick selector switch

② Handle

- 0: Ball type (without lock, manual return)
- 1: Ball type with lock (manual return)
- 2: Rubber cap type (without lock, manual return)
- 5: Ball type (without lock, spring return)
- 6: Ball type with lock (spring return)
- 7: Rubber cap type (without lock, spring return)

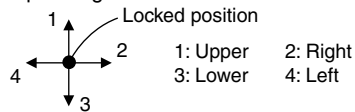
③ Terminal

- N: Screw
- H: Solder/tab

④ Contact arrangement

Contact arrangement	Blank	1NO	1NC	1NO+1NC	2NO	2NC	2NO+2NC
Code	Screw	0	A	B	1	D	E
	Solder/tab	0	–	–	1	–	2

Operating direction code of contacts



Ex. AR22A0N-A0A0B
1 2 3 4

⑤ Handle color

- B: Black

■ Ordering information

Specify the following:

1. Type number

For the CCC approved product, add the suffix **(CCC)** to the type number

Example: Pushbutton switch **AR22F0R-11B(CCC)**

Buzzers

DR22B 5 – E B

① ② ③ ④

① Product category

DR22B: 22mm-dia. buzzer

② Sound

- 5: Electronic sound
- 3: Magnetic sound
- 8: Electronic sound (IP54)

③ Operating voltage

- A: 6V AC (Type “5”, “8”)
- 6: 6V DC (Type “5”, “8”)
- E: 12-24V AC/DC (Type “3” : 24V AC/DC)
- F: 35-48V AC/DC (Type “5”, “8”)
- H: 100-110V AC
- M: 200-220V AC
- 1: 100-110V DC (Type “5”, “8”)

④ Color of head

- B: Black

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Ratings and specifications

■ Standards approved

UL508	File No. E44592
CSA C22.2 No.14	File No. LR20479 cUL File No. E44592 (For AR22VG)
TÜV: EN60947-5-1	Pushbutton, Illuminated pushbutton: R9551062, Selector, Illuminated selector: R9551060 Pilot lights: R9551061 Joy stick selector switch: R2050803 (Lever switch) Buzzer: J9950091
TÜV: EN60947-5-1	Emergency stop pushbutton
EN60947-5-5	Emergency stop illuminated pushbutton : R50028146, R50028137 (For AR22VG)

■ Specifications (Indoor use)

Description	Pushbutton switch Illuminated pushbutton switch Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch Selector switch Illuminated selector switch	Joy stick selector (Lever switch)	Pilot light
Rated insulation voltage	600V AC/DC * ¹	250V AC/DC	250V AC/DC * ²
Mechanical durability	See page 13	250,000 operations	—
Electrical durability	500,000 operations at 220V AC 6A 1 million operations at 220V AC 3A (AR22VG type: 100,000 operations)	100,000 operations at 220V AC 1A (Res. load)	—
Operating frequency	1200 operations/hour (On-load factor: 40%) AR22VG type: 1800 operations/hour (On-load factor: 40%)		—
Dielectric strength	2500V AC, 1 minute * ³	2000V AC, 1 minute * ⁴	
Insulation resistance	100MΩ or more (500V DC megger)		
Rated impulse dielectric strength	6kV (AR22VG type: 4kV)	—	6kV
Conditional short-circuit current	1000A	1000A	—
Short-circuit protective device	Fuse 15A	Fuse 1A	—
Pollution degree	3		
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm * ⁵ Constant: 16.7Hz, double amplitude 3mm		
Shock	Malfunction durability: 100m/s ² * ⁶ Mechanical durability: 500m/s ²		Mechanical durability: 500m/s ²
Ambient temperature (No condensation or no icing)	-20 to +70°C * ⁷	-5 to +70°C	-20 to +50°C
Storage temperature	-40 to +80°C		
Humidity	45 to 85% RH (within -5 to +40°C)		
Degree of protection	IP65		

Notes: *¹ Illuminated type without transformer and AR22VG type: 250V AC/DC

*² Pilot light with transformer: 600V AC

*³ Illuminated type without transformer: 2000V AC, 1 minute (except AR22VGF type)

*⁴ Pilot light with transformer: 2500V AC, 1 minute

*⁵ Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s²), according to the test condition of EN60947-5-5 (1998)

*⁶ Emergency stop type: 150m/s²

*⁷ AR22VGE type: -20 to +60°C, illuminated type: -20 to +50°C

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Ratings and specifications

● Mechanical durability

Description		Operations
Pushbutton switch	Momentary action	5 million
Illuminated pushbutton switch	Alternate action	1 million
Emergency stop pushbutton switch	With selector ring	100,000
Emergency stop illuminated pushbutton	Push-lock, turn-reset	100,000
	Push-lock, pull-reset	30,000
Selector switch	Maintained 1, 2, 3, 4-contact	1 million
	Maintained 5, 6-contact	500,000
	Control type, spring return, spring/manual return	200,000
Illuminated selector switch	Maintained	
	Without transformer 1, 2, 3-contact	1 million
	4-contact	500,000
	With transformer 1, 2-contact	1 million
	3-contact	500,000
	Spring return, spring/manual return	200,000

Note: Key insertion/removal durability for selector switch key types

- Key type 10,000
- Key (Long durability) type 20,000

● Buzzers

Item	DR22B5	DR22B3	DR22B8
Rated insulation voltage	Without transformer: 60V AC/DC With transformer: 250V AC		
Sound level	90dB (0.1m) 70dB (1m)	80 to 90dB (0.1m) 60 to 70dB (1m)	80dB (0.1m) 60dB (1.0m)
Durability	1000h	200h	1000h
Frequency	2.4 to 3.3kHz		
Intermittent cycle	Approx. 170-cycle/min		
Current consumption	See the table below		
Dielectric strength	Without transformer: 1000V AC 1 minute With transformer: 2000V AC 1 minute		
Insulation resistance	100MΩ or more (500V DC megger)		
Pollution degree	3		
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm Constant: 16.7Hz, double amplitude 3.0mm		
Shock	Mechanical durability: 500m/s ²		
Ambient temperature	-20 to +60°C (No condensation or no icing) (with resistor unit: -20 to +40°C)		
Storage temperature	-30 to +70°C		
Humidity	45 to 85%RH (within -5 to 40°C)		
Degree of protection	IP00		IP54

•Current consumption

Operational voltage	Current consumption	
	DR22B5, DR22B8	DR22B3
6V AC	70mA AC	—
6V DC	35mA DC	—
24V AC/DC	40mA AC, 25mA DC	30mA AC, 20mA DC
48V AC/DC	65mA AC, 20mA DC	—
110V AC	30mA AC	30mA AC
110V DC	30mA DC	—
220V AC	15mA AC	15mA AC

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Ratings and specifications

■ Contact ratings

● UL/CSA standards

AC (COS ϕ =0.35)

Contact rated code	120V		240V		480V		600V	
	Making current	Breaking current	Making current	Breaking current	Making current	Breaking current	Making current	Breaking current
A600	60A	6.0A	30A	3.0A	15A	1.5A	12A	1.2A
B300 (AR22VG)	30A	3.0A	15A	1.5A	–	–	–	–

DC $T_{0.95}$ = 6P (Max. 300ms)

Description	Contact rated code	Making current · Breaking current		
		125V	250V	301V–600V
Illuminated pushbutton switch Pushbutton (Ring type selector switch: AR22S2R only) Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch (Except the overlap contact types)	P600	1.1A	0.55A	0.2A
	Q300 (AR22VG)	0.55A	0.27A	–
Overlap contact types of products shown above Pushbutton (Ring type selector switch: AR22S1R, S6R only) Selector switch (2-position only, except the overlap contact types) Illuminated selector switch (2-position only, except the overlap contact types)	Q600	0.55A	0.27A	0.1A
Pushbutton (Ring type selector switch: AR22S3R only) Selector switch (2-pos./overlap contact type, 3-, 4-, 5-pos. type) Illuminated selector switch (2-pos./overlap contact type, 3-pos. type)	R300	0.22A	0.11A	–

Note: Joy stick selector switches (Lever switches): 250V AC, 5A (Res. load) 125V DC, 0.2A 24V DC, 1A (Res. load)

● EN standard/TÜV approved

Description	Rated operational current			
	Rated thermal current	Rated operational voltage	AC15 (Ind. load)	DC13 (Ind. load)
			Rated operational current	Rated operational current
Illuminated pushbutton switch Pushbutton (Except the selector ring type) Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch Selector switch (2-position) Illuminated selector switch (2-position)	10A	24V	6.0A	4.0A (AR22VG: 1.5A)
		120V	6.0A (AR22VG: 3A)	–
		125V	–	1.3A (AR22VG: 0.3A)
		240V	6.0A (AR22VG: 3A)	–
		250V	–	0.45A (AR22VG: 0.15A)
		480V	2.5A (AR22VG: –)	–
		600V	2.0A (AR22VG: –)	–
Selector switch (3, 4, 5-position) Illuminated selector switch (3-position) Pushbutton with selector ring	10A	24V	6.0A	2.0A
		120V	6.0A	–
		125V	–	0.65A
		240V	6.0A	–
		250V	–	0.23A
		480V	2.5A	–
		600V	2.0A	–
Joy stick selector switch (Lever switch)	5A	24V	–	0.7A
		120V	0.3A	–
		125V	–	0.15A
		240V	0.3A	–

Lamp rated voltage UL/CSA standards, TÜV approved

	LED lamp	Incandescent lamp	Neon lamp
Full-voltage (without transformer)	Max. 24V AC/DC	Max. 30V AC/DC	Max. 240V AC
With transformer	Max. 550V AC (Short-body type: Max. 220V AC)		–

■ Operating characteristic (1NO+1NC)

Description	Pushbutton Illuminated pushbutton	Emergency stop pushbutton Emergency stop illuminated pushbutton		Selector *2 Illuminated selector		
		Push-lock type	Push-pull type	Maintained	Spring/manual return	Spring return
Ave. required operating force	9N (Push-lock type: 20N)	30N (AR22VG: 22N)*1	45N	0.15N•m	0.13N•m	0.1N•m
Operating travel	Approx. 6mm (Push-lock type: Approx. 9mm, operation angle: Approx. 45°)	Approx. 9mm (AR22VG: Approx. 10mm, operation angle: Approx. 45°)	Approx. 9mm	2-position: Approx. 90° 3-position: Approx. 45° 4-position: Approx. 40° 5-position: Approx. 30°	3-position: Approx. 45°	2-position: Approx. 60° 3-position: Approx. 45°
Required return force	— (Push-lock type: 0.6N•m)	0.6N•m (AR22VG: 0.2N•m)	30N (pull)	0.15N•m	0.13N•m	—

Notes: *1 AR22V2R, V4R, V7R, VAL types: 45N

*2 4-position, 5-position: 2NO+2NC

■ Lamp ratings

•Illuminated pushbuttons, illuminated selectors, pilot lights

Transformer	Lamp voltage	LED			Incandescent		
		Type	Rated voltage	Consumption	Type	Rated voltage	Consumption
Without transformer	5.5V AC/DC	—	—	—	AHX135	6.3V AC/DC	0.9W
	6V AC	APX510-6□	6V AC	Green, red, orange, amber: 7mA AC Yellow: 26mA AC Blue: 16mA AC	—	—	—
	6V DC	APX510-D6□	6V DC	Green, red, orange, amber: 11mA DC Yellow: 33mA DC Blue: 22mA DC	—	—	—
	12V AC/DC	APX510-12□	12V AC/DC	14mA AC, 11mA DC	—	—	—
	15V AC/DC	APX510-15□	15V AC/DC	13mA AC, 11mA DC	AHX279	18V AC/DC	0.8W
	20V AC/DC	—	—	—	AHX144	24V AC/DC	0.9W
With transformer (Standard type: AR9T511)	24V AC/DC	APX510-24□	24V AC/DC	12mA AC, 11mA DC	AHX129	30V AC/DC	0.8W
	110V AC	APX510-6□	6V AC	1.5VA	AHX135	6.3V AC/DC	2VA
	127V AC	—	—	—	—	—	2VA
	220V AC	—	—	—	—	—	2VA
	254V AC	APX510-6□	6V AC	2.5VA	AHX135	6.3V AC/DC	2.5VA
	380V AC	—	—	—	—	—	2.5VA
With resistor unit (AR9T519-H)	440V AC	—	—	—	—	—	2.5VA
	480V AC	—	—	—	—	—	2.5VA
	550V AC	—	—	—	—	—	2.5VA
	110V DC	APX510-24□	24V AC/DC	1.2W	—	—	—

Notes: • Short body pilot lights: 110V AC, 127V AC, 220V AC only

• Replace the □ mark by the lamp luminous color code, see page 16

• Except AR22VGF type

•Emergency stop illuminated pushbuttons (AR22VGF type)

Transformer	Lamp	Voltage	Type	Rated voltage	Consumption
Without transformer	LED	24V AC/DC	AR9L002-ER	24V AC/DC	12mA AC 11mA DC
	Neon	110V AC	AR9N001-HA	110V AC	0.19VA
		120V AC	AR9N001-KA	120V AC	0.21VA
		220V AC	AR9N001-MA	220V AC	0.30VA
		240V AC	AR9N001-PA	240V AC	0.30VA

Notes: Lamp base: BA9S/13

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

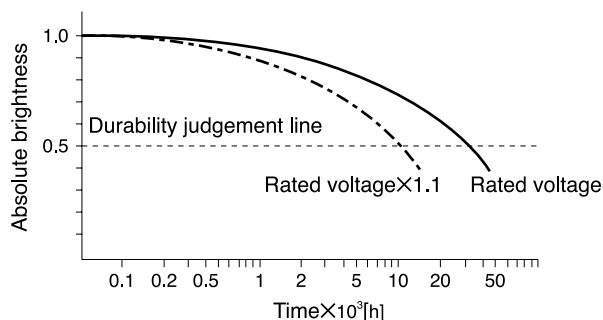
Ratings and specifications

■ Lamp durability

Lamp	Durability	Judgement criterion
LED	Approx. 30000h	When brightness is less than 50% of initial value
Incandescent	Approx. 5000h (AC)	When the bulb burns out
Neon	Approx. 5000h	When a remarkable blackening appears in the glass bulb and the using becomes improper

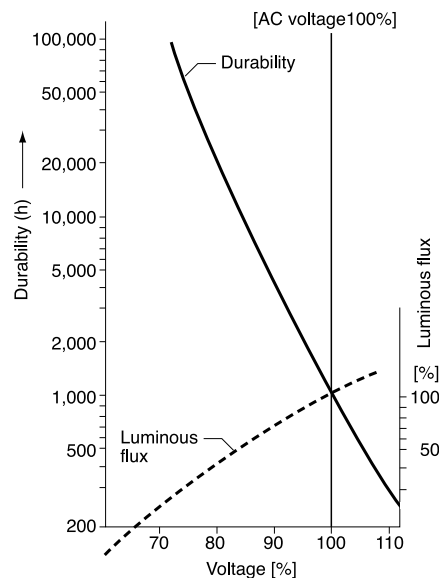
Note: The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.

Estimated durability for LED lamps



Notes: • Durability at Ta=25°C
• Durability is affected by temperature, humidity, and voltage fluctuation.

Incandescent lamp voltage characteristics



■ Combination of lens color and LED or neon lamp luminous color

Lens Color	Code	LED or neon lamp	
		Luminous color	Type
Green	G	Green	APX510-■G
Red	R	Red	APX510-■R
White	W	Orange	APX510-■O
Yellow	Y	Yellow	APX510-■Y
Orange *	A	Amber	APX510-■A
Blue	S	Blue	APX510-■S
Red (AR22VGF)	R	Red	AR9L002-ER
		Orange (Neon lamp)	AR9N001-■A

Notes: * DR22F4M: LED lamp color is orange. (APX510-■O)
• Replace the ■ mark by the lamp voltage code

■ Illuminated pushbutton switches

Operator	Transformer	Contact	LED lamp Momentary action Type	Alternate action Type	Incandescent lamp Momentary action Type	Alternate action Type
Flush round head  AF94-318	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22F0L-10■3□ AR22F0L-01■3□ AR22F0L-11■3□ AR22F0L-22■3□	AR22F5L-10■3□ AR22F5L-01■3□ AR22F5L-11■3□ —	AR22F0L-10■4□ AR22F0L-01■4□ AR22F0L-11■4□ AR22F0L-22■4□	AR22F5L-10■4□ AR22F5L-01■4□ AR22F5L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22F0L-10■3□ AR22F0L-01■3□ AR22F0L-11■3□	AR22F5L-10■3□ AR22F5L-01■3□ AR22F5L-11■3□	AR22F0L-10■4□ AR22F0L-01■4□ AR22F0L-11■4□	AR22F5L-10■4□ AR22F5L-01■4□ AR22F5L-11■4□
Extended round head  AF94-317	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22E0L-10■3□ AR22E0L-01■3□ AR22E0L-11■3□ AR22E0L-22■3□	AR22E5L-10■3□ AR22E5L-01■3□ AR22E5L-11■3□ —	AR22E0L-10■4□ AR22E0L-01■4□ AR22E0L-11■4□ AR22E0L-22■4□	AR22E5L-10■4□ AR22E5L-01■4□ AR22E5L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22E0L-10■3□ AR22E0L-01■3□ AR22E0L-11■3□	AR22E5L-10■3□ AR22E5L-01■3□ AR22E5L-11■3□	AR22E0L-10■4□ AR22E0L-01■4□ AR22E0L-11■4□	AR22E5L-10■4□ AR22E5L-01■4□ AR22E5L-11■4□
Mushroom head (40mm dia.)  AF94-367	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22M0L-10■3□ AR22M0L-01■3□ AR22M0L-11■3□ AR22M0L-22■3□	AR22M5L-10■3□ AR22M5L-01■3□ AR22M5L-11■3□ —	AR22M0L-10■4□ AR22M0L-01■4□ AR22M0L-11■4□ AR22M0L-22■4□	AR22M5L-10■4□ AR22M5L-01■4□ AR22M5L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22M0L-10■3□ AR22M0L-01■3□ AR22M0L-11■3□	AR22M5L-10■3□ AR22M5L-01■3□ AR22M5L-11■3□	AR22M0L-10■4□ AR22M0L-01■4□ AR22M0L-11■4□	AR22M5L-10■4□ AR22M5L-01■4□ AR22M5L-11■4□
Mushroom head (29mm dia.)  AF94-369	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22M4L-10■3□ AR22M4L-01■3□ AR22M4L-11■3□ AR22M4L-22■3□	AR22M9L-10■3□ AR22M9L-01■3□ AR22M9L-11■3□ —	AR22M4L-10■4□ AR22M4L-01■4□ AR22M4L-11■4□ AR22M4L-22■4□	AR22M9L-10■4□ AR22M9L-01■4□ AR22M9L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22M4L-10■3□ AR22M4L-01■3□ AR22M4L-11■3□	AR22M9L-10■3□ AR22M9L-01■3□ AR22M9L-11■3□	AR22M4L-10■4□ AR22M4L-01■4□ AR22M4L-11■4□	AR22M9L-10■4□ AR22M9L-01■4□ AR22M9L-11■4□
Extended with transparent full guard (24mm dia.)  AF94-294	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22G4L-10■3□ AR22G4L-01■3□ AR22G4L-11■3□ AR22G4L-22■3□	AR22G9L-10■3□ AR22G9L-01■3□ AR22G9L-11■3□ —	AR22G4L-10■4□ AR22G4L-01■4□ AR22G4L-11■4□ AR22G4L-22■4□	AR22G9L-10■4□ AR22G9L-01■4□ AR22G9L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22G4L-10■3□ AR22G4L-01■3□ AR22G4L-11■3□	AR22G9L-10■3□ AR22G9L-01■3□ AR22G9L-11■3□	AR22G4L-10■4□ AR22G4L-01■4□ AR22G4L-11■4□	AR22G9L-10■4□ AR22G9L-01■4□ AR22G9L-11■4□
Extended with full guard (24mm dia. with openings)  AF99-319	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22G2L-10■3□ AR22G2L-01■3□ AR22G2L-11■3□ AR22G2L-22■3□	AR22G7L-10■3□ AR22G7L-01■3□ AR22G7L-11■3□ —	AR22G2L-10■4□ AR22G2L-01■4□ AR22G2L-11■4□ AR22G2L-22■4□	AR22G7L-10■4□ AR22G7L-01■4□ AR22G7L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22G2L-10■3□ AR22G2L-01■3□ AR22G2L-11■3□	AR22G7L-10■3□ AR22G7L-01■3□ AR22G7L-11■3□	AR22G2L-10■4□ AR22G2L-01■4□ AR22G2L-11■4□	AR22G7L-10■4□ AR22G7L-01■4□ AR22G7L-11■4□

Note: ■ □ See page 19

Illuminated Pushbuttons

AR22

Operator	Transformer	Contact	LED lamp Momentary action Type	Alternate action Type	Incandescent lamp Momentary action Type	Alternate action Type
Extended with full guard (24mm dia.)  KK02-127A	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22G1L-10■3□ AR22G1L-01■3□ AR22G1L-11■3□ AR22G1L-22■3□	AR22G6L-10■3□ AR22G6L-01■3□ AR22G6L-11■3□ —	AR22G1L-10■4□ AR22G1L-01■4□ AR22G1L-11■4□ AR22G1L-22■4□	AR22G6L-10■4□ AR22G6L-01■4□ AR22G6L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22G1L-10■3□ AR22G1L-01■3□ AR22G1L-11■3□	AR22G6L-10■3□ AR22G6L-01■3□ AR22G6L-11■3□	AR22G1L-10■4□ AR22G1L-01■4□ AR22G1L-11■4□	AR22G6L-10■4□ AR22G6L-01■4□ AR22G6L-11■4□
Push-lock, turn-reset (40mm dia. with white arrow)  AF97-72	Without	1NO 1NC 1NO+1NC 3NC	— — — —	AR22V5L-10■3□ AR22V5L-01■3□ AR22V5L-11■3□ AR22V5L-03■3□	— — — —	AR22V5L-10■4□ AR22V5L-01■4□ AR22V5L-11■4□ AR22V5L-03■4□
	With	1NO 1NC 1NO+1NC	— — —	AR22V5L-10■3□ AR22V5L-01■3□ AR22V5L-11■3□	— — —	AR22V5L-10■4□ AR22V5L-01■4□ AR22V5L-11■4□
Flush square head  AF97-68	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22F0M-10■3□ AR22F0M-01■3□ AR22F0M-11■3□ AR22F0M-22■3□	AR22F5M-10■3□ AR22F5M-01■3□ AR22F5M-11■3□ —	AR22F0M-10■4□ AR22F0M-01■4□ AR22F0M-11■4□ AR22F0M-22■4□	AR22F5M-10■4□ AR22F5M-01■4□ AR22F5M-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22F0M-10■3□ AR22F0M-01■3□ AR22F0M-11■3□	AR22F5M-10■3□ AR22F5M-01■3□ AR22F5M-11■3□	AR22F0M-10■4□ AR22F0M-01■4□ AR22F0M-11■4□	AR22F5M-10■4□ AR22F5M-01■4□ AR22F5M-11■4□
Extended square head  AF94-357	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22E0M-10■3□ AR22E0M-01■3□ AR22E0M-11■3□ AR22E0M-22■3□	AR22E5M-10■3□ AR22E5M-01■3□ AR22E5M-11■3□ —	AR22E0M-10■4□ AR22E0M-01■4□ AR22E0M-11■4□ AR22E0M-22■4□	AR22E5M-10■4□ AR22E5M-01■4□ AR22E5M-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22E0M-10■3□ AR22E0M-01■3□ AR22E0M-11■3□	AR22E5M-10■3□ AR22E5M-01■3□ AR22E5M-11■3□	AR22E0M-10■4□ AR22E0M-01■4□ AR22E0M-11■4□	AR22E5M-10■4□ AR22E5M-01■4□ AR22E5M-11■4□
Flush round head with square bezel  AF94-315	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22F0P-10■3□ AR22F0P-01■3□ AR22F0P-11■3□ AR22F0P-22■3□	AR22F5P-10■3□ AR22F5P-01■3□ AR22F5P-11■3□ —	AR22F0P-10■4□ AR22F0P-01■4□ AR22F0P-11■4□ AR22F0P-22■4□	AR22F5P-10■4□ AR22F5P-01■4□ AR22F5P-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22F0P-10■3□ AR22F0P-01■3□ AR22F0P-11■3□	AR22F5P-10■3□ AR22F5P-01■3□ AR22F5P-11■3□	AR22F0P-10■4□ AR22F0P-01■4□ AR22F0P-11■4□	AR22F5P-10■4□ AR22F5P-01■4□ AR22F5P-11■4□
Extended round head with square bezel  AF94-314	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR22E0P-10■3□ AR22E0P-01■3□ AR22E0P-11■3□ AR22E0P-22■3□	AR22E5P-10■3□ AR22E5P-01■3□ AR22E5P-11■3□ —	AR22E0P-10■4□ AR22E0P-01■4□ AR22E0P-11■4□ AR22E0P-22■4□	AR22E5P-10■4□ AR22E5P-01■4□ AR22E5P-11■4□ —
	With	1NO 1NC 1NO+1NC	AR22E0P-10■3□ AR22E0P-01■3□ AR22E0P-11■3□	AR22E5P-10■3□ AR22E5P-01■3□ AR22E5P-11■3□	AR22E0P-10■4□ AR22E0P-01■4□ AR22E0P-11■4□	AR22E5P-10■4□ AR22E5P-01■4□ AR22E5P-11■4□

Note: ■ □ See page 19

Operator	Trans- former	Contact	LED lamp Momentary action Type	Alternate action Type	Incandescent lamp Momentary action Type	Alternate action Type
Mushroom head with square bezel (29mm dia.)  AF94-440	Without	1NO	AR22M4P-10■3□	—	AR22M4P-10■4□	—
		1NC	AR22M4P-01■3□	—	AR22M4P-01■4□	—
		1NO+1NC	AR22M4P-11■3□	—	AR22M4P-11■4□	—
		2NO+2NC	AR22M4P-22■3□	—	AR22M4P-22■4□	—
	With	1NO	AR22M4P-10■3□	—	AR22M4P-10■4□	—
		1NC	AR22M4P-01■3□	—	AR22M4P-01■4□	—
		1NO+1NC	AR22M4P-11■3□	—	AR22M4P-11■4□	—

•Lens color

Replace the □ mark by the lens color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

Note: AR22V5L type: Red, yellow only

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO
Code	10	01	11	20	02	30

Contact arrangement	3NC	2NO+2NC	4NO	4NC	5NO	5NC
Code	03	22	40	04	50	05

Available numbers of contact blocks

Operation	Without transformer	With transformer
Momentary action	5-contact block	3-contact block
Alternate action Push-lock, turn-reset	3-contact block	2-contact block

•Voltage

Replace the ■ mark by the lamp voltage code

Transformer		Code	
		LED	Incandescent
Without transformer	6V DC	6	—
	6V AC	A	—
	5.5V AC/DC	—	5
	12V AC/DC	B	—
	15V AC/DC	C	C
	20V AC/DC	—	D
	24V AC/DC	E	E
With transformer	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

Pushbuttons AR22

■ Pushbutton switches

Operator	Contact	Momentary action Type	Alternate action Type
Flush round head  AF94-320	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22F0R-10 □ AR22F5R-10 □ AR22F0R-01 □ AR22F5R-01 □ AR22F0R-11 □ AR22F5R-11 □ AR22F0R-20 □ AR22F5R-20 □ AR22F0R-02 □ AR22F5R-02 □ AR22F0R-22 □ AR22F5R-22 □	
Extended round head  AF94-319	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22E0R-10 □ AR22E5R-10 □ AR22E0R-01 □ AR22E5R-01 □ AR22E0R-11 □ AR22E5R-11 □ AR22E0R-20 □ AR22E5R-20 □ AR22E0R-02 □ AR22E5R-02 □ AR22E0R-22 □ AR22E5R-22 □	
Flush round head symbol mark type  AF98-193	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22FAR-10C ■ AR22FBR-10C ■ AR22FAR-01C ■ AR22FBR-01C ■ AR22FAR-11C ■ AR22FBR-11C ■ AR22FAR-20C ■ AR22FBR-20C ■ AR22FAR-02C ■ AR22FBR-02C ■ AR22FAR-22C ■ AR22FBR-22C ■	
Extended round head symbol mark type  AF98-192	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22EAR-10C ■ AR22EBR-10C ■ AR22EAR-01C ■ AR22EBR-01C ■ AR22EAR-11C ■ AR22EBR-11C ■ AR22EAR-20C ■ AR22EBR-20C ■ AR22EAR-02C ■ AR22EBR-02C ■ AR22EAR-22C ■ AR22EBR-22C ■	
Mushroom head (40mm dia.)  AF94-293	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22M0R-10 □ AR22M5R-10 □ AR22M0R-01 □ AR22M5R-01 □ AR22M0R-11 □ AR22M5R-11 □ AR22M0R-20 □ AR22M5R-20 □ AR22M0R-02 □ AR22M5R-02 □ AR22M0R-22 □ AR22M5R-22 □	
Mushroom head (29mm dia.)  AF94-321	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22M4R-10 □ AR22M9R-10 □ AR22M4R-01 □ AR22M9R-01 □ AR22M4R-11 □ AR22M9R-11 □ AR22M4R-20 □ AR22M9R-20 □ AR22M4R-02 □ AR22M9R-02 □ AR22M4R-22 □ AR22M9R-22 □	
Extended with full guard (24mm dia.)  AF94-292	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22G3R-10 □ AR22G8R-10 □ AR22G3R-01 □ AR22G8R-01 □ AR22G3R-11 □ AR22G8R-11 □ AR22G3R-20 □ AR22G8R-20 □ AR22G3R-02 □ AR22G8R-02 □ AR22G3R-22 □ AR22G8R-22 □	

Operator	Contact	Momentary action Type	Alternate action Type
Flush with full guard (24mm dia.)  AF02-68	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22G2R-10 □ AR22G7R-10 □ AR22G2R-01 □ AR22G7R-01 □ AR22G2R-11 □ AR22G7R-11 □ AR22G2R-20 □ AR22G7R-20 □ AR22G2R-02 □ AR22G7R-02 □ AR22G2R-22 □ AR22G7R-22 □	
Mushroom head with full guard (40mm dia.)  AF94-372	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22M3R-10 □ AR22M8R-10 □ AR22M3R-01 □ AR22M8R-01 □ AR22M3R-11 □ AR22M8R-11 □ AR22M3R-20 □ AR22M8R-20 □ AR22M3R-02 □ AR22M8R-02 □ AR22M3R-22 □ AR22M8R-22 □	
Extended with half guard  AF96-236	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22G0R-10 □ AR22G5R-10 □ AR22G0R-01 □ AR22G5R-01 □ AR22G0R-11 □ AR22G5R-11 □ AR22G0R-20 □ AR22G5R-20 □ AR22G0R-02 □ AR22G5R-02 □ AR22G0R-22 □ AR22G5R-22 □	
Push-lock, turn-reset (40mm dia. with white arrow)  AF97-70	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	— — — — — —	AR22V5R-10 □ AR22V5R-01 □ AR22V5R-11 □ AR22V5R-20 □ AR22V5R-02 □ AR22V5R-22 □
Flush square head  AF94-316	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22F0S-10 □ AR22F5S-10 □ AR22F0S-01 □ AR22F5S-01 □ AR22F0S-11 □ AR22F5S-11 □ AR22F0S-20 □ AR22F5S-20 □ AR22F0S-02 □ AR22F5S-02 □ AR22F0S-22 □ AR22F5S-22 □	
Extended square head  AF94-296	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22E0S-10 □ AR22E5S-10 □ AR22E0S-01 □ AR22E5S-01 □ AR22E0S-11 □ AR22E5S-11 □ AR22E0S-20 □ AR22E5S-20 □ AR22E0S-02 □ AR22E5S-02 □ AR22E0S-22 □ AR22E5S-22 □	
Flush round head with square bezel  AF94-295	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22F0Y-10 □ AR22F5Y-10 □ AR22F0Y-01 □ AR22F5Y-01 □ AR22F0Y-11 □ AR22F5Y-11 □ AR22F0Y-20 □ AR22F5Y-20 □ AR22F0Y-02 □ AR22F5Y-02 □ AR22F0Y-22 □ AR22F5Y-22 □	

Note: ■ □ See page 21

Operator	Contact	Momentary action Type	Alternate action Type
Extended round head with square bezel  AF94-297	1NO	AR22E0Y-10 □	AR22E5Y-10 □
	1NC	AR22E0Y-01 □	AR22E5Y-01 □
	1NO+1NC	AR22E0Y-11 □	AR22E5Y-11 □
	2NO	AR22E0Y-20 □	AR22E5Y-20 □
	2NC	AR22E0Y-02 □	AR22E5Y-02 □
	2NO+2NC	AR22E0Y-22 □	AR22E5Y-22 □

Operator	Contact	Momentary action Type	Alternate action Type
Mushroom head with square bezel (29mm dia.)  AF94-298	1NO	AR22M4Y-10 □	—
	1NC	AR22M4Y-01 □	—
	1NO+1NC	AR22M4Y-11 □	—
	2NO	AR22M4Y-20 □	—
	2NC	AR22M4Y-02 □	—
	2NO+2NC	AR22M4Y-22 □	—

•Button color

Replace the □ mark by the button color code

Color	Green	Red	White	Blue	Yellow	Orange	Black
Code	G	R	W	S	Y	A	B

Note: AR22V5R type: Red, yellow, black only

•Available numbers of contact blocks

Momentary action	Alternate action Push-lock, turn-reset
6-contact block	4-contact block

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO	3NC
Code	10	01	11	20	02	30	03

Contact arrangement	2NO+2NC	4NO	4NC	5NO	5NC	3NO+3NC
Code	22	40	04	50	05	33

•Symbol mark (For AR22FAR, FBR, EAR, EBR)

Replace the ■ mark by the symbol mark code

Symbol mark	○	I	⊕	⊖	⊕	⊖	⊕	⊖
Color of button	White	Black	White	Black	White	Black	Clear	
Color of mark	Red		Green		Green		Black	
Code	01	02	03	04	11	12	02B	04B 12B

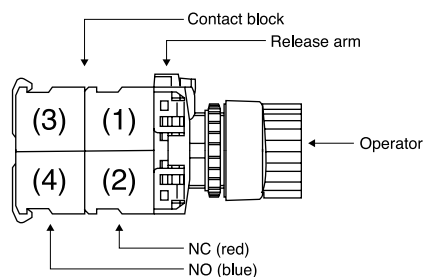
Pushbuttons AR22

Operator	Contact (The following contact is only available.)	Button color	Type	Contact operation					
				Contact block		Left		Right	
				Mounting position	Type	Free	Depressed	Free	Depressed
Pushbutton with selector ring (2-position)  AF94-355	2NO+2NC	Green Red Black White Yellow Orange Blue	AR22S1R-22G AR22S1R-22R AR22S1R-22B AR22S1R-22W AR22S1R-22Y AR22S1R-22A AR22S1R-22S	(1)	NC	—	—	●	—
				(2)	NC	—	—	●	—
				(3)	NO	—	●	—	●
				(4)	NO	—	●	—	●
	2NO	Green Red Black White Yellow Orange Blue	AR22S2R-20G AR22S2R-20R AR22S2R-20B AR22S2R-20W AR22S2R-20Y AR22S2R-20A AR22S2R-20S	(1)	NO	—	●	—	—
				(2)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR22S2R-22G AR22S2R-22R AR22S2R-22B AR22S2R-22W AR22S2R-22Y AR22S2R-22A AR22S2R-22S	(1)	NC	●	—	—	
				(2)	NC	—		●	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR22S3R-22G AR22S3R-22R AR22S3R-22B AR22S3R-22W AR22S3R-22Y AR22S3R-22A AR22S3R-22S	(1)	NC	—	—	—	
				(2)	NC	—		—	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR22S6R-22G AR22S6R-22R AR22S6R-22B AR22S6R-22W AR22S6R-22Y AR22S6R-22A AR22S6R-22S	(1)	NC	●	—	—	Locked
				(2)	NC	●	—	—	
				(3)	NO	—	●	●	
				(4)	NO	—	●	●	

Note: (1) to (4): Contact block mounting position

● Contact closed
— Contact open

•Position of contact block



■ Emergency stop pushbutton switches

➞ (Direct opening action), conform to EN418

Operator	Contact	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)  AF97-70	1NC 1NO+1NC 2NC 2NO+2NC	AR22V0R-01R AR22V0R-11R AR22V0R-02R AR22V0R-22R
Push-lock, turn-reset (40mm dia.)  AF94-432	1NC 1NO+1NC 2NC 2NO+2NC	AR22V2R-01R AR22V2R-11R AR22V2R-02R AR22V2R-22R
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)  AF99-317	1NC 1NO+1NC 2NC 2NO+2NC	AR22VSR-01R AR22VSR-11R AR22VSR-02R AR22VSR-22R
Push-lock, turn-reset (29mm dia.)  AF95-53	1NC 1NO+1NC 2NC 2NO+2NC	AR22V4R-01R AR22V4R-11R AR22V4R-02R AR22V4R-22R

Note: • Button color: Red only

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NO+1NC	2NC	3NC	2NO+2NC	4NC
Code	01	11	02	03	22	04

Note: • Except AR22Q2R and AR22VGE
• For AR22Q2R and AR22VGE, up to 2-contact block.

Operator	Contact	Type
Key release push-lock, turn-reset (40mm dia.)  AF98-37	1NC 1NO+1NC 2NC 2NO+2NC	AR22V7R-01R AR22V7R-11R AR22V7R-02R AR22V7R-22R
Push-lock, pull-reset (35mm dia.)  AF94-52	1NC 1NO+1NC 2NC	AR22Q2R-01R AR22Q2R-11R AR22Q2R-02R
Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)  KK03-037	1NC 1NO+1NC 2NC	AR22VGE-01R AR22VGE-11R AR22VGE-02R

Emergency Stop Illuminated Pushbuttons AR22

■ Emergency stop illuminated pushbutton switches

➞ (Direct opening action), conform to EN418

Operator	Transformer	Contact	LED lamp Type	Incandescent lamp Type	Neon lamp Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)  AF97-76	Without	1NC 1NO+1NC 2NC 3NC	AR22V0L-01■3R AR22V0L-11■3R AR22V0L-02■3R AR22V0L-03■3R	AR22V0L-01■4R AR22V0L-11■4R AR22V0L-02■4R AR22V0L-03■4R	— — — —
	With	1NC 1NO+1NC 2NC	AR22V0L-01■3R AR22V0L-11■3R AR22V0L-02■3R	AR22V0L-01■4R AR22V0L-11■4R AR22V0L-02■4R	— — —
Push-lock, turn-reset (40mm dia.)  AF94-307	Without	1NC 1NO+1NC 2NC 3NC	AR22V2L-01■3R AR22V2L-11■3R AR22V2L-02■3R AR22V2L-03■3R	AR22V2L-01■4R AR22V2L-11■4R AR22V2L-02■4R AR22V2L-03■4R	— — — —
	With	1NC 1NO+1NC 2NC	AR22V2L-01■3R AR22V2L-11■3R AR22V2L-02■3R	AR22V2L-01■4R AR22V2L-11■4R AR22V2L-02■4R	— — —
Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors with white arrow)  AF97-76	Without	1NC 1NO+1NC 2NC 3NC	AR22VDL-01■3R AR22VDL-11■3R AR22VDL-02■3R AR22VDL-03■3R	AR22VDL-01■4R AR22VDL-11■4R AR22VDL-02■4R AR22VDL-03■4R	— — — —
	With	1NC 1NO+1NC 2NC	AR22VDL-01■3R AR22VDL-11■3R AR22VDL-02■3R	AR22VDL-01■4R AR22VDL-11■4R AR22VDL-02■4R	— — —
Push-lock, turn-reset (40mm dia. transparent in all colors)  AF94-364	Without	1NC 1NO+1NC 2NC 3NC	AR22VAL-01■3R AR22VAL-11■3R AR22VAL-02■3R AR22VAL-03■3R	AR22VAL-01■4R AR22VAL-11■4R AR22VAL-02■4R AR22VAL-03■4R	— — — —
	With	1NC 1NO+1NC 2NC	AR22VAL-01■3R AR22VAL-11■3R AR22VAL-02■3R	AR22VAL-01■4R AR22VAL-11■4R AR22VAL-02■4R	— — —
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)  AF99-316	Without	1NC 1NO+1NC 2NC 3NC	AR22VSL-01■3R AR22VSL-11■3R AR22VSL-02■3R AR22VSL-03■3R	AR22VSL-01■4R AR22VSL-11■4R AR22VSL-02■4R AR22VSL-03■4R	— — — —
	With	1NC 1NO+1NC 2NC	AR22VSL-01■3R AR22VSL-11■3R AR22VSL-02■3R	AR22VSL-01■4R AR22VSL-11■4R AR22VSL-02■4R	— — —
Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow) 	Without	1NC	AR22VGF-01E3R	—	AR22VGF-01■1R
		1NO+1NC	AR22VGF-11E3R	—	AR22VGF-11■1R
		2NC	AR22VGF-02E3R	—	AR22VGF-02■1R

Notes: • Button color: Red only • AR22VGF type: Lamp circuit contacts are provided, see page 43. • Contact arrangements indicated in the table can be supplied.

•Voltage

Replace the ■ mark by the lamp voltage code

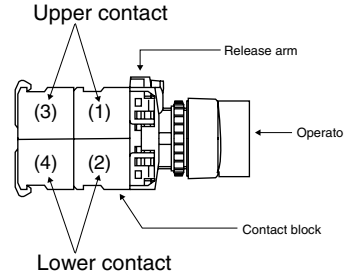
Transformer		Code		
		LED	Incandescent	Neon
Without	6V DC	6	—	—
	6V AC	A	—	—
	5V AC/DC	—	5	—
	12V AC/DC	B	—	—
	15V AC/DC	C	C	—
	20V AC/DC	—	D	—
	24V AC/DC	E	E	—
	110V AC	—	—	H
	120V AC	—	—	K
	220V AC	—	—	M
	240V AC	—	—	P

Notes: AR22VGF: LED 24V AC/DC and neon only

Transformer		Code	
		LED	Incandescent
With	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

Selector Switches AR22

■ Selector switches 2-position

Operator	Operation	Knob color or key removable position	Contact	Type Switch with round bezel	Switch with square bezel	Contact operation (Example)		
						Contact arrangement	Operator position	
							Left Right ⌚ ⌚	
 AF94-310	Maintained	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-210B AR22PR-201B AR22PR-211B AR22PR-220B AR22PR-202B AR22PR-222B	AR22PY-210B AR22PY-201B AR22PY-211B AR22PY-220B AR22PY-202B AR22PY-222B	1NO (1)	Upper contact ③ — — ● — ④	
	each 90°							
	Spring return		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-010B AR22PR-001B AR22PR-011B AR22PR-020B AR22PR-002B AR22PR-022B	AR22PY-010B AR22PY-001B AR22PY-011B AR22PY-020B AR22PY-002B AR22PY-022B	1NC (1)	Upper contact ① — ● — — ②	
	⌚ 60°							
 AF94-324	Maintained			1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-210B AR22WR-201B AR22WR-211B AR22WR-220B AR22WR-202B AR22WR-222B	AR22WY-210B AR22WY-201B AR22WY-211B AR22WY-220B AR22WY-202B AR22WY-222B	(1)	Upper contact ③ — — ● — ④
	each 90°						(2)	Lower contact ① — ● — — ②
	Spring return		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-010B AR22WR-001B AR22WR-011B AR22WR-020B AR22WR-002B AR22WR-022B	AR22WY-010B AR22WY-001B AR22WY-011B AR22WY-020B AR22WY-002B AR22WY-022B	2NO+2NC	Upper contact ③ — — ● — ④	
	⌚ 60°						(3)	③ — — ● — ④
 AF94-308	Maintained		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-210B AR22RR-201B AR22RR-211B AR22RR-220B AR22RR-202B AR22RR-222B	AR22RY-210B AR22RY-201B AR22RY-211B AR22RY-220B AR22RY-202B AR22RY-222B	(2)	Lower contact ① — ● — — ②	
	each 90°							
	Spring return	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-010B AR22RR-001B AR22RR-011B AR22RR-020B AR22RR-002B AR22RR-022B	AR22RY-010B AR22RY-001B AR22RY-011B AR22RY-020B AR22RY-002B AR22RY-022B	(4)	① — ● — — ②		
	⌚ 60°							
 AF94-311	Maintained	■: Key removable position (): Key type See page 27	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22J□R-2■10() AR22J□R-2■01() AR22J□R-2■11() AR22J□R-2■20() AR22J□R-2■02() AR22J□R-2■22()	AR22JY-2■10() AR22JY-2■01() AR22JY-2■11() AR22JY-2■20() AR22JY-2■02() AR22JY-2■22()			
	each 90°							
	Spring return	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR22J□R-0A10() AR22J□R-0A01() AR22J□R-0A11() AR22J□R-0A20() AR22J□R-0A02() AR22J□R-0A22()	AR22JY-0A10() AR22JY-0A01() AR22JY-0A11() AR22JY-0A20() AR22JY-0A02() AR22JY-0A22()				
	⌚ 60°							

Notes: • (1) to (4): Contact block mounting position
• ① – ②, ③ – ④: Contact block terminal No.
• Contact arrangements: See page 27

● Contact closed

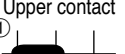
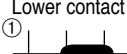
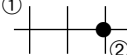
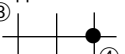
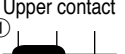
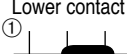
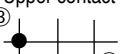
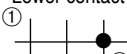
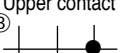
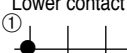
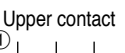
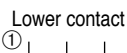
• Operator

Replace the □ mark by the cylinder key type code
Standard type: Blank
Long durability type: A

Selector Switches

AR22

3-position

Operator	Operation	Knob color	Contact	Type Switch with round bezel	Switch with square bezel	Contact operation (Example)						
						Contact arrange- ment	Operation position					
							L 	C 	R 	L 	C 	R 
 AF94-310	Maintained each 45°	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-311B AR22PR-320B AR22PR-302B AR22PR-322B	AR22PY-311B AR22PY-320B AR22PY-302B AR22PY-322B	1NO+1NC (1) (2)						
	Spring/manual return  each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-611B AR22PR-620B AR22PR-602B AR22PR-622B	AR22PY-611B AR22PY-620B AR22PY-602B AR22PY-622B							
	Spring/manual return  each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-711B AR22PR-720B AR22PR-702B AR22PR-722B	AR22PY-711B AR22PY-720B AR22PY-702B AR22PY-722B	1NO+1NC (1) (2)						
	Spring return  each 45°		2NO+2NC	AR22PR-122B	AR22PY-122B	2NO+2NC (1) (2) (3) (4)						
 AF94-324	Maintained each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-311B AR22WR-320B AR22WR-302B AR22WR-322B	AR22WY-311B AR22WY-320B AR22WY-302B AR22WY-322B	1NO+1NC (1) (2)						
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-611B AR22WR-620B AR22WR-602B AR22WR-622B	AR22WY-611B AR22WY-620B AR22WY-602B AR22WY-622B								
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-711B AR22WR-720B AR22WR-702B AR22WR-722B	AR22WY-711B AR22WY-720B AR22WY-702B AR22WY-722B	1NO+1NC (1) (2)							
	Spring return  each 45°	2NO+2NC	AR22WR-122B	AR22WY-122B	2NO+2NC (1) (2) (3) (4)							
 AF94-308	Maintained each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-311B AR22RR-320B AR22RR-302B AR22RR-322B	AR22RY-311B AR22RY-320B AR22RY-302B AR22RY-322B	1NO+1NC (1) (2)						
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-611B AR22RR-620B AR22RR-602B AR22RR-622B	AR22RY-611B AR22RY-620B AR22RY-602B AR22RY-622B								
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-711B AR22RR-720B AR22RR-702B AR22RR-722B	AR22RY-711B AR22RY-720B AR22RY-702B AR22RY-722B	1NO+1NC (1) (2)							
	Spring return  each 45°	2NO+2NC	AR22RR-122B	AR22RY-122B	2NO+2NC (1) (2) (3) (4)							

Selector Switches AR22

Operator	Operation	Key removable position	Contact	Type Switch with round bezel	Switch with square bezel	Contact operation (Example)						
						Contact arrangement	Operator position					
							L	C	R	L	C	R
												
 <												

Notes: • Operator position L: Left, C: Center, R: Right
• (1) to (4): Contact block mounting position
• ① – ②, ③ – ④: Contact block terminal No.

● Contact closed

• Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO	3NC
Code	10	01	11	20	02	30	03

Contact arrangement	2NO+2NC	4NO	4NC	5NO	5NC	3NO+3NC
Code	22	40	04	50	05	33

• Available numbers of contact blocks

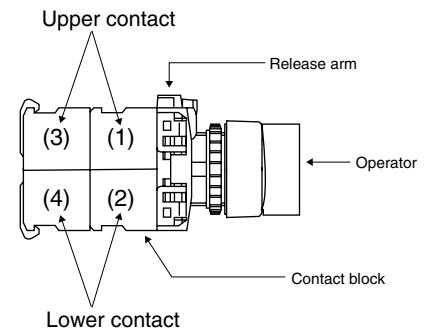
Maintained	Spring return Spring/manual return
6-contact block	4-contact block

• Key removable positions

Code	A	B	C	D	E	F	G
Removable position							
AR22J□R-2	●	●	—	●	—	—	—
AR22J□R-0	●	—	—	—	—	—	—
AR22J□R-3	●	●	●	●	●	●	●
AR22J□R-6	—	—	—	●	●	●	—
AR22J□R-7	●	—	—	—	●	—	●
AR22J□R-1	—	—	—	—	●	—	—

●: Available —: Not available

• Position of contact block



• Key code No.

Replace the () mark with one of the following key code.
A, B, C, D, E and F
Standard key code is A.

• Operator

Replace the □ mark by the cylinder key type code
Standard type: Blank
Long durability type: A

Selector Switches AR22

■ Selector switches (control type)

3-position

Operator	Operation	Knob color or key removable position	Contact arrangement	Type Switch with round bezel	Switch with square bezel
Knob  AF94-435	Maintained each 45°	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	Replace the ■ mark by the contact arrangement code (shown on next page).	AR22PCR-3■B	AR22PCY-3■B
	Spring/manual return ① each 45°			AR22PCR-6■B	AR22PCY-6■B
	Spring/manual return ① each 45°			AR22PCR-7■B	AR22PCY-7■B
	Spring return ① each 45°			AR22PCR-1■B	AR22PCY-1■B
Lever  AF94-436	Maintained each 45°		Replace the ■ mark by the contact arrangement code (shown on next page).	AR22WCR-3■B	AR22WCY-3■B
	Spring/manual return ① each 45°			AR22WCR-6■B	AR22WCY-6■B
	Spring/manual return ① each 45°			AR22WCR-7■B	AR22WCY-7■B
	Spring return ① each 45°			AR22WCR-1■B	AR22WCY-1■B
Cylindrical knob  AF94-433	Maintained each 45°		Replace the ■ mark by the contact arrangement code (shown on next page).	AR22RCR-3■B	AR22RCY-3■B
	Spring/manual return ① each 45°			AR22RCR-6■B	AR22RCY-6■B
	Spring/manual return ① each 45°			AR22RCR-7■B	AR22RCY-7■B
	Spring return ① each 45°			AR22RCR-1■B	AR22RCY-1■B
Key  AF94-434	Maintained each 45°	Replace the □ mark by the key removable position code: A, B, C, D, E F or G	Replace the ■ mark by the contact arrangement code (shown on next page).	AR22JCR-3□■()	AR22JCY-3□■()
	Spring/manual return ① each 45°			AR22JCR-6□■()	AR22JCY-6□■()
	Spring/manual return ① each 45°			AR22JCR-7□■()	AR22JCY-7□■()
	Spring return ① each 45°			AR22JCR-1E■()	AR22JCY-1E■()

• Key removable positions

Code	A	B	C	D	E	F	G
Removable position							
AR22JCR-3	●	●	●	●	●	●	●
AR22JCR-6	—	—	—	●	●	●	—
AR22JCR-7	●	—	—	—	●	—	●
AR22JCR-1	—	—	—	—	●	—	—

●: Available —: Not available

•Key code No.

Replace the () mark with one of the following key code.
 A, B, C, D, E and F
 Standard key code is A.

• Contact arrangement code (Typical example)

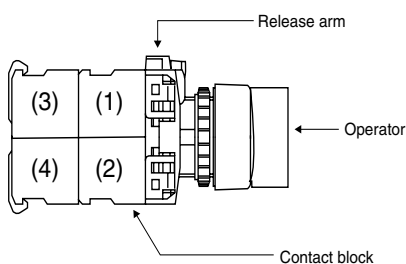
Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NC	01F	(1)	NC	●		
		(2)	NC		●	
		—	—	—	—	—
		—	—	—	—	—
2NO+2NC	014	(1)	NC	●		
		(2)	NC		●	
		(3)	NO			●
		(4)	NO	●		
4NC	01J	(1)	NC	●		
		(2)	NC		●	
		(3)	NC	●		
		(4)	NC		●	
2NO+2NC	024	(1)	NC	●		
		(2)	NC		●	
		(3)	NO			●
		(4)	NO	●		●
2NO+2NC	03C* (Maintained only)	(1)	NC	●		
		(2)	NC			●
		(3)	NO			●
		(4)	NO	●		
2NO+2NC	044*	(1)	NC	●		
		(2)	NC		●	
		(3)	NO			●
		(4)	NO	●		
2NO+2NC	054	(1)	NC	●		
		(2)	NC		●	
		(3)	NO			●
		(4)	NO			●

Notes: ●: Contact closed Blank: Contact open

* There may be some overlap in the contact when switching between notches.

Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NO+2NC	064	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		●
1NO+1NC	07F	(1)	NC		●	
		(2)	NO			●
		—	—	—	—	—
		—	—	—	—	—
2NO+2NC	07C* (Maintained only)	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	084	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	094*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
2NO+2NC	104	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO	●		●
2NO+2NC	11C* (Maintained only)	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO	●		

• Position of contact block



Notes: Contact block color
NC: red
NO: blue

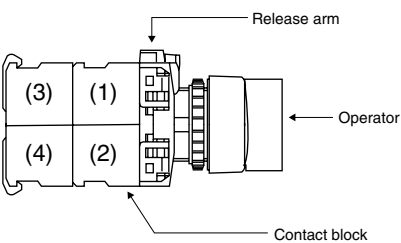
Selector Switches AR22

• Contact arrangement code (Typical example)

Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NO+2NC	124*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO	●		
2NO+2NC	134*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO			●
3NO+1NC	14D* (Maintained only)	(1)	NO	●		
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
3NO+1NC	15A*	(1)	NO			●
		(2)	NC		●	
		(3)	NO			●
		(4)	NO	●		
2NO+2NC	164	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	174*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
2NO+2NC	184	(1)	NC		●	
		(2)	NC		●	
		(3)	NO			●
		(4)	NO			●

Notes: ●: Contact closed Blank: Contact open
 * There may be some overlap in the contact when switching between notches.

• Position of contact block



Notes: Contact block color
 NC: red
 NO: blue

Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NO+2NC	194	(1)	NC			
		(2)	NC			
		(3)	NO	●		
		(4)	NO			●
4NO	20B	(1)	NO			●
		(2)	NO	●		
		(3)	NO			●
		(4)	NO	●		

4, 5-position

Operator	Contact (The following contact is only available.)	Operation	Knob color	Contact arrangement	Type Switch with round bezel	Switch with square bezel
Knob  AF94-435	2NO+2NC	4-position maintained	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	Replace the ■ mark by the contact arrangement code (shown below)	AR22PCR-4■B	AR22PCY-4■B
		5-position maintained			AR22PCR-5■B	AR22PCY-5■B
Lever  AF94-436	2NO+2NC	4-position maintained			AR22WCR-4■B	AR22WCY-4■B
		5-position maintained			AR22WCR-5■B	AR22WCY-5■B
Cylindrical knob  AF94-433	2NO+2NC	4-position maintained			AR22RCR-4■B	AR22RCY-4■B
		5-position maintained			AR22RCR-5■B	AR22RCY-5■B

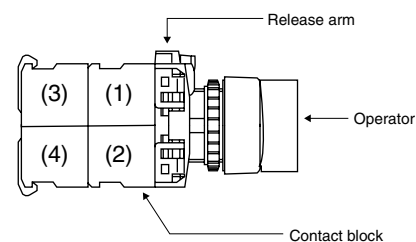
● Contact arrangement code

Position	Contact arrange- ment	Contact arrange- ment code	Contact operation		Operator position				
			Contact block						
			Mounting position	Type	1	2	3	4	5
4-position	2NO+2NC	41C* (Maintained only)	(1)	NC					
			(2)	NC					
			(3)	NO					
			(4)	NO					
5-position	2NO+2NC	51C* (Maintained only)	(1)	NC					
			(2)	NC					
			(3)	NO					
			(4)	NO					

Notes: ●: Contact closed

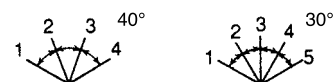
* There may be some overlap in the contact when switching between notches.

• Position of contact block



Notes: Contact block color
 NC: red
 NO: blue

Operator position 4-position 5-position



Illuminated Selector Switches

AR22

■ Illuminated selector switches

2-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
 AF94-306	Maintained	1NO 1NC 1NO+1NC 2NO+2NC	Without	AR22PL-210■3□ AR22PL-201■3□ AR22PL-211■3□ AR22PL-222■3□	Without	AR22PL-210■4□ AR22PL-201■4□ AR22PL-211■4□ AR22PL-222■4□
		1NO 1NC 1NO+1NC 2NO	With	AR22PL-210■3□ AR22PL-201■3□ AR22PL-211■3□ AR22PL-220■3□	With	AR22PL-210■4□ AR22PL-201■4□ AR22PL-211■4□ AR22PL-220■4□
	Spring return  60°	1NO 1NC 1NO+1NC 2NO	Without	AR22PL-010■3□ AR22PL-001■3□ AR22PL-011■3□ AR22PL-020■3□	Without	AR22PL-010■4□ AR22PL-001■4□ AR22PL-011■4□ AR22PL-020■4□
		1NO 1NC 1NO+1NC 2NO	With	AR22PL-010■3□ AR22PL-001■3□ AR22PL-011■3□ AR22PL-020■3□	With	AR22PL-010■4□ AR22PL-001■4□ AR22PL-011■4□ AR22PL-020■4□
	Maintained	1NO 1NC 1NO+1NC 2NO+2NC	Without	AR22PP-210■3□ AR22PP-201■3□ AR22PP-211■3□ AR22PP-222■3□	Without	AR22PP-210■4□ AR22PP-201■4□ AR22PP-211■4□ AR22PP-222■4□
		1NO 1NC 1NO+1NC 2NO	With	AR22PP-210■3□ AR22PP-201■3□ AR22PP-211■3□ AR22PP-220■3□	With	AR22PP-210■4□ AR22PP-201■4□ AR22PP-211■4□ AR22PP-220■4□
 AF94-360	Spring return  60°	1NO 1NC 1NO+1NC 2NO	Without	AR22PP-010■3□ AR22PP-001■3□ AR22PP-011■3□ AR22PP-020■3□	Without	AR22PP-010■4□ AR22PP-001■4□ AR22PP-011■4□ AR22PP-020■4□
		1NO 1NC 1NO+1NC 2NO	With	AR22PP-010■3□ AR22PP-001■3□ AR22PP-011■3□ AR22PP-020■3□	With	AR22PP-010■4□ AR22PP-001■4□ AR22PP-011■4□ AR22PP-020■4□

3-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
 AF94-306	Maintained each 45°	1NO+1NC 2NO+2NC	Without	AR22PL-311■3□ AR22PL-322■3□	Without	AR22PL-311■4□ AR22PL-322■4□
		1NO+1NC	With	AR22PL-311■3□		AR22PL-311■4□
	Spring/manual return  each 45°	1NO+1NC 1NO+1NC	Without With	AR22PL-611■3□ AR22PL-611■3□	Without With	AR22PL-611■4□ AR22PL-611■4□
		1NO+1NC 1NO+1NC	Without With	AR22PL-711■3□ AR22PL-711■3□	Without With	AR22PL-711■4□ AR22PL-711■4□
	Maintained each 45°	1NO+1NC 2NO+2NC	Without	AR22PP-311■3□ AR22PP-322■3□	Without	AR22PP-311■4□ AR22PP-322■4□
		1NO+1NC	With	AR22PP-311■3□		AR22PP-311■4□
 AF94-360	Spring/manual return  each 45°	1NO+1NC 1NO+1NC	Without With	AR22PP-611■3□ AR22PP-611■3□	Without With	AR22PP-611■4□ AR22PP-611■4□
		1NO+1NC 1NO+1NC	Without With	AR22PP-711■3□ AR22PP-711■3□	Without With	AR22PP-711■4□ AR22PP-711■4□

Note: □, ■ See page 33

- Replace the ■ mark by the following lamp voltage code

Transformer	Voltage	Code	
		LED	Incandescent
Without	5V AC/DC	—	5
	6V DC	6	—
	6V AC	A	—
	12V AC/DC	B	—
	15V AC/DC	C	C
	20V AC/DC	—	D
	24V AC/DC	E	E
With	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

- Replace the □ mark by the following knob color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

- Up to 4-contact of contact arrangement can be made.
Available numbers of contacts are as follow.

No. of position	Operation	Without transformer	With transformer
2-position	Maintained	4-contact	3-contact
	Spring return	3-contact	2-contact
3-position	Maintained	4-contact	3-contact
	Spring/manual return	3-contact	2-contact

● Contact arrangement and operator position

2-position

Transformer	Contact arrangement	Contact block		Operator position	
		Mounting position	Type	Left	Right
With/without	1NO	(1)	NO	—	●
With/without	1NC	(1)	NC	●	—
Without	1NO+1NC	(1)	NO	—	●
		(2)	NC	●	—
With	1NO+1NC	(1)	NC	●	—
		(2)	NO	—	●
With/without	2NO	(1)	NO	—	●
		(2)	NO	—	●
Without	2NO+2NC *1	(1)	NO	—	●
		(2)	NC	●	—
		(3)	NO	—	●
		(4)	NC	●	—

Notes: *1 : AR22PL-2, AR22PP-2

● : Contact closed, — : Contact open

3-position

Transformer	Contact arrangement	Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
Without	1NO+1NC *1	(1)	NO	●	—	—
		(2)	NC	—	—	●
	1NO+1NC *2	(1)	NO	—	—	●
		(2)	NC	●	—	—
	2NO+2NC *3	(1)	NO	●	—	—
		(2)	NC	—	—	●
		(3)	NO	●	—	—
		(4)	NC	—	—	●
With	1NO+1NC *1	(1)	NC	—	—	●
		(2)	NO	●	—	—
	1NO+1NC *2	(1)	NC	●	—	—
		(2)	NO	—	—	●

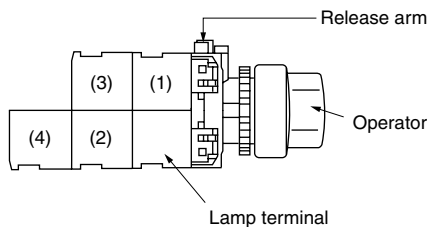
Notes: *1 : AR22PL-3, 6 AR22PP-3, 6 *3 : AR22PL-3 AR22PP-3

*2 : AR22PL-7, AR22PP-7

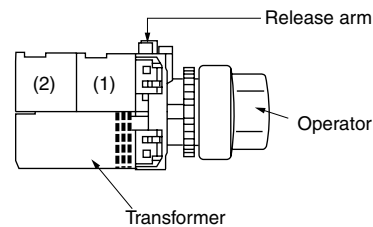
● : Contact closed, — : Contact open

● Position of contact block

Without transformer



With transformer



Pilot Lights DR22

■ Pilot lights/standard

Lens	Transformer	LED lamp Lamp voltage	Type	Incandescent lamp Lamp voltage	Type
Dome  AF94-333	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22D0L-A3□ DR22D0L-63□ DR22D0L-B3□ DR22D0L-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22D0L-54□ — DR22D0L-C4□ DR22D0L-E4□
	With	100–110V AC 200–220V AC	DR22D0L-H3□ DR22D0L-M3□	100–110V AC 200–220V AC	DR22D0L-H4□ DR22D0L-M4□
Extended round  AF94-332	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22E3L-A3□ DR22E3L-63□ DR22E3L-B3□ DR22E3L-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22E3L-54□ — DR22E3L-C4□ DR22E3L-E4□
	With	100–110V AC 200–220V AC	DR22E3L-H3□ DR22E3L-M3□	100–110V AC 200–220V AC	DR22E3L-H4□ DR22E3L-M4□
Faceted  AF96-189	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22K0L-A3□ DR22K0L-63□ DR22K0L-B3□ DR22K0L-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22K0L-54□ — DR22K0L-C4□ DR22K0L-E4□
	With	100–110V AC 200–220V AC	DR22K0L-H3□ DR22K0L-M3□	100–110V AC 200–220V AC	DR22K0L-H4□ DR22K0L-M4□
Flush square  AF94-330	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22F3M-A3□ DR22F3M-63□ DR22F3M-B3□ DR22F3M-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22F3M-54□ — DR22F3M-C4□ DR22F3M-E4□
	With	100–110V AC 200–220V AC	DR22F3M-H3□ DR22F3M-M3□	100–110V AC 200–220V AC	DR22F3M-H4□ DR22F3M-M4□
Flush square (Transparent lens)  AF94-443	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22F4M-A3□ DR22F4M-63□ DR22F4M-B3□ DR22F4M-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22F4M-54□ — DR22F4M-C4□ DR22F4M-E4□
	With	100–110V AC 200–220V AC	DR22F4M-H3□ DR22F4M-M3□	100–110V AC 200–220V AC	DR22F4M-H4□ DR22F4M-M4□
Flush square (12mm high frame)  AF95-685	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22F5M-A3□ DR22F5M-63□ DR22F5M-B3□ DR22F5M-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22F5M-54□ — DR22F5M-C4□ DR22F5M-E4□
	With	100–110V AC 200–220V AC	DR22F5M-H3□ DR22F5M-E3□	100–110V AC 200–220V AC	DR22F5M-H4□ DR22F5M-M4□
Extended square  AF94-380	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22E3M-A3□ DR22E3M-63□ DR22E3M-B3□ DR22E3M-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22E3M-54□ — DR22E3M-C4□ DR22E3M-E4□
	With	100–110V AC 200–220V AC	DR22E3M-H3□ DR22E3M-M3□	100–110V AC 200–220V AC	DR22E3M-H4□ DR22E3M-M4□
Flush rectangular  AF96-237	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22E3N-A3□ DR22E3N-63□ DR22E3N-B3□ DR22E3N-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22E3N-54□ — DR22E3N-C4□ DR22E3N-E4□
	With	100–110V AC 200–220V AC	DR22E3N-H3□ DR22E3N-M3□	100–110V AC 200–220V AC	DR22E3N-H4□ DR22E3N-M4□
Extended round with square bezel  AF94-331	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR22E3P-A3□ DR22E3P-63□ DR22E3P-B3□ DR22E3P-E3□	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR22E3P-54□ — DR22E3P-C4□ DR22E3P-E4□
	With	100–110V AC 200–220V AC	DR22E3P-H3□ DR22E3P-M3□	100–110V AC 200–220V AC	DR22E3P-H4□ DR22E3P-M4□

Note: □ See page 37

■ Pilot lights/short-body without transformer

Lens	LED lamp		Incandescent lamp	
	Lamp voltage	Type	Lamp voltage	Type
 AF98-88	5.5V AC/DC	—	5.5V AC/DC	DR22D0L-58□
	6V AC	DR22D0L-A9□	6V AC	—
	6V DC	DR22D0L-69□	6V DC	—
	12V AC/DC	DR22D0L-B9□	15V AC/DC	DR22D0L-C8□
	24V AC/DC	DR22D0L-E9□	24V AC/DC	DR22D0L-E8□
 AF98-90	5.5V AC/DC	—	5.5V AC/DC	DR22E3L-58□
	6V AC	DR22E3L-A9□	6V AC	—
	6V DC	DR22E3L-69□	6V DC	—
	12V AC/DC	DR22E3L-B9□	15V AC/DC	DR22E3L-C8□
	24V AC/DC	DR22E3L-E9□	24V AC/DC	DR22E3L-E8□
 AF98-89	5.5V AC/DC	—	5.5V AC/DC	DR22K0L-58□
	6V AC	DR22K0L-A9□	6V AC	—
	6V DC	DR22K0L-69□	6V DC	—
	12V AC/DC	DR22K0L-B9□	15V AC/DC	DR22K0L-C8□
	24V AC/DC	DR22K0L-E9□	24V AC/DC	DR22K0L-E8□
 AF98-92	5.5V AC/DC	—	5.5V AC/DC	DR22F3M-58□
	6V AC	DR22F3M-A9□	6V AC	—
	6V DC	DR22F3M-69□	6V DC	—
	12V AC/DC	DR22F3M-B9□	15V AC/DC	DR22F3M-C8□
	24V AC/DC	DR22F3M-E9□	24V AC/DC	DR22F3M-E8□
 AF98-92	5.5V AC/DC	—	5.5V AC/DC	DR22F4M-58□
	6V AC	DR22F4M-A9□	6V AC	—
	6V DC	DR22F4M-69□	6V DC	—
	12V AC/DC	DR22F4M-B9□	15V AC/DC	DR22F4M-C8□
	24V AC/DC	DR22F4M-E9□	24V AC/DC	DR22F4M-E8□
 AF98-94	5.5V AC/DC	—	5.5V AC/DC	DR22F5M-58□
	6V AC	DR22F5M-A9□	6V AC	—
	6V DC	DR22F5M-69□	6V DC	—
	12V AC/DC	DR22F5M-B9□	15V AC/DC	DR22F5M-C8□
	24V AC/DC	DR22F5M-E9□	24V AC/DC	DR22F5M-E8□
 AF98-93	5.5V AC/DC	—	5.5V AC/DC	DR22E3M-58□
	6V AC	DR22E3M-A9□	6V AC	—
	6V DC	DR22E3M-69□	6V DC	—
	12V AC/DC	DR22E3M-B9□	15V AC/DC	DR22E3M-C8□
	24V AC/DC	DR22E3M-E9□	24V AC/DC	DR22E3M-E8□
 KK02-234B	5.5V AC/DC	—	5.5V AC/DC	DR22E3N-58□
	6V AC	DR22E3N-A9□	6V AC	—
	6V DC	DR22E3N-69□	6V DC	—
	12V AC/DC	DR22E3N-B9□	15V AC/DC	DR22E3N-C8□
	24V AC/DC	DR22E3N-E9□	24V AC/DC	DR22E3N-E8□
 AF98-91	5.5V AC/DC	—	5.5V AC/DC	DR22E3P-58□
	6V AC	DR22E3P-A9□	6V AC	—
	6V DC	DR22E3P-69□	6V DC	—
	12V AC/DC	DR22E3P-B9□	15V AC/DC	DR22E3P-C8□
	24V AC/DC	DR22E3P-E9□	24V AC/DC	DR22E3P-E8□

Note: □ See page 37

Pilot Lights DR22

■ Pilot lights/short-body with transformer

Lens	LED lamp Lamp voltage Type	Incandescent lamp Lamp voltage Type
Dome  AF97-137	100–110V AC DR22D0L-H9 ☐ 200–220V AC DR22D0L-M9 ☐	100–110V AC DR22D0L-H8 ☐ 200–220V AC DR22D0L-M8 ☐
Extended round  AF97-138	100–110V AC DR22E3L-H9 ☐ 200–220V AC DR22E3L-M9 ☐	100–110V AC DR22E3L-H8 ☐ 200–220V AC DR22E3L-M8 ☐
Faceted  KK02-130A	100–110V AC DR22K0L-H9 ☐ 200–220V AC DR22K0L-M9 ☐	100–110V AC DR22K0L-H8 ☐ 200–220V AC DR22K0L-M8 ☐
Flush square  AF97-134	100–110V AC DR22F3M-H9 ☐ 200–220V AC DR22F3M-M9 ☐	100–110V AC DR22F3M-H8 ☐ 200–220V AC DR22F3M-M8 ☐
Flush square (Transparent lens)  AF97-133	100–110V AC DR22F4M-H9 ☐ 200–220V AC DR22F4M-M9 ☐	100–110V AC DR22F4M-H8 ☐ 200–220V AC DR22F4M-M8 ☐
Flush square (12mm high frame)  AF97-136	100–110V AC DR22F5M-H9 ☐ 200–220V AC DR22F5M-M9 ☐	100–110V AC DR22F5M-H8 ☐ 200–220V AC DR22F5M-M8 ☐
Extended square  KK02-134A	100–110V AC DR22E3M-H9 ☐ 200–220V AC DR22E3M-M9 ☐	100–110V AC DR22E3M-H8 ☐ 200–220V AC DR22E3M-M8 ☐
Flush rectangular  KK02-235B	100–110V AC DR22E3N-H9 ☐ 200–220V AC DR22E3N-M9 ☐	100–110V AC DR22E3N-H8 ☐ 200–220V AC DR22E3N-M8 ☐
Extended round with square bezel  AF97-135	100–110V AC DR22E3P-H9 ☐ 200–220V AC DR22E3P-M9 ☐	100–110V AC DR22E3P-H8 ☐ 200–220V AC DR22E3P-M8 ☐

Note: ☐ See page 37

• **Lens color**

Replace the □ mark by the following lens color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

• **Lamp voltage**

Available lamp voltage are as follow.

Description	Voltage	Code		Short-body type	
		Standard type			
		LED	Incandescent	LED	Incandescent
Without transformer	5.5V AC/DC	—	54	—	58
	6V AC	A3	—	A9	—
	6V DC	63	—	69	—
	12V AC/DC	B3	—	B9	—
	15V AC/DC	C3	C4	C9	C8
	20V AC/DC	—	D4	—	D8
	24V AC/DC	E3	E4	E9	E8
With transformer	100-110V AC	H3	H4	H9	H8
	115-127V AC	L3	L4	L9	L8
	200-220V AC	M3	M4	M9	M8
	230-254V AC	Q3	Q4	—	—
	350-380V AC	S3	S4	—	—
	400-440V AC	T3	T4	—	—
	480V AC	V3	V4	—	—
	500-550V AC	W3	W4	—	—
With resistor unit	110V DC	H7	—	—	—

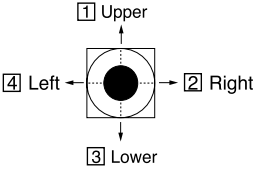
Joy Stick Selector Switches
AR22

■ Joy stick selector switches

Handle	Terminal	Operating directions	Contact arrangement	Type	
				Manual return	Spring return
 AF97-49	Screw		1NO × 2	AR22A0N-A0A0B	AR22A5N-A0A0B
			1NO + 1NC × 2	AR22A0N-1010B	AR22A5N-1010B
			1NO × 4	AR22A0N-AAAAB	AR22A5N-AAAAB
			1NO + 1NC × 4	AR22A0N-1111B	AR22A5N-1111B
	Solder/tab		1NO + 1NC × 2	AR22A0H-1010B	AR22A5H-1010B
			2NO + 2NC × 2	AR22A0H-2020B	AR22A5H-2020B
 AF97-45	Screw		1NO × 2	AR22A1N-A0A0B	AR22A6N-A0A0B
			1NO + 1NC × 2	AR22A1N-1010B	AR22A6N-1010B
			1NO × 4	AR22A1N-AAAAB	AR22A6N-AAAAB
			1NO + 1NC × 4	AR22A1N-1111B	AR22A6N-1111B
	Solder/tab		1NO + 1NC × 2	AR22A1H-1010B	AR22A6H-1010B
			2NO + 2NC × 2	AR22A1H-2020B	AR22A6H-2020B
 AF97-56	Screw		1NO × 2	AR22A2N-A0A0B	AR22A7N-A0A0B
			1NO + 1NC × 2	AR22A2N-1010B	AR22A7N-1010B
			1NO × 4	AR22A2N-AAAAB	AR22A7N-AAAAB
			1NO + 1NC × 4	AR22A2N-1111B	AR22A7N-1111B
	Solder/tab		1NO + 1NC × 2	AR22A2H-1010B	AR22A7H-1010B
			2NO + 2NC × 2	AR22A2H-2020B	AR22A7H-2020B
			1NO + 1NC × 4	AR22A2H-1111B	AR22A7H-1111B
			2NO + 2NC × 4	AR22A2H-2222B	AR22A7H-2222B

• Operating direction

- Directions other than those shown in the table above can be provided.
- For types AR22A□N-**1** **2** **3** **4** B, designate the contact arrangement codes for the necessary operating directions (**1**: Upper, **2**: Right, **3**: Lower, **4**: Left). Designate "0" for unnecessary directions.



• Contact arrangement

Contact arrangement		—	1NO	1NC	1NO+1NC	2NO	2NC	2NO+2NC
Manual return Spring return	Screw	0	A	B	1	D	E	—
	Solder/Tab	0	—	—	1	—	—	2

- Spring/manual return are also available, contact FUJI.

■ Buzzers

Sound	Description	Transformer	Operating voltage	Type
Electronic sound  AF96-377	• LED operation indicator (Red) • Intermittent/continuous sound selection • Sound level: 90dB (0.1m) 70dB (1m)	Without	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	DR22B5-AB DR22B5-6B DR22B5-EB DR22B5-FB
		With	100 to 110V AC 200 to 220V AC	DR22B5-HB DR22B5-MB
		With resistor unit	100 to 110V DC	DR22B5-1B
Magnetic sound  AF96-376	• Sound volume adjustment • Sound level: 80 to 90dB (0.1m) 60 to 70dB (1m)	Without	24V AC/DC	DR22B3-EB
		With	100 to 110V AC 200 to 220V AC	DR22B3-HB DR22B3-MB
Electronic sound (IP54)  AF96-244	• Intermittent/continuous sound selection • Sound level: 80dB (0.1m) 60dB (1m)	Without	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	DR22B8-AB DR22B8-6B DR22B8-EB DR22B8-FB
		With	100 to 110V AC 200 to 220V AC	DR22B8-HB DR22B8-MB
		With resistor unit	100 to 110V DC	DR22B8-1B

Notes: • Intermittent/continuous sound selection (DR22B5, B8)
See the "Short-circuit terminal" in the dimensions diagram on the 49 page, and select as follows:

- Short-circuit terminal mounted → Intermittent sound
- Short-circuit terminal not mounted → Continuous sound

- Sound volume adjustment (DR22B3)
Use a flat-bladed screwdriver with a narrow tip to gently turn "Control knob" shown in the dimensions diagram on the 49 page, as follows.
- Clockwise → Increase sound pressure
- Counterclockwise → Decrease sound pressure

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

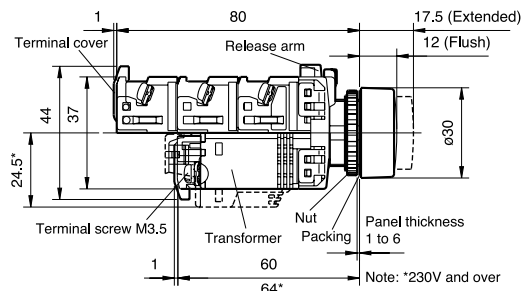
Dimensions

■ Dimensions, mm

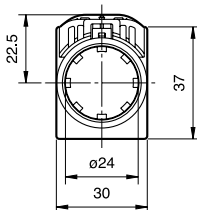
• Illuminated pushbutton switches

Flush/Extended

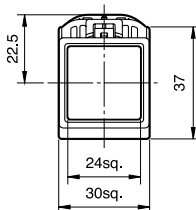
With transformer



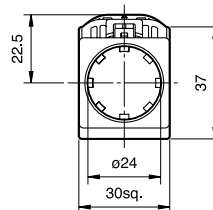
AR22F0L, F5L
AR22E0L, E5L



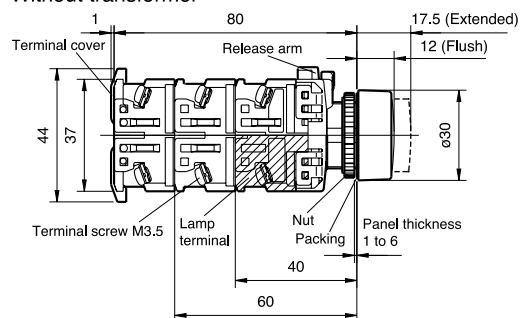
AR22F0M, F5M
AR22E0M, E5M



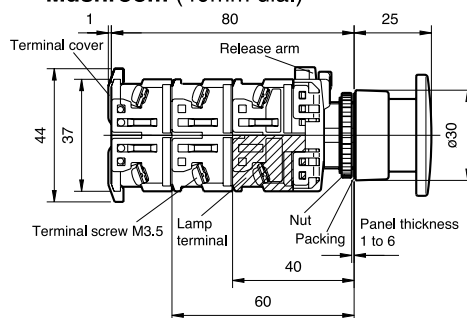
AR22F0P, F5P
AR22E0P, E5P



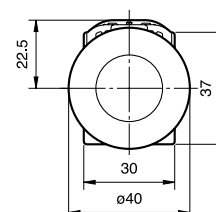
Without transformer



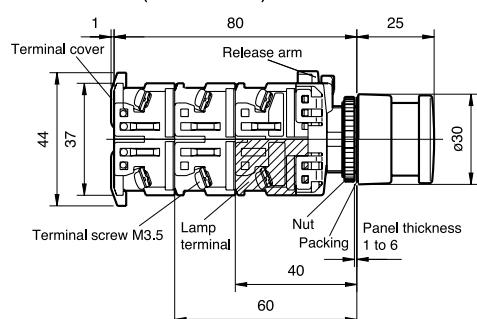
Mushroom (40mm dia.)



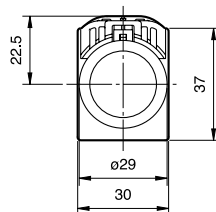
AR22M0L, M5L



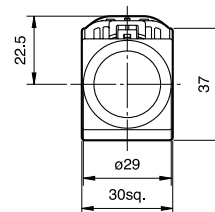
Mushroom (29mm dia.)



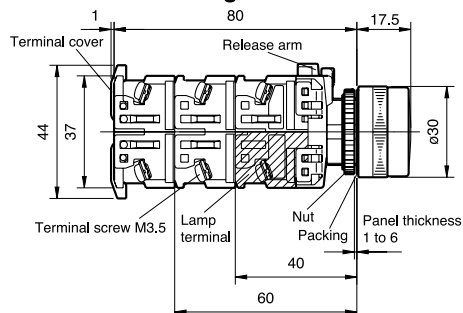
AR22M4L, M9L



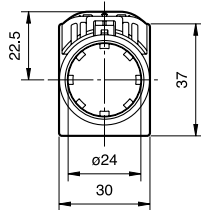
AR22M4P



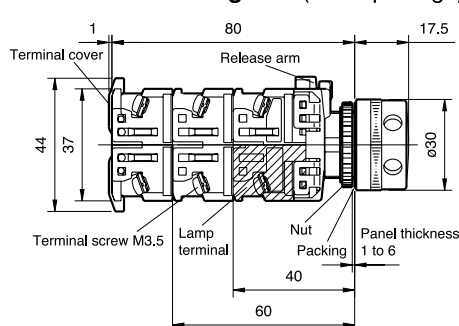
Extended with full guard



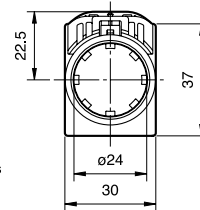
AR22G4L, G9L
AR22G1L, G6L



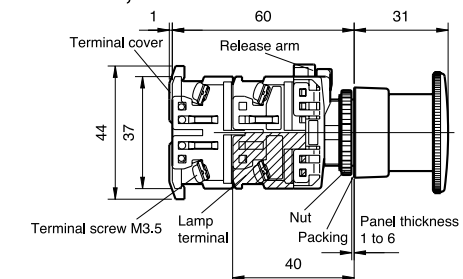
Extended with full guard (with openings)



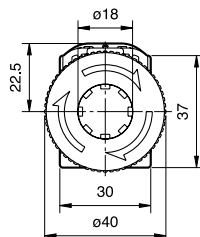
AR22G2L, G7L



Push-lock, turn-reset



AR22V5L



Pushbuttons/Selectors/Pilot Lights/Buzzers

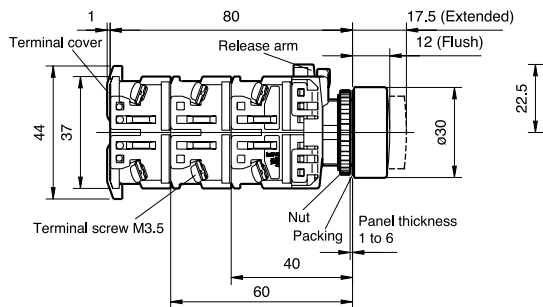
AR22 and DR22

Dimensions

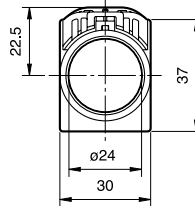
■ Dimensions, mm

• Pushbutton switches

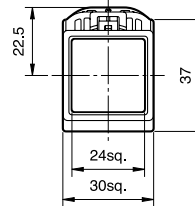
Flush/Extended



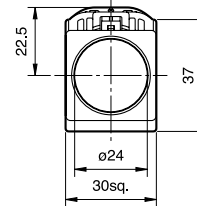
AR22F0R, F5R
AR22E0R, E5R
AR22FAR, FBR
AR22EAR, EBR



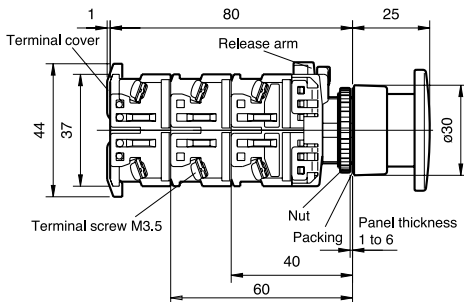
AR22F0S, F5S
AR22E0S, E5S



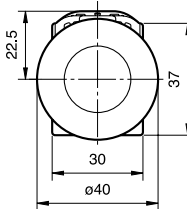
AR22F0Y, F5Y
AR22E0Y, E5Y



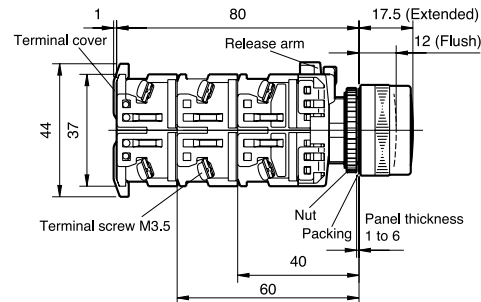
Mushroom (40mm dia.)



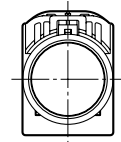
AR22M0R, M5R



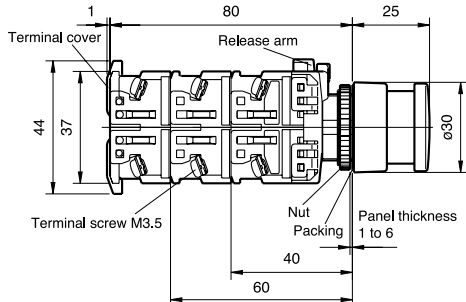
Flush/Extended with full guard



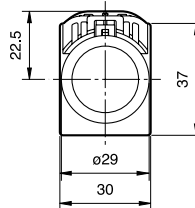
AR22G3R, G8R
AR22G2R, G7R



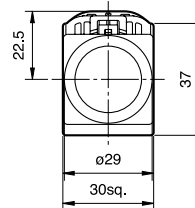
Mushroom (29mm dia.)



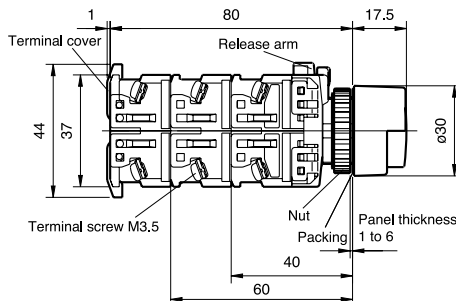
AR22M4R, M9R



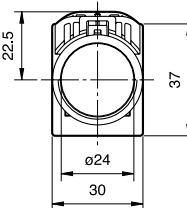
AR22M4Y



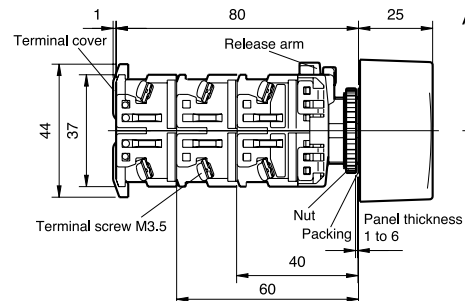
Extended with half guard



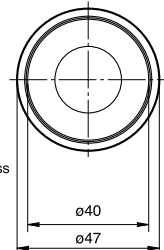
AR22G0R, G5R



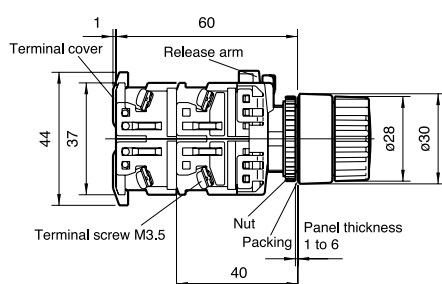
Mushroom with full guard (40mm dia.)



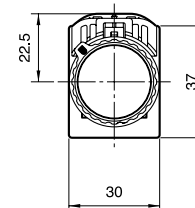
AR22M3R, M8R



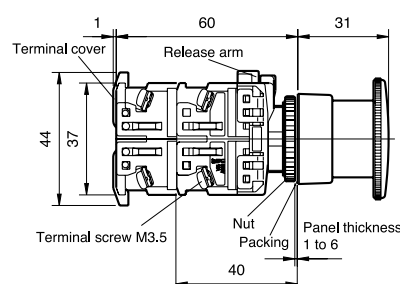
Pushbutton with selector ring



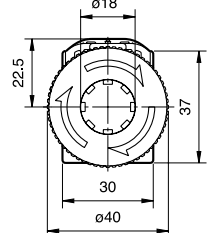
AR22S1R, S2R
AR22S3R, S6R



Push-lock, turn-reset



AR22V5R



Pushbuttons/Selectors/Pilot Lights/Buzzers

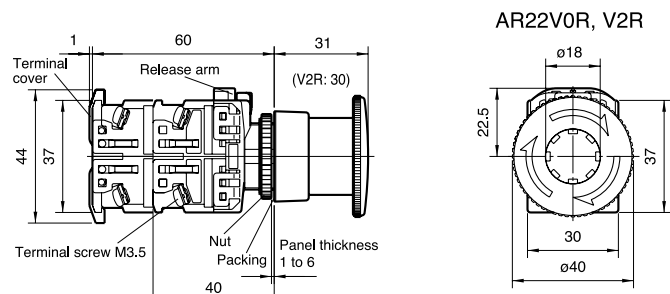
AR22 and DR22

Dimensions

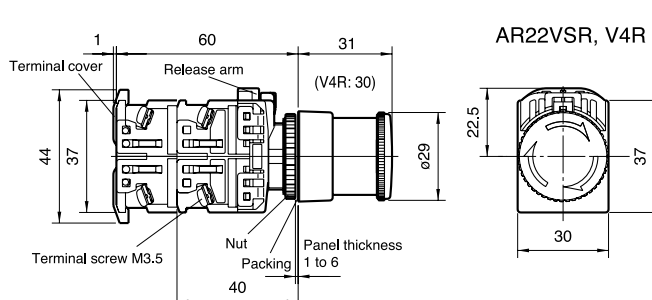
■ Dimensions, mm

•Emergency stop pushbutton switches

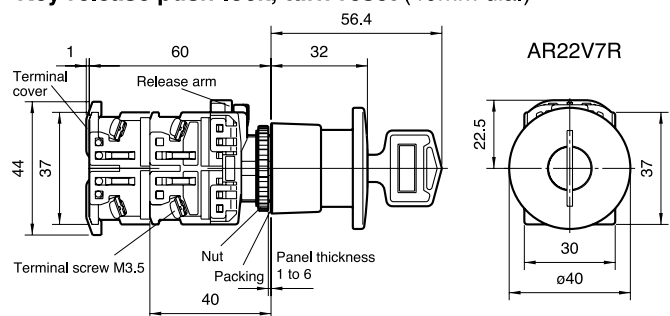
Push-lock, turn-reset (40mm dia.)



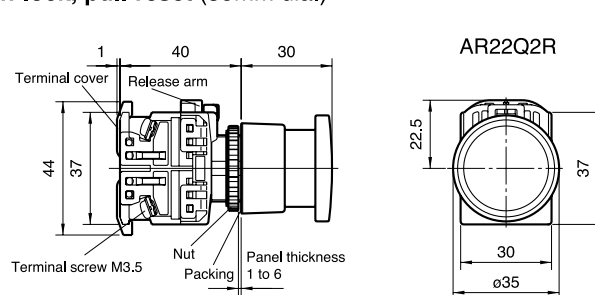
Push-lock, turn-reset (29mm dia.)



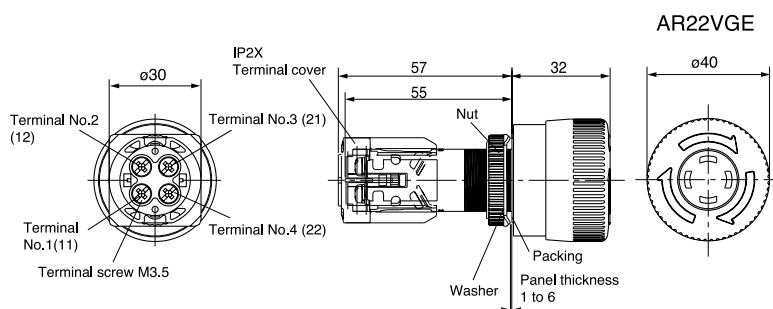
Key release push-lock, turn-reset (40mm dia.)



Push-lock, pull-reset (35mm dia.)

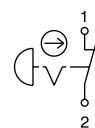


Unibody push-lock, turn-reset (40mm dia.)

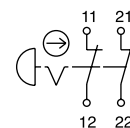


Wiring diagrams

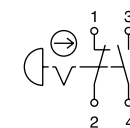
1NC



2NC



1NO+1NC



Note: Terminal No. shown in () are for contact arrangement 2NC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

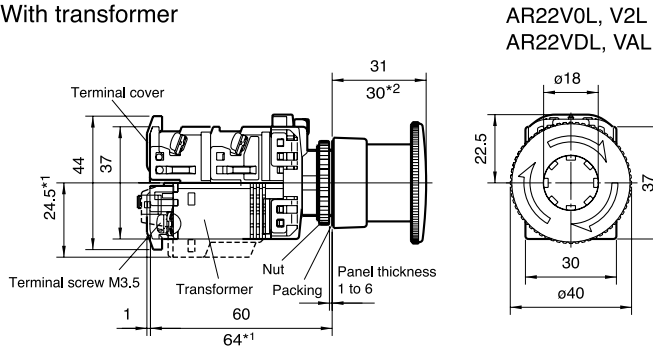
Dimensions

■ Dimensions, mm

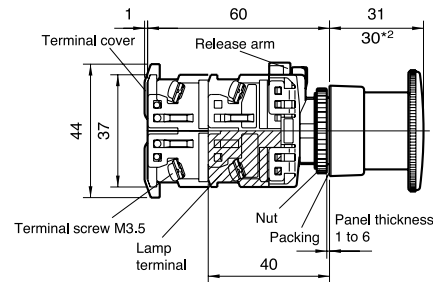
•Emergency stop pushbutton switches

Push-lock, turn-reset (40mm dia.)

With transformer



Without transformer

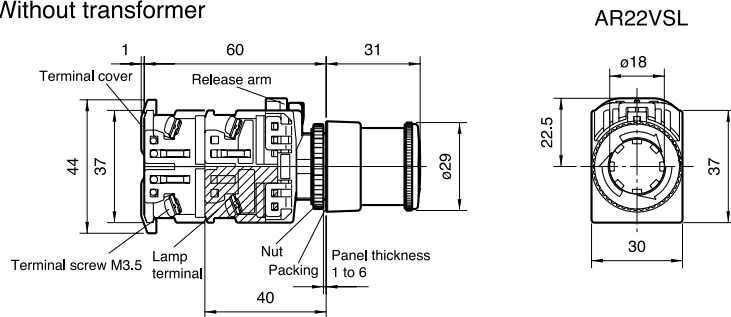


Note: *1 230V and over

*2 AR22V2L and VAL types only

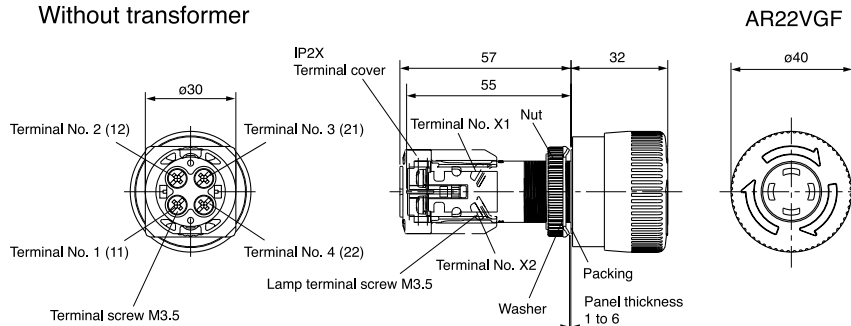
Push-lock, turn-reset (29mm dia.)

Without transformer



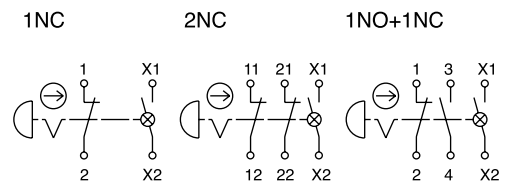
Unibody push-lock, turn-reset (40mm dia.)

Without transformer



AR22VGF

Wiring diagrams



Note: Terminal No. shown in () are for contact arrangement 2NC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

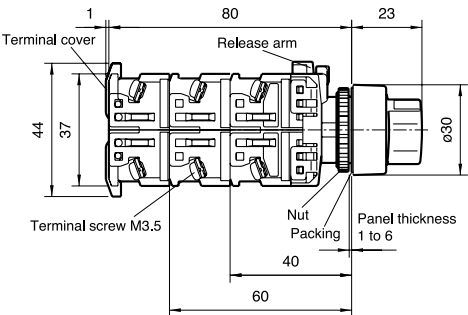
AR22 and DR22

Dimensions

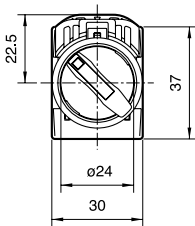
■ Dimensions, mm

• Selector switches

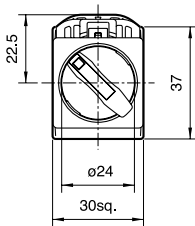
Knob



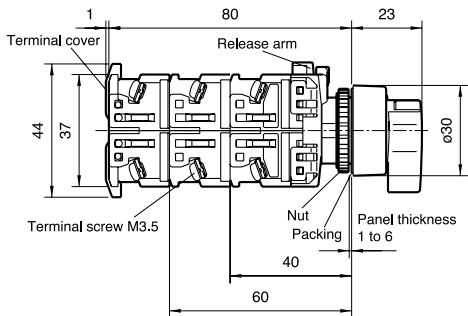
AR22PR, PCR



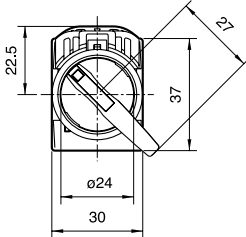
AR22PY, PCY



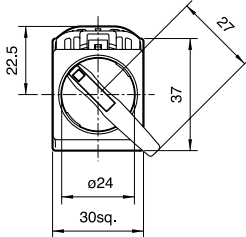
Lever



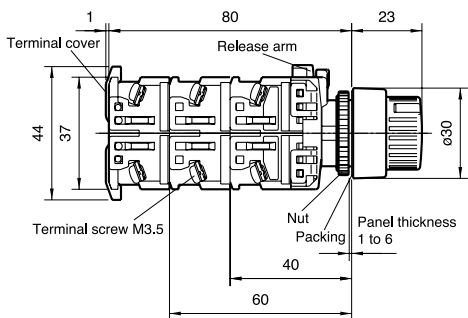
AR22WR, WCR



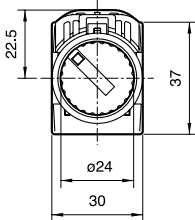
AR22WY, WCY



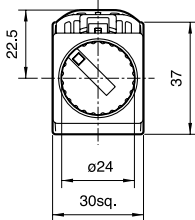
Cylindrical knob



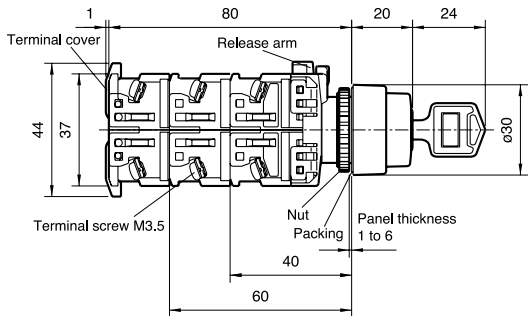
AR22RR, RCR



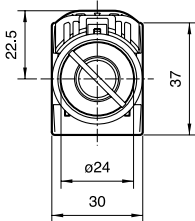
AR22RY, RCY



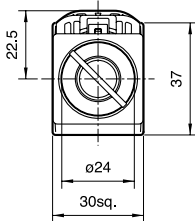
Key



AR22JR, JCR
AR22JAR

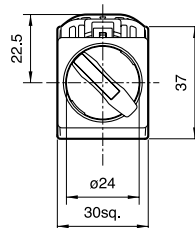
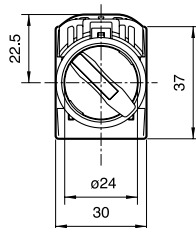


AR22JY, JCY



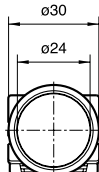
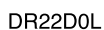
- Illuminated selector switches

With transformer

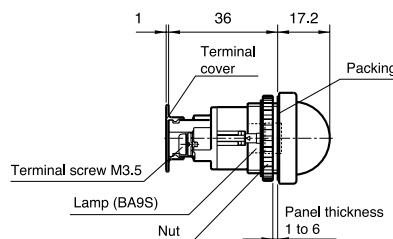


Note: * 230V and over

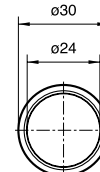
Without transformer



Without transformer

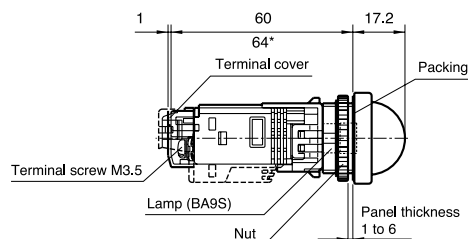


DR22D0L

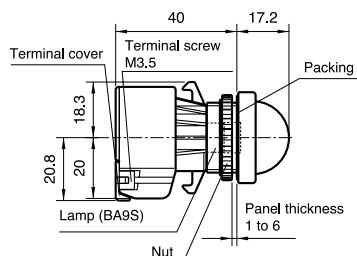


Dome

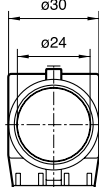
With transformer, with resistor unit



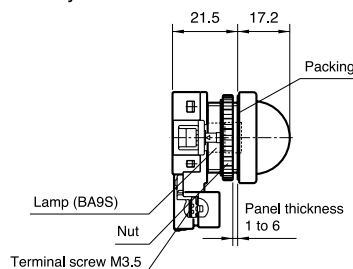
Short body/with transformer



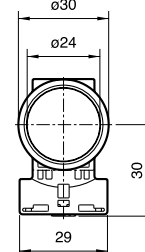
DR22D0L



Short body/without transformer



DR22D0L



Note: * Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Dimensions

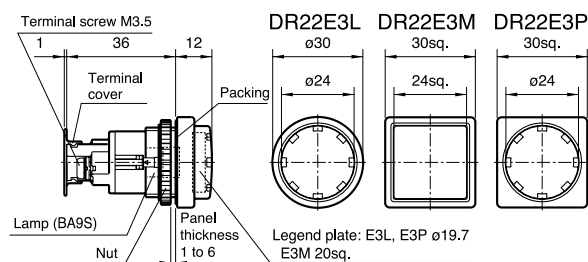
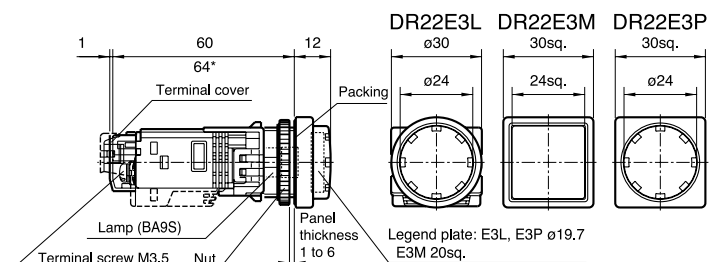
■ Dimensions, mm

•Pilot lights

Extended

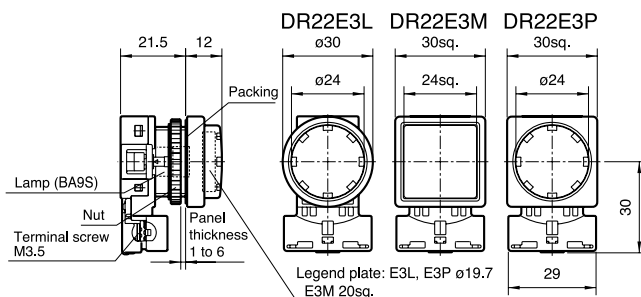
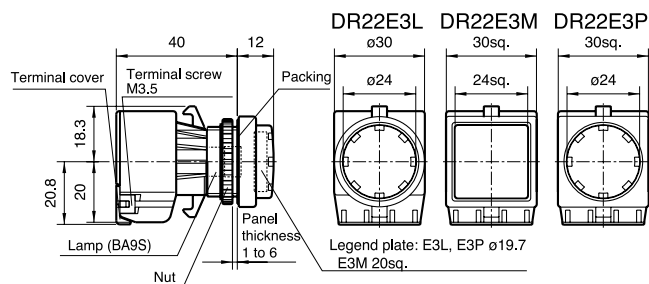
With transformer, with resistor unit

Without transformer



Short body/with transformer

Short body/without transformer



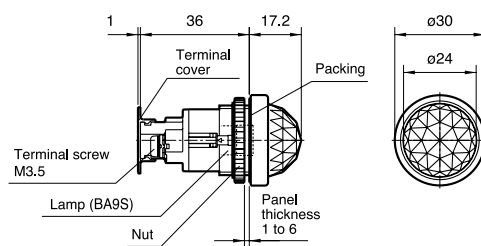
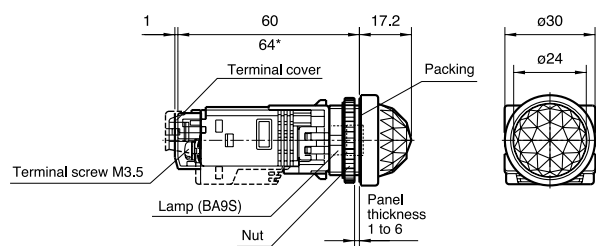
Note: * Except for the types 110V AC, 127V AC and 220V AC.

Faceted

With transformer, with resistor unit

Without transformer

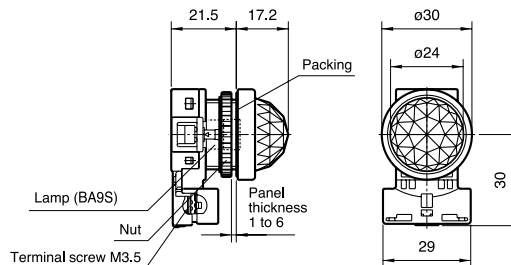
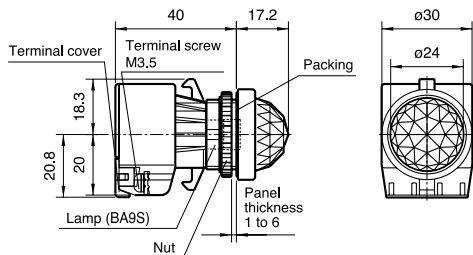
DR22K0L



Short body/with transformer

Short body/without transformer

DR22K0L



Note: * Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Dimensions

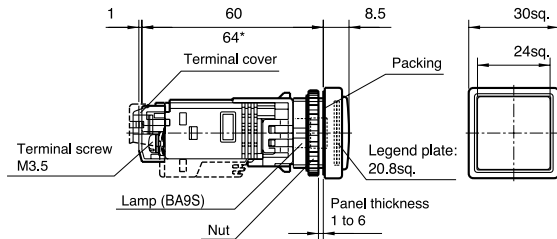
■ Dimensions, mm

•Pilot lights

Flush

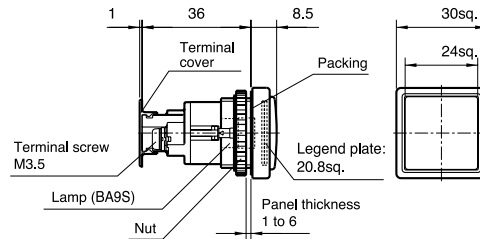
With transformer, with resistor unit

DR22F3M, F4M



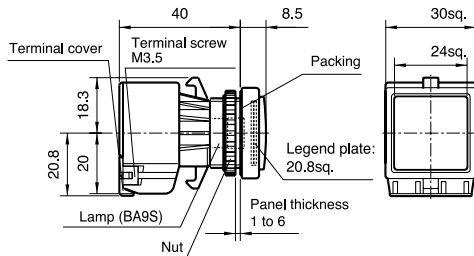
Without transformer

DR22F3M, F4M



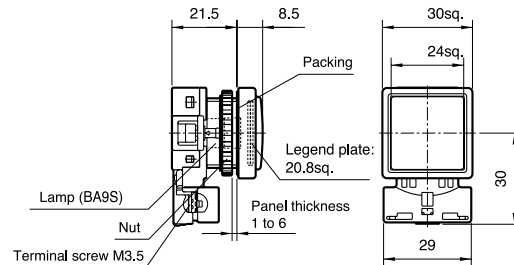
Short body/with transformer

DR22F3M, F4M



Short body/without transformer

DR22F3M, F4M

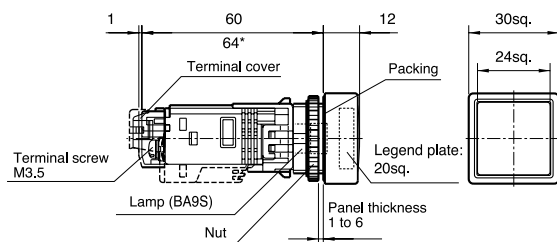


Note: * Except for the types 110V AC, 127V AC and 220V AC.

Flush (12mm high frame)

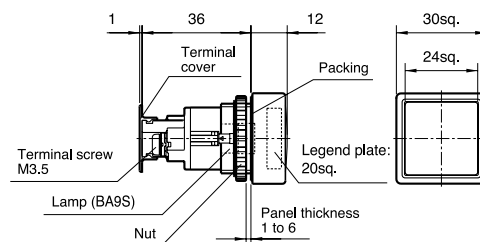
With transformer, with resistor unit

DR22F5M



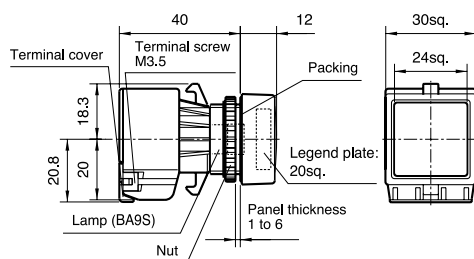
Without transformer

DR22F5M



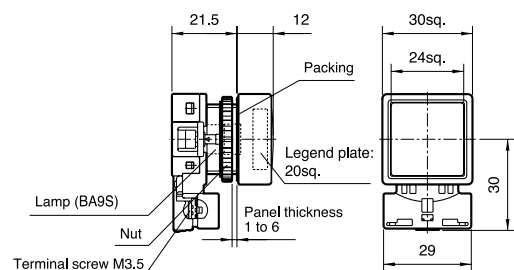
Short body/with transformer

DR22F5M



Short body/without transformer

DR22F5M

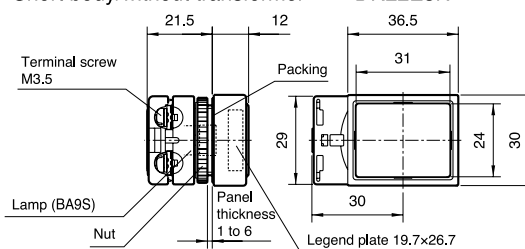
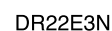
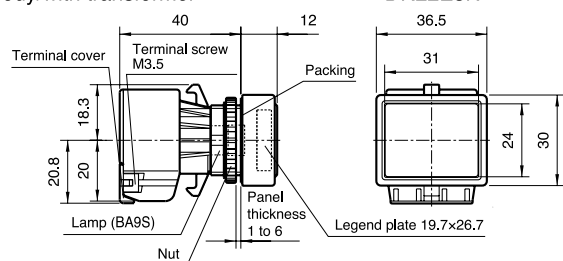
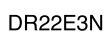
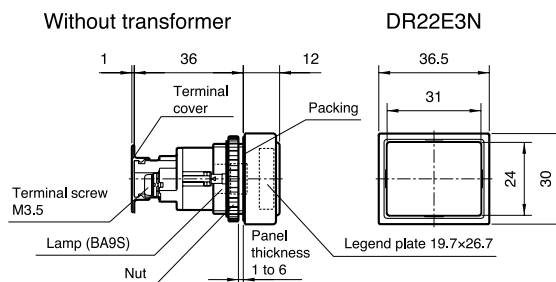


Note: * Except for the types 110V AC, 127V AC and 220V AC.

Dimensions

- Pilot lights

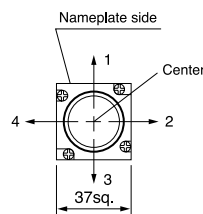
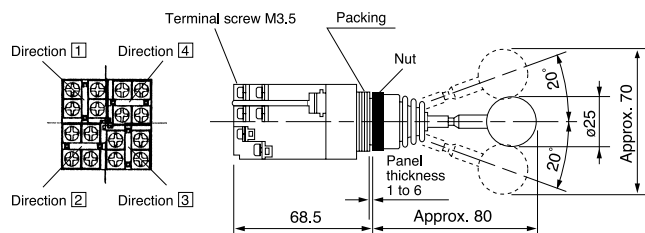
With transformer, with resistor unit



Note: * Except for the types 110V AC, 127V AC and 220V AC.

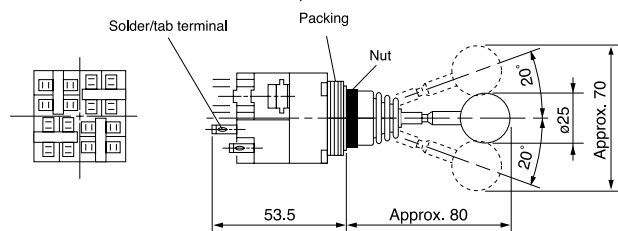
Ball type without lock

Screw terminal AR22A0N, A5N



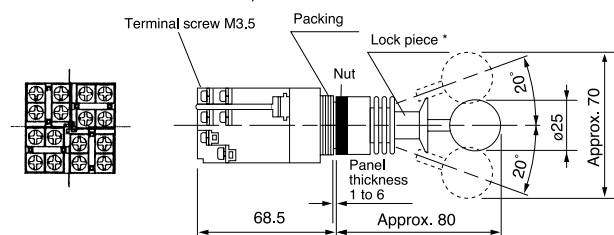
Notes * The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position.
The lock piece locks in the central position only.

Solder/tab terminal AR22A0H, A5H

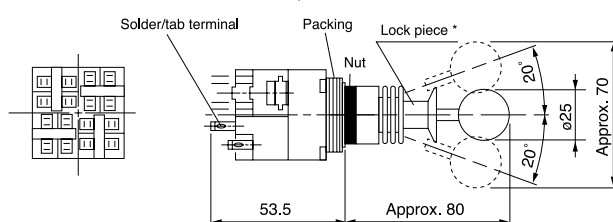


Screw terminal AR22A1N, A6N

Screw terminal AR22A1N, A6N



Solder/tab terminal AR22A1H, A6H



Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

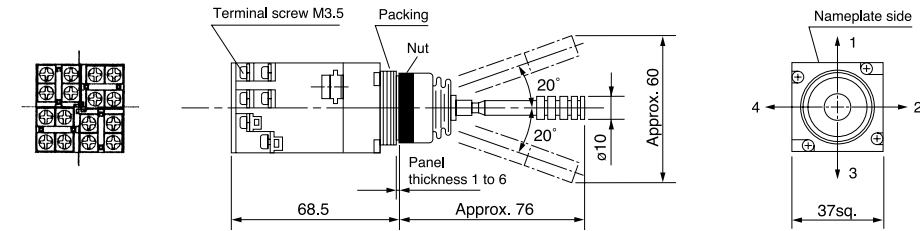
Dimensions

■ Dimensions, mm

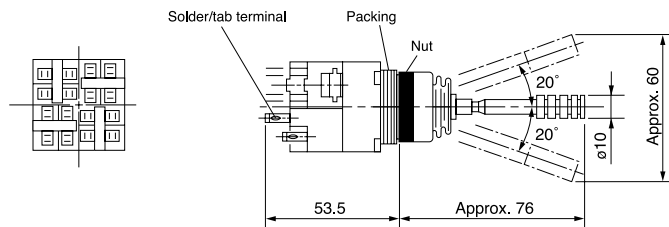
•Joy stick selector switches

Rubber cap type without lock

Screw terminal AR22A2N, A7N



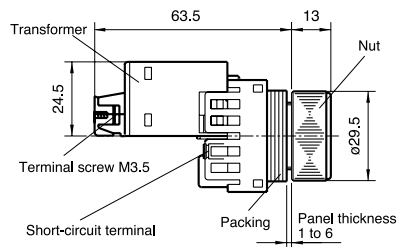
Solder/tab terminal AR22A2H, A7H



•Buzzers

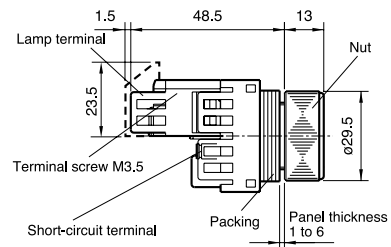
Electronic sound

With transformer



DR22B5

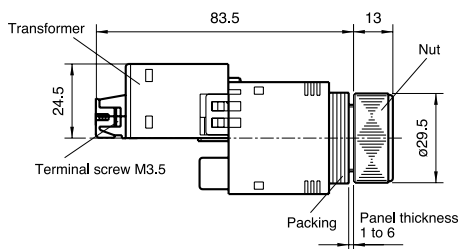
Without transformer



DR22B5

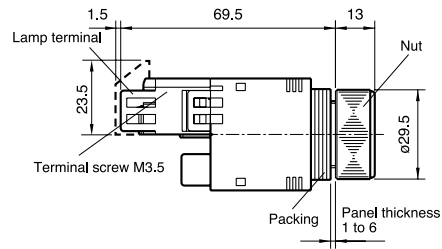
Magnetic sound

With transformer



DR22B3

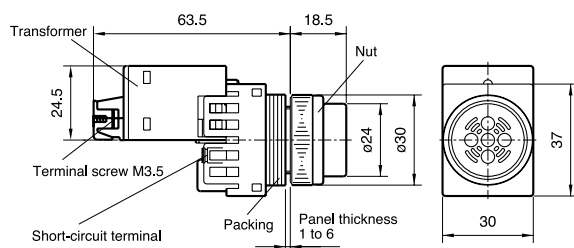
Without transformer



DR22B3

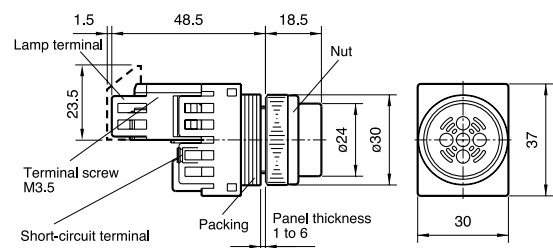
Electronic sound (IP54)

With transformer



DR22B8

Without transformer



DR22B8

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Notes on use

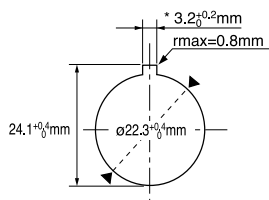
Notes on use

■ Fit two sizes of panel cutout holes

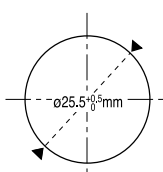
* The unique nut with a step allows switch to be mounted in either 22.3mm- or 25.5mm-dia. holes as shown in Fig. 1 without any extra adapter.

Fig. 1 Panel cutout

The switch mounted as a $\phi 22\text{mm}$ diameter unit.



The switch mounted as a $\phi 25\text{mm}$ diameter unit.

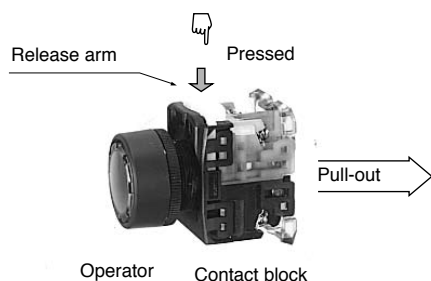


Note: * If key-washer or legend plate are not used, 3.2mm-wide location holes need not be cutout.

■ Detaching contact block from the operator

While keeping the white release arm pressed with one finger, pull-out the contact block in the direction by the arrow.

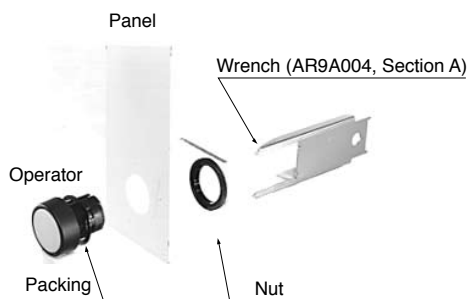
Fig. 2 Detaching contact block from the operator



■ Mounting operator to panel

① In a 22.3mm-dia. panel cutout hole
Insert the operator into the cutout hole from the panel front as shown in the Fig. 3.
Then, fit section "A" of the AR9A004 wrench from behind the panel and secure the operator with nut. (See page 106 for the wrench)

Fig. 3 Mounting an operator in a 22.3mm-dia. hole

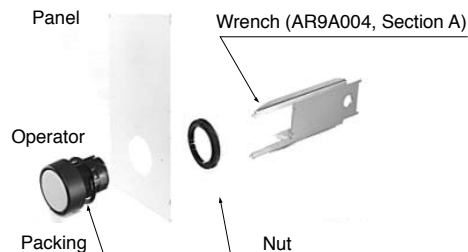


Note: Recommended tightening torque is from 1 to 1.5N·m

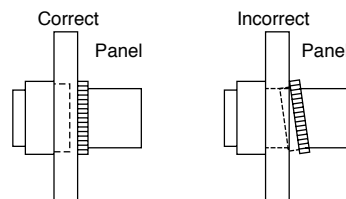
② In a 25.5mm-dia. panel cutout hole

As shown in Fig. 4, with the nut step-out side oriented to the panel, use the wrench to tighten the nut and secure the operator.

Fig. 4 Mounting a operator in a 25.5mm-dia. hole

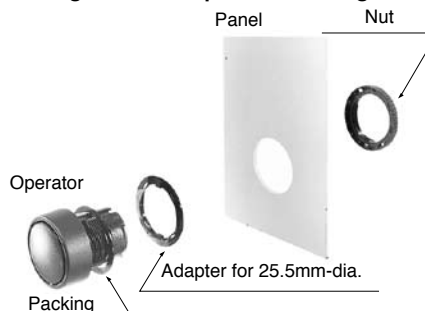


Note: 1. Recommended tightening torque is from 1 to 1.5N·m
2. Ensure that the step-out portion of the nut is correctly fitted in the cutout hole.



For easier mounting in the 25.5mm-dia. hole, the AR9Y718 adapter is also available separately.

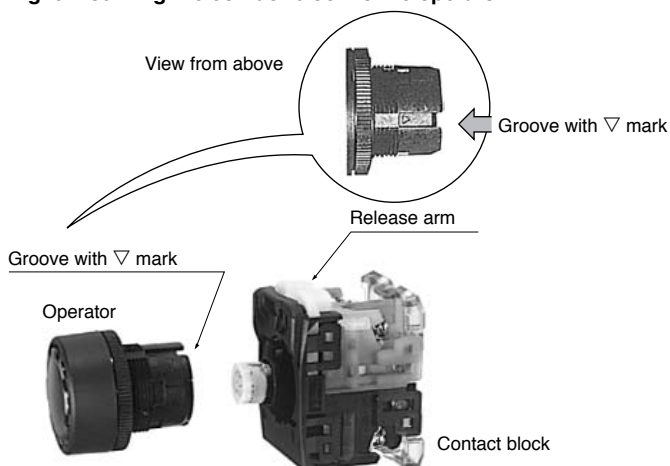
Fig. 5 Mounting with an adapter and locking nut



■ Mounting contact block to the operator

As shown in Fig. 6, align the protruding part of the contact block release arm with the operator groove at the ∇ mark. Then, insert the contact block into the operator until it clicks.

Fig. 6 Mounting the contact block to the operator



Pushbuttons/Selectors/Pilot Lights/Buzzers

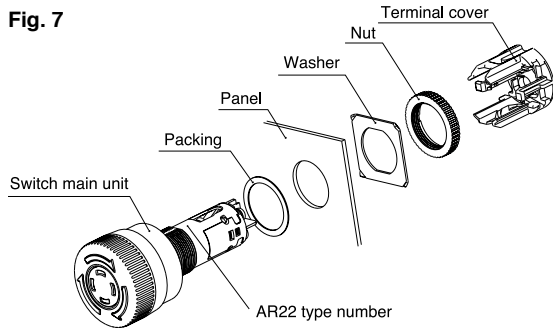
AR22 and DR22

Notes on use

■ VG type panel mounting

As shown in the illustration, remove the live section cover, nut, and washer, and insert the main unit into a panel which has been cut from the front side of the panel. Place the type number AR22 facing upward, and secure the main unit with the nut using a wrench AHX701. The appropriate tightening torque is 1 to 1.5N·m.

Fig. 7

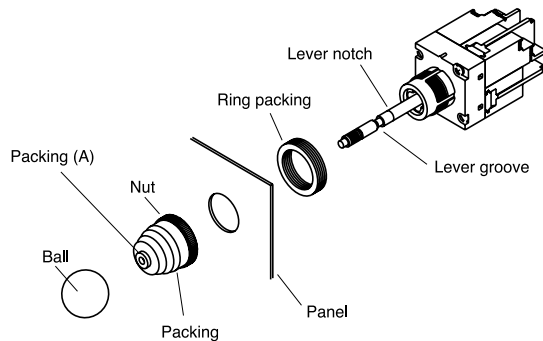


■ Joy stick selector switch mounting on panel

- (1) Twist and remove the ball from the operator.
- (2) Loosen the nut and remove the switch if the switch is provided with a lock.
- (3) If no locking nut is provided, loosen the nut and remove the switch after the packing part (A) shown in the illustration is stretched to the lever groove.
- (4) Mount the switch in the order opposite to removal. Set the packing to the notch on the lever as a reference. Do not separate the nut from the packing.
- (5) Use a torque wrench AR9A006 to tighten the nut from the front of the panel.

Note: Recommended tightening a torque is 1 to 1.5N·m.

Fig. 8



■ Buzzer mounting on panel

- (1) Remove the nut, and insert the main unit into the mounting hole from the back of the panel.
- (2) Tighten the buzzer using a wrench AR9A006 from the front side of the panel.

Note:

- Recommended tightening torque is 1 to 1.5N·m.
- Electronic sound (IP54) type has a all-in-one unit with nut and cap.

■ Applicable panel thickness

The AR22/DR22 series switches are mountable to panels with thickness as given in Table below.

Mounting condition		Applicable panel thickness (mm)
Without accessories		1 to 6
With accessories	Protective cover, water-proof cap, legend plate	1 to 4
	Key washer	without hole 1 to 4
		with hole 1 to 5
	Adapter for a 25.5mm-dia. hole	1 to 5.5

- When using a joy stick selector switch and buzzer
The applicable panel thickness is 1 to 6mm. Five 1.3mm packings (single-piece type) are included as standard equipment. Insert as many as required depending on the panel thickness, using the following table as a guide. When using a key washer, legend plate, or adapter, their thickness will have to be added to the values in the guide.

Panel thickness (mm) (plus key washer, legend plate)	Number of packings (reference)
1.0 to 1.6	5
1.6 to 2.8	4
2.8 to 3.8	3
3.8 to 4.8	2
4.8 to 6.0	1

Pushbuttons/Selectors/Pilot Lights/Buzzers

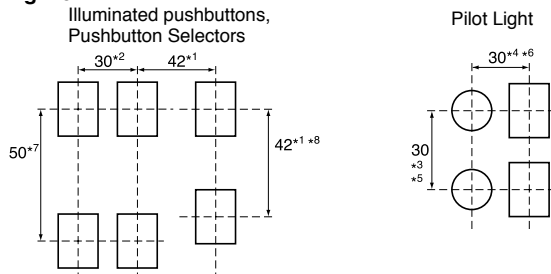
AR22 and DR22

Notes on use

■ Minimum mounting space, mm

(1) Minimum mounting space

Fig. 10



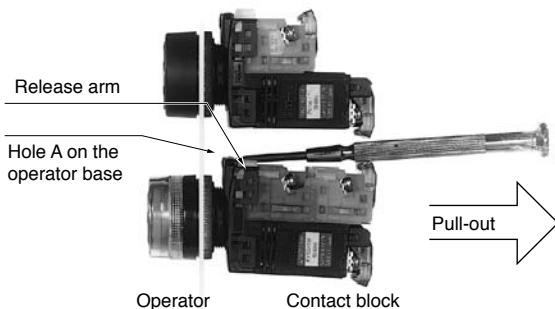
- Notes:
- *1 AR22M0□, M5□, V5□, V0□, V2□, V7R, VG□: 42mm
AR22M3R, M8R: 49mm
AR22Q2R, WR, W0R, WY, WCY: 40mm
 - *2 When mounting contact blocks at 30mm pitch, use it circuit of 380V or less.
 - *3 Short body with transformer types: 50mm.
 - *4 Rectangular types: 36.5mm (except for short body without transformer types).
 - *5 Short body without transformer types: 60mm.
 - *6 Rectangular short body without transformer types: 60mm.
 - *7 This dimension applies when transformer units or contact blocks face each other.
 - *8 This dimension applies when transformer unit or contact block is mounted on only one side.

When mounting operators on a panel, orient all ▽ marks on the operator upwards.
(The operator release arms are oriented upwards.) This aligns the terminals of all contact blocks, thus making wiring easy.

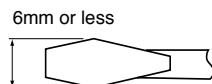
(2) Detaching contact blocks from operators

As shown in Fig. 9, insert a flat-head screw driver into the groove of the white release arm on the contact block. Then, while inserting the driver in hole A of the operator base, lower the driver grip and take out the contact block.

Fig. 11



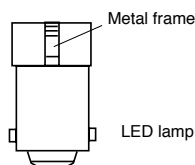
Note: Use a flat head screwdriver as shown at the right.



■ Products with blue and green LEDs

The LED devices on products with high-brightness (blue and green) LEDs are very sensitive to static electricity. When replacing LED lamps do not allow static electricity to come into direct contact with the metal frame on the upper side of the LED lamp. The LED device may be damaged if this part is subjected to static electricity. When installing or removing an LED lamp, it is recommended that you use the lamp changer (AHX790).

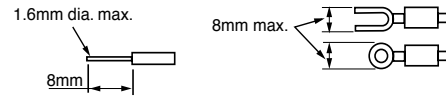
Fig. 12



■ Wiring

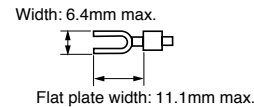
(1) The terminal screws are M3.5 pan head screws. Solid wires, stranded wires, or crimp terminals can be connected.

Fig. 13



(2) Two crimp terminals can be used by putting one of them on top of the other. If fork-type crimp terminals are used in the horizontal direction, however, use ones as shown in the figure below. (i.e., Toei Tanshi's F2-3.5S or an equivalent).

Fig. 14



- (3) The terminal washers are a self-lifting type.
- (4) Tighten the terminal screws to a tightening torque of 0.8 to 1N·m.
- (5) Keep the terminals free of external force while wiring or after wiring, or operational failures may result.
- (6) Do not use screws other than the provided terminal screws.

Notes:

- If solid wires are connected to the lamp terminals in the horizontal direction (on the side), be sure to insert the solid wires into the square washers.
- Terminal layout., see page 54
- See page 53 for the wiring of the joy stick selector switch and VG type.

■ LED Indicator

(1) LED Lamp Malfunctioning

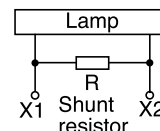
The LED lamp is lit by a very small level of current (approximately 0.01mA). Therefore, it may be erroneously lit by a leaking current from the surge absorption circuit or semiconductor circuit or due to stray capacitance between cables. In that case, provide a countermeasure (e.g., connect a resistor in parallel with the LED lamp).

• Countermeasure for Malfunctioning

The LED lamp malfunctions can be prevented by connecting a shunt resistor (R) or CR elements (a capacitor and resistor) in parallel with the LED lamp terminal. The resistance and CR values vary depending on the model and the operating conditions.

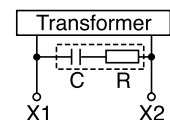
Fig. 15

Example 1



- 24V DC
R: 10kΩ (0.5W)
- 24V AC
R: 2kΩ (2W)

Example 2



- 100V AC
C: 0.33μF (250V AC)
R: 120Ω (0.25W)
- 220V AC
C: 0.1μF (250V AC)
R: 120Ω (0.25W)

(2) Incoming surge

High luminance LED products use an element sensitive to static electricity. They may not be lit by an abnormal voltage like surge. Please note it.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

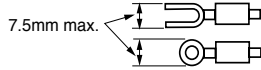
Notes on use

■ Joy stick selector switch

• Screw terminal wiring

- (1) The terminals use M3.5 pan head screws. Use crimp terminals to wire the terminals.

Fig. 16



- (2) The terminal washers are a self-lifting type.
- (3) Tighten the terminal screws to a tightening torque of 0.8 to 1.0N·m. Keep the terminals free of external force during and after wiring, or operational failures may result.

• Solder (tab terminal) wiring

- (1) Pay attention to the following items when soldering the terminals.

Use a soldering iron with a power consumption of 30W.
Use resin-core solder.

If a 30W soldering iron is used, finish soldering the terminals within five seconds. If a 20W soldering iron is used, finish soldering the terminals within 10 seconds. Make sure that the soldering iron tip length is at least 20mm long. Do not apply external force to the terminals. Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorie is rather high.

- (2) When using adjacent terminals, use insulation tubes to prevent the terminals from short-circuiting. Utmost attention must be paid to the solder terminals if especially thick wires are used or if a large quantity of solder is used.
- (3) Connectable wires
Solid wire: 2 wires, 0.8mm dia. max.
Stranded wire: 1 wire, 0.75mm² max.
- (4) Use the 110 (2.8mm) series receptacle for the tab terminals.
- (5) Wire the tab terminals with the contact unit connected to the main unit.

• Operation

Operation shall be made after the joy stick operation lever is surely returned to the center position. Do not apply excessive force to the operation lever. The maximum permissible force is 100N.

• Use of contact blocks

If NO and NC contacts are used in the same contact block, check that there is no difference in potential. Do not connect different type of power source different in type.

■ Buzzer

• Noise

If the application circuit is likely to generate excessively strong noise, connect a surge absorber (e.g., FUJI's ENC390D, provided that the switch is a 24V type) in parallel with the buzzer.

• Place of Use

The buzzer does not have a drip-proof construction. Do not use the buzzer in places where oil or water is sprayed or where dust accumulates. If the buzzer is a splash-proof type, it will resist sprays of water.

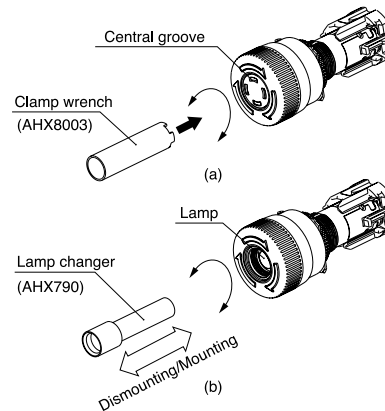
Do not use the buzzer in places that are subject to an excessive amount of corrosive gas.

Note that the buzzer is likely to sound erroneously due to leakage current or the like.

■ AR22VG type

- As shown in Fig. 17 (a), engage the tip of the wrench (AHX8003) with the groove in the center to mount or remove the locking unit. The recommended tightening torque is 0.6 to 1N·m.
- As shown in Fig. 17 (b), insert the lamp changer (AHX790) and press the lamp changer to mount or remove the lamp. Turn the lamp changer clockwise when mounting the lamp and counterclockwise when removing it.

Fig. 17

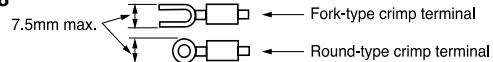


Note: The lamp and neon lamp are special models for the AR22VGF. Use only these special lamps for replacement.

• Wiring

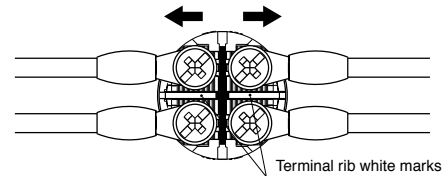
The terminals use M3.5 pan head screws. Use crimp terminals for wiring and cover the crimp terminals with insulation tubes.

Fig. 18



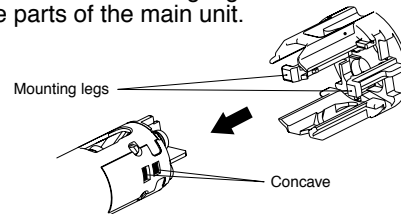
- The terminal washers are a self-lifting type.
- Tighten the terminal screws to a torque of 0.8 to 1N·m. Keep the terminals free of external force during and after wiring, or operational failures may result.
- Wiring precautions
 - (1) Use of round-type crimp terminal
- Remove the live section cover, and half-tighten to the point parallel with the terminal rib white marks in the direction of the arrows as shown in the illustration below.
- Mount the live section cover and tighten the terminals securely.

Fig. 19



As shown in the illustration below, mount the live section cover so that the mounting legs of the cover engage with the concave parts of the main unit.

Fig. 20



- (2) If fork-type crimp terminals are used, wiring will be possible without removing the live section cover.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

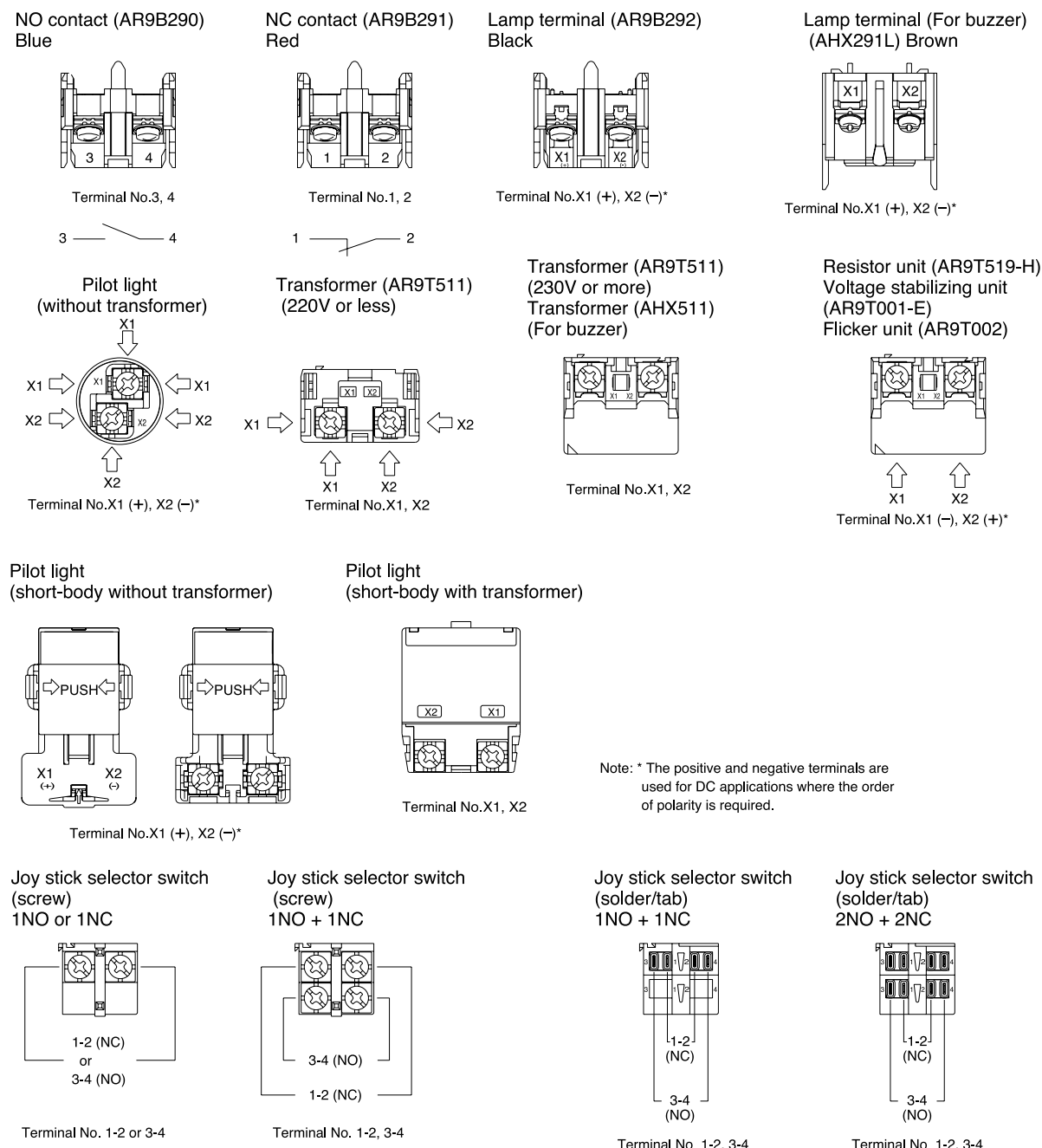
Notes on use

■ Operation

- Do not use a hitting or bouncing action to operate the button, or the switch may break. Always operate the switch by hand. Do not pull mushroom head pushbuttons or alternate buttons other than the Q2.
- Do not rotate the selector ring type while the button is pressed, or the mechanism may break.
- The control type incorporates make-before-break contacts.
- Prepare a protection circuit for the application.
- The dial of the selector switch rotates with a light force. Do not apply force in excess of 1N·m. Please do not pull out or insert the key forcibly.
- To release the lock of the push-lock type, rotate the button clockwise as shown by the arrow. Do not pull the button, or the latch may break and the lock may fail to work.
- Do not lock the emergency stop pushbutton switch and emergency stop illuminated pushbutton switch in use. Push and lock the switch in case of an emergency only.

■ Terminal layout

Fig. 21



Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

General information

The full range of the contact blocks and transformer units suitable for the AR22 and DR22 series may also be fitted to the AR30 and DR30 series.

■ Features

Quick-replacement contact blocks and transformer units

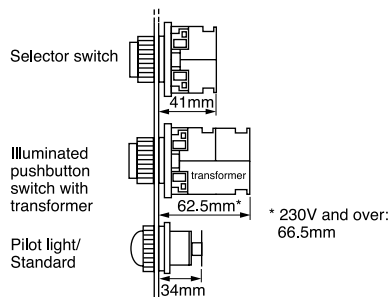
The snap-on construction makes replacement and addition of contact blocks and transformer units very simple and straightforward.

Oil-and dust-proof operator module construction

The protection level of the AR30/DR30 operator modules conforms to IEC Standard IP65. The special seals protect the operator modules and switch mechanisms against oil, dust, and grime, thus ensuring high performance in dusty and moist environments.

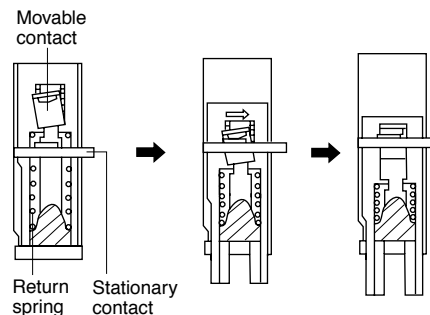
Miniaturization

- Selector switches with 1NO+1NC: 41mm deep
- Pilot lights: 34mm deep
- The transformer now occupies far less space.



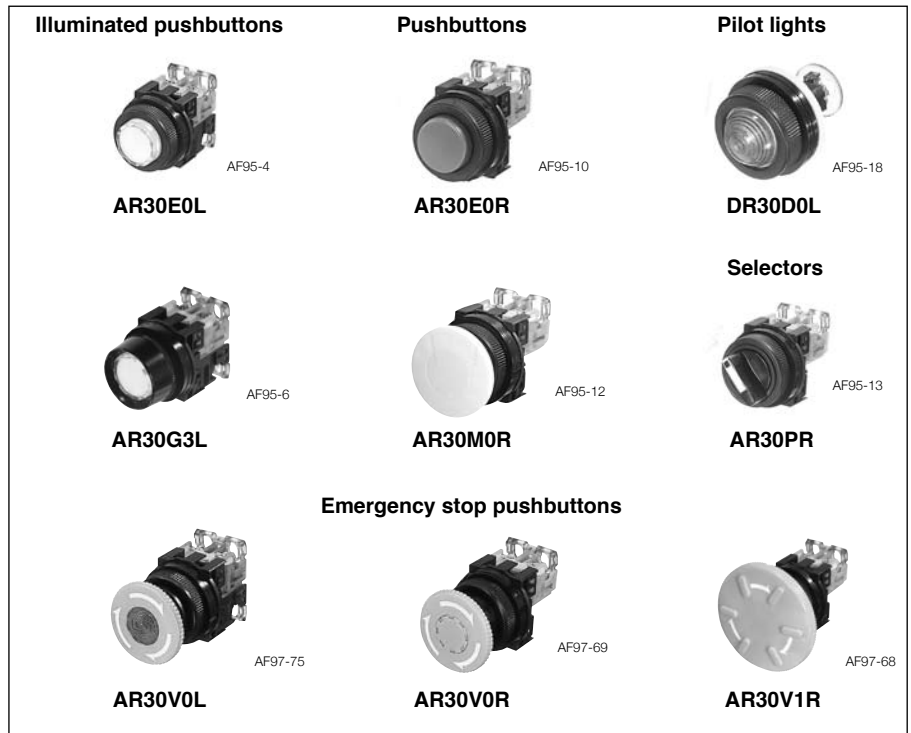
Self-cleaning contacts

All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).



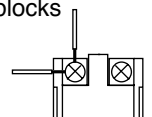
Metal nut

Safer model with metal nut is also available



Wiring

- Wiring from two directions is possible.
- Wiring in both vertical and lateral directions facilitates wiring in narrow spaces.
- Color coding of contact blocks makes wiring easy.
1NO: Blue, 1NC: Red
Lamp terminal and transformer unit: Black



Safety

- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

Protection

- Excellent oil-tight construction (IP65) of the operator.
- Closure of the contact block has been improved.

■ Approvals



■ Illuminated pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Extended round head	AR30E0L, E5L  AF95-4	Extended with full guard (24mm dia. with openings)	AR30G2L, G7L  AF99-328	Push-lock, turn-reset (40mm dia. with white arrow)	AR30V5L  AF97-75
					
Extended with transparent full guard (24mm dia.)	AR30G4L, G9L  KKD05-164	Extended with full guard (24mm dia.)	AR30G3L, G8L  AF95-6	Push-pull	AR30Q7L  AF96-185
					

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Flush round head	AR30F0R, F5R  AF95-11	Mushroom head (29mm dia.)	AR30M4R  AF95-8	Mushroom head with full guard (35mm dia. metal nut)	AR30GSR  AF96-239
					
Extended round head	AR30E0R, E5R  AF95-10	Extended with full guard (24mm dia.)	AR30G1R, G6R  AF95-16	Giant head	AR30B0R  AF95-579
					
Flush round head Symbol mark type	AR30FAR, FBR  AF98-195	Extended with half guard	AR30G0R, G5R  AF95-9	Giant head with guard	AR30B1R  AF95-582
					
Extended round head Symbol mark type	AR30EAR, EBR  AF98-194	Pin lock	AR30GPR  AF96-240	Giant head with full guard	AR30B2R  AF95-580
					
Mushroom head (40mm dia.)	AR30M0R, M5R  AF95-12	Mushroom head with full guard (40mm dia.)	AR30M3R, M8R  AF95-17	Giant head with full guard	AR30B3R  AF95-581
					

Note: AR30M8R: Not approved standard

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Quick reference guide

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Pushbutton with selector ring (2-position)	AR30S1R, S2R, S3R, S6R  AF97-506	Push-lock, turn-reset (40mm dia. with white arrow)	AR30V5R  AF97-69	Pushbutton with emergency operating cap	AR30FVR  AF96-187
					
Push, turn-lock	AR30N0R  AF95-583				
					

■ Emergency stop pushbutton switches (conform to EN418)

Operator	Type	Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR30V0R  AF97-69	Push-lock, turn-reset (65mm dia. with white arrow)	AR30V1R  AF97-68	Push-lock, pull-reset (35mm dia.)	AR30Q2R  AF95-3
					
Push-lock, turn-reset (40mm dia.)	AR30V2R  AF95-176				
					

See page 04/79, 04/101

Notes: Provided with the  (Direct opening action)

■ Emergency stop illuminated pushbutton switches (conform to EN418)

Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	AR30V0L  AF97-75	Push-lock, turn-reset (40mm dia.)	AR30V2L  AF95-2
			

Note: Provided with the  (Direct opening action)

■ Selector switches

Operator	Type	Operator	Type	Operator	Type
Knob	AR30PR, PCR  AF95-13	Key	AR30JR, JCR  AF95-15	Key (Long durability)	AR30JAR  AF95-15
					
Lever	AR30WR, WCR  AF95-14				
					

■ Illuminated selector switches

Operator	Type
Knob	AR30PL  AF95-5
	

■ Pilot lights

Lens	Type	Lens	Type	Lens	Type
Dome	DR30D0L  AF95-18	Dome with dimmer control	DR30D1L  AF02-63	Flush square (40mm sq. transparent lens)	DR30M4M *  AF97-63
					
Extended round	DR30E3L  AF95-20	Flush square (34mm sq. transparent lens)	DR30F4M *  AF97-65		
					
Faceted	DR30K0L  AF95-19	Flush rectangular (Transparent lens)	DR30F4N *  AF97-64		
					

Note: With resistor unit and resistor types: Not approved standard

* LED 12V AC type: Not approved standard

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Quick reference guide

■ Joy stick selector switches

Handle	Type	Handle	Type	Handle	Type
Ball type	AR30A0, A5	Ball type with lock	AR30A1, A6	Rubber cap type	AR30A2, A7
	 AF97-48		 AF97-44		 AF97-57

■ Buzzers

Sound	Type	Sound	Type	Sound	Type
Electronic sound	DR30B5*	Magnetic sound	DR30B0	Electronic sound (IP54)	DR30B8 *
	 AF96-381		 AF96-378		 AF96-245
Electronic sound (economy)	DR30B6				
	 KK02-17				

Note: * 6V AC, 110V DC types: Not approved standard

■ Numerical indicators

Display	Type	Display	Type
One-digit	DR30N1	Two-digit	DR30N2
 KK02-55B		 KK02-56B	

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Part number system

Illuminated pushbuttons

AR30 E0L – 10 E3 R 

① ② ③ ④ ⑤ ⑥

① Product category

AR30: 30mm-dia. illuminated pushbutton

30mm-dia. emergency stop illuminated pushbutton

② Operator

• Illuminated pushbutton

E0L: Extended round head

E5L: Extended round head (Alternate)

G4L: Extended with transparent full guard (24mm dia.)

G9L: Extended with transparent full guard (24mm dia. alternate)

G2L: Extended with full guard (24mm dia. with openings)

G7L: Extended with full guard (24mm dia. with openings, alternate)

G3L: Extended with full guard (24mm dia.)

G8L: Extended with full guard (24mm dia. alternate)

V5L: Push-lock, turn-reset (40mm dia. with white arrow) *1

Q7L: Push-pull

• Emergency stop illuminated pushbutton

V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

V2L: Push-lock, turn-reset (40mm dia.)

③ Contact arrangement

10: 1NO 30: 3NO

01: 1NC 03: 3NC

11: 1NO+1NC 33: 3NO+3NC

20: 2NO 40: 4NO

02: 2NC 04: 4NC

22: 2NO+2NC 50: 5NO

05: 5NC

④ Lamp voltage

•Incandescent lamp

S4: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

•LED lamp

A3: 6V AC, without transformer

B3: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

⑤ Color of lens

G: Green

Y: Yellow

R: Red *2

A: Orange

W: White

S: Blue

⑥ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Notes: *1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

*2 Button color of emergency stop illuminated switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Part number system

Pushbuttons

AR30 E0R – 10 R

① ② ③ ④ ⑤ ⑥

① Product category

AR30: 30mm-dia. pushbutton
30mm-dia. emergency stop pushbutton

② Operator

- Pushbutton switch
- F0R: Flush round head
- F5R: Flush round head (Alternate)
- E0R: Extended round head
- E5R: Extended round head (Alternate)
- FAR: Flush round head (Symbol mark type)
- FBR: Flush round head (Symbol mark type, alternate)
- EAR: Extended round head (Symbol mark type)
- EBR: Extended round head (Symbol mark type, alternate)
- M0R: Mushroom head (40mm dia.)
- M5R: Mushroom head (40mm dia. Alternate)
- M4R: Mushroom head (29mm dia.)
- G1R: Extended with full guard (24mm dia.)
- G6R: Extended with full guard (24mm dia. Alternate)
- GPR: Pin lock
- G0R: Extended with half guard
- G5R: Extended with half guard (Alternate)
- M3R: Mushroom head with full guard (40mm dia.)
- M8R: Mushroom head with full guard (40mm dia. Alternate)
- GSR: Mushroom head with full guard (35mm dia. metal nut)
- B0R: Giant head
- B1R: Giant head with guard
- B2R: Giant head with full guard
- B3R: Giant head with full guard
- S1R: Pushbutton with selector ring (2-position)
- S2R: Pushbutton with selector ring (2-position)
- S3R: Pushbutton with selector ring (2-position)
- S6R: Pushbutton with selector ring (2-position)
- N0R: Push, turn-lock
- V5R: Push-lock, turn-reset (40mm dia. with white arrow) *1
- FVR: Pushbutton with emergency operating cap
- Emergency stop pushbutton switch
- V0R: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2R: Push-lock, turn-reset (40mm dia.)
- V1R: Push-lock, turn-reset (Soft-touch 65mm dia. with white arrow)
- Q2R: Push-lock, pull-reset (35mm dia.)

③ Contact arrangement

10: 1NO	30: 3NO
01: 1NC	03: 3NC
11: 1NO+1NC	33: 3NO+3NC
20: 2NO	40: 4NO
02: 2NC	04: 4NC
22: 2NO+2NC	44: 4NO+4NC
	50: 5NO
	05: 5NC

④ Color of button

G: Green	Y: Yellow
R: Red ²	A: Orange
B: Black	S: Blue
W: White	C: Clear
T: Green, Red, Black (For AR30F0R)	(For AR30FAR, FBR, EAR, EBR)

⑤ Symbol mark (For AR30FAR, FBR, EAR, EBR)

Symbol mark	○		I		Ⓢ		○	I	Ⓢ
Color of button	White	Black	White	Black	White	Black	Clear		
Color of mark	Red		Green		Green		Black		
Code	01	02	03	04	11	12	02B	04B	12B

⑥ Special product

Z9: Resisting water-soluble cutting oils and heat
Z8: With a contact protection cover
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standards
ZM: Metal nut

Notes: *1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

*2 Button color of emergency stop switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Part number system

Selector and illuminated selector switches

AR30 PL – 2 ☐ **10** **E3** **G** ☐ ☐

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product category

AR30: 30mm dia. selector switch and illuminated selector switch

② Operator

•Selector switch

PR: Knob

PCR: Knob operated control type

WR: Lever

WCR: Lever operated control type

JR: Key

JCR: Key operated control type

JAR: Key (Long durability)

•Illuminated selector switch

PL: Knob

③ Operation

2: 2-position, maintained

0: 2-position, spring return

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

4: 4-position, maintained (For AR30PCR, WCR)

5: 5-position, maintained (For AR30PCR, WCR)

④ Key removable position

A: Left

B: Left and right

C: Left, right and center

D: Right

E: Center

F: Right and center

G: Left and center

⑤ Contact arrangement

10: 1NO

30: 3NO

01: 1NC

03: 3NC

11: 1NO+1NC

33: 3NO+3NC

20: 2NO

40: 4NO

02: 2NC

04: 4NC

22: 2NO+2NC

44: 4NO+4NC

50: 5NO

05: 5NC

Note: Control type: See page 04/85 to 04/87

⑥ Lamp voltage

•Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

•LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

⑦ Color of knob

B: Black (Not available for illuminated selector switch)

G: Green

R: Red

W: White (Not available for selector switch)

Y: Yellow (Not available for selector switch)

A: Orange (Not available for selector switch)

S: Blue (Not available for selector switch)

⑧ Key type No.

A, B, C, D, E or F

("A" is standard)

⑨ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Part number system

Pilot lights

DR30 D0L – E3 W ☐

① ② ③ ④ ⑤

① Product category

DR30: 30mm dia. pilot light

② Lens

D0L: Dome

E3L: Extended round

K0L: Faceted

D1L: Dome with dimmer control

F4M: Flush square (34mm sq. transparent lens)

F4N: Flush rectangular (Transparent lens)

M4M: Flush square (40mm sq. transparent lens)

③ Lamp voltage

•Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

FQ: 50V DC, with resistor*

HQ: 110V DC, with resistor*

MQ: 220V DC, with resistor*

•LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

H7: 110V DC, with resistor unit

FR: 50V DC, with resistor*

HR: 110V DC, with resistor*

MR: 220V DC, with resistor*

•LED unit

(For DR30F4M, F4N, M4M type)

65: 6V DC, without transformer

25: 12V AC, without transformer

B5: 12V AC/DC, without transformer

E5: 24V AC/DC, without transformer

H5: 100-110V AC, with transformer

L5: 115-127V AC, with transformer

M5: 200-220V AC, with transformer

Q5: 230-254V AC, with transformer

S5: 350-380V AC, with transformer

T5: 400-440V AC, with transformer

V5: 480V AC, with transformer

W5: 500-550V AC, with transformer

HE: 110V DC, with resistor unit

Note: * DR30D0L, K0L type only

④ Color of lens or color plate

G: Green

Y: Yellow

R: Red

A: Orange

W: White

S: Blue

⑤ Special product

Z9: Resisting water-soluble cutting oils and heat

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Note: * The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Part number system

Joy stick selector switches

AR30A 0 N – A0A0 B

① ②③ ④ ⑤

① **Product category**

AR30A: 30mm-dia. Joy stick selector switch

② **Handle**

- 0: Ball type (without lock, manual return)
- 1: Ball type with lock (manual return)
- 2: Rubber cap type (without lock, manual return)
- 5: Ball type (without lock, spring return)
- 6: Ball type with lock (spring return)
- 7: Rubber cap type (without lock, spring return)

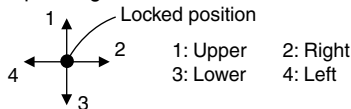
③ **Terminal**

- N: Screw
- H: Solder/tab

④ **Contact arrangement**

Contact arrangement		Blank	1NO	1NC	1NO+1NC	2NO	2NC	2NO+2NC
Code	Screw	0	A	B	1	D	E	–
	Solder/tab	0	–	–	1	–	–	2

Operating direction code of contacts



Ex. AR30A0N-A 0 A 0 B
1 2 3 4

⑤ **Handle color**

- B: Black

■ **Ordering information**

Specify the following:

1. Type number

For the CCC approved product, add the suffix **(CCC)** to the part number

Example: Pushbutton switch AR30F0R-11B**(CCC)**

Buzzers

DR30B 5 – E B

① ② ③ ④

① **Product category**

DR30B: 30mm-dia. buzzer

② **Sound**

- 5: Electronic sound
- 6: Electronic sound (economy)
- 0: Magnetic sound
- 8: Electronic sound (IP54)

③ **Operating voltage**

- A: 6V AC (Type “5”, “8”)
- 6: 6V DC (Type “5”, “8”)
- E: 12-24V AC/DC (Type “6” : 24V DC)
- F: 35-48V AC/DC (Type “5”, “8”)
- G: 24V AC (Type “6”)
- H: 100-110V AC
- M: 200-220V AC
- 1: 100-110V DC (Type “5”, “8”)

④ **Color of head**

- B: Black

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Ratings and specifications

■ Standards approved

UL508	File No. E44592
CSA C22.2 No.14	File No. LR20479
TÜV: EN60947-5-1	Pushbutton, Illuminated pushbutton: R9551062 Selector, Illuminated selector: R9551060 Pilot lights: R9551061 Joy stick selector switch: R2050803 (Lever switch) Buzzer: J9950091
TÜV: EN60947-5-1	Emergency stop pushbutton
EN60947-5-5	Emergency stop illuminated pushbutton : R50028146

■ Specifications (Indoor use)

Description	Pushbutton switch Illuminated pushbutton switch Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch Selector switch Illuminated selector switch	Joy stick selector (Lever switch)	Pilot light
Rated insulation voltage	600V AC/DC * ¹	250V AC/DC	250V AC/DC * ²
Mechanical durability	See page 66	250,000 operations	—
Electrical durability	500,000 operations at 220V AC 6A 1 million operations at 220V AC 3A	100,000 operations at 220V AC 1A (Res. load)	—
Operating frequency	1200 operations/hour (On-load factor: 40%)		—
Dielectric strength	2500V AC, 1 minute * ³	2000V AC, 1 minute * ⁴	
Insulation resistance	100MΩ or more (500V DC megger)	100MΩ or more (500V DC megger)	
Rated impulse dielectric strength	6kV	—	6kV
Conditional short-circuit current	1000A	1000A	—
Short-circuit protective device	Fuse 15A	Fuse 1A	—
Pollution degree	3		
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm * ⁵ Constant: 16.7Hz, double amplitude 3mm		
Shock	Malfunction durability: 100m/s ² * ⁶ Mechanical durability: 500m/s ²		Mechanical durability: 500m/s ²
Ambient temperature (No condensation or no icing)	-20 to +70°C	-5 to +70°C	-20 to +50°C
Storage temperature	-40 to +80°C		
Humidity	45 to 85% RH (within -5 to +40°C)		
Degree of protection	IP65 * ⁷		

Notes: *¹ Illuminated type without transformer: 250V AC/DC

*² Pilot light with transformer: 600V AC

*³ Illuminated type without transformer: 2000V AC, 1 minute

*⁴ Pilot light with transformer: 2500V AC, 1 minute

*⁵ Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s²), according to the test condition of EN60947-5-5 (1998)

*⁶ Emergency stop type: 150m/s²

*⁷ AR30Q7L and DR30D1L type: IP40

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Ratings and specifications

● Mechanical durability

Description		Operations
Pushbutton switch	Momentary action	5 million
Illuminated pushbutton switch	Alternate action	1 million
Emergency stop pushbutton switch	With selector ring	100,000
Emergency stop illuminated pushbutton	Push-lock, turn-reset	100,000
	Push-lock, pull-reset	30,000
Selector switch	Maintained 1, 2, 3, 4-contact	1 million
	Maintained 5, 6, 7, 8-contact	500,000
	Control type, spring return, spring/manual return	200,000
Illuminated selector switch	Maintained	
	Without transformer 1, 2, 3-contact	1 million
	4-contact	500,000
	With transformer 1, 2-contact	1 million
	3-contact	500,000
	Spring return, spring/manual return	200,000

Note: Key insertion/removal durability for selector switch key types

- Key type 10,000
- Key (Long durability) type 20,000

● Buzzers

Item	DR30B5	DR30B6	DR30B0	DR30B8
Rated insulation voltage	Without transformer: 60V AC/DC With transformer: 250V AC *1			
Sound level	90dB (0.1m) 70dB (1m)			80dB (0.1m) 60dB (1.0m)
Durability	1000h		80h	1000h
Frequency	2.4 to 3.3kHz	1.9 to 2.5kHz		2.4 to 3.3kHz
Intermittent cycle	Approx. 170-cycle/min	—	—	Approx. 170-cycle/min
Current consumption	See the table below			
Dielectric strength	Without transformer: 1000V AC 1 minute With transformer: 2000V AC 1 minute *2			
Insulation resistance	100MΩ or more (500V DC megger)			
Pollution degree	3			
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm Constant: 16.7Hz, double amplitude 3.0mm			
Shock	Mechanical durability: 500m/s ²			
Ambient temperature	-20 to +60°C (No condensation or no icing) (with resistor unit: -20 to +40°C)			
Storage temperature	-30 to +70°C			
Humidity	45 to 85%RH (within -5 to 40°C)			
Degree of protection	IP00			IP54

Note: *1 DR30B0 (without transformer): 250V AC

*2 DR30B0 (without transformer): 2000V AC 1 minute

•Current consumption

Operational voltage	Current consumption		
	DR30B5, DR30B8	DR30B6	DR30B0
6V AC	70mA AC	—	—
6V DC	35mA DC	25mA AC	—
24V AC	—	45mA AC	—
24V DC	—	30mA DC	—
24V AC/DC	40mA AC, 25mA DC	30mA AC, 20mA DC	—
48V AC/DC	65mA AC, 20mA DC	—	—
110V AC	30mA AC	30mA AC	30mA AC
110V DC	30mA DC	—	—
220V AC	15mA AC	15mA AC	20mA AC

■ Contact ratings

• UL/CSA standards

AC (COS $\phi=0.35$)

Contact rated code	120V		240V		480V		600V	
	Making current	Breaking current	Making current	Breaking current	Making current	Breaking current	Making current	Breaking current
A600	60A	6.0A	30A	3.0A	15A	1.5A	12A	1.2A

DC $T_{0.95}=6P$ (Max. 300ms)

Description	Contact rated code	Making current · Breaking current		
		125V	250V	301V–600V
Illuminated pushbutton switch Pushbutton (Ring type selector switch: AR30S2R only) Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch (Except the overlap contact types)	P600	1.1A	0.55A	0.2A
Overlap contact types of products shown above Pushbutton (Ring type selector switch: AR30S1R, S6R only) Selector switch (2-position only, except the overlap contact types) Illuminated selector switch (2-position only, except the overlap contact types)	Q600	0.55A	0.27A	0.1A
Pushbutton (Ring type selector switch: AR30S3R only) Selector switch (2-pos./overlap contact type, 3-, 4-, 5-pos. type) Illuminated selector switch (2-pos./overlap contact type, 3-pos. type)	R300	0.22A	0.11A	—

Note: Joy stick selector switches (Lever switches): 250V AC, 5A (Res. load) 125V DC, 0.2A 24V DC, 1A (Res. load)

• EN standard/TÜV approved

Description	Rated operational current			
	Rated thermal current	Rated operational voltage	AC15 (Ind. load)	DC13 (Ind. load)
			Rated operational current	Rated operational current
Illuminated pushbutton switch	10A	24V	6.0A	4.0A
Pushbutton (Except the selector ring type)		120V	6.0A	—
Emergency stop pushbutton switch		125V	—	1.3A
Emergency stop illuminated pushbutton switch		240V	6.0A	—
Selector switch (2-position)		250V	—	0.45A
Illuminated selector switch (2-position)		480V	2.5A	—
		600V	2.0A	—
Selector switch (3, 4, 5-position)	10A	24V	6.0A	2.0A
Illuminated selector switch (3-position)		120V	6.0A	—
Pushbutton with selector ring		125V	—	0.65A
		240V	6.0A	—
		250V	—	0.23A
		480V	2.5A	—
		600V	2.0A	—
Joy stick selector switch (Lever switch)	5A	24V	—	0.7A
		120V	0.3A	—
		125V	—	0.15A
		240V	0.3A	—

Lamp rated voltage UL/CSA standards, TÜV approved

	LED lamp	Incandescent lamp
Full-voltage (without transformer)	Max. 24V AC/DC	Max. 30V AC/DC
With transformer	Max. 550V AC (Short-body type: Max. 220V AC)	

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Ratings and specifications

■ Operating characteristic (1NO+1NC)

Description	Pushbutton Illuminated pushbutton	Emergency stop pushbutton Emergency stop illuminated pushbutton		Selector *2 Illuminated selector		
		Push-lock type	Push-pull type	Maintained	Spring/manual return	Spring return
Ave. required operating force	9N (Push-lock type: 20N)	30N *1	45N	0.15N•m	0.13N•m	0.1N•m
Operating travel	Approx. 6mm (Push-lock type: Approx. 9mm, operation angle: Approx. 45°)	Approx. 9mm (Operation angle: Approx. 45°)	Approx. 9mm	2-position: Approx. 90° 3-position: Approx. 45° 4-position: Approx. 40° 5-position: Approx. 30°	3-position: Approx. 45°	2-position: Approx. 60° 3-position: Approx. 45°
Required return force	— (Push-lock type: 0.6N•m)	0.6N•m	30N (pull)	0.15N•m	0.13N•m	—

Notes: *1 AR30V2R type: 45N

*2 4-position, 5-position: 2NO+2NC

■ Lamp ratings

•Illuminated pushbuttons, illuminated selectors, pilot lights (round type)

Transformer	Lamp voltage	LED (lamp base: BA9S/13)			Incandescent (lamp base: BA9S/13)		
		Type	Rated voltage	Consumption	Type	Rated voltage	Consumption
Without transformer	5.5V AC/DC	—	—	—	AHX135	6.3V AC/DC	0.9W
	6V AC	APX510-6□	6V AC	Green, red, orange, amber: 7mA AC Yellow: 26mA AC Blue: 16mA AC	—	—	—
	6V DC	APX510-D6□	6V DC	Green, red, orange, amber: 11mA DC Yellow: 33mA DC Blue: 22mA DC	—	—	—
	12V AC/DC	APX510-12□	12V AC/DC	14mA AC, 11mA DC	—	—	—
	15V AC/DC	APX510-15□	15V AC/DC	13mA AC, 11mA DC	AHX279	18V AC/DC	0.8W
	20V AC/DC	—	—	—	AHX144	24V AC/DC	0.9W
With transformer (Standard type: AR9T511)	24V AC/DC	APX510-24□	24V AC/DC	12mA AC, 11mA DC	AHX129	30V AC/DC	0.8W
	110V AC	APX510-6□	6V AC	1.5VA	AHX135	6.3V AC/DC	2VA
	127V AC	—	—	—	—	—	2VA
	220V AC	—	—	—	—	—	2VA
	254V AC	APX510-6□	6V AC	2.5VA	AHX135	6.3V AC/DC	2.5VA
	380V AC	—	—	—	—	—	2.5VA
With resistor unit (AR9T519-H)	440V AC	—	—	—	—	—	2.5VA
	480V AC	—	—	—	—	—	2.5VA
	550V AC	—	—	—	—	—	2.5VA
With resistor unit (AR9T519-H)	110V DC	APX510-24□	24V AC/DC	1.2W	—	—	—

Notes: • Short body pilot lights: 110V AC, 127V AC, 220V AC only

• Replace the □ mark by the lamp luminous color code, see page 70

•Pilot lights with resistor

Lamp Voltage	LED (lamp base: E12/15)			Incandescent (lamp base: E12/15)		
	Type	Rated voltage	Consumption	Type	Rated voltage	Consumption
50V DC	APX507-24□ *	24V AC/DC	0.8W	AHX130	18V AC/DC	5W
110V DC			1.7W			10W
220V DC			3.3W			20W

Notes: * White: APX509-24O

• Replace the □ mark by the lamp luminous color code, see page 70

•Pilot lights (DR30F4M, F4N, M4M types)

Transformer	Lamp voltage	LED (lamp base: BA9S/13)			Incandescent (lamp base: BA9S/13)		
		Type*	Rated voltage	Consumption	Type	Rated voltage	Consumption
Without transformer	5.5V AC/DC	—	—	—	AHX135	6.3V AC/DC	0.9W
	6V DC	DR9Q001-6□ DR9Q002-6□ DR9Q003-6□	6V DC	Yellow, orange, amber: 120mA DC Red: 48mA DC	—	—	—
	12V AC	DR9Q001-2□ DR9Q002-2□ DR9Q003-2□	12V AC	Yellow, orange, amber: 90mA AC Red: 25mA AC	—	—	—
	12V AC/DC	DR9Q001-B□ DR9Q002-B□ DR9Q003-B□	12V AC/DC	Yellow, orange, amber: 84mA AC, 60mA DC Red: 27mA AC, 24mA DC	—	—	—
	15V AC/DC	—	—	—	AHX279	20V AC/DC	0.8W
	20V AC/DC	—	—	—	AHX144	24V AC/DC	0.9W
	24V AC/DC	DR9Q001-E□ DR9Q002-E□ DR9Q003-E□	24V AC/DC	Yellow, orange, amber: 42mA AC, 30mA DC Red: 16mA AC, 12mA DC	AHX129	30V AC/DC	0.8W
With transformer unit (LED: AR9T557) (Incandescent: AR9T511)	110V AC	DR9Q001-2□	12V AC	3VA	AHX135	6.3V AC/DC	2VA
	127V AC	DR9Q002-2□					2VA
	220V AC	DR9Q003-2□					2VA
	254V AC						2.5VA
	380V AC						2.5VA
	440V AC						2.5VA
	480V AC						2.5VA
	550V AC						2.5VA
With resistor unit (AR9T519-H)	110V DC	DR9Q001-E□ DR9Q002-E□ DR9Q003-E□	24V AC/DC	1.4W	—	—	—

Notes: * DR9Q001: For DR30M4M type
DR9Q002: For DR30F4N type
DR9Q003: For DR30F4M type

• Replace the □ mark by the lamp luminous color code, see page 70

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

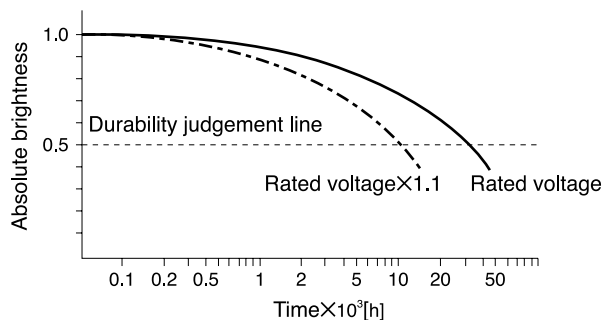
Ratings and specifications

■ Lamp durability

Lamp	Durability	Judgement criterion
LED	Approx. 30000h	When brightness is less than 50% of initial value
Incandescent	Approx. 5000h (AC)	When the bulb burns out

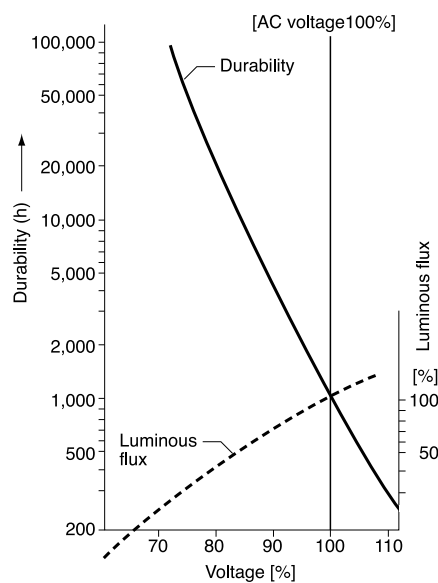
Note: The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.

Estimated durability for LED lamps



Notes: • Durability at $T_a=25^{\circ}\text{C}$
• Durability is affected by temperature, humidity, and voltage fluctuation.

Incandescent lamp voltage characteristics



■ Combination of lens color and LED luminous color

Button color (lens or color plate)		LED lamp (high-brightness)			LED unit			
Color	Code	Luminous color	Type	Type * ¹	Luminous color	Type * ²	Type * ³	Type * ⁴
Green	G	Green	APX510-■G	APX507-24G	Yellow	DR9Q003-■Y	DR9Q002-■Y	DR9Q001-■Y
Red	R	Red	APX510-■R	APX507-24R	Red	DR9Q003-■R	DR9Q002-■R	DR9Q001-■R
White	W	Orange	APX510-■O	APX509-24O	Orange	DR9Q003-■O	DR9Q002-■O	DR9Q001-■O
Yellow	Y	Yellow	APX510-■Y	APX507-24Y	Yellow	DR9Q003-■Y	DR9Q002-■Y	DR9Q001-■Y
Orange	A	Amber	APX510-■A	APX507-24A	Amber	DR9Q003-■A	DR9Q002-■A	DR9Q001-■A
Blue	S	Blue	APX510-■S	APX507-24S	—	—	—	—

Notes: *¹ For pilot light with resistor
*² For DR30F4M type
*³ For DR30F4N type
*⁴ For DR30M4M type
• Replace the ■ mark by the lamp voltage code, see page 68, 69

■ Illuminated pushbutton switches

Operator	Transformer	Contact	LED lamp Momentary action Type	Alternate action Type	Incandescent lamp Momentary action Type	Alternate action Type
Extended round head  AF95-4	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR30E0L-10■3□ AR30E0L-01■3□ AR30E0L-11■3□ AR30E0L-22■3□	AR30E5L-10■3□ AR30E5L-01■3□ AR30E5L-11■3□ —	AR30E0L-10■4□ AR30E0L-01■4□ AR30E0L-11■4□ AR30E0L-22■4□	AR30E5L-10■4□ AR30E5L-01■4□ AR30E5L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR30E0L-10■3□ AR30E0L-01■3□ AR30E0L-11■3□	AR30E5L-10■3□ AR30E5L-01■3□ AR30E5L-11■3□	AR30E0L-10■4□ AR30E0L-01■4□ AR30E0L-11■4□	AR30E5L-10■4□ AR30E5L-01■4□ AR30E5L-11■4□
Extended with transparent full guard (24mm dia.)  KKD05-164	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR30G4L-10■3□ AR30G4L-01■3□ AR30G4L-11■3□ AR30G4L-22■3□	AR30G9L-10■3□ AR30G9L-01■3□ AR30G9L-11■3□ —	AR30G4L-10■4□ AR30G4L-01■4□ AR30G4L-11■4□ AR30G4L-22■4□	AR30G9L-10■4□ AR30G9L-01■4□ AR30G9L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR30G4L-10■3□ AR30G4L-01■3□ AR30G4L-11■3□	AR30G9L-10■3□ AR30G9L-01■3□ AR30G9L-11■3□	AR30G4L-10■4□ AR30G4L-01■4□ AR30G4L-11■4□	AR30G9L-10■4□ AR30G9L-01■4□ AR30G9L-11■4□
Extended with full guard (24mm dia. with openings)  AF99-328	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR30G2L-10■3□ AR30G2L-01■3□ AR30G2L-11■3□ AR30G2L-22■3□	AR30G7L-10■3□ AR30G7L-01■3□ AR30G7L-11■3□ —	AR30G2L-10■4□ AR30G2L-01■4□ AR30G2L-11■4□ AR30G2L-22■4□	AR30G7L-10■4□ AR30G7L-01■4□ AR30G7L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR30G2L-10■3□ AR30G2L-01■3□ AR30G2L-11■3□	AR30G7L-10■3□ AR30G7L-01■3□ AR30G7L-11■3□	AR30G2L-10■4□ AR30G2L-01■4□ AR30G2L-11■4□	AR30G7L-10■4□ AR30G7L-01■4□ AR30G7L-11■4□
Extended with full guard (24mm dia.)  AF95-6	Without	1NO 1NC 1NO+1NC 2NO+2NC	AR30G3L-10■3□ AR30G3L-01■3□ AR30G3L-11■3□ AR30G3L-22■3□	AR30G8L-10■3□ AR30G8L-01■3□ AR30G8L-11■3□ —	AR30G3L-10■4□ AR30G3L-01■4□ AR30G3L-11■4□ AR30G3L-22■4□	AR30G8L-10■4□ AR30G8L-01■4□ AR30G8L-11■4□ —
	With	1NO 1NC 1NO+1NC	AR30G3L-10■3□ AR30G3L-01■3□ AR30G3L-11■3□	AR30G8L-10■3□ AR30G8L-01■3□ AR30G8L-11■3□	AR30G3L-10■4□ AR30G3L-01■4□ AR30G3L-11■4□	AR30G8L-10■4□ AR30G8L-01■4□ AR30G8L-11■4□
Push-lock, turn-reset (40mm dia. with white arrow)  AF97-75	Without	1NO 1NC 1NO+1NC 2NO 2NC 3NC	— — — — — —	AR30V5L-10■3□ AR30V5L-01■3□ AR30V5L-11■3□ AR30V5L-20■3□ AR30V5L-02■3□ AR30V5L-03■3□	— — — — — —	AR30V5L-10■4□ AR30V5L-01■4□ AR30V5L-11■4□ AR30V5L-20■4□ AR30V5L-02■4□ AR30V5L-03■4□
	With	1NO 1NC 1NO+1NC 2NO 2NC	— — — — —	AR30V5L-10■3□ AR30V5L-01■3□ AR30V5L-11■3□ AR30V5L-20■3□ AR30V5L-02■3□	— — — — —	AR30V5L-10■4□ AR30V5L-01■4□ AR30V5L-11■4□ AR30V5L-20■4□ AR30V5L-02■4□
Push-pull (35mm dia.)  AF96-185	Without	1NO+1NC	AR30Q7L-11■3□	—	AR30Q7L-11■4□	—
	With	1NO+1NC	AR30Q7L-11■3□	—	AR30Q7L-11■4□	—

Note: ■ □ See page 72

Illuminated Pushbuttons

AR30

•Lens color

Replace the  mark by the lens color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

Note: AR30V5L type: Red, yellow only

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO
Code	10	01	11	20	02	30

Contact arrangement	3NC	2NO+2NC	4NO	4NC	5NO	5NC	3NO+3NC
Code	03	22	40	04	50	05	33

Note: AR30Q7L type: 1NO + 1NC only

Available numbers of contact blocks

Operation	Without transformer	With transformer
Momentary action	6-contact block	4-contact block
Alternate action Push-lock, turn-reset	3-contact block	2-contact block

•Contact operation (AR30Q7L)

Contact block		Button position		
No.	Type	Pull	Free	Push
(1)	NC			
(2)	NC			

 Contact closed

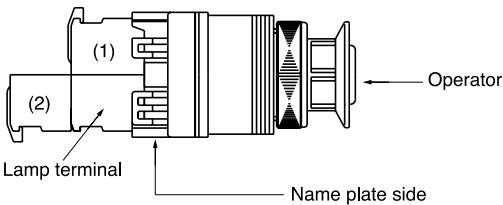
•Voltage

Replace the  mark by the lamp voltage code

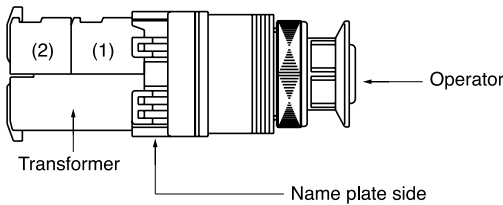
Transformer		Code	
		LED	Incandescent
Without transformer	6V DC	6	—
	6V AC	A	—
	5.5V AC/DC	—	5
	12V AC/DC	B	—
	15V AC/DC	C	C
	20V AC/DC	—	D
	24V AC/DC	E	E
With transformer	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

•Position of contact block

AR30Q7L (without transformer)



AR30Q7L (with transformer)



■ Pushbutton switches

Operator	Contact	Momentary action Type	Alternate action Type
Flush round head 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30F0R-10 □ AR30F5R-10 □ AR30F0R-01 □ AR30F5R-01 □ AR30F0R-11 □ AR30F5R-11 □ AR30F0R-20 □ AR30F5R-20 □ AR30F0R-02 □ AR30F5R-02 □ AR30F0R-22 □ AR30F5R-22 □	
Extended round head 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30E0R-10 □ AR30E5R-10 □ AR30E0R-01 □ AR30E5R-01 □ AR30E0R-11 □ AR30E5R-11 □ AR30E0R-20 □ AR30E5R-20 □ AR30E0R-02 □ AR30E5R-02 □ AR30E0R-22 □ AR30E5R-22 □	
Flush round head symbol mark type 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30FAR-10C ■ AR30FBR-10C ■ AR30FAR-01C ■ AR30FBR-01C ■ AR30FAR-11C ■ AR30FBR-11C ■ AR30FAR-20C ■ AR30FBR-20C ■ AR30FAR-02C ■ AR30FBR-02C ■ AR30FAR-22C ■ AR30FBR-22C ■	
Extended round head symbol mark type 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30EAR-10C ■ AR30EBR-10C ■ AR30EAR-01C ■ AR30EBR-01C ■ AR30EAR-11C ■ AR30EBR-11C ■ AR30EAR-20C ■ AR30EBR-20C ■ AR30EAR-02C ■ AR30EBR-02C ■ AR30EAR-22C ■ AR30EBR-22C ■	
Mushroom head (40mm dia.) 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30M0R-10 □ AR30M5R-10 □ AR30M0R-01 □ AR30M5R-01 □ AR30M0R-11 □ AR30M5R-11 □ AR30M0R-20 □ AR30M5R-20 □ AR30M0R-02 □ AR30M5R-02 □ AR30M0R-22 □ AR30M5R-22 □	
Mushroom head (29mm dia.) 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30M4R-10 □ — AR30M4R-01 □ — AR30M4R-11 □ — AR30M4R-20 □ — AR30M4R-02 □ — AR30M4R-22 □ —	
Extended with full guard (24mm dia.) 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30G1R-10 □ AR30G6R-10 □ AR30G1R-01 □ AR30G6R-01 □ AR30G1R-11 □ AR30G6R-11 □ AR30G1R-20 □ AR30G6R-20 □ AR30G1R-02 □ AR30G6R-02 □ AR30G1R-22 □ AR30G8R-22 □	

Note: ■ □ See page 74

Operator	Contact	Momentary action Type	Alternate action Type
Extended with half guard 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30G0R-10 □ AR30G5R-10 □ AR30G0R-01 □ AR30G5R-01 □ AR30G0R-11 □ AR30G5R-11 □ AR30G0R-20 □ AR30G5R-20 □ AR30G0R-02 □ AR30G5R-02 □ AR30G0R-22 □ AR30G5R-22 □	
Pin lock 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30GPR-10 □ — AR30GPR-01 □ — AR30GPR-11 □ — AR30GPR-20 □ — AR30GPR-02 □ — AR30GPR-22 □ —	
Mushroom head with full guard (40mm dia.) 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30M3R-10 □ AR30M8R-10 □ AR30M3R-01 □ AR30M8R-01 □ AR30M3R-11 □ AR30M8R-11 □ AR30M3R-20 □ AR30M8R-20 □ AR30M3R-02 □ AR30M8R-02 □ AR30M3R-22 □ AR30M8R-22 □	
Mushroom head with full guard (35mm dia. metal nut) 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30GSR-10 □ — AR30GSR-01 □ — AR30GSR-11 □ — AR30GSR-20 □ — AR30GSR-02 □ — AR30GSR-22 □ —	
Giant head 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30B0R-10 □ — AR30B0R-01 □ — AR30B0R-11 □ — AR30B0R-20 □ — AR30B0R-02 □ — AR30B0R-22 □ —	
Giant head with guard 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30B1R-10 □ — AR30B1R-01 □ — AR30B1R-11 □ — AR30B1R-20 □ — AR30B1R-02 □ — AR30B1R-22 □ —	
Giant head with full guard 	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30B2R-10 □ — AR30B2R-01 □ — AR30B2R-11 □ — AR30B2R-20 □ — AR30B2R-02 □ — AR30B2R-22 □ —	

Pushbuttons AR30

Operator	Contact	Momentary action Type	Alternate action Type
Giant head with full guard  AF95-581	1NO	AR30B3R-10 □	—
	1NC	AR30B3R-01 □	—
	1NO+1NC	AR30B3R-11 □	—
	2NO	AR30B3R-20 □	—
	2NC	AR30B3R-02 □	—
	2NO+2NC	AR30B3R-22 □	—
Push, turn-lock  AF95-583	1NO	AR30N0R-10 □	—
	1NC	AR30N0R-01 □	—
	1NO+1NC	AR30N0R-11 □	—
	2NO	AR30N0R-20 □	—
	2NC	AR30N0R-02 □	—
	2NO+2NC	AR30N0R-22 □	—

•Button color

Replace the □ mark by the button color code

Color	Green	Red	White	Blue	Yellow	Orange	Black
Code	G	R	W	S	Y	A	B

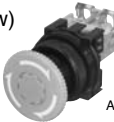
Note: AR30V5R type: Red, yellow, black only

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO	3NC
Code	10	01	11	20	02	30	03

Contact arrangement	2NO+2NC	4NO	4NC	5NO	5NC	3NO+3NC	4NO+4NC
Code	22	40	04	50	05	33	44

Operator	Contact	Momentary action Type	Alternate action Type
Push-lock, turn-reset (40mm dia. with white arrow)  AF97-69	1NO	—	AR30V5R-10 □
	1NC	—	AR30V5R-01 □
	1NO+1NC	—	AR30V5R-11 □
	2NO	—	AR30V5R-20 □
	2NC	—	AR30V5R-02 □
	2NO+2NC	—	AR30V5R-22 □
Pushbutton with emergency operating cap  AF96-187	1NO	AR30FVR-10 □	—
	1NC	AR30FVR-01 □	—
	1NO+1NC	AR30FVR-11 □	—
	2NO	AR30FVR-20 □	—
	2NC	AR30FVR-02 □	—
	2NO+2NC	AR30FVR-22 □	—

•Available numbers of contact blocks

Momentary action	Alternate action Push-lock, turn-reset
8-contact block	4-contact block

•Symbol mark (For AR30FAR, FBR, EAR, EBR)

Replace the ■ mark by the symbol mark code

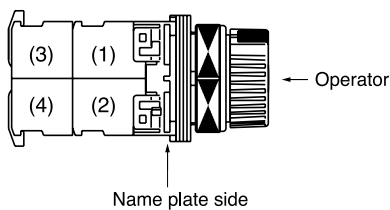
Symbol mark	○	I	⊕	○	I	⊕
Color of button	White	Black	White	Black	White	Black
Color of mark	Red	Green	Green	Black	Clear	
Code	01	02	03	04	11	12

Operator	Contact (The following contact is only available.)	Button color	Type	Contact operation					
				Contact block		Left		Right	
				Mounting position	Type	Free	Depressed	Free	Depressed
Pushbutton with selector ring (2-position)  AF97-506	2NO+2NC	Green Red Black White Yellow Orange Blue	AR30S1R-22G AR30S1R-22R AR30S1R-22B AR30S1R-22W AR30S1R-22Y AR30S1R-22A AR30S1R-22S	(1)	NC	—	—	●	—
				(2)	NC	—	—	●	—
				(3)	NO	—	●	—	●
				(4)	NO	—	●	—	●
	2NO	Green Red Black White Yellow Orange Blue	AR30S2R-20G AR30S2R-20R AR30S2R-20B AR30S2R-20W AR30S2R-20Y AR30S2R-20A AR30S2R-20S	(1)	NO	—	●	—	—
				(2)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR30S2R-22G AR30S2R-22R AR30S2R-22B AR30S2R-22W AR30S2R-22Y AR30S2R-22A AR30S2R-22S	(1)	NC	●	—	—	
				(2)	NC	—		●	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR30S3R-22G AR30S3R-22R AR30S3R-22B AR30S3R-22W AR30S3R-22Y AR30S3R-22A AR30S3R-22S	(1)	NC	—	—	—	
				(2)	NC	—		—	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	AR30S6R-22G AR30S6R-22R AR30S6R-22B AR30S6R-22W AR30S6R-22Y AR30S6R-22A AR30S6R-22S	(1)	NC	●	—	—	Locked
				(2)	NC	●	—	—	
				(3)	NO	—	●	●	
				(4)	NO	—	●	●	

Note: (1) to (4): Contact block mounting position

● Contact closed
— Contact open

•Position of contact block



Notes: Contact block color
NC: red
NO: blue

Emergency Stop Pushbuttons

AR30

■ Emergency stop pushbutton switches

➞ (Direct opening action), conform to EN418

Operator	Contact	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)  AF97-69	1NC 1NO+1NC 2NC 1NO+3NC 2NO+2NC	AR30V0R-01R AR30V0R-11R AR30V0R-02R AR30V0R-13R AR30V0R-22R
Push-lock, turn-reset (40mm dia.)  AF95-176	1NC 1NO+1NC 2NC 1NO+3NC 2NO+2NC	AR30V2R-01R AR30V2R-11R AR30V2R-02R AR30V2R-13R AR30V2R-22R
Push-lock, turn-reset (Soft-touch 65mm dia. with white arrow)  AF97-68	1NC 1NO+1NC 2NC 1NO+3NC 2NO+2NC	AR30V1R-01R AR30V1R-11R AR30V1R-02R AR30V1R-13R AR30V1R-22R
Push-lock, pull-reset (35mm dia.)  AF95-3	1NC 1NO+1NC 2NC	AR30Q2R-01R AR30Q2R-11R AR30Q2R-02R

Note: Button color: Red only

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NO+1NC	2NC	3NC	2NO+2NC	4NC	1NO+3NC
Code	01	11	02	03	22	04	13

Notes: • Except AR30Q2R
 • For push-lock, pull-reset type, up to 2-contact block.

Emergency Stop Illuminated Pushbuttons

AR30

■ Emergency stop illuminated pushbutton switches

➞ (Direct opening action), conform to EN418

Operator	Transformer	Contact	LED lamp Type	Incandescent lamp Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)  AF97-75	Without	1NC 1NO+1NC 2NC 1NO+2NC 3NC	AR30V0L-01■3R AR30V0L-11■3R AR30V0L-02■3R AR30V0L-12■3R AR30V0L-03■3R	AR30V0L-01■4R AR30V0L-11■4R AR30V0L-02■4R AR30V0L-12■4R AR30V0L-03■4R
	With	1NC 1NO+1NC 2NC	AR30V0L-01■3R AR30V0L-11■3R AR30V0L-02■3R	AR30V0L-01■4R AR30V0L-11■4R AR30V0L-02■4R
Push-lock, turn-reset (40mm dia.)  AF95-2	Without	1NC 1NO+1NC 2NC 3NC	AR30V2L-01■3R AR30V2L-11■3R AR30V2L-02■3R AR30V2L-03■3R	AR30V2L-01■4R AR30V2L-11■4R AR30V2L-02■4R AR30V2L-03■4R
	With	1NC 1NO+1NC 2NC	AR30V2L-01■3R AR30V2L-11■3R AR30V2L-02■3R	AR30V2L-01■4R AR30V2L-11■4R AR30V2L-02■4R

Notes: • Button color: Red only
• Contact arrangements indicated in the table can be supplied.

•Voltage

Replace the ■ mark by the lamp voltage code

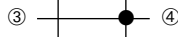
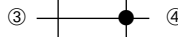
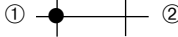
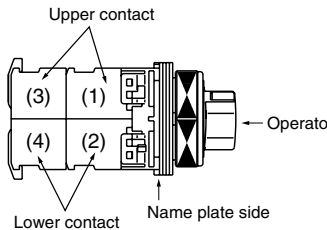
Transformer		Code	
		LED	Incandescent
Without	6V DC	6	—
	6V AC	A	—
	5V AC/DC	—	5
	12V AC/DC	B	—
	15V AC/DC	C	C
	20V AC/DC	—	D
	24V AC/DC	E	E

Transformer		Code	
		LED	Incandescent
With	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

Selector Switches AR30

■ Selector switches

2-position

Operator	Operation	Knob color or key removable position	Contact	Type Switch with round bezel	Contact operation (Example)	
					Contact arrangement	Operator position
						Left Right  
 AF95-13	Maintained	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30PR-210B AR30PR-201B AR30PR-211B AR30PR-220B AR30PR-202B AR30PR-222B	1NO (1)	Upper contact 
	each 90°					
	Spring return  60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30PR-010B AR30PR-001B AR30PR-011B AR30PR-020B AR30PR-002B AR30PR-022B	1NC (1)	Upper contact 
 AF95-14	Maintained		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30WR-210B AR30WR-201B AR30WR-211B AR30WR-220B AR30WR-202B AR30WR-222B	(1)	Upper contact 
	each 90°				(2)	Lower contact 
	Spring return  60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30WR-010B AR30WR-001B AR30WR-011B AR30WR-020B AR30WR-002B AR30WR-022B	2NO+2NC (1)	Upper contact 
 AF95-15	Maintained	■: Key removable position (): Key type See page 04/83	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30J□R-2■10() AR30J□R-2■01() AR30J□R-2■11() AR30J□R-2■20() AR30J□R-2■02() AR30J□R-2■22()	(3)	Upper contact 
	each 90°				(2)	Lower contact 
	Spring return  60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	AR30J□R-0A10() AR30J□R-0A01() AR30J□R-0A11() AR30J□R-0A20() AR30J□R-0A02() AR30J□R-0A22()	(4)	Lower contact 
						

Notes: • (1) to (4): Contact block mounting position

• ① – ②, ③ – ④: Contact block terminal No.

• Contact arrangements: See page 80

● Contact closed

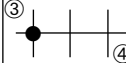
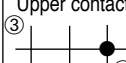
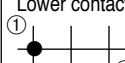
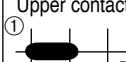
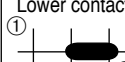
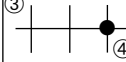
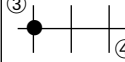
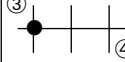
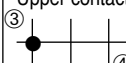
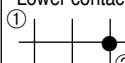
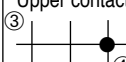
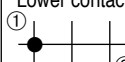
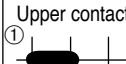
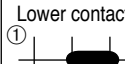
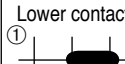
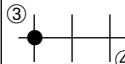
• Operator

Replace the □ mark by the cylinder key type code

Standard type: Blank

Long durability type: A

3-position

Operator	Operation	Knob color	Contact	Type Switch with round bezel	Contact operation (Example)			
					Contact arrange- ment	Operation position		
						L 	C 	R 
L 	C 	R 						
 AF95-13	Maintained each 45°	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	1NO+1NC 2NO 2NC 2NO+2NC	AR30PR-311B AR30PR-320B AR30PR-302B AR30PR-322B	1NO+1NC (1) (2)			
	Spring/manual return  each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR30PR-611B AR30PR-620B AR30PR-602B AR30PR-622B				
	Spring/manual return  each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR30PR-711B AR30PR-720B AR30PR-702B AR30PR-722B	1NO+1NC (1) (2)			
	Spring return  each 45°		2NO+2NC	AR30PR-122B	2NO+2NC (1) (2) (3) (4)		 	 
 AF95-14	Maintained each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR30WR-311B AR30WR-320B AR30WR-302B AR30WR-322B	1NO+1NC (1) (2)			
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR30WR-611B AR30WR-620B AR30WR-602B AR30WR-622B					
	Spring/manual return  each 45°	1NO+1NC 2NO 2NC 2NO+2NC	AR30WR-711B AR30WR-720B AR30WR-702B AR30WR-722B	1NO+1NC (1) (2)				
	Spring return  each 45°	2NO+2NC	AR30WR-122B	2NO+2NC (1) (2) (3) (4)		 	 	

Note: • Contact arrangements: See page 80

● Contact closed

Selector Switches

AR30

Operator	Operation	Key removable position	Contact	Type Switch with round bezel	Contact operation (Example)						
					Contact arrange- ment	Operator position					
						L	C	R	L	C	R



Notes: • Operator position L: Left, C: Center, R: Right

• (1) to (4): Contact block mounting position

• ① – ②, ③ – ④: Contact block terminal No.

● Contact closed

• Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NC	1NO+1NC	2NO	2NC	3NO	3NC
Code	10	01	11	20	02	30	03

Contact arrangement	2NO+2NC	4NO	4NC	5NO	5NC	3NO+3NC	4NO+4NC
Code	22	40	04	50	05	33	44

• Available numbers of contact blocks

Maintained	Spring return Spring/manual return
8-contact block	4-contact block

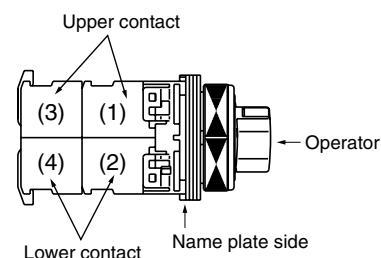
• Key removable positions

Code	A	B	C	D	E	F	G
Removable position							
AR30J□R-2	●	●	—	●	—	—	—
AR30J□R-0	●	—	—	—	—	—	—
AR30J□R-3	●	●	●	●	●	●	●
AR30J□R-6	—	—	—	●	●	●	—
AR30J□R-7	●	—	—	—	●	—	●
AR30J□R-1	—	—	—	—	●	—	—

●: Available

—: Not available

• Position of contact block



• Key code No.

Replace the () mark with one of the following key code.

A, B, C, D, E and F

Standard key code is A.

• Operator

Replace the □ mark by the cylinder key type code

Standard type: Blank

Long durability type: A

■ Selector switches (control type)

3-position

Operator	Operation	Knob color or key removable position	Contact arrangement	Type Switch with round bezel
Knob  AF95-475	Maintained each 45°	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	Replace the ■ mark by the contact arrangement code (shown on next page).	AR30PCR-3■B
	Spring/manual return ① each 45°			AR30PCR-6■B
	Spring/manual return ① each 45°			AR30PCR-7■B
	Spring return ① each 45°			AR30PCR-1■B
Lever  KK02-140A	Maintained each 45°		Replace the ■ mark by the contact arrangement code (shown on next page).	AR30WCR-3■B
	Spring/manual return ① each 45°			AR30WCR-6■B
	Spring/manual return ① each 45°			AR30WCR-7■B
	Spring return ① each 45°			AR30WCR-1■B
Key  AF95-474	Maintained each 45°	Replace the □ mark by the key removable position code: A, B, C, D, E F or G	Replace the ■ mark by the contact arrangement code (shown on next page).	AR30JCR-3□■()
	Spring/manual return ① each 45°			AR30JCR-6□■()
	Spring/manual return ① each 45°			AR30JCR-7□■()
	Spring return ① each 45°			AR30JCR-1E■()

• Key removable positions

Code	A	B	C	D	E	F	G
Removable position							
AR30JCR-3	●	●	●	●	●	●	●
AR30JCR-6	—	—	—	●	●	●	—
AR30JCR-7	●	—	—	—	●	—	●
AR30JCR-1	—	—	—	—	●	—	—

●: Available —: Not available

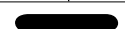
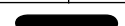
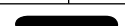
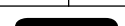
•Key code No.

Replace the () mark with one of the following key code.
A, B, C, D, E and F
Standard key code is A.

Selector Switches

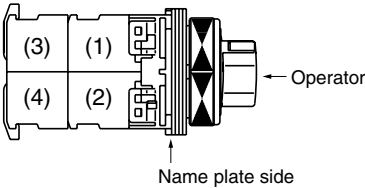
AR30

• Contact arrangement code (Typical example)

Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NC	01F	(1)	NC			
		(2)	NC			
		—	—			
		—	—			
2NO+2NC	014	(1)	NC			
		(2)	NC			
		(3)	NO			
		(4)	NO			
4NC	01J	(1)	NC			
		(2)	NC			
		(3)	NC			
		(4)	NC			
2NO+2NC	024	(1)	NC			
		(2)	NC			
		(3)	NO			
		(4)	NO			
2NO+2NC	03C* (Maintained only)	(1)	NC			
		(2)	NC			
		(3)	NO			
		(4)	NO			
2NO+2NC	044*	(1)	NC			
		(2)	NC			
		(3)	NO			
		(4)	NO			
2NO+2NC	054	(1)	NC			
		(2)	NC			
		(3)	NO			
		(4)	NO			

Notes: ●: Contact closed Blank: Contact open
 * There may be some overlap in the contact when switching between notches.

• Position of contact block



Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
2NO+2NC	064	(1)	NC		[Solid bar]	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		●
1NO+1NC	07F	(1)	NC		[Solid bar]	
		(2)	NO			●
		—	—	—	—	—
		—	—	—	—	—
2NO+2NC	07C* (Maintained only)	(1)	NC		[Solid bar]	
		(2)	NC			●
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	084	(1)	NC		[Solid bar]	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	094*	(1)	NC		[Solid bar]	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
2NO+2NC	104	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO	●		●
2NO+2NC	11C* (Maintained only)	(1)	NC		●	
		(2)	NC			●
		(3)	NO	●		●
		(4)	NO	●		

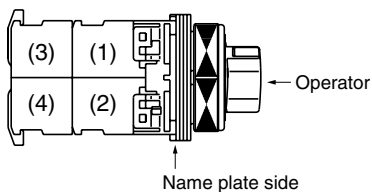
• Contact arrangement code (Typical example)

Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left 	Center 	Right
2NO+2NC	124*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO	●		
2NO+2NC	134*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		●
		(4)	NO			●
3NO+1NC	14D* (Maintained only)	(1)	NO	●		
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
3NO+1NC	15A*	(1)	NO			●
		(2)	NC		●	
		(3)	NO			●
		(4)	NO	●		
2NO+2NC	164	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO	●		
2NO+2NC	174*	(1)	NC		●	
		(2)	NC		●	
		(3)	NO	●		
		(4)	NO			●
2NO+2NC	184	(1)	NC		●	
		(2)	NC		●	
		(3)	NO			●
		(4)	NO			●

Notes: ●: Contact closed Blank: Contact open

* There may be some overlap in the contact when switching between notches.

• Position of contact block



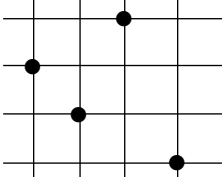
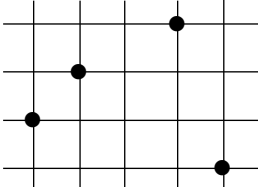
Contact arrangement	Contact arrangement code	Contact operation				
		Contact block		Operator position		
		Mounting position	Type	Left 	Center 	Right
2NO+2NC	194	(1)	NC			
		(2)	NC			
		(3)	NO	●		
		(4)	NO			●
4NO	20B	(1)	NO			●
		(2)	NO	●		
		(3)	NO			●
		(4)	NO	●		

Selector Switches AR30

4, 5-position

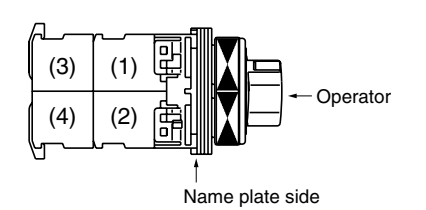
Operator	Contact (The following contact is only available.)	Operation	Knob color	Contact arrangement	Type Switch with round bezel
Knob  AF95-475	2NO+2NC	4-position maintained	Color code: B: Black (Standard) Color other than above are available (G: Green) (R: Red)	Replace the ■ mark by the contact arrangement code (shown below)	AR30PCR-4■B
		5-position maintained			AR30PCR-5■B
Lever  KK02-140A	2NO+2NC	4-position maintained			AR30WCR-4■B
		5-position maintained			AR30WCR-5■B

● Contact arrangement code

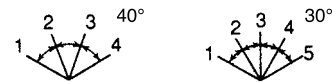
Position	Contact arrangement	Contact arrangement code	Contact operation		Operator position
			Contact block		
			Mounting position	Type	
4-position	2NO+2NC	41C* (Main-tained only)	(1)	NC	
			(2)	NC	
			(3)	NO	
			(4)	NO	
5-position	2NO+2NC	51C* (Main-tained only)	(1)	NC	
			(2)	NC	
			(3)	NO	
			(4)	NO	

Notes: ●: Contact closed
 * There may be some overlap in the contact when switching between notches.

• Position of contact block



Operator position 4-position 5-position



■ Illuminated selector switches

2-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
 AF95-5	Maintained	1NO 1NC 1NO+1NC 2NO+2NC	Without	AR30PL-210■3□ AR30PL-201■3□ AR30PL-211■3□ AR30PL-222■3□	Without	AR30PL-210■4□ AR30PL-201■4□ AR30PL-211■4□ AR30PL-222■4□
	each 90°	1NO 1NC 1NO+1NC 2NO	With	AR30PL-210■3□ AR30PL-201■3□ AR30PL-211■3□ AR30PL-220■3□	With	AR30PL-210■4□ AR30PL-201■4□ AR30PL-211■4□ AR30PL-220■4□
	Spring return	1NO 1NC 1NO+1NC 2NO	Without	AR30PL-010■3□ AR30PL-001■3□ AR30PL-011■3□ AR30PL-020■3□	Without	AR30PL-010■4□ AR30PL-001■4□ AR30PL-011■4□ AR30PL-020■4□
	 60°	1NO 1NC 1NO+1NC 2NO	With	AR30PL-010■3□ AR30PL-001■3□ AR30PL-011■3□ AR30PL-020■3□	With	AR30PL-010■4□ AR30PL-001■4□ AR30PL-011■4□ AR30PL-020■4□

3-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
 AF95-5	Maintained	1NO+1NC 2NO+2NC	Without	AR30PL-311■3□ AR30PL-322■3□	Without	AR30PL-311■4□ AR30PL-322■4□
	each 45°	1NO+1NC	With	AR30PL-311■3□	With	AR30PL-311■4□
	Spring/manual return	1NO+1NC 1NO+1NC	Without With	AR30PL-611■3□ AR30PL-611■3□	Without With	AR30PL-611■4□ AR30PL-611■4□
	each 45°	1NO+1NC 1NO+1NC	Without With	AR30PL-711■3□ AR30PL-711■3□	Without With	AR30PL-711■4□ AR30PL-711■4□

Note: □, ■ See page 86

Illuminated Selector Switches

AR30

- Replace the ■ mark by the following lamp voltage code

Transformer	Voltage	Code	
		LED	Incandescent
Without	5V AC/DC	—	5
	6V DC	6	—
	6V AC	A	—
	12V AC/DC	B	—
	15V AC/DC	C	C
	20V AC/DC	—	D
	24V AC/DC	E	E
With	100-110V AC	H	H
	115-127V AC	L	L
	200-220V AC	M	M
	230-254V AC	Q	Q
	350-380V AC	S	S
	400-440V AC	T	T
	480V AC	V	V
	500-550V AC	W	W

- Replace the □ mark by the following knob color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

- Up to 4-contact of contact arrangement can be made.
Available numbers of contacts are as follow.

No. of position	Operation	Without transformer	With transformer
2-position	Maintained	6-contact	4-contact
	Spring return	3-contact	2-contact
3-position	Maintained	6-contact	4-contact
	Spring/manual return	3-contact	2-contact

● Contact arrangement and operator position

2-position

Transformer	Contact arrangement	Contact block		Operator position	
		Mounting position	Type	Left	Right
With/without	1NO	(1)	NO	—	●
With/without	1NC	(1)	NC	●	—
Without	1NO+1NC	(1)	NO	—	●
		(2)	NC	●	—
With	1NO+1NC	(1)	NC	●	—
		(2)	NO	—	●
With/without	2NO	(1)	NO	—	●
		(2)	NO	—	●
Without	2NO+2NC *1	(1)	NO	—	●
		(2)	NC	●	—
		(3)	NO	—	●
		(4)	NC	●	—
With	2NO+2NC *1	(1)	NC	●	—
		(2)	NC	●	—
		(3)	NO	—	●
		(4)	NO	—	●

Notes: *1 : AR30PL-2

● : Contact closed, — : Contact open

3-position

Transformer	Contact arrangement	Contact block		Operator position		
		Mounting position	Type	Left	Center	Right
Without	1NO+1NC *1	(1)	NO	●	—	—
		(2)	NC	—	—	●
	1NO+1NC *2	(1)	NO	—	—	●
		(2)	NC	●	—	—
	2NO+2NC *3	(1)	NO	●	—	—
		(2)	NC	—	—	●
With	1NO+1NC *1	(1)	NC	—	—	●
		(2)	NO	●	—	—
	1NO+1NC *2	(1)	NC	●	—	—
		(2)	NO	—	—	●
	2NO+2NC *3	(1)	NC	—	—	●
		(2)	NC	—	—	●
		(3)	NO	●	—	—
		(4)	NO	●	—	—

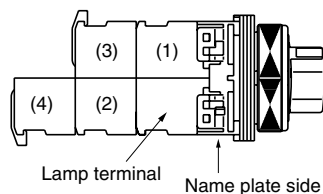
Notes: *1 : AR30PL-3, 6 *3 : AR30PL-3

*2 : AR30PL-7

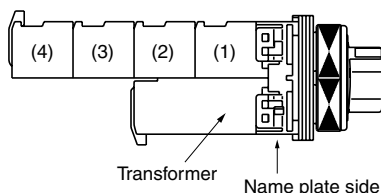
● : Contact closed, — : Contact open

● Position of contact block

Without transformer



With transformer



■ Pilot lights/standard

Lens	Transformer	LED lamp Lamp voltage	Type	Incandescent lamp Lamp voltage	Type
Dome  AF95-18	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR30D0L-A3 □ DR30D0L-63 □ DR30D0L-B3 □ DR30D0L-E3 □	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR30D0L-54 □ — DR30D0L-C4 □ DR30D0L-E4 □
	With	100–110V AC 200–220V AC	DR30D0L-H3 □ DR30D0L-M3 □	100–110V AC 200–220V AC	DR30D0L-H4 □ DR30D0L-M4 □
Dome  AF97-674	With resistor	50V DC 110V DC 220V DC	DR30D0L-FR □ DR30D0L-HR □ DR30D0L-MR □	50V DC — —	DR30D0L-FQ □ — —
Dome  AF97-672	With resistor	— —	— —	110V DC 220V DC	DR30D0L-HQ □ DR30D0L-MQ □
Extended round  AF95-20	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR30E3L-A3 □ DR30E3L-63 □ DR30E3L-B3 □ DR30E3L-E3 □	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR30E3L-54 □ — DR30E3L-C4 □ DR30E3L-E4 □
	With	100–110V AC 200–220V AC	DR30E3L-H3 □ DR30E3L-M3 □	100–110V AC 200–220V AC	DR30E3L-H4 □ DR30E3L-M4 □
Faceted  AF95-19	Without	6V AC 6V DC 12V AC/DC 24V AC/DC	DR30K0L-A3 □ DR30K0L-63 □ DR30K0L-B3 □ DR30K0L-E3 □	5.5V AC/DC — 15V AC/DC 24V AC/DC	DR30K0L-54 □ — DR30K0L-C4 □ DR30K0L-E4 □
	With	100–110V AC 200–220V AC	DR30K0L-H3 □ DR30K0L-M3 □	100–110V AC 200–220V AC	DR30K0L-H4 □ DR30K0L-M4 □
Faceted  AF97-673	With resistor	50V DC 110V DC 220V DC	DR30K0L-FR □ DR30K0L-HR □ DR30K0L-MR □	50V DC — —	DR30K0L-FQ □ — —
Faceted  AF97-671	With resistor	— —	— —	110V DC 220V DC	DR30K0L-HQ □ DR30K0L-MQ □
Dome with dimmer control  KK02-144A	Without	6V AC 6V DC 12V AC/DC 15V AC/DC 24V AC/DC	DR30D1L-A3 □ DR30D1L-63 □ DR30D1L-B3 □ DR30D1L-C3 □ DR30D1L-E3 □	5.5V AC/DC — — 15V AC/DC 24V AC/DC	DR30D1L-54 □ — — DR30D1L-C4 □ DR30D1L-E4 □
	With	100V–110V AC 200V–220V AC	DR30D1L-H3 □ DR30D1L-M3 □	100V–110V AC 200V–220V AC	DR30D1L-H4 □ DR30D1L-M4 □

Note: □ See page 88

Pilot Lights DR30

■ Pilot lights/short-body with transformer

Lens	LED lamp		Incandescent lamp	
	Lamp voltage	Type	Lamp voltage	Type
Dome  KK02-141A	100–110V AC 200–220V AC 115–127V AC	DR30D0L-H9 □ DR30D0L-M9 □ DR30D0L-L9 □	100–110V AC 200–220V AC 115–127V AC	DR30D0L-H8 □ DR30D0L-M8 □ DR30D0L-L8 □
Extended round  KK02-142A	100–110V AC 200–220V AC 115–127V AC	DR30E3L-H9 □ DR30E3L-M9 □ DR30E0L-L9 □	100–110V AC 200–220V AC 115–127V AC	DR30E3L-H8 □ DR30E3L-M8 □ DR30E0L-L8 □
Faceted  KK02-143A	100–110V AC 200–220V AC 115–127V AC	DR30K0L-H9 □ DR30K0L-M9 □ DR30K0L-L9 □	100–110V AC 200–220V AC 115–127V AC	DR30K0L-H8 □ DR30K0L-M8 □ DR30K0L-L8 □

• Lens color

Replace the □ mark by the following lens color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

• Lamp voltage

Available lamp voltage are as follow.

Description	Voltage	Code		Code	
		Standard type		Short-body type	
		LED	Incandescent	LED	Incandescent
Without transformer	5.5V AC/DC	—	54	—	—
	6V AC	A3	—	—	—
	6V DC	63	—	—	—
	12V AC/DC	B3	—	—	—
	15V AC/DC	C3	C4	—	—
	20V AC/DC	—	D4	—	—
	24V AC/DC	E3	E4	—	—
With transformer	100-110V AC	H3	H4	H9	H8
	115-127V AC	L3	L4	L9	L8
	200-220V AC	M3	M4	M9	M8
	230-254V AC	Q3	Q4	—	—
	350-380V AC	S3	S4	—	—
	400-440V AC	T3	T4	—	—
	480V AC	V3	V4	—	—
	500-550V AC	W3	W4	—	—
With resistor unit	110V DC	H7	—	—	—
With resistor	50V DC	FR	FQ	—	—
	110V DC	HR	HQ	—	—
	220V DC	MR	MQ	—	—

■ Pilot lights/standard

Lens	Transformer	LED unit Lamp voltage	Type	Incandescent lamp Lamp voltage	Type
Flush square (34mm sq. transparent lens) 	Without	6V DC 15V AC/DC 24V AC/DC	DR30F4M-65 □ DR30F4M-C5 □ DR30F4M-E5 □	5.5V AC/DC 15V AC/DC 24V AC/DC	DR30F4M-54 □ DR30F4M-C4 □ DR30F4M-E4 □
	With	100–110V AC 200–220V AC	DR30F4M-H5 □ DR30F4M-M5 □	100–110V AC 200–220V AC	DR30F4M-H4 □ DR30F4M-M4 □
Flush rectangular (Transparent lens) 	Without	6V DC 15V AC/DC 24V AC/DC	DR30F4N-65 □ DR30F4N-C5 □ DR30F4N-E5 □	5.5V AC/DC 15V AC/DC 24V AC/DC	DR30F4N-54 □ DR30F4N-C4 □ DR30F4N-E4 □
	With	100–110V AC 200–220V AC	DR30F4N-H5 □ DR30F4N-M5 □	100–110V AC 200–220V AC	DR30F4N-H4 □ DR30F4N-M4 □
Flush square (40mm sq. transparent lens) 	Without	6V DC 15V AC/DC 24V AC/DC	DR30M4M-65 □ DR30M4M-C5 □ DR30M4M-E5 □	5.5V AC/DC 15V AC/DC 24V AC/DC	DR30M4M-54 □ DR30M4M-C4 □ DR30M4M-E4 □
	With	100–110V AC 200–220V AC	DR30M4M-H5 □ DR30M4M-M5 □	100–110V AC 200–220V AC	DR30M4M-H4 □ DR30M4M-M4 □

• Color plate

Replace the □ mark by the following color plate color code

Color	Green	Red	White	Blue*	Yellow	Orange
Code	G	R	W	S	Y	A

Note: * Incandescent lamp only

• Lamp voltage

Available lamp voltage are as follow.

Description	Voltage	Code	
		Standard type	
		LED	Incandescent
Without transformer	5.5V AC/DC	—	54
	6V AC	A5	—
	6V DC	65	—
	12V AC	25	—
	12V AC/DC	B5	—
	15V AC/DC	C5	C4
	20V AC/DC	—	D4
	24V AC/DC	E5	E4
With transformer	100–110V AC	H5	H4
	115–127V AC	L5	L4
	200–220V AC	M5	M4
	230–254V AC	Q5	Q4
	350–380V AC	S5	S4
	400–440V AC	T5	T4
	480V AC	V5	V4
	500–550V AC	W5	W4
With resistor unit	110V DC	HE	—

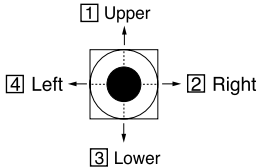
Joy Stick Selector Switches

AR30

Joy stick selector switches

Handle	Terminal	Operating directions	Contact arrangement	Type	
				Manual return	Spring return
Ball type without lock  AF97-48	Screw	↑ ↓	1NO × 2 1NO + 1NC × 2	AR30A0N-A0A0B AR30A0N-1010B	AR30A5N-A0A0B AR30A5N-1010B
		↕	1NO × 4 1NO + 1NC × 4	AR30A0N-AAAAB AR30A0N-1111B	AR30A5N-AAAAB AR30A5N-1111B
	Solder/tab	↑ ↓	1NO + 1NC × 2 2NO + 2NC × 2	AR30A0H-1010B AR30A0H-2020B	AR30A5H-1010B AR30A5H-2020B
		↕	1NO + 1NC × 4 2NO + 2NC × 4	AR30A0H-1111B AR30A0H-2222B	AR30A5H-1111B AR30A5H-2222B
	Screw	↑ ↓	1NO × 2 1NO + 1NC × 2	AR30A1N-A0A0B AR30A1N-1010B	AR30A6N-A0A0B AR30A6N-1010B
		↕	1NO × 4 1NO + 1NC × 4	AR30A1N-AAAAB AR30A1N-1111B	AR30A6N-AAAAB AR30A6N-1111B
Ball type with lock  AF97-44	Screw	↑ ↓	1NO × 2 1NO + 1NC × 2	AR30A1N-A0A0B AR30A1N-1010B	AR30A6N-A0A0B AR30A6N-1010B
		↕	1NO × 4 1NO + 1NC × 4	AR30A1N-AAAAB AR30A1N-1111B	AR30A6N-AAAAB AR30A6N-1111B
	Solder/tab	↑ ↓	1NO + 1NC × 2 2NO + 2NC × 2	AR30A1H-1010B AR30A1H-2020B	AR30A6H-1010B AR30A6H-2020B
		↕	1NO + 1NC × 4 2NO + 2NC × 4	AR30A1H-1111B AR30A1H-2222B	AR30A6H-1111B AR30A6H-2222B
	Screw	↑ ↓	1NO × 2 1NO + 1NC × 2	AR30A2N-A0A0B AR30A2N-1010B	AR30A7N-A0A0B AR30A7N-1010B
		↕	1NO × 4 1NO + 1NC × 4	AR30A2N-AAAAB AR30A2N-1111B	AR30A7N-AAAAB AR30A7N-1111B
Rubber cap type without lock  AF97-57	Screw	↑ ↓	1NO × 2 1NO + 1NC × 2	AR30A2N-A0A0B AR30A2N-1010B	AR30A7N-A0A0B AR30A7N-1010B
		↕	1NO × 4 1NO + 1NC × 4	AR30A2N-AAAAB AR30A2N-1111B	AR30A7N-AAAAB AR30A7N-1111B
	Solder/tab	↑ ↓	1NO + 1NC × 2 2NO + 2NC × 2	AR30A2H-1010B AR30A2H-2020B	AR30A7H-1010B AR30A7H-2020B
		↕	1NO + 1NC × 4 2NO + 2NC × 4	AR30A2H-1111B AR30A2H-2222B	AR30A7H-1111B AR30A7H-2222B

- **Operating direction**
- Directions other than those shown in the table above can be provided.
- For types AR30A□N-**①****②****③****④** B, designate the contact arrangement codes for the necessary operating directions (**①**: Upper,**②**: Right, **③**: Lower,**④**: Left). Designate "0" for unnecessary directions.



Contact arrangement

Contact arrangement		—	1NO	1NC	1NO+1NC	2NO	2NC	2NO+2NC
Manual return Spring return	Screw	0	A	B	1	D	E	—
	Solder/Tab	0	—	—	1	—	—	2

- Spring/manual return are also available, contact FUJI .

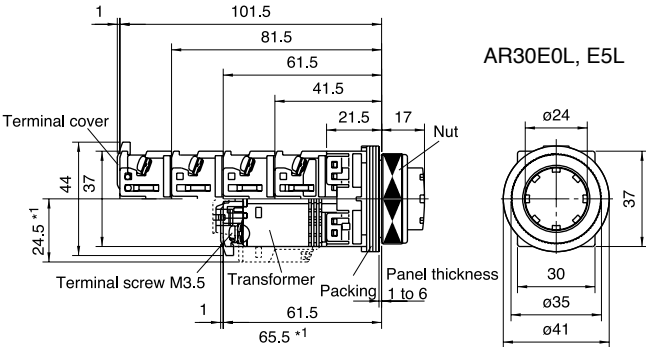
■ Buzzers

Sound	Description	Transformer	Operating voltage	Type
Electronic sound  AF96-381	• LED operation indicator (Red) • Intermittent/continuous sound selection • Sound level: 90dB (0.1m) 70dB (1m)	Without	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	DR30B5-AB DR30B5-6B DR30B5-EB DR30B5-FB
		With	100 to 110V AC 200 to 220V AC	DR30B5-HB DR30B5-MB
		With resistor unit	100 to 110V DC	DR30B5-1B
Electronic sound (economy)  KK02-145A	• Sound level: 90dB (0.1m) 70dB (1m)	Without	6V DC 24V AC 24V DC	DR30B6-6B DR30B6-GB DR30B6-EB
		With	100 to 110V AC 200 to 220V AC	DR30B6-HB DR30B6-MB
Magnetic sound  AF96-378	• Sound level: 90dB (0.1m) 70dB (1m)	Without	100 to 110V AC 200 to 220V AC	DR30B0-HB DR30B0-MB
Electronic sound (IP54)  AF96-245	• Intermittent/continuous sound selection • Sound level: 80dB (0.1m) 60dB (1m)	Without	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	DR30B8-AB DR30B8-6B DR30B8-EB DR30B8-FB
		With	100 to 110V AC 200 to 220V AC	DR30B8-HB DR30B8-MB
		With resistor unit	100 to 110V DC	DR30B8-1B

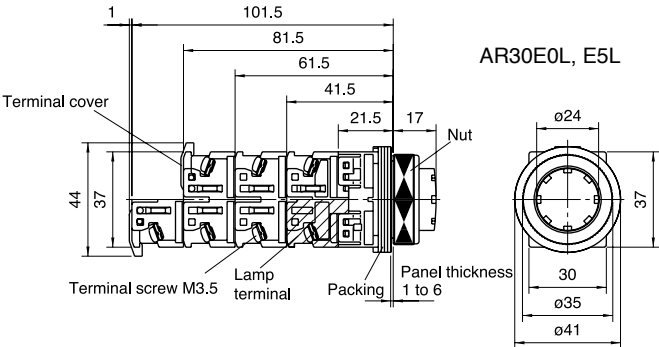
Notes: • Intermittent/continuous sound selection (DR30B5, B8)
 See the "Short-circuit terminal" in the dimensions diagram on the 102.
 page, and select as follows:
 • Short-circuit terminal mounted → Intermittent sound
 • Short-circuit terminal not mounted → Continuous sound

Pushbuttons/Selectors/Pilot Lights/Buzzers **AR30 and DR30** **Dimensions**

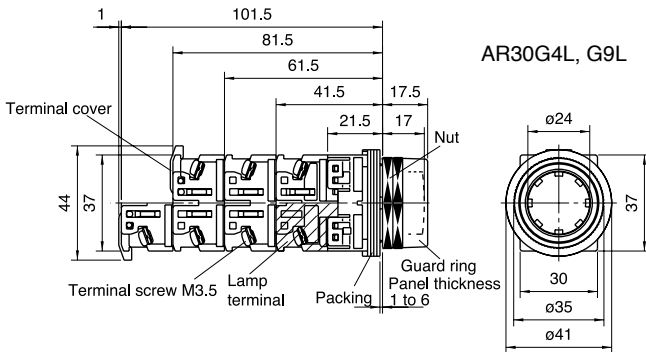
- Dimensions, mm
 - Illuminated pushbuttons
- Extended**
With transformer



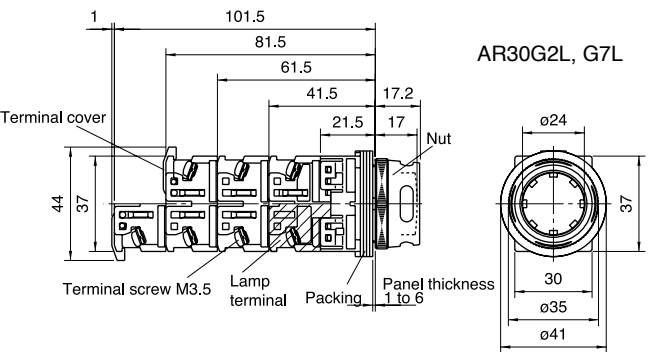
Without transformer



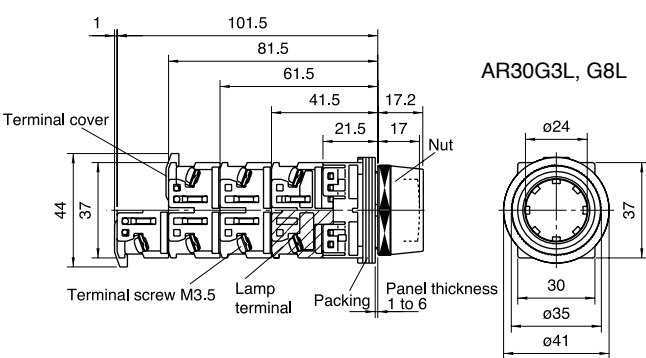
Extended with transparent full guard (24mm dia.)



Extended with full guard (24mm dia. with openings)



Extended with full guard (24mm dia.)



Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

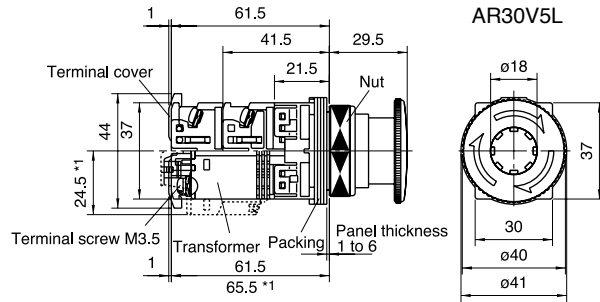
Dimensions

■ Dimensions, mm

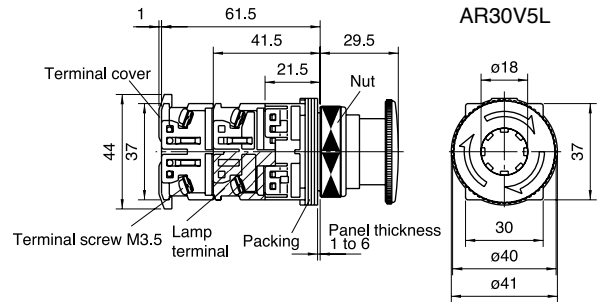
● Illuminated pushbuttons

Push-lock, turn-reset (40mm dia. with white arrow)

With transformer

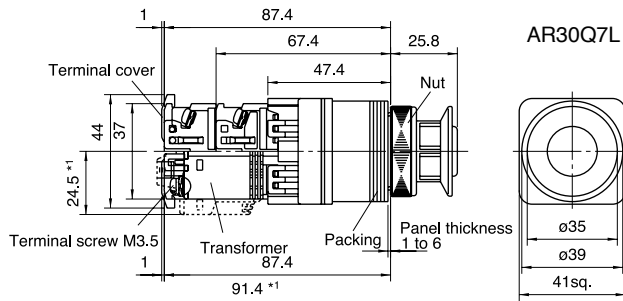


Without transformer

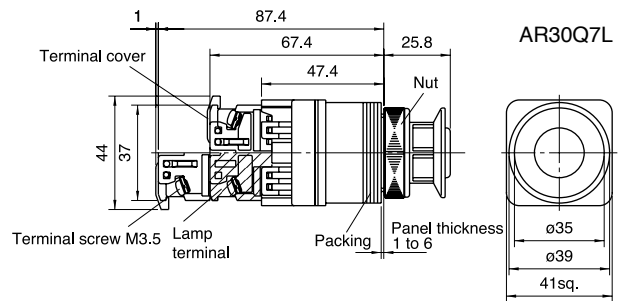


Push-pull

With transformer



Without transformer

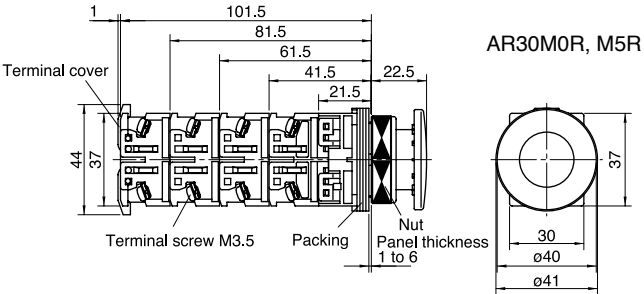
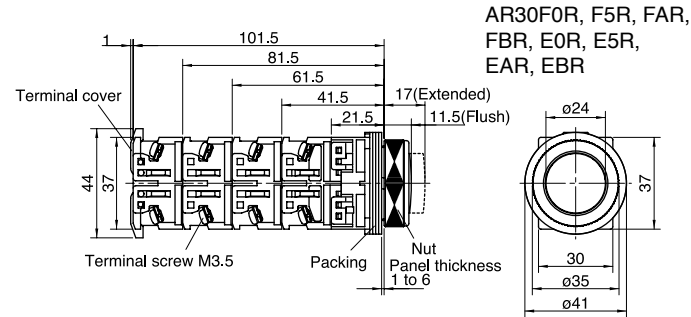


Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

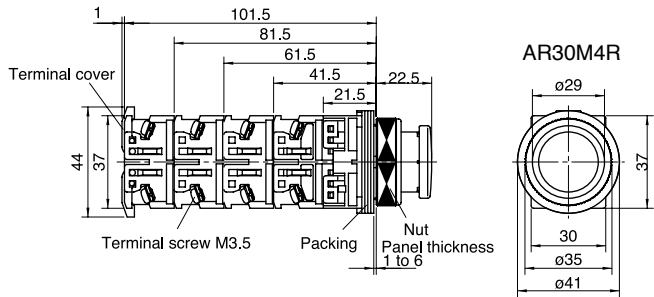
Pushbuttons/Selectors/Pilot Lights/Buzzers AR30 and DR30 Dimensions

- Dimensions, mm
- Pushbuttons
- Flush/Extended

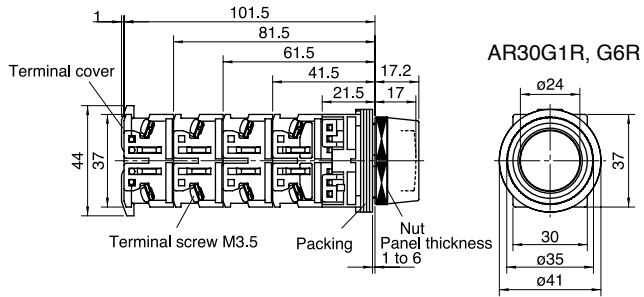
Mushroom (40mm dia.)



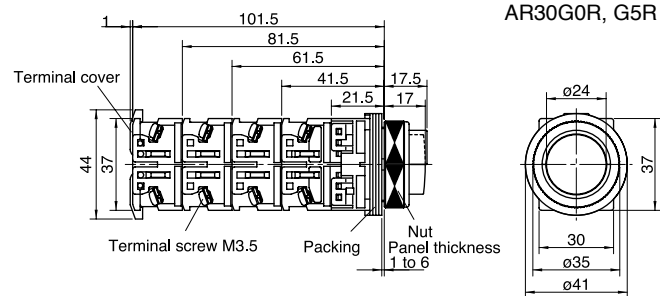
Mushroom (29mm dia.)



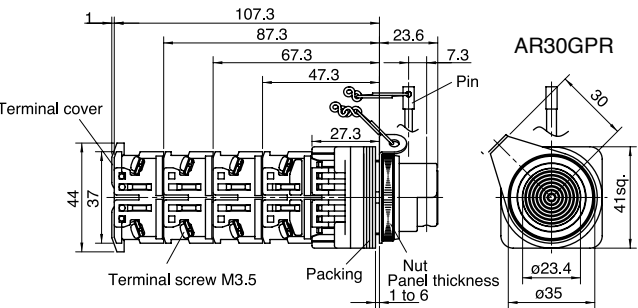
Extended with full guard (24mm dia.)



Extended with half guard

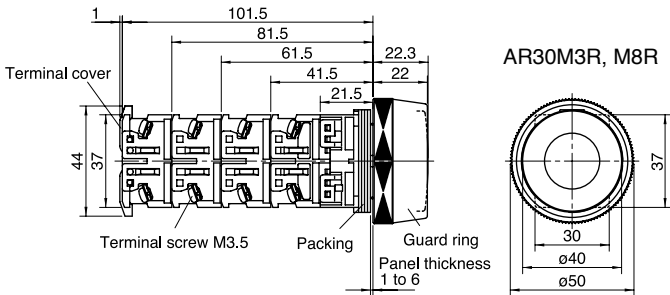


Pin lock

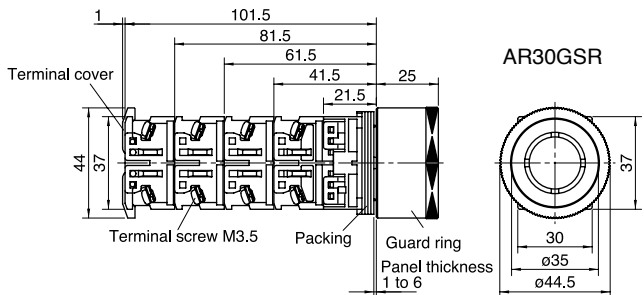


Note:
The enclosed pin can be inserted to lock the pushbutton in a pushed or not pushed state.

Mushroom with full guard (40mm dia.)



Mushroom with full guard (35mm dia. metal nut)



Pushbuttons/Selectors/Pilot Lights/Buzzers

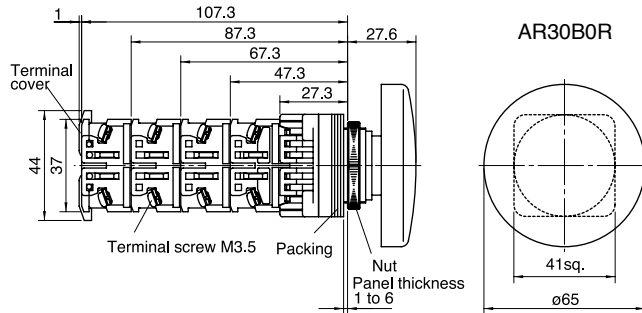
AR30 and DR30

Dimensions

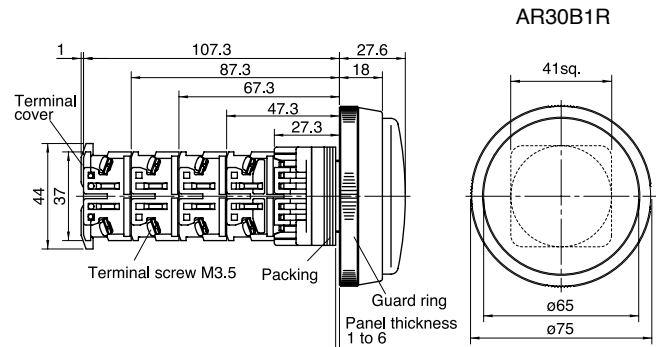
■ Dimensions, mm

● Pushbuttons

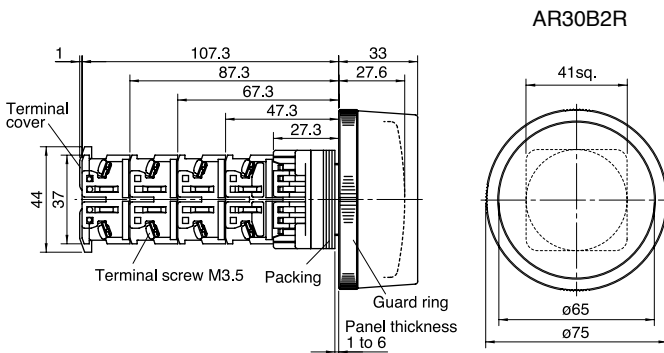
Giant



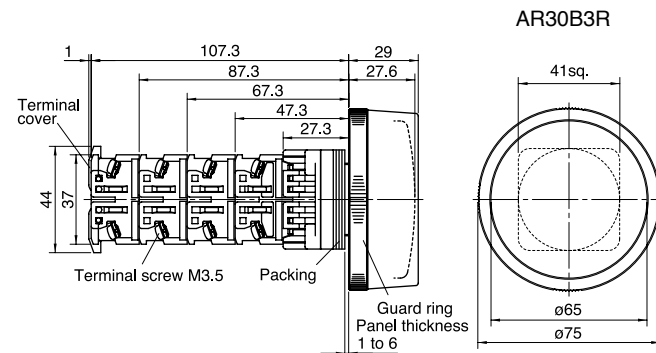
Giant with guard



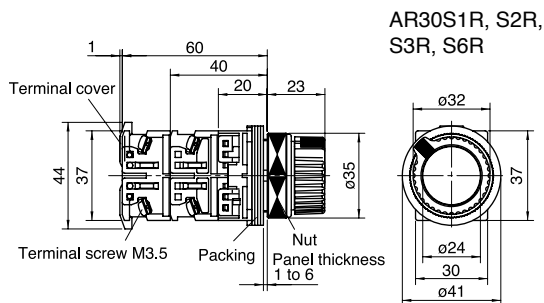
Giant with full guard



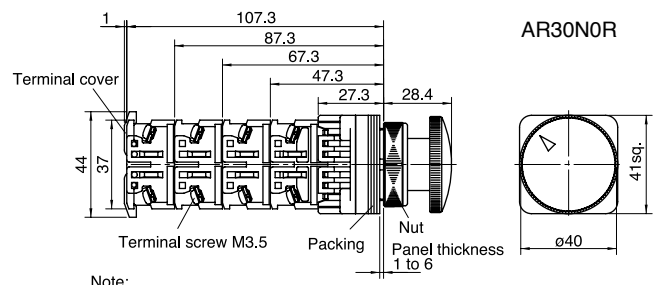
Giant with full guard



Pushbutton with selector ring (2-position)

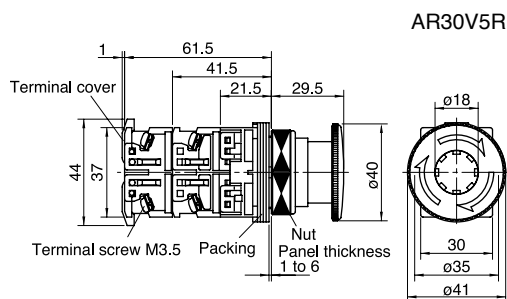


Push, turn-lock

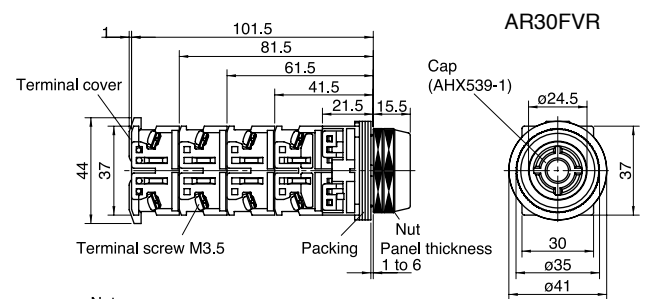


Note:
When the push button is pressed in the left position, it resets automatically (momentary operation).
When pressed and turned to the right it locks, and to the left it resets.

Push-lock, turn-reset (40mm dia. with white arrow)



Emergency operating cap



Note:
This is pushbutton switch is operated while holding the cap with the fingertips. The cap (AHX539-1) can be exchanged.

Pushbuttons/Selectors/Pilot Lights/Buzzers

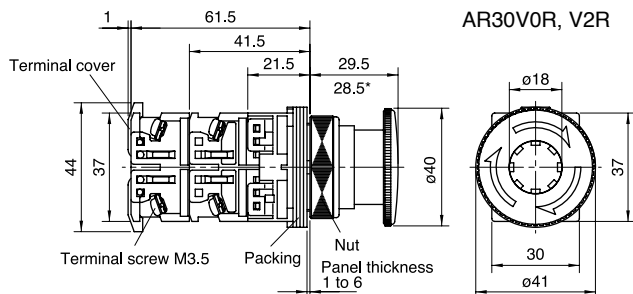
AR30 and DR30

Dimensions

■ Dimensions, mm

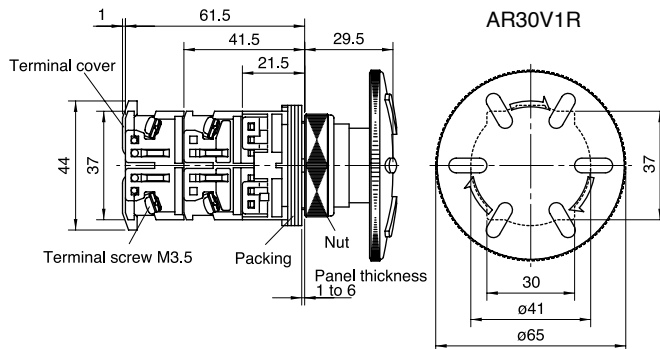
● Emergency stop pushbuttons

Push-lock, turn-reset (40mm dia.)

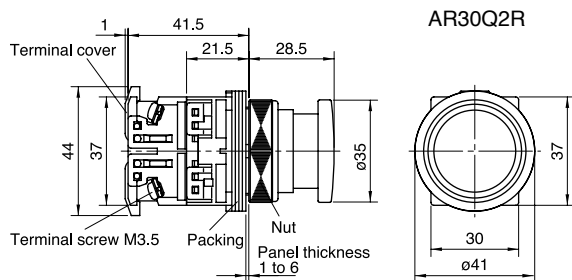


Note: * AR30V2R type

Push-lock, turn-reset (65mm dia. with white allow)



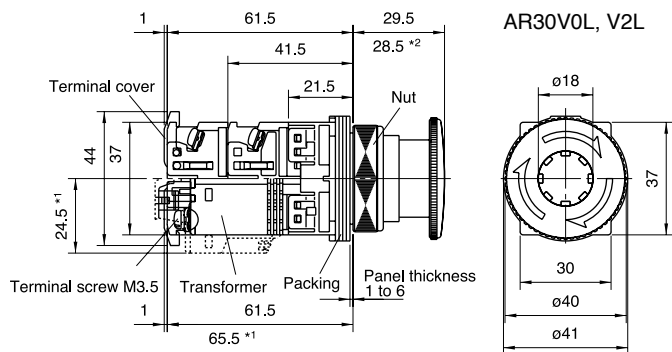
Push-lock, pull-reset (35mm dia.)



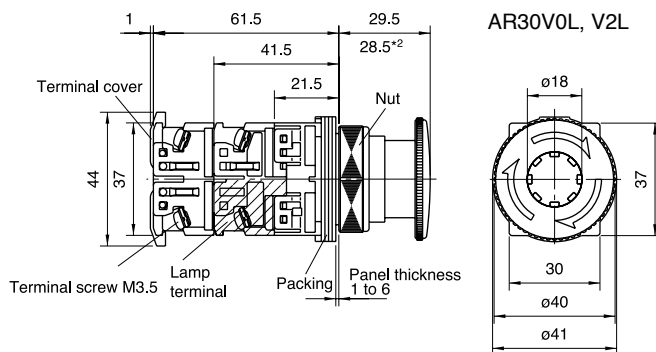
● Emergency stop illuminated pushbuttons

Push-lock, turn-reset (40mm dia.)

With transformer



Without transformer



Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.

*2 AR30V2L type

Pushbuttons/Selectors/Pilot Lights/Buzzers

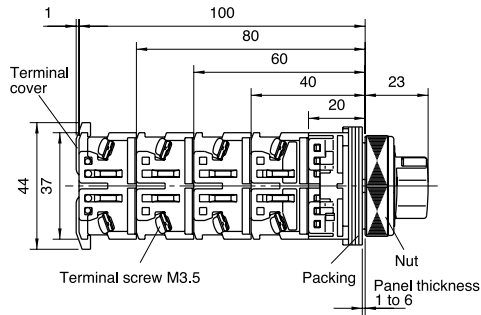
AR30 and DR30

Dimensions

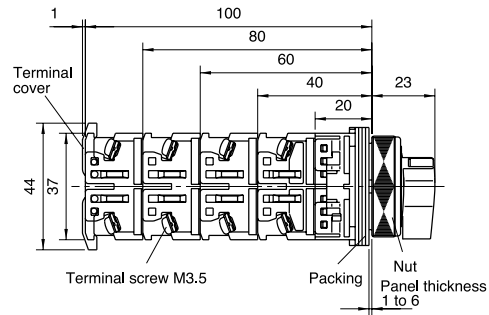
■ Dimensions, mm

● Selector switches

Knob



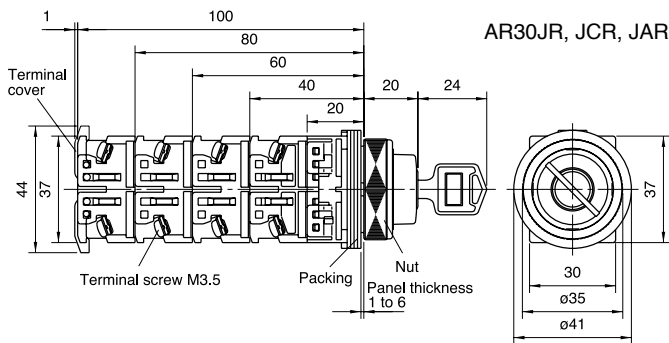
AR30PR, PCR



AR30WR, WCR

Lever

Key

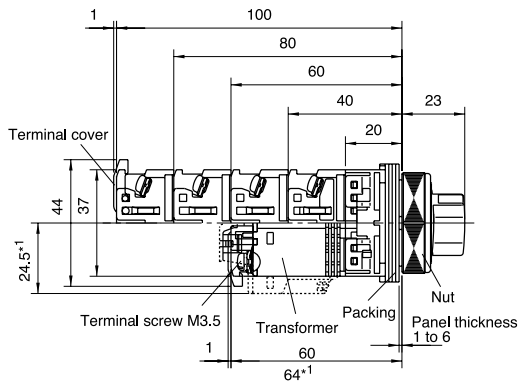


AR30JR, JCR, JAR

● Illuminated selector switches

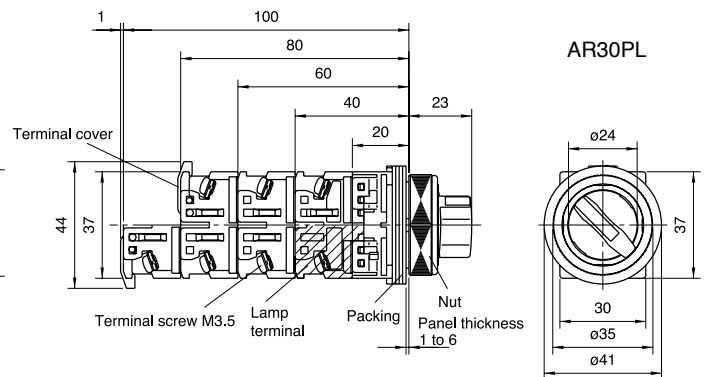
Knob

With transformer



AR30PL

Without transformer



AR30PL

Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

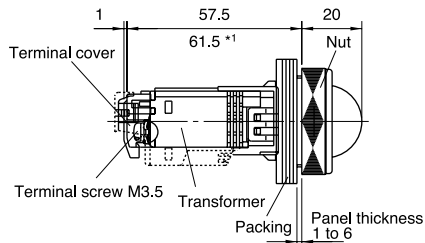
Dimensions

■ Dimensions, mm

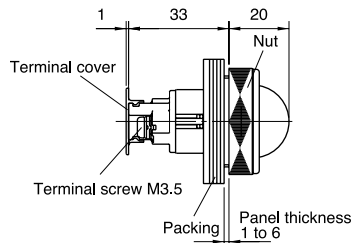
● Pilot lights

Dome

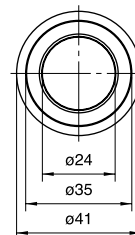
With transformer, with resistor unit



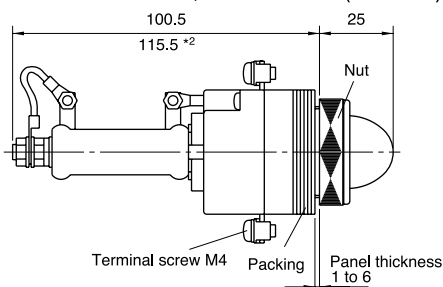
Without transformer



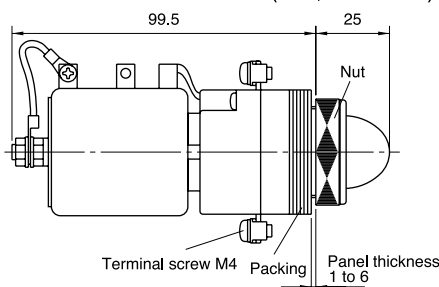
DR30D0L



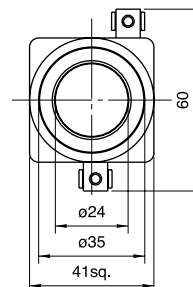
With resistor LED, incandescent (50V DC)



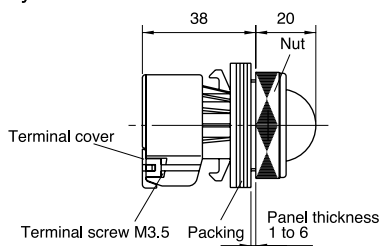
With resistor Incandescent (110, 220V DC)



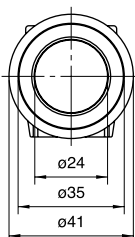
DR30D0L



Short-body / with transformer

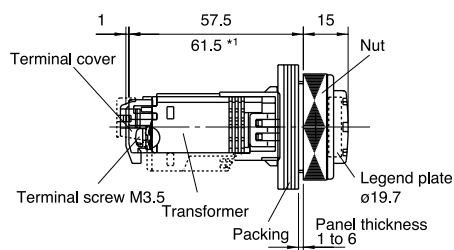


DR30D0L

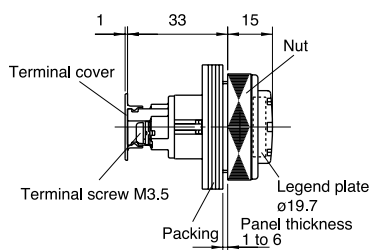


Extended

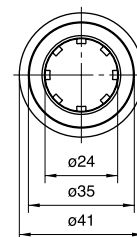
With transformer, with resistor unit



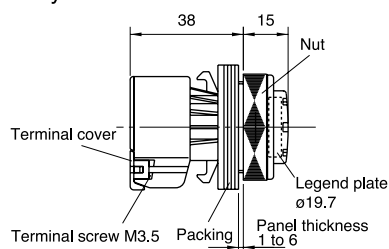
Without transformer



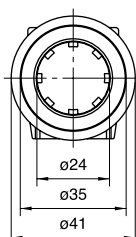
DR30E3L



Short-body / with transformer



DR30E3L



Notes:

*1 Except for the types 110V AC, 127V AC and 220V AC.

*2 Incandescent (50V DC) type only

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

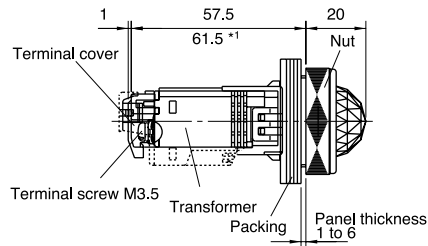
Dimensions

■ Dimensions, mm

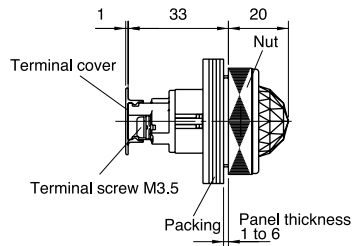
● Pilot lights

Faceted

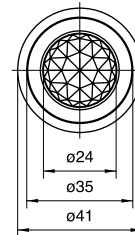
With transformer, with resistor unit



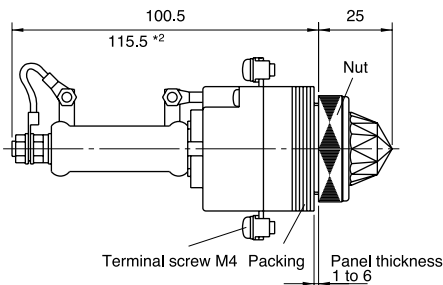
Without transformer



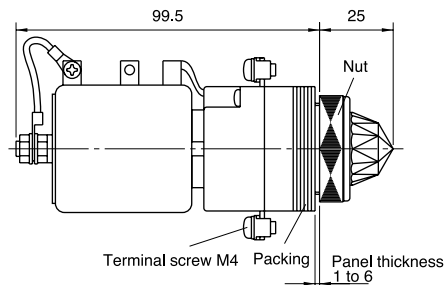
DR30K0L



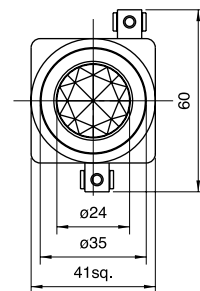
With resistor LED, incandescent (50V DC)



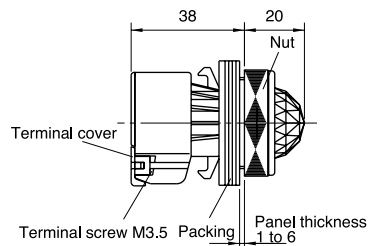
With resistor LED, incandescent (110, 220V DC)



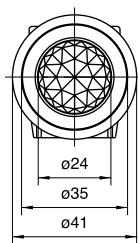
DR30K0L



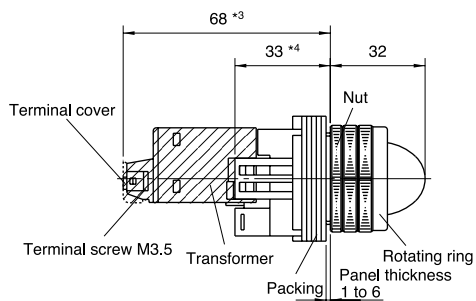
Short-body / with transformer



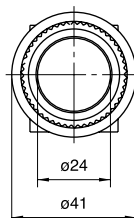
DR30K0L



Dome with dimmer control



DR30D1L



Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.

*2 Incandescent (50V DC) type only

*3 With transformer, with resistor unit type only

*4 For without transformer types, add 1 mm when mounting the terminal cover.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

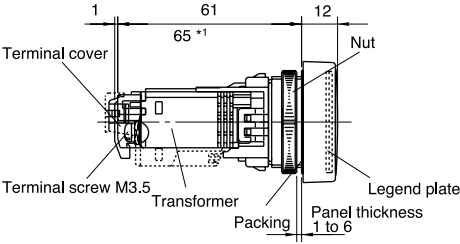
Dimensions

■ Dimensions, mm

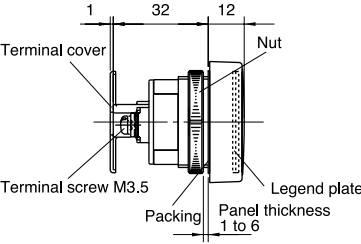
● Pilot lights

Flush square (34mm sq. transparent lens)

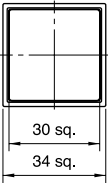
With transformer, with resistor unit



Without transformer

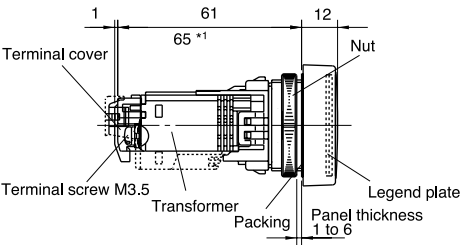


DR30F4M

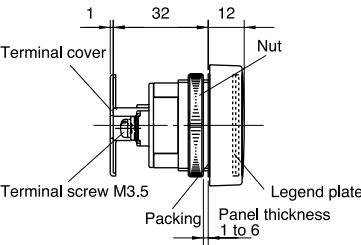


Flush rectangular (Transparent lens)

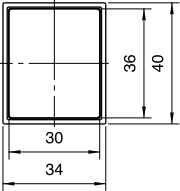
With transformer, with resistor unit



Without transformer

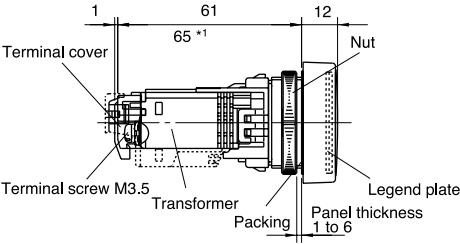


DR30F4N

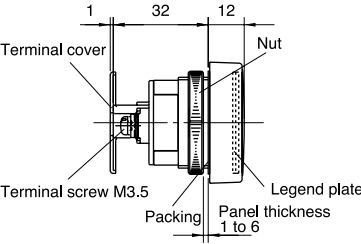


Flush square (40mm sq. transparent lens)

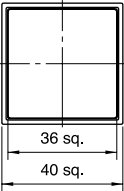
With transformer, with resistor unit



Without transformer



DR30M4M



Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

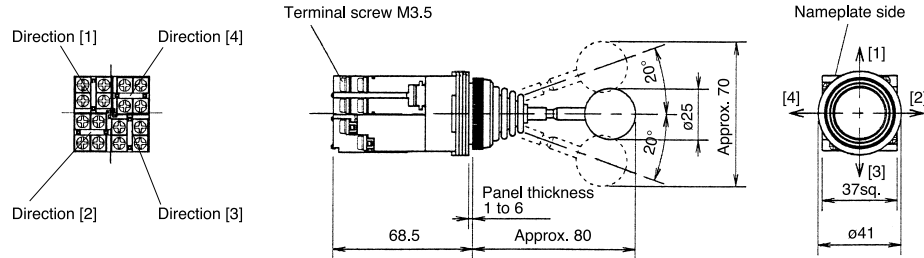
Dimensions

■ Dimensions, mm

● Joy stick selector switches

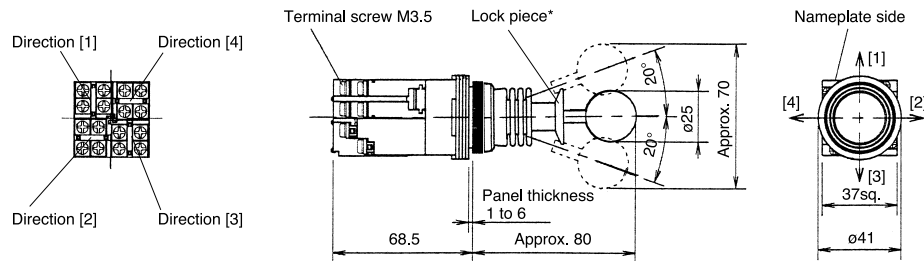
Ball type (without lock)

AR30A0N, A5N: Screw terminal



Ball type with lock

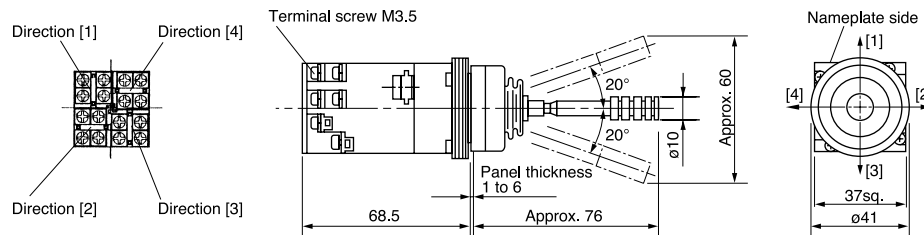
AR30A1N, A6N: Screw terminal



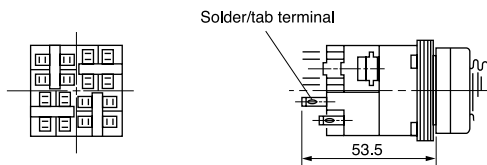
Notes * The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position. The lock piece locks in the central position only.

Rubber cap type (without lock)

AR30A2N, A7N: Screw terminal



Solder/tab terminal: AR30A□H



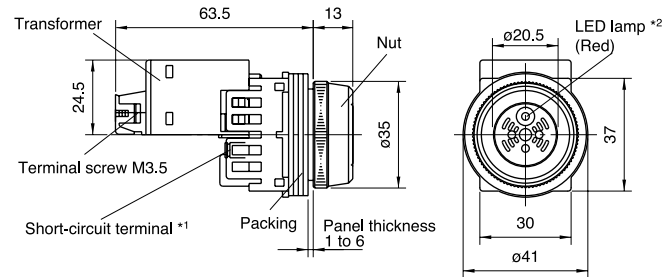
Pushbuttons/Selectors/Pilot Lights/Buzzers **AR30 and DR30** **Dimensions**

■ **Dimensions, mm**

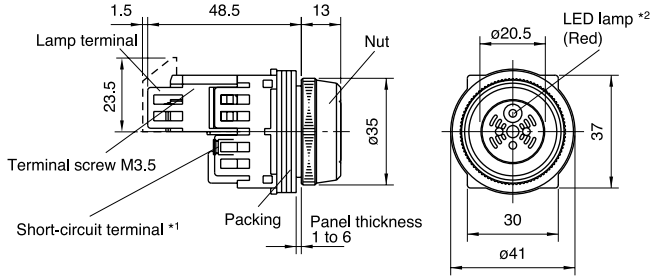
● **Buzzers**

Electronic sound

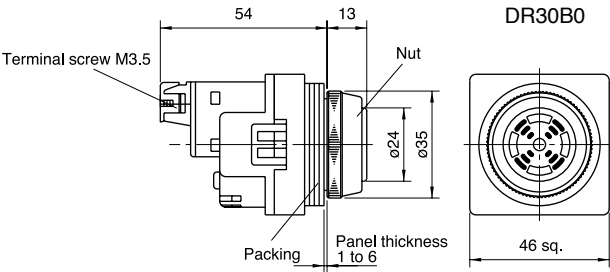
With transformer



Without transformer

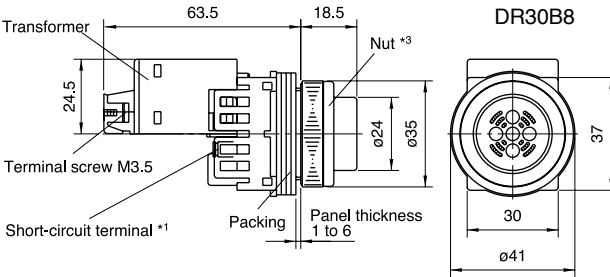


Magnetic sound

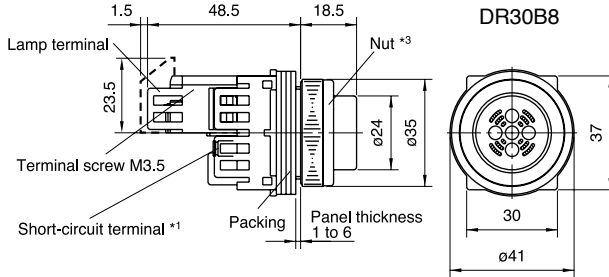


Electronic sound (IP54)

With transformer



Without transformer



Notes: *1 There are no short-circuit terminals with DR30B6. (Continuous sound only)
 *2 There are no LED lamps with DR30B6.
 *3 The nut and cap are united with DR30B8.

Pushbuttons/Selectors/Pilot Lights

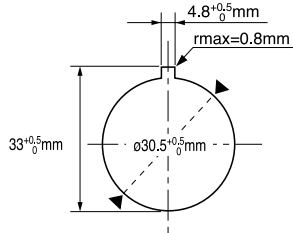
AR30 and DR30

Notes on use

Notes on use

■ Panel cutout hole

Fig. 1 Panel cutout hole dimensions, mm



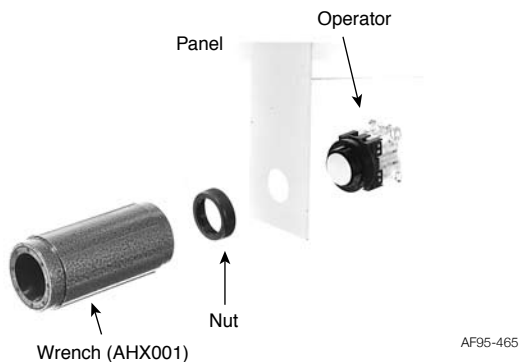
Note : If key-washer or legend plate are not used, 4.8mm-wide, location holes shown in Fig. 1 need not be cutout.

■ Mounting operator to panel

1. Pushbutton with a round bezel (ordinary mounting)

Insert the operator into the cutout hole from the back of the panel, and tighten the nut with the AHX001 wrench from the front of the panel to secure the operator as shown in Fig.2.

Fig. 2 Pushbutton with a round bezel

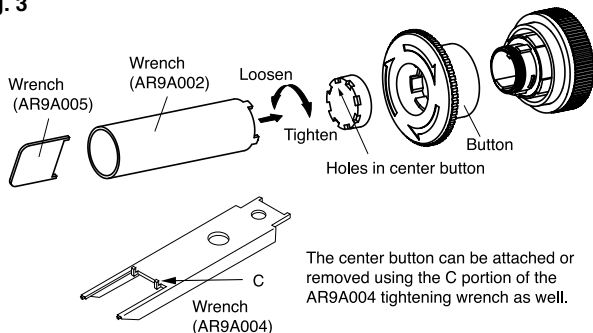


Note : Recommended tightening torque is from 1.5 to 2N·m.

2. AR30V0R, V0L, V2R, V2L, V5R, V5L

- (1) The button is removed after loosening the center button by inserting the end of the AR9A002 tightening wrench or the AR9A005 wrench (enclosed with pushbutton) into the holes in the center button and turning counterclockwise, as shown in Fig.3.
- (2) Attach the operator in the same manner as described in step 1.

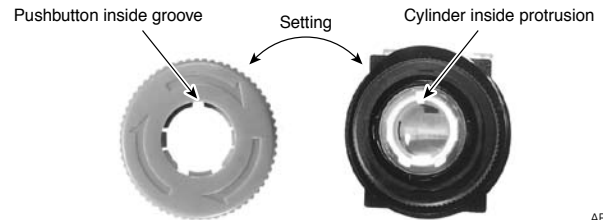
Fig. 3



The center button can be attached or removed using the C portion of the AR9A004 tightening wrench as well.

Insert the operator into the cutout hole from the back of the panel, and as shown in Fig.4, insert the pushbutton into the operator cylinder while aligning the grooves inside the pushbutton with the protrusions on the operator.

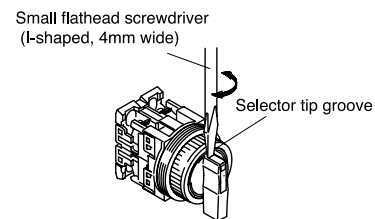
Fig. 4 Setting pushbutton to operator cylinder



3. AR30WR, WCR

- (1) As shown in the following figure, insert the tip of a flathead screwdriver into the selector tip groove. Rotate the screwdriver in the direction indicated by the arrow until the selector tip rises, and draw out the knob.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Insert the knob, with the selector tip in the floated state, into the original position of the rotation tube, and push the selector tip into place.

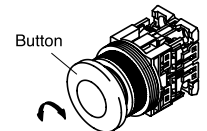
Fig. 5



4. AR30M0R, M4R, M5R, B0R, Q7L

- (1) Loosen the button by hand.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Screw in the button by hand, making sure that the button is screwed in all the way. (Recommended tightening torque: 0.3 to 0.5 N·m)

Fig. 6

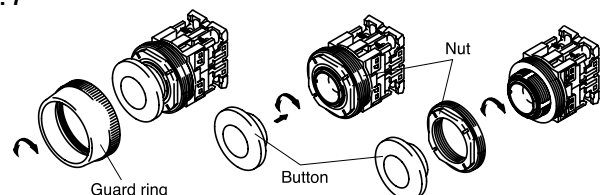


5. AR30M3R, M8R, B1R, B2R and B3R

The outer circumference of the nut is threaded, so be careful not to cut your hand on it.

- (1) Loosen and remove the guard ring by hand.
- (2) Loosen and remove the button and nut by hand.
- (3) Insert the operator into the cutout hole from the back of the panel, and tighten the nut to secure it in place. (Recommended tightening torque: 0.3 to 0.5 N·m)
- (4) Screw in the button by hand, making sure that it is screwed in all the way. (Recommended tightening torque: 0.3 to 0.5 N·m)
- (5) Loosen and remove the guard ring by hand. (Recommended tightening torque: 1.5 to 2.5 N·m)

Fig. 7



Pushbuttons/Selectors/Pilot Lights

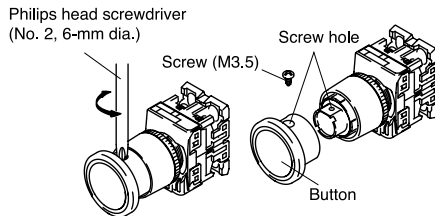
AR30 and DR30

Notes on use

6. AR30N0R, V1R, Q2R

- (1) Loosen and remove the screw on the side of the button, taking care not to loosen the screw.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Attach and secure the button in place with the screw, making sure that the head of the screw does not protrude from the side.
- (4) Recommended tightening torque: N0R, V1R 0.5 to 1.0N•m
Q2R 0.3 to 0.5N•m

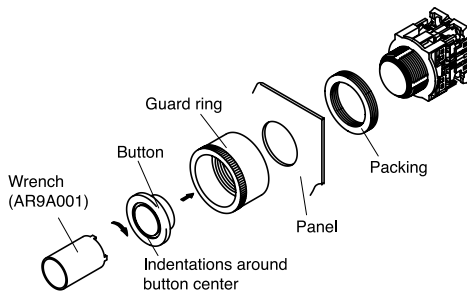
Fig. 8



7. AR30GSR

- (1) Insert the tips of the AR9A001 wrench into the indentations around the button center, and turn the wrench to loosen and remove the button.
- (2) Loosen and remove the guard ring by hand.
- (3) Insert the switch operator into the cutout hole from the back of the panel, and secure it with the guard ring from the front of the panel. (Recommended tightening torque: 1.5 to 2.5 N•m)
- (4) Attach and secure the button with the AR9A001 wrench. (Recommended tightening torque: 0.3 to 0.5 N•m)

Fig. 9

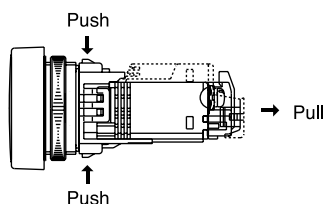


8. DR30F4M, F4N, M4M

Insert the pilot lights from the front of the panel and fix it with the AHX536 tightening wrench from the back of the panel.

- (1) Recommended tightening torque: 1 to 1.5N•m
- (2) For pilot lights with transformers and resistance units, remove the transformer or resistance unit in advance. (Fig.10)

Fig. 10

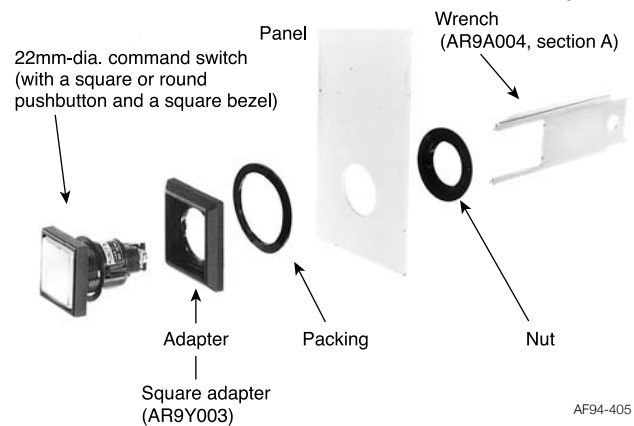


9. Mounting a 22mm-dia. command switch with a square button and a square bezel, or with a round button and a square bezel, to a panel cutout hole for a 30mm-dia. command switch using an adapter

As shown in Fig. 11, mount an adapter and packing onto a 22mm-dia. command switch (AR22, DR22 series) with a square button and a square bezel or one with a round button and a square bezel. Then, insert the switch operator into the panel cutout hole from the front of the panel. Use AR9A004 wrench section A to tighten the locking nut from behind the panel to secure the switch.

Use the adapter accessory nut for this purpose. Do not use the command switch accessory nut.

Fig. 11 Command switch with a square button and a square bezel, and command switch with a round button and a square bezel



Note : • Recommended tightening torque is from 1 to 1.5N•m.
• Panel thickness: 2.5 to 5mm

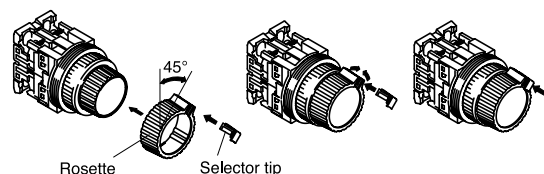
This adapter can be used with the following 22mm-dia. Command switches :

- AR22F0M, F5M, E0M, E5M, F0P, F5P, E0P, E5P, M4P
- AR22F0S, F5S, E0S, E5S, F0Y, F5Y, E0Y, E5Y, M4Y
- AR22PY, PCY, WY, WCY, RY, RCY, JY, JCY, PP
- DR22F3M, F4M, F5M, E3M, E3P

10. AR30S1R, S2R, S3R, S6R

- (1) Attach the operator in the same manner as described in step 1.
- (2) Attach the rosette assembly to the operator.
- (3) Pressing the rosette from the directions indicated by the arrows, insert the selector tip in the groove.
- (4) Make sure that the selector tip is inserted completely.
- (5) To remove the rosette, use a small flathead screwdriver to remove the selector tip as described in step 3, and then remove the rosette.

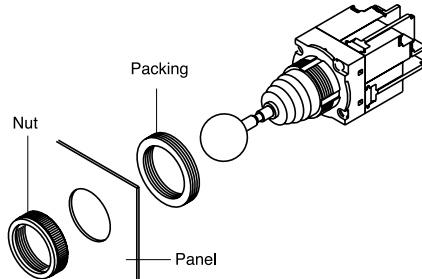
Fig. 12



11. AR30A (joy stick selector)

- (1) Remove the clamp ring as shown in the following figure.
 - (2) Attach the operator in the same manner as described in step 1.
- Note: Even if a lock type is used, remove the clamp ring in the same manner.

Fig. 13



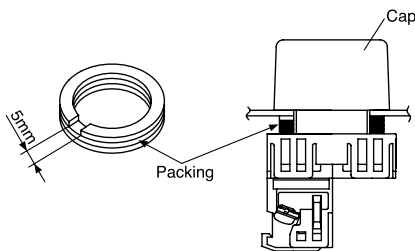
■ Water-proof and dust-proof cap

Applicable type: Water-proof cap AHX052
Dust-proof cap AHX032, 033, 034
AHX113
AHX157

When attached to the panel in combination with a water-proof or dust-proof cap, the water-proof cap or dust-proof cap may sink downward and prevent the depressed button from returning to its original position.

As shown in the following figure, cut an approximately 5-mm air outlet in the portion of the ring packing touching the panel surface. Also, reduce the number of packing rings by one below the standard number. The clamp ring tightening torque is 1.5 to 2.5 N·m.

Fig. 14



Degree of protection

The water-proof cap or dust-proof cap seals the panel surface to provide IP65 protection.

■ Applicable panel thickness

The AR30/DR30 series switches are mountable to panels with the thickness given in the table below.

Switch mounting condition	Applicable panel thickness
Without accessories	1 to 6mm
With accessories AR9Y003 adapter	2.5 to 5mm

■ Using accessory ring-packings

Use the required number of ring-packings (1.6mm-thick, 4 pieces, resin mold).

Table below is a guideline for using the packings.

If a locking nut or legend plate is used, the thickness must be counted as an additional panel thickness.

Panel thickness vs. number of packings (reference data)

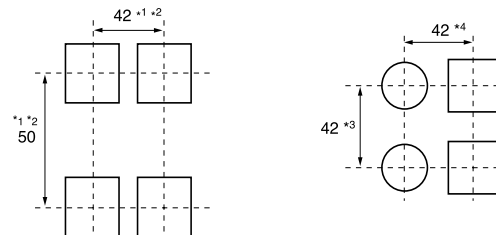
Effective panel thickness including lock-ring and legend plate thicknesses	Number of packings
1.0mm to less than 2.0mm	4
2.0mm to less than 3.6mm	3
3.6mm to less than 5.0mm	2
5.0mm to less than 6.0mm	1

■ Minimum mounting space, mm

The minimum mounting spaces required for AR30/DR30 command switches are given below. (Fig. 15)

Fig. 15

- Illuminated pushbutton and pushbutton
- Emergency stop illuminated pushbutton and emergency stop pushbutton
- Illuminated and non-illuminated selectors
- Pilot light



Notes: *1 AR30M3R, M8R, GSR: 55mm
*2 AR30BLR, GPR, V1R: 80mm

Type	*3	*4
F4M	34	34
F4N (Vertical lengthwise mounting)	40	34
(Horizontal lengthwise mounting)	34	40
M4M	40	40
Pilot lights short-body with transformer	50	42
Pilot lights with resistor	80	42

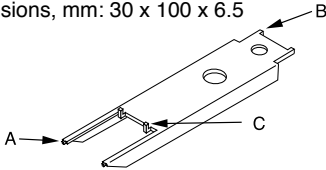
Other items are the same as for the AR22 and DR22 series, see page 50 to 54.

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

■ Accessories

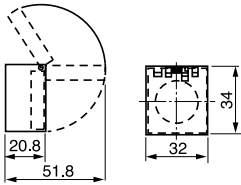
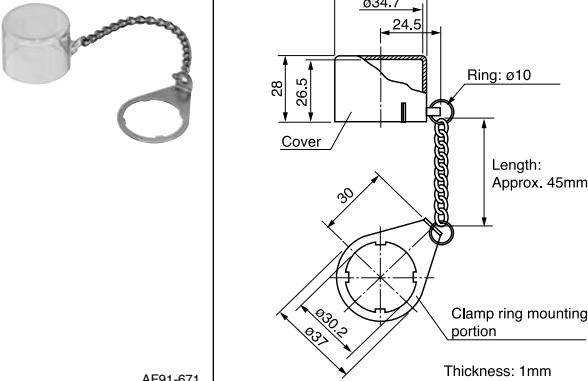
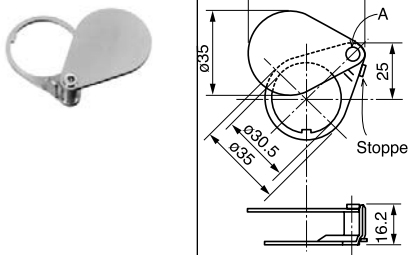
Description	Type
Wrench	AR9A004 Dimensions, mm: 30 x 100 x 6.5   Remarks Section "A" Use this section to tighten the nut for mounting the operator on a panel. Section "B" Use this section to tighten or remove the lens. Applicable type: AR22F0L, F5L, E0L, E5L, F0P, F5P, E0P, E5P AR22G1L, G2L, G4L, G6L, G7L, G9L DR22E3L, E3P AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L DR30E3L Section "C" Fit the tabs on the section "C" in the center button, and turn the wrench to tighten or remove the button. Applicable type: AR22V (except V4R, VG type) AR30V (except V1R type)
Wrench for AR22, DR22	AR9A701 Dimensions, mm: $\varnothing 28 \times 70$ Application: AR22, DR22 nut tightening
Wrench	AHX536 Dimensions, mm: $\varnothing 32 \times 76$ Application: DR30F4M, F4N, M4M, N1, N2 nut tightening
Wrench	AR9A001 Dimensions, mm: $\varnothing 22 \times 35$ Application: AR22, DR22 round-type lens tightening AR22E0M, E5M oil-proof cap tightening AR30, DR30 round-type lens tightening AR30GSR button tightening
Wrench (for center button)	AR9A002 Dimensions, mm: $\varnothing 18 \times 60$ Application: AR22V center button tightening (except V4R, VG type) AR30V center button tightening (except V1R type)
Wrench	AHX701 Dimensions, mm: $\varnothing 25 \times 72.5$ Application: DR22N, AR22VG nut tightening

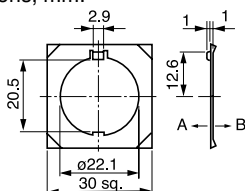
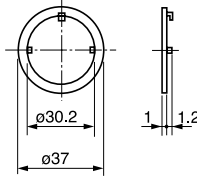
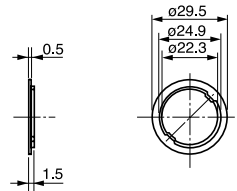
Description	Type
Wrench (for center button)	AHX8003 Dimensions, mm: $\varnothing 14 \times 50$ Attaching and removing the center button of the AR22VGF type. 
Wrench for AR22,30 and DR22, 30	AR9A006 Dimensions, mm: $\varnothing 40 \times 100$ To mount an AR22, 30 or DR22, 30 command switch to a panel, use this wrench to tighten the nut securely. It is very easy to fit this wrench onto the nut. The wrench with an inside rubber-lining can be easily used with either your right or left hand. 
Wrench for AR30, DR30	AHX001 Dimensions, mm: $\varnothing 47 \times 100$ To mount an AR30 or DR30 command switch to a panel, use this wrench to tighten the nut securely. 
Special tool	AHX321 Dimensions, mm: $42 \times 130 \times 6.5$ For all types except pilot lights DR9A321-T Dimensions, mm: $57 \times 130 \times 30$ For pilot lights - This tool is used to remove contact blocks and transformer units. - The AHX321 can remove round color lens of switches.  
Wrench/Lamp changer	AHX702 Dimensions, mm: $\varnothing 36 \times 55$ Use this wrench to tighten or remove the lens and lamp. Used with: Lens of DR22D0L, K0L and DR30D0L, K0L Incandescent lamp of pilot lights and illuminated pushbuttons 
Lamp changer	AHX790 Dimensions, mm: $\varnothing 14 \times 55$ - Use this rubber wrench for mounting or removing lamps from pilot lights and illuminated pushbutton switches. - This wrench can be used for both LED and incandescent lamps. - One end is for the BA9S/13 lamp, and the other is for the E12/15 lamp (for use with 30mm dia. pilot lights with resistor). - For 30mm dia. pilot lights with resistor, this tool can also be used to attach or remove incandescent lamps. 

Pushbuttons/Selectors/Pilot Lights

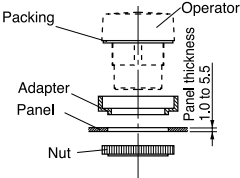
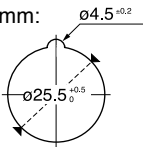
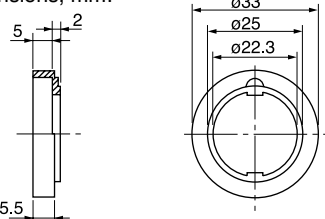
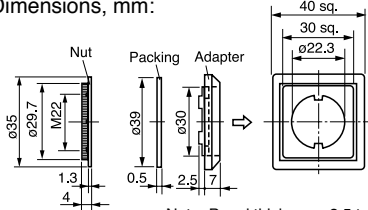
AR22/DR22 and AR30/DR30

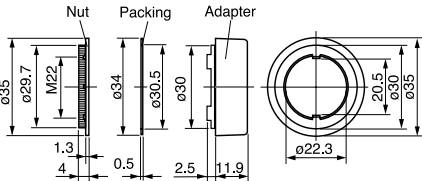
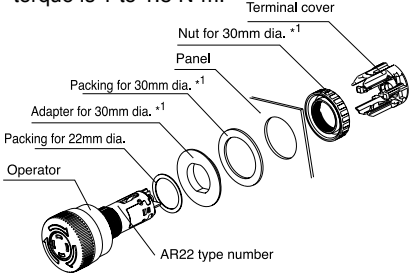
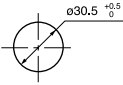
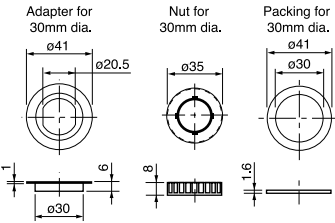
Accessories

Description	Type
Protection cover	AR9E760 This cover protects against accidental operation. The cover lid is returned home with a spring force. (Packing is provided) Used with: AR22F0L, F5L, E0L, E5L, F0M, F5M, E0M, E5M, F0P, F5P, E0P, E5P AR22F0R, F5R, E0R, E5R, F0S, F5S, E0S, E5S, E0Y, E5Y, F0Y, F5Y, FAR, FBR, EAR, EBR Dimensions, mm: 
Cover for preventing operating errors with 30mm dia. types	AR9E538 Inadvertent operation can be prevented by fitting a transparent cover with chain in the clamp ring. Used with: AR30F0R, F5R, E0R, E5R, E0L, E5L Dimensions, mm: 
Cover for preventing operating errors with 30mm dia. types	AHX408 This is a metallic cover for preventing inadvertent operation. Used with: AR30F0R, F5R Dimensions, mm:  When attaching the cover to a vertical panel, if you attach it so that the portion indicated by an "A" is at the upper right, the stopper causes the cover to stop above the push button to halt further rotation. The material is steel (zinc plated).

Description	Type
Key washer for AR22, DR22	AR9Y715 Use this metal washer when securing a operator in a 22.3mm dia. panel cutout hole. Dimensions, mm:  - When the periphery of the panel cutout has a hole to stop rotation, use with side A contacting the panel (except for Joy stick selector types). - Even when the periphery of the panel cutout does not have a hole to stop rotation, if used with side B contacting the panel it can serve as a washer for eliminating play (except for Joy stick selector types).
Key washer for ø30	AHX082 Use this metal washer when securing an operator in a 30.5mm dia. panel cutout hole. Dimension, mm: 
Operator base cover	AR9Y002 Attach this cover to the operator base of a pushbutton switch with only one contact block (1NO or 1NC) to protect against dust.
Adapter for AR22, DR22	AR9Y718 Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel. Dimensions, mm: 

Pushbuttons/Selectors/Pilot Lights AR22/DR22 and AR30/DR30 Accessories

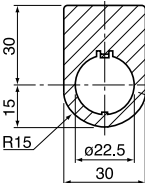
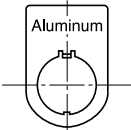
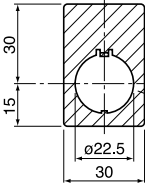
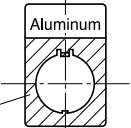
Description	Type
Adapter for AR22 and DR22  AF98-198	AR9Y008 Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel. Mounting, mm:  Panel cutout, mm:  Equipped with device for stopping rotation Used with: AR22, DR22 round head types (except for M3R, M8R, VG□, joy stick selectors and buzzers) Dimensions, mm: 
Adapter for AR30 and DR30  AF95-416	AR9Y003 Mount this adapter onto a 22mm dia. command switch with a square button and a square bezel to obtain a 30mm dia. command switch with a square/round button and a square bezel. A resin ring-packing and a nut are accessories of the adapter. Dimensions, mm:  Note: Panel thickness: 2.5 to 5mm

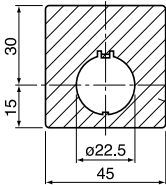
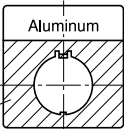
Description	Type
Round-frame adapter for 30mm dia. types  KK02-100A	AR9Y004 By using this adapter in combination with the round type 22mm dia. command switch, the 22mm dia. command switch can be used as a 30mm dia. command switch/round frame type. Used with: AR22, DR22 round types (except for M3R, M8R, VG□, Joy stick selectors, buzzers) Dimensions, mm  Note: Panel thickness: 2.5 to 5mm
Round-frame adapter for 30mm dia. type VG  AF93-4	AHX958 Using this adapter in combination with model AR22VG (22mm dia.) allows mounting to a 30.5mm panel cutout hole. The attachment method is as follows. - The washer and nut (22.3mm dia.) originally attached to the operator will not be used, so remove them. - Attach the 22mm dia. packing (included), the 30mm dia. adapter and the 30mm dia. packing to the operator in that order, and insert the operator into the cutout hole. - From the back of the panel cutout hole, fasten the 30mm-dia. nut using the AHX701 wrench. The correct tightening torque is 1 to 1.5 N•m.  *1 Adapter for 30mm dia. (AHX958) Panel cutout, mm:  Dimensions, mm:  Note: Panel thickness: 1 to 6mm

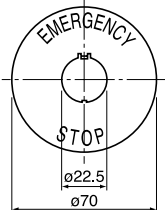
Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

Description	Type																												
Legend plate for AR22	AR9P711-①②③ ① Color B: Black A: Aluminum <table><tr><th>Legend</th><th>Code</th><th>②</th><th>③</th></tr><tr><td>Blank</td><td>0</td><td>0</td><td></td></tr><tr><td>ON</td><td>0</td><td>A</td><td></td></tr><tr><td>OFF</td><td>0</td><td>B</td><td></td></tr><tr><td>START</td><td>0</td><td>C</td><td></td></tr><tr><td>STOP</td><td>0</td><td>D</td><td></td></tr><tr><td>OFF-ON</td><td>2</td><td>A</td><td></td></tr></table> Dimensions, mm: AR9P711-B  AR9P711-A  Thickness: 0.8mm SI-1033	Legend	Code	②	③	Blank	0	0		ON	0	A		OFF	0	B		START	0	C		STOP	0	D		OFF-ON	2	A	
Legend	Code	②	③																										
Blank	0	0																											
ON	0	A																											
OFF	0	B																											
START	0	C																											
STOP	0	D																											
OFF-ON	2	A																											
Legend plate for AR22	AR9P712-①②③ ① Color B: Black A: Partially black <table><tr><th>Legend</th><th>Code</th><th>②</th><th>③</th></tr><tr><td>Blank</td><td>0</td><td>0</td><td></td></tr><tr><td>ON</td><td>0</td><td>A</td><td></td></tr><tr><td>OFF</td><td>0</td><td>B</td><td></td></tr><tr><td>START</td><td>0</td><td>C</td><td></td></tr><tr><td>STOP</td><td>0</td><td>D</td><td></td></tr><tr><td>OFF-ON</td><td>2</td><td>A</td><td></td></tr></table> Dimensions, mm: AR9P712-B  AR9P712-A  Thickness: 0.8mm SI-1032	Legend	Code	②	③	Blank	0	0		ON	0	A		OFF	0	B		START	0	C		STOP	0	D		OFF-ON	2	A	
Legend	Code	②	③																										
Blank	0	0																											
ON	0	A																											
OFF	0	B																											
START	0	C																											
STOP	0	D																											
OFF-ON	2	A																											

Description	Type																												
Legend plate for AR22	AR9P713-①②③ ① Color B: Black A: Partially black <table><tr><th>Legend</th><th>Code</th><th>②</th><th>③</th></tr><tr><td>Blank</td><td>0</td><td>0</td><td></td></tr><tr><td>ON</td><td>0</td><td>A</td><td></td></tr><tr><td>OFF</td><td>0</td><td>B</td><td></td></tr><tr><td>START</td><td>0</td><td>C</td><td></td></tr><tr><td>STOP</td><td>0</td><td>D</td><td></td></tr><tr><td>OFF-ON</td><td>2</td><td>A</td><td></td></tr></table> This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)	Legend	Code	②	③	Blank	0	0		ON	0	A		OFF	0	B		START	0	C		STOP	0	D		OFF-ON	2	A	
Legend	Code	②	③																										
Blank	0	0																											
ON	0	A																											
OFF	0	B																											
START	0	C																											
STOP	0	D																											
OFF-ON	2	A																											
	Dimensions, mm: AR9P713-B  AR9P713-A  Thickness: 0.8mm																												
AF95-114																													

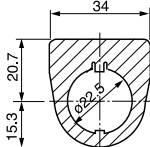
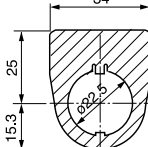
Legend plate for AR22 emergency stop	AR9P719-①② Plate color: Yellow Letter color: Black <table><tr><th>Legend</th><th>Code</th><th>Letter</th></tr><tr><td>Blank</td><td>0</td><td>0</td><td>—</td></tr><tr><td>EMERGENCY</td><td>5</td><td>A</td><td>7mm</td></tr><tr><td>STOP</td><td>5</td><td>B</td><td>13mm</td></tr><tr><td>EMERGENCY</td><td>5</td><td>C</td><td>13mm</td></tr><tr><td>OFF</td><td></td><td></td><td></td></tr></table> This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)	Legend	Code	Letter	Blank	0	0	—	EMERGENCY	5	A	7mm	STOP	5	B	13mm	EMERGENCY	5	C	13mm	OFF			
Legend	Code	Letter																						
Blank	0	0	—																					
EMERGENCY	5	A	7mm																					
STOP	5	B	13mm																					
EMERGENCY	5	C	13mm																					
OFF																								
	Dimensions, mm: AR9P719  Thickness: 0.8mm																							
KK02-265A																								

Note: Engraving for making letters is not available.

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

Description	Type																								
Legend plate for AR22 (width: 34mm)	AR9P015-B ①② : Hight 36mm AR9P014-B ①② : Hight 40.3mm Color: black																								
	<table><tr><th>Legend</th><th colspan="2">code</th></tr><tr><td></td><th>①</th><th>②</th></tr><tr><td>Blank</td><td>0</td><td>0</td></tr><tr><td>ON</td><td>0</td><td>A</td></tr><tr><td>OFF</td><td>0</td><td>B</td></tr><tr><td>START</td><td>0</td><td>C</td></tr><tr><td>STOP</td><td>0</td><td>D</td></tr><tr><td>OFF-ON</td><td>2</td><td>A</td></tr></table>	Legend	code			①	②	Blank	0	0	ON	0	A	OFF	0	B	START	0	C	STOP	0	D	OFF-ON	2	A
Legend	code																								
	①	②																							
Blank	0	0																							
ON	0	A																							
OFF	0	B																							
START	0	C																							
STOP	0	D																							
OFF-ON	2	A																							
	Optimal for use in combination with a 3-position selector switch. Legend plates are available in two types: short, 36 mm; and long, 40.3mm. Dimensions, mm:  AR9P015  AR9P014 Thickness: 0.6mm																								

Legend plate with
name plate for AR22

Legend plate
Name plate

AR9P009-B
AR9P010-B ①② (34 × 8mm)

Legend plate
Name plate

AR9P011-B
AR9P012-B ①② (34 × 13mm)

Legend plate
Name plate

AR9P007-B
AR9P008-B ①② (27 × 16mm)

Name plate	Code	
	①	②
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A

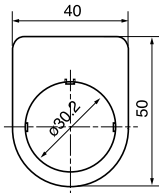
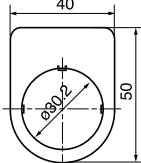
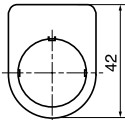
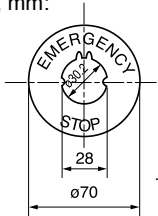
Dimensions, mm:

AR9P009

AR9P011

AR9P007

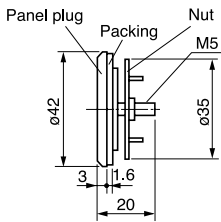
.AF96-190

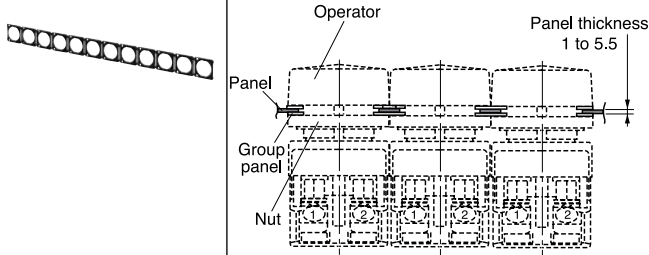
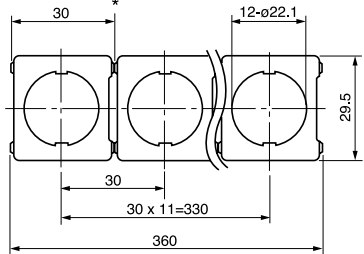
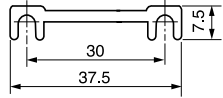
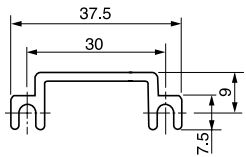
Description	Type																			
Legend plate for AR30	AHX177-①②③④ ① Material and color	This legend plate is for a 30.5mm dia. panel cutout hole.																		
	<table><tr><th>Code</th><th>Material</th><th>Color</th></tr><tr><td>S</td><td>Brass</td><td>Silver</td></tr><tr><td>B</td><td>Aluminum</td><td>Black</td></tr><tr><td>A</td><td></td><td>Aluminum</td></tr></table>	Code	Material	Color	S	Brass	Silver	B	Aluminum	Black	A		Aluminum							
	Code	Material	Color																	
	S	Brass	Silver																	
	B	Aluminum	Black																	
A		Aluminum																		
② Size H: Standard S: Short size																				
Legend	Code ③④																			
	<table><tr><td>Blank</td><td>0</td><td>0</td></tr><tr><td>ON</td><td>0</td><td>A</td></tr><tr><td>OFF</td><td>0</td><td>B</td></tr><tr><td>START</td><td>0</td><td>C</td></tr><tr><td>STOP</td><td>0</td><td>D</td></tr><tr><td>OFF-ON</td><td>2</td><td>A</td></tr></table>	Blank	0	0	ON	0	A	OFF	0	B	START	0	C	STOP	0	D	OFF-ON	2	A	
Blank	0	0																		
ON	0	A																		
OFF	0	B																		
START	0	C																		
STOP	0	D																		
OFF-ON	2	A																		
	Y-1545																			
	AF89-466																			
	AF87-49																			
	Dimensions, mm: AHX177																			
	AHX177B AHX177A	AHX177-BS AHX177-AS																		
																				
		Thickness: 0.6mm																		
Legend plate for AR30 emergency stop	AHX720-①② Plate color: Yellow Letter color: Black	This aluminum legend plate is for a 30.5mm dia. panel cutout hole.																		
	Legend	Code ①②																		
		Letter hight																		
	Blank	00-																		
	EMERGENCY STOP	5A7mm																		
	SK-598																			
	Dimensions, mm:																			
		Thickness: 0.8mm																		
	Note: Engraving for making letters is not available.																			

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

Description	Type
Panel plug for AR22 and DR22	Round: AHX725-B Black AHX725-H Gray Square: AHX726-B Black AHX726-H Gray Dimensions, mm: $\phi 29.5 \times 17$ (AHX725) $29.5 \text{ sq.} \times 17$ (AHX726) Use this plug to cover up unused panel cutout holes. For oil proof usage, use together with packing (AR9Y730) and a nut (AR9R744).
Panel plug for AR30 and DR30	AHX004 Color: Silver (metal) This plug is used to cover up unused panel cutout hole. Dimensions, mm: 

Description	Type
Group panel for 22mm dia. type	DR9Y004 These new 22mm dia. command switch/square types can be neatly aligned side by side on this group panel at a 30mm pitch to form a uniform panel face with no misalignment between mounted switches. Depending on the number of switches to be grouped (maximum 12), the panel can be divided (by cutting at the portion indicated by an asterisk (*)). Mounting, mm: (example showing a group of three)  Dimensions, mm:  Thickness: 0.8mm
Jumper	APCX029 (For pilot light without transformer) DR9Y001 (For pilot light with transformer) Use this jumper to connect terminals allocated in a 30mm pitch. Rated current is 3A Dimensions, mm APCX029  DR9Y001  Thickness: 0.5mm

Pushbuttons/Selectors/Pilot Lights AR22/DR22 and AR30/DR30 Accessories

Description	Type
Center button (For V type)	Type Used with
	AR9C020-R AR22V0R, V2R, VSR AR30V0R, V2R
	AR9C020-□ AR22V5R, AR30V5R
	AR9C018-R AR22V0L, V2L, VDL, VAL, VSL AR30V0L, V2L
	AR9C018-□ AR22V5L*, AR30V5L*
AF95-32	Replace the □ mark by the button color code
	Color Red Black Yellow
	Code R B Y
	Note: * V5L: Red and yellow only

Push-lock, turn-reset button (V and Q types)	Type Used with
	AR9C008-R AR22V4R
	AR9C010-R AR22Q2R, AR30Q2R
	AR9C017-R AR22V2R, V2L, AR30V2R, V2L
	AR9C019-R AR22VAL
	AR9C021-R AR22V0R, V0L, AR30V0R, V0L
	AR9C021-□ AR22V5R, V5L*, AR30V5R, V5L*
	AR9C026-R AR22VDL
	AR9C029-R AR30V1R
	AR9C040-R AR22VSR, VSL
AF95-31	Replace the □ mark by the button color code
	Color Red Black Yellow
	Code R B Y
KK02-104A	Note: * V5L: Red and yellow only

Knob	Type Used with
	AR9M006-□ AR22PR, PCR, PY, PCY AR30PR, PCR
AF95-43	Replace the □ mark by the knob color code
	Color Black Green Red
	Code B G R

Lever	Type Used with
	AR9M007-□ AR22WR, WCR, WY, WCY AR30WR, WCR
AF95-42	Replace the □ mark by the lever color code
	Color Black Green Red
	Code B G R

Cylindrical knob	Type Used with
	AR9M008-□ AR22RR, RCR, RY, RCY
AF95-44	Replace the □ mark by the knob color code
	Color Black Green Red
	Code B G R

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

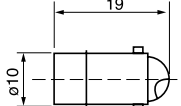
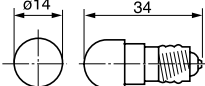
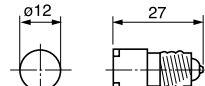
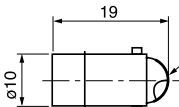
Description	Type											
Knob (for illuminated selector switch)	Type				Used with							
	AR9M005-□				AR22PL, PP AR30PL							
	Replace the □ mark by the knob color code											
	Color		Green		Red		White					
	Code		G		R		W					
	Color		Yellow		Orange		Blue					
	Code		Y		A		S					
AF94-465												
Key	Type											
	Type				Used with							
	AR9C022-□				AR22JR, JCR, AR30JR, JCR, AR9C025-□ AR22JAR, AR30JAR							
Replace the □ mark by the key type code. Code: A, B, C, D, E or F, 6 types.												
AF94-464												
Legend plate (for F type with round bezel)	AR9P001-W											
	This part is made of acrylic resin. Use paint or thinner compatible with resin.											
	Dimensions, mm: ø17.8 x 0.9											
AF94-459												
Legend plate (for E type with round bezel)	AR9P002-W											
	This part is made of acrylic resin. Use paint or thinner compatible with resin.											
	Dimensions, mm: ø19.7 x 4.2											
AF94-459												
Symbol mark plate	Type											
	Type				Used with							
	AR9P019-□ □ ■				AR22FAR, FBR, AR30FAR, FBR AR9P020-□ □ ■ AR22EAR, EBR, AR30EAR, EBR							
	□ □ ■ :											
	Symbol		○		□		■		⊕		○ □ ■ ⊕	
	Plate		W B		W B		W B		Clear			
Symbol		Red		Green		Green		Black				
Code		01 02		03 04		11 12		02B 04B		12B		
AF98-197												
W: White, B: black												

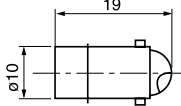
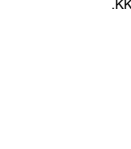
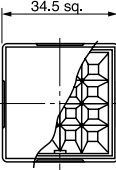
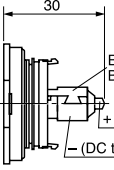
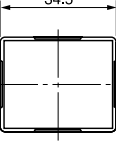
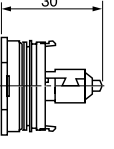
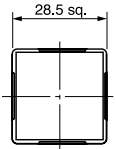
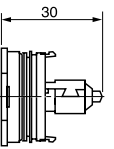
Description	Type
Legend plate and color plate (for F type with square bezel)	• Legend plate
	TypeUsed with
	DR9P241-WAR22F0M, F5M
	DR22F3M, F4M
	DR9P242-WPDR30M4M
	DR9P242-WDR30M4M, LED(W)
	DR9P243-WPDR30F4N
	DR9P243-WDR30F4N, LED(W)
	DR9P244-WPDR30F4M
	DR9P244-WDR30F4M, LED(W)
Types DR9P242, 243 and 244-W are LED illuminated, and used exclusively with operators having a “W” in the type number.	
• color plate	
TypeUsed with	
DR9P241-□DR22F3M, F4M	
DR9P242-□DR30M4M	
DR9P243-□DR30F4N	
DR9P244-□DR30F4M	
Replace the □ mark by the color code	
ColorGreenRedWhite	
CodeGRW	
ColorYellowOrangeBlue	
CodeYAS	
This part is made of acrylic resin. Use paint or thinner compatible with resin.	
Dimensions, mm: DR9P241: 20.8 sq. x 0.8 DR9P242: 33.4 sq. x 1 DR9P243: 33.4 x 27.4 x 1 DR9P244: 27.4 sq. x 1	
Legend plate (for E type with square bezel)	TypeUsed with
AR9P003-WAR22E0M, E5M	
	DR22F5M, E3M
DR9P001-WDR22E3N	
This part is made of acrylic resin. Use paint or thinner compatible with resin.	
Dimensions, mm: AR9P003-W: 20 sq. x 4.8 DR9P001-W: 19.7 x 26.7 x 4.5	
Legend sheet	AHX727
Affix this seal to the DR9P241-□/AR9P003 legend plate for marking or labeling.	
Dimensions, mm: 20 sq. x 0.025	

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

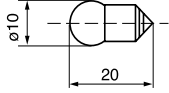
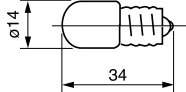
Description	Type
LED lamp	Type Lamp voltage
	APX510-6 ☐ 6V AC
	APX510-D6 ☐ 6V DC
	APX510-12 ☐ 12V AC/DC
	APX510-15 ☐ 15V AC/DC
	APX510-24 ☐ 24V AC/DC
	Replace the ☐ mark by the luminous color code
	Luminous color Yellow Red Green
	Code Y R G
	Lens color Y R G
	Luminous color Amber Orange Blue
	Code A O S
	Lens color A W, A* S
	* Orange is available only for the DR22F4M pilot light.
	Dimensions, mm:
	
	Lamp base: BA9s/13
LED lamp (for DR30 with resistor)	Type Lamp voltage
	APX507-24 ☐ 24V AC/DC
	APX509-240
	Note: The symbol in the box indicates the color of light emitted. (See note APX510.) When the code is "W" (white), use an LED lamp ((APX.509-240)
	Dimensions, mm:
	APX507 
	APX509 
	Lamp base: E12/15
LED lamp (for AR22VGF type)	Type Lamp voltage
	AR9L002-ER 24V AC/DC
	Luminous color: Red
	Dimensions, mm:
	
	Seat (gold plated)
	Lamp base: BA9s/13
	Do not use the LED lamp for other types.

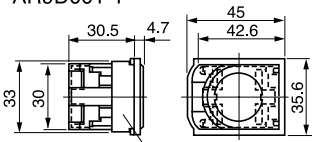
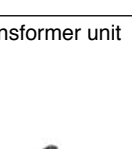
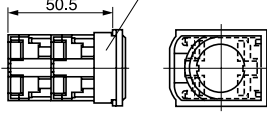
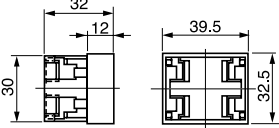
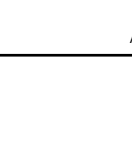
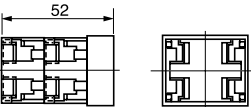
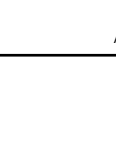
Description	Type
Neon lamp (for AR22VGF type)	Type Lamp voltage
	AR9N001-HA 110V AC
	AR9N001-KA 120V AC
	AR9N001-MA 220V AC
	AR9N001-PA 240V AC
	Luminous color: Orange
	Dimensions, mm:
	
	Lamp base: BA9s/13
	Do not use the LED lamp for other types.
LED unit for DR30 (square type)	Type Lamp voltage Used with
	DR9Q001-6 ☐ 6V DC DR30M4M
	DR9Q001-2 ☐ 12V AC
	DR9Q001-B ☐ 12V AC/DC
	DR9Q001-E ☐ 24V AC/DC
	DR9Q002-6 ☐ 6V DC DR30F4N
	DR9Q002-2 ☐ 12V AC
	DR9Q002-B ☐ 12V AC/DC
	DR9Q002-E ☐ 24V AC/DC
	DR9Q003-6 ☐ 6V DC DR30F4M
	DR9Q003-2 ☐ 12V AC
	DR9Q003-B ☐ 12V AC/DC
	DR9Q003-E ☐ 24V AC/DC
	Replace the ☐ mark by the luminous color code
	Luminous color Yellow Red Orange Amber
	Code Y R O A
	Lens color G, Y R W A
	Dimensions, mm:
	
	
	Base lamp: BA9s/13
	+ (DC type)
	- (DC type)
	DR9Q002-6 ☐ 
	
	DR9Q003-6 ☐ 
	

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

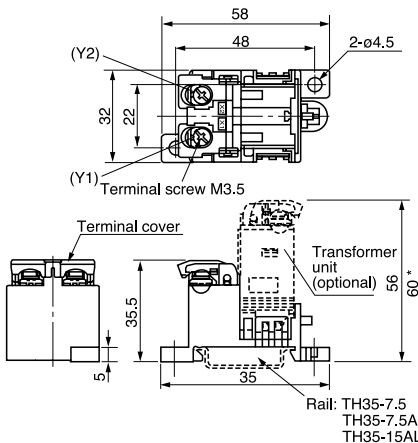
Description	Type
Incandescent lamp	Type Lamp voltage Rated voltage, consumption
	AHX135 5.5V AC/DC 6.3V AC/DC, 1W
	AHX279 15V AC/DC 18V AC/DC, 1W
	AHX144 20V AC/DC 24V AC/DC, 1W
	AHX129 24V AC/DC 30V AC/DC, 1W
	Dimensions, mm:
	 Lamp base: BA9s/13
AF89-427	
Incandescent lamp (for DR30 with resistor)	Type Lamp voltage Rated voltage, consumption
	AHX130 15V AC/DC 18V AC/DC, 2W
	Dimensions, mm:
	 Lamp base: E12/15
KK02-115A	
Contact block (1NO)	AR9B290 Standard
	AR9B290-S Overlap
	Color: Blue
	Dimensions, mm: 19.3 x 29 x 27
Note: Terminal cover is not supplied with this.	
AF94-455	
Contact block (1NC)	AR9B291 Standard
	AR9B291-S Overlap
	Color: Red
	Dimensions, mm: 19.3 x 29 x 27
Note: Terminal cover is not supplied with this.	
AF94-455	
Lamp terminal	AR9B292
	Color: Black
	Dimensions, mm: 19.3 x 29 x 27
	Note: Terminal cover is not supplied with this.
AF94-456	

Description	Type
Contact protection cover	Type Used with *
	AR9D001-1 AR22, 1-step contact
	AR9D001-2 AR22, 2-step contact
	AR9D002-1 AR30, 1-step contact
	AR9D002-2 AR30, 2-step contact
	- The contact is covered with a silicon rubber cover to keep out foreign matter such as dust, etc. - Section A of the AR9D001 is separate. * See page 119, "AR22 □ Z8, AR30 □ Z8"
	Dimensions, mm:
	AR9D001-1
	
	AR9D001-2 Part A
	
	AR9D002-1
	
	AR9D002-2
	
Transformer unit	
	Type Primary voltage Used with
	AR9T511-H 100-110V AC Standard type
	AR9T511-L 115-127V AC (except buzzers)
	AR9T511-M 200-220V AC
	AR9T511-Q 230-254V AC
	AR9T511-S 350-380V AC
	AR9T511-T 400-440V AC
	AR9T511-V 480V AC
	AR9T511-W 500-550V AC
	AR9T557-H 100-110V AC DR30F4N, F4M, M4M
	AR9T557-L 115-127V AC
	AR9T557-M 200-220V AC
	AR9T557-Q 230-254V AC
	AR9T557-S 350-380V AC
	AR9T557-T 400-440V AC
	AR9T557-V 480V AC
	AR9T557-W 500-550V AC
	Dimensions, mm:
	Up to 220 V 22.4 x 30 x 45
	Over 220 V 25.3 x 29 x 48
	Note: With terminal cover
AF95-33	

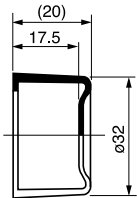
Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

Description	Type									
Base unit for transformer separate mounting	AR9T003 Use this base in combination with a transformer unit. This base unit can be mounted using screws or rails. Dimensions, mm  * Except for the types 110V AC, 127V AC and 220V AC.									
Resistor Voltage stabilizer Device for LED lamp flickering	Resistor: AR9T519-H (110V DC) Fit this resistor when using LED of 24V DC rating with 110V DC power. Voltage stabilizer: AR9T001-E This unit allows an LED lamp of 24V DC rating to be used in a circuit with voltage from 27V to 35V (AC or DC). Flickering device: 6V AC: AR9T002-A 6V DC: AR9T002-6 12 to 24V AC: AR9T002-G * 12 to 24V DC: AR9T002-E * * Used in combination with 12V, 15V, or 24V rated LED lamp. Note: With terminal cover									
Nut	<table><tr><th>Type</th><th>Used with</th><th>Dimensions, mm</th></tr><tr><td>AR9R744</td><td>AR22, DR22*</td><td>ø29.7 x 4</td></tr><tr><td>DR9R001</td><td>DR30F4M DR30F4N DR30M4M</td><td>ø33.8 x 5</td></tr></table> * Except AR22VG□, Joy stick selectors, buzzers and numerical indicators	Type	Used with	Dimensions, mm	AR9R744	AR22, DR22*	ø29.7 x 4	DR9R001	DR30F4M DR30F4N DR30M4M	ø33.8 x 5
Type	Used with	Dimensions, mm								
AR9R744	AR22, DR22*	ø29.7 x 4								
DR9R001	DR30F4M DR30F4N DR30M4M	ø33.8 x 5								

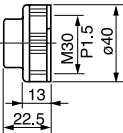
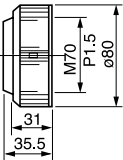
Description	Type
Nut for 30mm dia. types (Resin types are black, metallic types are silver.)	AR9R001: Resin, black (standard) AHX088: Metallic, silver Used with: AR30F0R, F5R, FAR, FBR, E0R, E5R, EAR, EBR, E0L, E5L, Q7L DR30D0L, E3L, K0L AR9R002: Resin, black (standard) AHX093: Metallic, silver Used with: AR30M0R, M5R, M4R, G0R, G5R, N0R, S□R, V□R, Q2R, V□L, PR, PCR, WR, WCR, JR, JCR, JAR, PL, A□N, A□H
Guard ring for 30mm dia Types	AR9R054-B: Metallic, black Used with: AR30G1R, G6R, G3L, G8L AR9R056-B: Metallic, black Used with: AR30G2L, G7L AR9R223-B: Metallic, black Used with: AR30M3R, M8R AR9R265-B: Metallic, black Used with: AR30B1R AR9R266-B: Metallic, black Used with: AR30B2R AR9R267-B: Metallic, black Used with: AR30B3R AR9R007: Metallic, silver Used with: AR30GSR AR9R003: Silver metallic and transparent resin Used with: AR30G4L AHX-054: Metallic, silver Used with: AR30G1R, G6R, G3L, G8L AHX-055: Metallic, silver Used with: AR30G2L, G7L

Description	Type												
Water-tight cap for 22mm dia. types	AR9D797-□ This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. Used with: AR22E0L, E5L AR22E0R, E5R Replace the □ mark by the luminous color code. <table><tr><th>Code</th><th>Color</th></tr><tr><td>G</td><td>Green</td></tr><tr><td>R</td><td>Red</td></tr><tr><td>B</td><td>Black</td></tr><tr><td>Y</td><td>Yellow</td></tr><tr><td>Blank</td><td>Clear (standard)</td></tr></table> Dimensions, mm: 	Code	Color	G	Green	R	Red	B	Black	Y	Yellow	Blank	Clear (standard)
Code	Color												
G	Green												
R	Red												
B	Black												
Y	Yellow												
Blank	Clear (standard)												
Water-tight cap for 30mm dia. types	AHX052 This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. The only color available is transparent. Used with: AR30E□R, E□L Dimensions, mm: ø36 x 22.5												

Pushbuttons/Selectors/Pilot Lights

AR22/DR22 and AR30/DR30

Accessories

Description	Type																																																																
Dust-proof cap for 30mm dia. types  SC-993  AF89-772	<table><tr><th>Type</th><th>Color</th><th>Used with</th><th>Spec.</th></tr><tr><td>AHX032</td><td>Red</td><td>AR30E0R</td><td>Oil-proof</td></tr><tr><td>AHX033</td><td>Green</td><td></td><td></td></tr><tr><td>AHX034</td><td>Black</td><td></td><td></td></tr><tr><td>AHX041</td><td>Red</td><td>AR30F0R</td><td>Oil-proof</td></tr><tr><td>AHX042</td><td>Green</td><td></td><td></td></tr><tr><td>AHX043</td><td>Black</td><td></td><td></td></tr><tr><td>AHX157-R</td><td>Red</td><td>AR30B2R,</td><td>Oil-proof</td></tr><tr><td>AHX157-G</td><td>Green</td><td>B3R</td><td></td></tr><tr><td>AHX157-B</td><td>Black</td><td></td><td></td></tr><tr><td>AHX113-R</td><td>Red</td><td>AR30E0R</td><td>Weather resistance</td></tr><tr><td>AHX113-G</td><td>Green</td><td></td><td></td></tr><tr><td>AHX113-B</td><td>Black</td><td></td><td></td></tr><tr><td>AHX111-R</td><td>Red</td><td>AR30F0R</td><td>Weather resistance</td></tr><tr><td>AHX111-G</td><td>Green</td><td></td><td></td></tr><tr><td>AHX111-B</td><td>Black</td><td></td><td></td></tr></table>	Type	Color	Used with	Spec.	AHX032	Red	AR30E0R	Oil-proof	AHX033	Green			AHX034	Black			AHX041	Red	AR30F0R	Oil-proof	AHX042	Green			AHX043	Black			AHX157-R	Red	AR30B2R,	Oil-proof	AHX157-G	Green	B3R		AHX157-B	Black			AHX113-R	Red	AR30E0R	Weather resistance	AHX113-G	Green			AHX113-B	Black			AHX111-R	Red	AR30F0R	Weather resistance	AHX111-G	Green			AHX111-B	Black		
	Type	Color	Used with	Spec.																																																													
	AHX032	Red	AR30E0R	Oil-proof																																																													
	AHX033	Green																																																															
	AHX034	Black																																																															
	AHX041	Red	AR30F0R	Oil-proof																																																													
	AHX042	Green																																																															
	AHX043	Black																																																															
	AHX157-R	Red	AR30B2R,	Oil-proof																																																													
	AHX157-G	Green	B3R																																																														
	AHX157-B	Black																																																															
	AHX113-R	Red	AR30E0R	Weather resistance																																																													
AHX113-G	Green																																																																
AHX113-B	Black																																																																
AHX111-R	Red	AR30F0R	Weather resistance																																																														
AHX111-G	Green																																																																
AHX111-B	Black																																																																
	Dimensions, mm: AHX032 to 034, 041 to 043 AHX111, 113  AHX157 																																																																
	Used for sealing the operator from foreign debris such as dust, oil (oil-proof), and water (weather resistance) in environments where the unit is in contact with such elements.																																																																
Packing	AR9Y730: AR22 and DR22 (Rubber) Note: Except for joystick selector switches, buzzers AHX282: AR30 and DR30 (Resin-standerd) Note: Except for DR30F4M, F4N, M4M, numerical indicators AHX149: AR30 and DR30 (Rubber) Note: Except for DR30F4M, F4N, M4M, numerical indicators																																																																
	 AF94-462  KK2-125A																																																																

Description	Type		
Terminal cover	Type	Used with	Dimensions, mm
	AR9Y305	Contact unit Lamp terminal Transformer unit *1	18.4 x 29 x 8.4
	DR9Y320	Pilot lights *2 (without transformer)	ø22 x 5.8
	DR9Y321	DR30F4M, F4N, M4M (without transformer)	34 sq. x 8.7
	*1 Applicable up to 220V. *2 DR22D0L, E3L, K0L, F□M, E3M, E3N, E3P, DR30D0L, E3L, K0L		
The terminal cover is provided as standard with the applicable types listed above. (Except for joy stick selector switches, numerical indicators, pilot lights with resistors, contact block alone and lamp terminal alone)			
Terminal cover	Type	Used with	Dimensions, mm
 AHX305 SG-842  AHX426 AF92-339  AHX376 SG-5	AHX305	Buzzers (without transformer)	23.5 x 27.5 x 16
	AHX426	DR30D1L (without transformer)	27.5 x 31 x 8
	AHX376	DR30D1L (with transformer) Buzzers (B0 type) With transformer * With short-body transformer With resistor unit	13 x 29 x 6.5
	* 230V and over		
	The terminal cover is provided as standard with the applicable types listed above.		

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22/DR22 and AR30/DR30

Special products

Products equipped with contact protection cover

■ Features

A silicon rubber cover is provided for the contact block to keep out foreign matter such as dust, etc.

Other ratings and specifications are the same as those of the standard type.

■ Type

AR22 □ Z8

AR30 □ Z8

Specify "Z8" at the end of the type number of the standard type.

■ Dimensions

The only thing different from the standard product is the addition of a 1-mm thick silicon rubber cover around the contact block.

■ Applicable types

Type	Contact arrangement	Remarks
• Pushbuttons *1	1NO+1NC,	For use with a
• Emergency stop pushbuttons *2	2NO*4, 2NC	1-step contact
• Selectors	1NO+3NC, 2NO+2NC,	For use with a
	3NO+1NC, 4NO*4, 4NC	2-step contact
• Illuminated pushbuttons *3 (without transformer)	1NO*5, 1NC	For use with a
		1-step contact
• Emergency stop illuminated pushbuttons*2 (without transformer)	1NO+2NC, 2NO+1NC,	For use with a
	3NO*5, 3NC	2-step contact
• Illuminated selectors (without transformer)		

Notes: *1 Except for AR30B0R, B1R, B2R, B3R, N0R, and GPR.

*2 Except for unibody (VG types)

*3 Except for AR30Q7L

*4 Except for emergency stop pushbutton switch

*5 Except for emergency stop illuminated pushbutton switch

Resisting water-soluble cutting oils and heat

■ Features

Safer operation in environments exposed to water-miscible cutting fluids, machining oils, lubricating oils, cleaning oils and high humidity (up to 95%) is made possible by using materials that protect against rust and corrosion of components.

Other ratings and specifications are the same as those of the standard type.

■ Type

AR22 □ Z9, DR22 □ Z9

AR30 □ Z9, DR30 □ Z9

Specify "Z9" at the end of the type number of the standard type.

■ Dimensions

Same as those of the standard type

■ Applicable types

• AR22, DR22 series

AR 22 (Except for joy stick selectors and VG types)

DR22 (Except for pilot lights with resistor unit, buzzers, and numerical indicators)

• AR30, DR30 series

AR30 (Except for Q7L types and joy stick selectors)

DR30 (Except for D1L, F4M, F4N, M4M types, pilot lights with resistor/resistor unit, buzzers, and numerical indicators)

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22/DR22 and AR30/DR30

Special products

Meeting IP2X finger protection standards

■ Features

Conforms to EN standard EN60204-1 (protecting against electric shock). The terminal has IEC60529 degree of protection; IP2X finger protection secured (a mock human finger used in testing did not come into contact with charged parts). The contact block and lamp terminal can be easily mounted or removed with the terminal cover mounted.

■ Type

AR22 □ ZB, DR22 □ ZB

AR30 □ ZB, DR30 □ ZB

Specify "ZB" at the end of the type number of the standard type.

■ Accessories

- Contact block (plus terminal cover)
NO contact: AR9B290-D
NC contact: AR9B291-D
- Transformer unit (plus terminal cover)
AR9T511-□ D

■ Ratings and specifications

- Protection degree: IP2X
- Terminal screw: M3.5
Wiring can be done with a solid wire or fork shaped crimp terminal.

Note: Ring-type crimp terminals cannot be used.

- Other ratings and specifications are the same as those of the standard type.

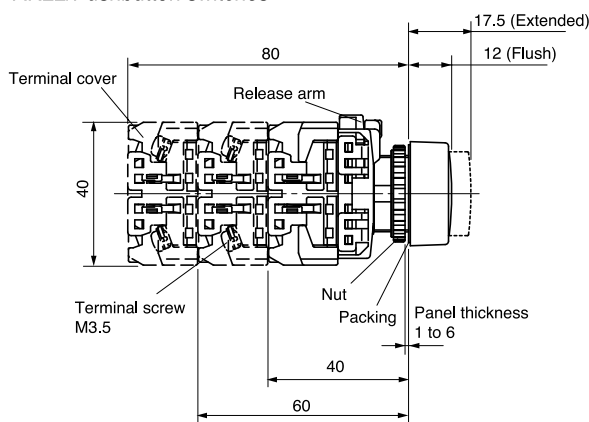
■ Applicable types

- AR22, DR22 series
AR22 (except for joy stick selectors)
DR22: Without transformer, with transformer (except for short-body types, buzzers and numerical indicators)
- AR30, DR30 series
AR30 (except for joy stick selectors)
DR30: Without transformer, with transformer (except for D1L, short-body types, F4M, F4N, M4M types, buzzers and numerical indicators)

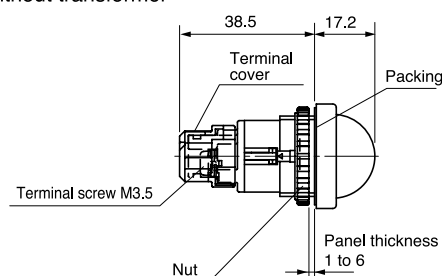
Note: The terminal of the standard type VG has IP2X protection.

■ Dimensions, mm

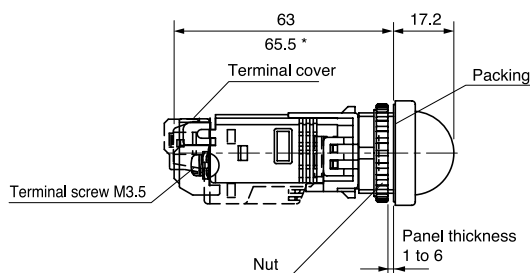
AR22/Pushbutton switches



DR22/Without transformer



DR22/With transformer



Note: * Except for the types 110V AC, 127V AC and 220V AC.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22/DR22 and AR30/DR30

Special products

Metal nut (chrome plated) types

■ Features

The nut is a metallic ring (chrome plated).
Other ratings and specifications are the same as those of the standard model.

■ Type

AR30 □ ZM

DR30 □ ZM

Specify "ZM" at the end of the type number of the standard type.

■ Dimensions, mm

Same as those of the standard types.

■ Applicable types

• AR30, DR30 series

AR30 (except for G4L, G9L, GSR*¹, GPR*¹, and B0R*¹ types)
DR30 with round bezel (except for IP54 buzzer type B8)*²

Notes: *¹ Standard type is a metallic ring (chrome plated).

*² The nut of types DR30B0, B5 and B6 buzzers are resin (chrome plated).



Resisting sulfuration gas

■ Features

These products can be used in environments having a concentration of hydrogen sulfide gas of 0.5 ppm or less.
The metallic parts have been subjected to an anti-corrosion treatment (see note).
The contacts of the AR series are gold plated.

Note: The body is made of resin and cannot be used with gases that affect resins (plastics).

■ Type

AR22 □ Z4, DR22 □ Z4

AR30 □ Z4, DR30 □ Z4

Specify "Z4" at the end of the type number of the standard type.

■ Notes on use

- This product is resistant to light corrosive gas exposure.
- Other measures, such as covering the entire switch with a box, and the degree of protection of the panel should be taken into consideration.

■ Ratings and specifications

Hydrogen sulfide gas concentration of 0.5 ppm max.

Ambient storage temperature: 8 to 37°C

Humidity: 62 to 81%

Other ratings and specifications are the same as those of the standard type.

■ Dimensions, mm

Same as those of the standard types.

■ Applicable types

• AR22, DR22 series

AR22 (except for Joy stick selectors and VG type)

DR22 (except for pilot lights with resistor unit, buzzers, and numerical indicators)

• AR30, DR30 series

AR30 (except for Joy stick selectors)

DR30 (except for F4M, F4N, M4M types, pilot lights with resistor/resistor unit, buzzers and numerical indicators)

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR22 and DR22

Mass

■ Mass, gram

● Illuminated pushbuttons

Type	Without transformer			With transformer *	
	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC	1NO (1NC)	2NO (2NC) (1NO+1NC)
AR22F0L	39	48	67	85	94
F5L	39	48	—	85	94
F0M, F0P	40	49	68	86	95
F5M, F5P	40	49	—	86	95
E0L	41	50	69	87	96
E5L	41	50	—	87	96
E0M, E0P, M4L, G1L, G2L, G4L	42	51	70	88	97
E5M, E5P, M9L, G6L, G7L, G9L	42	51	—	88	97
M4P	43	52	71	89	98
M0L	44	53	72	90	99
M5L	44	53	—	90	99
V5L	48	57	—	94	103

Note: * 230V and over : +17grams

● Pushbuttons

Type	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC
AR22F0R, FAR, F5R, FBR	27	36	55
E0R, EAR, F0S, F0Y, G0R	28	37	56
E5R, EBR, F5S, F5Y, G5R			
E0S, E0Y, M4R, G2R	29	38	57
E5S, E5Y, M9R, G7R			
M0R, M5R	31	40	59
S1R, S2R, S3R, S6R	—	43	62
M3R, M8R	44	53	72
V5R	49	58	77

● Emergency stop pushbuttons

Type	1NC	2NC (1NO+1NC)	2NO+2NC
AR22VSR	34	43	62
V0R, V4R	36	45	64
Q2R	36	45	—
V2R	38	47	66
V7R	61	70	89
VGE	61	65	—

● Emergency stop illuminated pushbuttons

Type	Without transformer		With transformer *	
	1NC	2NC (1NO+1NC)	1NC	2NC (1NO+1NC)
AR22VSL, VDL	48	57	94	103
V0L	49	58	95	104
VAL	50	59	96	105
V2L	51	60	97	106
VGF	66	70	—	—

Note: * 230V and over : +17grams

■ **Mass, gram**

● **Pilot lights**

Type	Without transformer		With transformer		With resistor unit
	Standard	Short-body	Standard *	Short-body	
DR22D0L, K0L	18	23	70	68	32
E3L, E3P, F3M, F4M	19	24	71	69	33
F5M	20	25	72	70	34
E3M	21	26	73	71	35
E3N	23	28	75	73	37

Note: * 230V and over : +17grams

● **Selector switches**

Type	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC
AR22PR	30	39	58
PCR	—	39	58
WR	31	40	59
WCR	—	40	59
RR, PY, WY	32	41	60
RCR, PCY, WCY	—	41	60
RY	33	42	61
RCY	—	42	61
JR, JAR	56	65	83
JCR	—	65	83
JY	57	66	84
JCY	—	66	84

● **Illuminated selector switches**

Type	Without transformer			With transformer *	
	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC	1NO (1NC)	2NO (2NC) (1NO+1NC)
AR22PL	42	51	70	88	97
PP	43	52	71	89	98

Note: * 230V and over : +17grams

● **Joy stick selector switches**

• Screw terminal types

Type	1NO x2	(1NO+1NC) x2	1NO x4	(1NO+1NC) x4
AR22A2N, A7N	89	99	116	136
A0N, A5N	99	109	126	146
A1N, A6N	112	122	139	159

• Solder/tab terminal types

Type	(1NO+1NC) x2	(2NO+2NC) x2	(1NO+1NC) x4	(2NO+2NC) x4
AR22A2H, A7H	72	75	82	88
A0H, A5H	82	85	92	98
A1H, A6H	95	98	105	111

● **Buzzers**

Type	Without transformer	With transformer	With resistor unit
DR22B5	50	105	52
B8	53	108	55
B3	66	121	—

● **Numerical indicators**

Type	Solder	Solder (with connector)	With right angle connector
DR22N1	53	62	55
N2	67	76	69

Pushbuttons/Selectors/Pilot Lights/Buzzers

AR30 and DR30

Mass

■ Mass, gram

● Illuminated pushbuttons

Type	Without transformer			With transformer *	
	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC	1NO (1NC)	2NO (2NC) (1NO+1NC)
AR30E0L	49	58	77	95	104
E5L	49	58	—	95	104
G4L	50	59	78	96	105
G9L	50	59	—	96	105
V5L	56	65	—	102	111
G2L	66	75	94	112	121
G7L	66	75	—	112	121
G3L	72	81	100	118	127
G8L	72	81	—	118	127
Q7L	—	159	—	—	205

Note: * 230V and over : +17grams

● Pushbuttons

Type	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC
AR30F0R, FAR, F5R, FBR	36	45	64
E0R, EAR, G0R, E5R, EBR, G5R	37	46	65
M4R	38	47	66
M0R, M5R	40	49	68
V5R	42	51	70
S1R, S2R, S3R, S6R	—	53	72
FVR	54	63	82
G1R, G6R	59	68	87
N0R	96	105	124
GPR	116	125	144
GSR, B0R	123	132	151
M3R, M8R	126	135	154
B1R	241	250	269
B3R	279	288	307
B2R	291	300	319

● Emergency stop pushbuttons

Type	1NC	2NC (1NO+1NC)	2NO+2NC
AR30V0R	43	52	71
Q2R	45	54	—
V2R	46	55	74
V1R	60	69	88

● Emergency stop illuminated pushbuttons

Type	Without transformer		With transformer *	
	1NC	2NC (1NO+1NC)	1NC	2NC (1NO+1NC)
AR30V0L	57	66	103	112
V2L	59	68	105	114

Note: * 230V and over : +17grams

■ **Mass, gram**

● **Pilot lights**

• Without transformer type, With transformer type, With resistor unit type

Type	Without transformer Standard	With transformer Standard * ¹	Short-body	With resistor unit
DR30D0L, K0L	28	80	78	42
E3L	29	81	79	43
F4M * ²	32 (30)	84 (82)	—	46
F4N * ²	34 (30)	86 (82)	—	48
M4M * ²	37 (32)	88 (84)	—	50
D1L	94	164	—	111

Notes: *¹ 230V and over : +17grams

*² (): Incandescent lamp

• With resistor type

Type	50V DC	110V DC 220V DC
DR30D0L, K0L (LED)	103	103
D0L, K0L (incandescent)	107	179

● **Selector switches**

Type	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC
AR30PR, WR	41	50	69
PCR, WCR	—	50	69
JR, JAR	67	76	94
JCR	—	76	94

● **Illuminated selector switches**

Type	Without transformer			With transformer *	
	1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC	1NO (1NC)	2NO (2NC) (1NO+1NC)
AR30PL	52	61	80	98	107

Note: * 230V and over : +17grams

● **Joy stick selector switches**

• Screw terminal type

Type	1NO x2	(1NO+1NC) x2	1NO x4	(1NO+1NC) x4
AR30A2N, A7N	100	110	127	147
A0N, A5N	110	120	137	157
A1N, A6N	124	134	151	171

• Solder/tab terminal type

Type	(1NO+1NC) x2	(2NO+2NC) x2	(1NO+1NC) x4	(2NO+2NC) x4
AR30A2H, A7H	83	86	93	99
A0H, A5H	93	96	103	109
A1H, A6H	107	110	117	123

● **Buzzers**

Type	Without transformer	With transformer	With resistor unit
DR30B5, B6	47	102	49 (Except B6)
B8	48	103	50
B0	86	—	—

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

General information

■ Features

Design basis

The 16mm dia. series of compact size pushbuttons are 'finger-size', and consequently take up little panel space. AH165-2 series operators are about twice as large as the AH164 and AH165 series operators for easier operation. With many types of operator available, the most suitable switch can be identified by color, shape and legend, and have a smooth, quality "snap-action". In spite of their small size they have a highly reliable mechanism, and are eminently suited for solid state and other electronic circuits. AH164, AH165 and AH165-2 series contact block holders can easily be removed manually. Moreover, the contact block can be easily attached or detached without using any special tools, thus facilitating addition or replacement of contact.

Selector switches

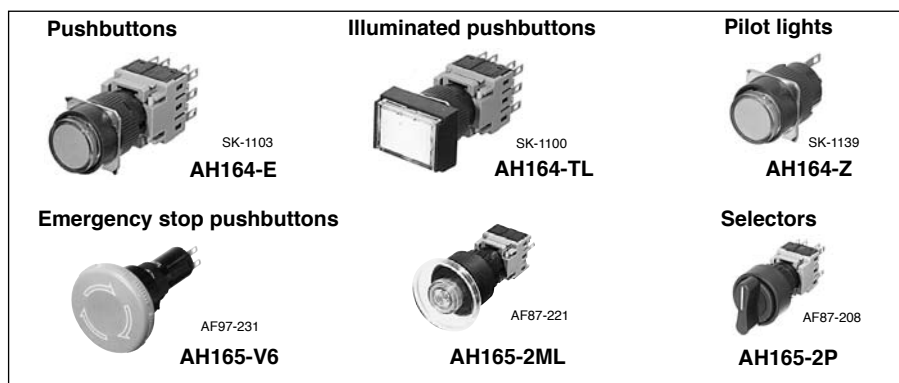
Selector switches can also be supplied in either knob-handle operated or key operated types.

Strong construction

The operator and contact blocks are molded from an excellent thermal resistance resin and can withstand the heat at the time of soldering. Since these pushbuttons are manufactured to industrial standards they can withstand vibration or shock thus eliminating lamp failure due to such causes as loose bases. With regard to the degree of protection, standard types which met the requirements of IP40 of Pub. No. 529, IEC Standards, and oil tight types which meet the requirements of IP65 of the said, are available. This permits the application to various fields, from machine tools to OA (Office Automation) facilities.

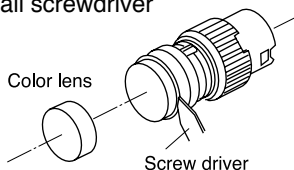
Quality feel tough

Both the operator and contact block are precisely engineered. There is no fear of the switch malfunction even after long use and it continues to operate smoothly for its service life of about 1,000,000 operations.



Easy color change

Color lenses fit over the inner button. The lens can easily be removed using a small screwdriver



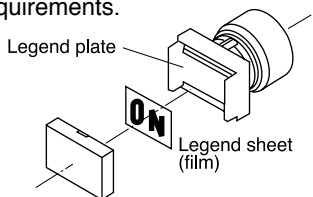
Note: The luminous color of LEDs and neon illumination types varies with the body color of the product.

Visible inscription

Button legends are printed on legend sheet, which is stuck to the legend plate on the inner button.

The lettering is back lit by the switch lamp and the inscription is highly visible through the color lens.

Contact FUJI for your lettering requirements.

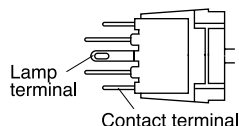


Excellent switch reliability

The switch uses a snap-action mechanism. The pushbuttons are available with either momentary or alternative actions. The snap-action switch has a double break movement which operates independently of the speed of switching. The contacts are made from gold-flashed silver. High contact reliability of 1mA at 5V AC/DC is assured. Contact blocks are available in 1NO+1NC to 3NO+3NC arrangement.

Large terminals

Solder/tab terminal is provided as standard. Wire-wrap terminal is available on request.



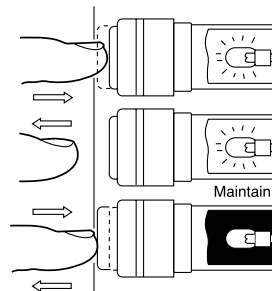
Safety

FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

- Provided with a trigger action mechanism conforming to EN418.
- Provided with direct opening action (approved by TÜV) conforming to EN60947-5-1 and EN60947-5-5.

Alternate action

In the case of alternate action when the button is depressed the contacts are maintained and remain so even if the finger is removed. The button will not return to its free position. In order to remove the lock, the button must be given a second pressure before the button will return to its free position. This makes it most suitable as the switch for a power source.



Pushbutton with finger guards

Finger guards are provided for square or rectangular type pushbuttons (SF, TF, SL and TL types) in order to prevent operational error of adjacent buttons.

Approvals



Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Quick reference guide

AH164 (standard) / AH165 (oil-tight)

■ Illuminated pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Extended round head	AH164-L, L5 AH165-L, L5  SK-1103	Flush square head	AH164-SL, SL5 AH165-SL, SL5  SK-1102	Flush rectangular head	AH164-TL, TL5 AH165-TL, TL5  SK-1100
Flush rectangular head with guard	AH164-TGL, TGL5 AH165-TGL, TGL5  SK-1101	Flush square head with guard	AH164-SGL, SGL5 AH165-SGL, SGL5  AF90-301		

Note: Spot LED and red/green LED types: Not approved standard

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Extended round head	AH164-E, E5 AH165-E, E5  SK-1103	Mushroom head	AH164-M, M5 AH165-M, M5  SK-1136	Flush square head	AH164-SF, SF5 AH165-SF, SF5  SK-1102
Flush rectangular head	AH164-TF, TF5 AH165-TF, TF5  SK-1100	Flush rectangular head with guard	AH164-TGF, TGF5 AH165-TGF, TGF5  SK-1101	Flush square head with guard	AH164-SGF, SGF5 AH165-SGF, SGF5  AF90-301
Convex square head	AH164-SM, SM5 AH165-SM, SM5  SK-1134	Convex rectangular head	AH164-TM, TM5 AH165-TM, TM5  SK-1135	Push-lock, turn-reset (32mm dia.) ⊖ (Direct opening action)	AH165-VR  AF91-584
Push-lock, turn-reset (40mm dia.) ⊖ (Direct opening action)	AH165-V1R  AF91-583				

■ Emergency stop pushbutton switches ⊖ (Direct opening action), conform to EN418

Operator	Type	Operator	Type
Push-lock, turn-reset (32mm dia.)	AH165-V5R  AF97-232	Push-lock, turn-reset (40mm dia.)	AH165-V6R  AF97-231

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Quick reference guide

■ Selector switches

Operator	Type	Operator	Type	Operator	Type
Knob with rectangular bezel	AH164-P AH165-P	Knob with square bezel	AH164-SP AH165-SP	Key with rectangular bezel	AH164-J AH165-J
 SK-1099	 SK-1133	 SK-1098			
Key with square bezel	AH164-SJ AH165-SJ	Key with rectangular bezel ⊖ (Direct opening action)	AH165-JM	Key ⊖ (Direct opening action)	AH165-RJM
 SK-1132	 AF95-57	 AF99-320			

■ Pilot lights

Lens	Type	Lens	Type	Lens	Type
Extended round	AH164-Z AH165-Z	Flush square	AH164-ZS AH165-ZS	Flush rectangular	AH164-ZT AH165-ZT
 SK-1139	 SK-1138	 SK-1137			
Dome	AH165-ZM				
 AF87-45					

■ Buzzers

Sound	Type	Sound	Type	Sound	Type
Standard	AH164-TX	Loud sound	AH164-TX1	Loud sound with volume control	AH164-TX2B
 AF87-317	 AF87-44	 AF93-297			
Standard sound with volume control (IP54)	AH165-X				
 AF96-243					

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Quick reference guide

■ Numerical indicators

Display	Type	Display	Type	Display	Type
Without decimal decoder	AH164-TS AH165-TS  SP-165	With decimal decoder (5, 12, 15V)	AH164-TC AH165-TC  AF87-315	With decimal decoder (24V)	AH164-TC4□E AH165-TC4□E  AF89-948
With sign decoder (±1 display)	AH164-TC4□E-1 AH165-TC4□E-1  AF88-1093				

AH165-2 (oil-tight)

■ Illuminated pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Flush round head	AH165-2FL, 2FL5  AF87-211	Extended round head	AH165-2EL, 2EL5  AF87-210	Mushroom head	AH165-2ML  AF87-221
Mushroom head with square bezel	AH165-2YML  AF87-220	Flush square head	AH165-2SFL, 2SFL5  AF87-201	Extended square head	AH165-2SEL, 2SEL5  AF87-200
Concave square head	AH165-2SCL, 2SCL5  AF87-199	Push-lock, turn-reset	AH165-2VL  AF87-219	Push-lock, turn-reset with square bezel	AH165-2YVL  AF87-218

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Quick reference guide

■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Flush round head	AH165-2F, 2F5  AF87-211	Extended round head	AH165-2E, 2E5  AF87-210	Mushroom head	AH165-2M  AF87-215
Mushroom head with square bezel	AH165-2YM  AF87-214	Flush square head	AH165-2SF, 2SF5  AF87-201	Concave square head	AH165-2SCE, 2SCE5  AF87-199
Extended square head	AH165-2SE, 2SE5  AF87-200	With selector ring	AH165-2S2  AF87-207	With selector ring with square bezel	AH165-2YS2  AF87-206
Push-lock, turn-reset	AH165-2V  AF87-217	Push-lock, turn-reset with square bezel	AH165-2YV  AF87-216		

■ Selector switches

Operator	Type	Operator	Type	Operator	Type
Knob	AH165-2P  AF87-208	Knob with square bezel	AH165-2YP  AF87-202	Key	AH165-2J  AF87-223
Key with square bezel	AH165-2YJ  AF87-222	Lever	AH165-2H  AF87-209	Lever with square bezel	AH165-2SH  AF87-203

■ Illuminated selector switches

Operator	Type
Knob	AH165-2PL  AF87-607

Pushbuttons/Selectors/Pilot Lights/Buzzers
AH164, AH165 and AH165-2
Quick reference guide

■ Pilot lights

Lens	Type	Lens	Type	Lens	Type
Flush round	AH165-2Z   AF87-213	Extended round	AH165-2ZE   AF87-212	Flush square	AH165-2SZ   AF87-205
Extended square	AH165-2SZE   AF87-204				

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Part number system

■ Part number system

Pushbuttons, illuminated pushbuttons and pilot lights

AH165 - L R 11 E 3 - W
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product category

AH164: Standard (IP40)

AH165: Oil-tight (IP65)

② Operator or lens

• Operator for illuminated pushbutton

SL: Flush square head

SL5: Flush square head (Alternate)

TL: Flush rectangular head

TL5: Flush rectangular head (Alternate)

L: Extended round head

L5: Extended round head (Alternate)

TGL: Flush rectangular head with guard

TGL5: Flush rectangular head with guard (Alternate)

SGL: Flush square head with guard

SGL5: Flush square head with guard (Alternate)

• Operator for pushbuttons

SF: Flush square head

SF5: Flush square head (Alternate)

TF: Flush rectangular head

TF5: Flush rectangular head (Alternate)

E: Extended round head

E5: Extended round head (Alternate)

TGF: Flush rectangular head with guard

TGF5: Flush rectangular head with guard (Alternate)

SGF: Flush square head with guard

SGF5: Flush square head with guard (Alternate)

M: Mushroom head

M5: Mushroom head (Alternate)

SM: Convex square head

SM5: Convex square head (Alternate)

TM: Convex rectangular head

TM5: Convex rectangular head (Alternate)

V: Push-lock, turn-reset (32mm dia.)*¹ *²

V1: Push-lock, turn-reset (40mm dia.)*¹ *²

• Operator for emergency stop pushbuttons

V5: Push-lock, turn-reset (32mm dia.)*²

V6: Push-lock, turn-reset (40mm dia.)*²

• Lens for pilot lights

Z: Extended round

ZS: Flush square

ZT: Flush rectangular

ZM: Dome

Note: *¹ Product with no trigger action mechanism

*² AH165 type only, direct opening action

③ Color of button or lens

Code	color	Button	LED	Incandescent	Neon
G	Green	○	○	○	○
R	Red	○	○	○	○ (Orange)
B	Black*	○	—	—	—
Y	Yellow	○	○	○	○ (Orange)
W	White	○	○ (Orange)	○	○ (Orange)
S	Blue	○	○	○	○ (Green)
O	Orange	○	○ (Amber)	○	○
RG	Red/Green	—	○	—	—

Notes: • (): indicates luminous color

• AH165-V, V1, V5, V6: Red only

* Not available for illuminated types

④ Contact arrangement

01: 1NC*¹ 22: 2NO+2NC

02: 2NC*¹ 33: 3NO+3NC*²

11: 1NO+1NC

Notes: *¹ Available for AH165-V, V1, V5, V6

*² Not available for with transformer types

⑤ Lamp voltage

Code	LED	Incandescent* ²	Neon* ²
AA	5V DC* ²	—	—
A	6V DC* ²	5V AC/DC	—
B	12V DC	12V AC/DC	—
E	24V DC	24V AC/DC	—
H	100-110V AC* ¹ * ²	100-110V AC* ¹	110V AC
K	—	—	120V AC
M	200-220V AC* ¹ * ²	200-220V AC* ¹	220V AC
P	—	—	240V AC

Notes: *¹ With transformer (LED: 24V, Incandescent: 28V)

*² Not available AH165-ZM

• ZM type: LED lamp only (12, 24V DC)

⑥ Type of lamp

Blank: Incandescent

1: Neon

2: Spot LED, LED (ZM types)

3: Flat LED

⑦ Terminal

Blank: Solder/tab

W: Wire-wrap

S: Soder (AH165-V, V1, V5, V6 types only)

Note: ZM types: wire-wrap terminal only (Code is blank)

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Part number system

■ Part number system

Selector switches

AH165 - J 2 B 11 A - W
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product category

AH164: Standard (IP40)

AH165: Oil-tight (IP65)

② Operator

• 2-position, 3-position (operating angle 90°)

SP: Knob with square bezel

P: Knob with rectangular bezel

SJ: Key with square bezel

J: Key with rectangular bezel

JM: Key with rectangular bezel (Direct opening action) *

RJM: Key (Direct opening action) *

Note: * AH165 types (2-position) only

• 3-position (operating angle 45°)

SPK: Knob with square bezel

PK: Knob with rectangular bezel

SJK: Key with square bezel

JK: Key with rectangular bezel

③ Operation

2: 2-position, maintained

0: 2-position, spring return*

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

Note: * Except for JM and RJM types

④ Color of knob or key removable position

• Color of knob

B: Black

• Key removable position

Code	2-position		3-position (operating angle 90°)				3-position (operating angle 45°)			
	2	0	1	3	6	7	1	3	6	7
A			—		—		—		—	
B		—	—		—	—	—		—	—
C	—	—	—		—	—	—		—	—
D		—	—		—	—	—		—	—
E	—	—								
F	—	—	—	—	—	—	—		—	—
G	—	—	—	—	—	—	—		—	

⑤ Contact arrangement

11: 1NO+1NC

22: 2NO+2NC

33: 3NO+3NC*

Note: * Except for JM and RJM types.

⑥ Key type No.

A (standard), B, C, D, E, F

⑦ Terminal

Blank: Solder/tab

W: Wire-warp

Note: JM, RJM types: Solder/tab terminal only

Buzzers

AH164 - T X B E
 ① ② ③ ④

① Product category

AH164: Standard (IP00)

AH165: Splash-proof (IP54)

② Sound

TX: Standard (AH164)

TX1: Loud sound (AH164)

TX2: Loud sound with volume control (AH164)

X: Standard sound with volume control (AH165)

③ Color of head

B: Black

④ Operating voltage

AAC: 6V AC*2

ADC: 6V DC*2

A: 6V AC/DC*1

E: 12 to 24V AC/DC

F: 35 to 48V AC/DC

Notes: *1 Except for TX and TX1 types

*2 Except for TX2 and X types

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Ratings and specifications

■ Standards approved

UL508	File No. E44592
CSA C22.2 No.14	File No. LR20479 (except for AH165-ZM) File No. LR84365 (for AH165-ZM)
TÜV: EN60947-5-1	Pushbutton (except for AH165-V, V1), Illuminated pushbutton: R9250087 Pushbutton (for AH165-V, V1): J9551059 Selector (except for AH165-JM, RJM): R9250088 Selector (for AH165-JM, RJM): J9551059 Pilot lights: R9250089 Buzzer: J9950092 (for AH164-TX2, AH165-X)
TÜV: EN60947-5-1 EN60947-5-5	Emergency stop pushbutton: R9950093

■ Specifications (Indoor use)

•Pushbutton switches, illuminated pushbutton switches
selector switches, pilot lights

Item	AH164	AH165
Rated insulation voltage	250V AC/DC	
Ambient temperature (no condensation or no icing)	-20 to +70°C *1	-10 to +70°C *2
Humidity	45 to 85%RH (at -5 to +40°C), no condensation or no icing	
Durability (operations)	Mechanical	Pushbutton switch Momentary action: 1 million Alternate action: 250,000 Push-lock, turn-reset: 100,000 Selector switch: 250,000 *3 100,000 (220V AC 0.7A)
	Electrical	
Dielectric strength	2000V AC, 1 minute (Between lamp and contact terminals: 1500V AC, 1 minute)	
Conditional short-circuit current	1000A	
Short-circuit protective device	Fuse 1A *4	
Pollution degree	3	
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm *5 Constant: 16.7Hz, double amplitude 3mm	
Shock	Malfunction durability: 100m/s ² *6 Mechanical durability: 500m/s ²	
Operating frequency	1200 operation/hour (on-load factor: 40%)	
Insulation resistance	100MΩ or more (500V DC megger)	
Degree of protection	IP40	IP65

Notes: *1 For illuminated pushbutton switch and pilot light: -20 to +55°C

*2 For illuminated pushbutton switch and pilot light: -10 to +55°C

*3 Key insertion/removal durability for selector switch key types: 10,000

*4 AH165-V, V1, JM, RJM, V5, V6 types: Fuse 5A

*5 Emergency stop type: 10 to 500Hz, double amplitude 0.7mm
(acceleration 50m/s²), according to the test condition of EN60947-5-5
(1998)

*6 Emergency stop type: 150m/s²

•Buzzers

Item	AH164-TX	AH164-TX1
Rated insulation voltage	60V AC/DC	
Operating voltage	6V AC, 6V DC, 12 to 24V AC/DC 35 to 48V AC/DC	
Sound level	80dB (0.1m) 60dB(1m)	90dB (0.1m) 70dB(1m)
Durability	1000h	
Frequency	2 ±0.5kHz	2.4 to 3.3kHz
Intermittent cycle	Approx. 170 cycle/minute	
Current consumption	7mA(24, 48V DC) 15mA(6V DC) 20mA (6, 24V AC) 30mA (48V AC)	15mA (24, 48V DC) 25mA (6V DC) 30mA (24V AC) 40mA (48V AC) 50mA (6V AC)
Dielectric strength	1000V AC, 1 minute	
Insulation resistance	100MΩ or more (500V DC megger)	
Ambient temperature	-20 to +60°C (no condensation or no icing)	
Humidity	45 to 85%RH (at -5 to +40°C)	
Operator protection	IP00	

Item	AH164-TX2	AH165-X
Rated insulation voltage	60V AC/DC	
Operating voltage	6V AC/DC, 12 to 24V AC/DC 35 to 48V AC/DC	
Sound level	70dB to 90dB (0.1m) 50dB to 70dB (1m)	60dB to 80dB (0.1m) 40dB to 60dB (1m)
Durability	1000h	
Frequency	2 ±0.5kHz	2.4 to 3.3kHz
Intermittent cycle	Approx. 170 cycle/minute	
Current consumption	30mA (6V DC) 20mA (24, 48V DC) 40mA (6, 24, 48V AC)	
Dielectric strength	1000V AC, 1 minute	
Insulation resistance	100MΩ or more (500V DC megger)	
Ambient temperature	-20 to +60°C (no condensation or no icing)	
Humidity	45 to 85%RH (at -5 to +40°C)	
Degree of protection	IP00	IP54

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Ratings and specifications

■ Contact ratings

•UL/CSA standards

Rated thermal current	Rated operational voltage	Maximum current	
		AC (Res. load)	DC (Res. load)
5A	24V 125V 250V	— — 5.0A	1.0A 0.2A —

•EN standards (TÜV approved)

Rated thermal current	Rated operational voltage	Rated operational current				
		AC 15 (Ind. load)	AC 13 (Ind. load)	AC 12 (Res. load)	DC 13 (Ind. load)	DC 12 (Res. load)
5A	24V 100 to 120V 100 to 125V 200 to 240V	— 0.3A — 0.3A	— 1.0A — 0.7A	— 1.5A — 1.0A	0.7A — 0.15A —	1.0A — 0.2A —

■ Lamp ratings

Rated operational voltage	Consumption		
	LED DC	Incandescent AC/DC	Neon AC
5V	14mA (Yellow: 28mA)	0.45W (6V)	—
6V	14mA (Yellow: 28mA)	—	—
12V	14mA	0.55W (14V)	—
24V	14mA	0.55W (28V)	—
110V	—	—	0.19VA
120V	—	—	0.21VA
220V	—	—	0.38VA
240V	—	—	0.42VA

Notes: • With transformer (LED): 1.5VA/110, 220V
 • With transformer (Incandescent): 2VA/110, 220V
 • For the incandescent lamps, the values in parentheses indicate the rated voltage of the lamps.

■ Contact reliability

FUJI has confirmed that the unit can be used in 1mA circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

Illuminated Pushbuttons

AH164 and AH165

■ Illuminated pushbutton switches/without transformer

Operator	Lamp	Voltage	Contact	Momentary action		Alternate action	
				AH164 type	AH165 (Oil-tight) type	AH164 type	AH165 (Oil-tight) type
Extended round head  SK-1103	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-L□11E3 AH164-L□22E3 AH164-L□33E3	AH165-L□11E3 AH165-L□22E3 AH165-L□33E3	AH164-L5□11E3 AH164-L5□22E3 AH164-L5□33E3	AH165-L5□11E3 AH165-L5□22E3 AH165-L5□33E3
	Spot LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-L□11E2 AH164-L□22E2 AH164-L□33E2	AH165-L□11E2 AH165-L□22E2 AH165-L□33E2	AH164-L5□11E2 AH164-L5□22E2 AH164-L5□33E2	AH165-L5□11E2 AH165-L5□22E2 AH165-L5□33E2
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-L□11E AH164-L□22E AH164-L□33E	AH165-L□11E AH165-L□22E AH165-L□33E	AH164-L5□11E AH164-L5□22E AH164-L5□33E	AH165-L5□11E AH165-L5□22E AH165-L5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-L□11H1 AH164-L□22H1 AH164-L□33H1	AH165-L□11H1 AH165-L□22H1 AH165-L□33H1	AH164-L5□11H1 AH164-L5□22H1 AH164-L5□33H1	AH165-L5□11H1 AH165-L5□22H1 AH165-L5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-L□11M1 AH164-L□22M1 AH164-L□33M1	AH165-L□11M1 AH165-L□22M1 AH165-L□33M1	AH164-L5□11M1 AH164-L5□22M1 AH164-L5□33M1	AH165-L5□11M1 AH165-L5□22M1 AH165-L5□33M1
	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SL□11E3 AH164-SL□22E3 AH164-SL□33E3	AH165-SL□11E3 AH165-SL□22E3 AH165-SL□33E3	AH164-SL5□11E3 AH164-SL5□22E3 AH164-SL5□33E3	AH165-SL5□11E3 AH165-SL5□22E3 AH165-SL5□33E3
	Spot LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SL□11E2 AH164-SL□22E2 AH164-SL□33E2	AH165-SL□11E2 AH165-SL□22E2 AH165-SL□33E2	AH164-SL5□11E2 AH164-SL5□22E2 AH164-SL5□33E2	AH165-SL5□11E2 AH165-SL5□22E2 AH165-SL5□33E2
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SL□11E AH164-SL□22E AH164-SL□33E	AH165-SL□11E AH165-SL□22E AH165-SL□33E	AH164-SL5□11E AH164-SL5□22E AH164-SL5□33E	AH165-SL5□11E AH165-SL5□22E AH165-SL5□33E
Flush square head  SK-1102	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SL□11H1 AH164-SL□22H1 AH164-SL□33H1	AH165-SL□11H1 AH165-SL□22H1 AH165-SL□33H1	AH164-SL5□11H1 AH164-SL5□22H1 AH164-SL5□33H1	AH165-SL5□11H1 AH165-SL5□22H1 AH165-SL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SL□11M1 AH164-SL□22M1 AH164-SL□33M1	AH165-SL□11M1 AH165-SL□22M1 AH165-SL□33M1	AH164-SL5□11M1 AH164-SL5□22M1 AH164-SL5□33M1	AH165-SL5□11M1 AH165-SL5□22M1 AH165-SL5□33M1
	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E3 AH164-TL□22E3 AH164-TL□33E3	AH165-TL□11E3 AH165-TL□22E3 AH165-TL□33E3	AH164-TL5□11E3 AH164-TL5□22E3 AH164-TL5□33E3	AH165-TL5□11E3 AH165-TL5□22E3 AH165-TL5□33E3
	Spot LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E2 AH164-TL□22E2 AH164-TL□33E2	AH165-TL□11E2 AH165-TL□22E2 AH165-TL□33E2	AH164-TL5□11E2 AH164-TL5□22E2 AH164-TL5□33E2	AH165-TL5□11E2 AH165-TL5□22E2 AH165-TL5□33E2
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E AH164-TL□22E AH164-TL□33E	AH165-TL□11E AH165-TL□22E AH165-TL□33E	AH164-TL5□11E AH164-TL5□22E AH164-TL5□33E	AH165-TL5□11E AH165-TL5□22E AH165-TL5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11H1 AH164-TL□22H1 AH164-TL□33H1	AH165-TL□11H1 AH165-TL□22H1 AH165-TL□33H1	AH164-TL5□11H1 AH164-TL5□22H1 AH164-TL5□33H1	AH165-TL5□11H1 AH165-TL5□22H1 AH165-TL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11M1 AH164-TL□22M1 AH164-TL□33M1	AH165-TL□11M1 AH165-TL□22M1 AH165-TL□33M1	AH164-TL5□11M1 AH164-TL5□22M1 AH164-TL5□33M1	AH165-TL5□11M1 AH165-TL5□22M1 AH165-TL5□33M1
	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E3 AH164-TL□22E3 AH164-TL□33E3	AH165-TL□11E3 AH165-TL□22E3 AH165-TL□33E3	AH164-TL5□11E3 AH164-TL5□22E3 AH164-TL5□33E3	AH165-TL5□11E3 AH165-TL5□22E3 AH165-TL5□33E3
Flush rectangular head  SK-1100	Spot LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E2 AH164-TL□22E2 AH164-TL□33E2	AH165-TL□11E2 AH165-TL□22E2 AH165-TL□33E2	AH164-TL5□11E2 AH164-TL5□22E2 AH164-TL5□33E2	AH165-TL5□11E2 AH165-TL5□22E2 AH165-TL5□33E2
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E AH164-TL□22E AH164-TL□33E	AH165-TL□11E AH165-TL□22E AH165-TL□33E	AH164-TL5□11E AH164-TL5□22E AH164-TL5□33E	AH165-TL5□11E AH165-TL5□22E AH165-TL5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11H1 AH164-TL□22H1 AH164-TL□33H1	AH165-TL□11H1 AH165-TL□22H1 AH165-TL□33H1	AH164-TL5□11H1 AH164-TL5□22H1 AH164-TL5□33H1	AH165-TL5□11H1 AH165-TL5□22H1 AH165-TL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11M1 AH164-TL□22M1 AH164-TL□33M1	AH165-TL□11M1 AH165-TL□22M1 AH165-TL□33M1	AH164-TL5□11M1 AH164-TL5□22M1 AH164-TL5□33M1	AH165-TL5□11M1 AH165-TL5□22M1 AH165-TL5□33M1
	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E3 AH164-TL□22E3 AH164-TL□33E3	AH165-TL□11E3 AH165-TL□22E3 AH165-TL□33E3	AH164-TL5□11E3 AH164-TL5□22E3 AH164-TL5□33E3	AH165-TL5□11E3 AH165-TL5□22E3 AH165-TL5□33E3
	Spot LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E2 AH164-TL□22E2 AH164-TL□33E2	AH165-TL□11E2 AH165-TL□22E2 AH165-TL□33E2	AH164-TL5□11E2 AH164-TL5□22E2 AH164-TL5□33E2	AH165-TL5□11E2 AH165-TL5□22E2 AH165-TL5□33E2
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11E AH164-TL□22E AH164-TL□33E	AH165-TL□11E AH165-TL□22E AH165-TL□33E	AH164-TL5□11E AH164-TL5□22E AH164-TL5□33E	AH165-TL5□11E AH165-TL5□22E AH165-TL5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11H1 AH164-TL□22H1 AH164-TL□33H1	AH165-TL□11H1 AH165-TL□22H1 AH165-TL□33H1	AH164-TL5□11H1 AH164-TL5□22H1 AH164-TL5□33H1	AH165-TL5□11H1 AH165-TL5□22H1 AH165-TL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TL□11M1 AH164-TL□22M1 AH164-TL□33M1	AH165-TL□11M1 AH165-TL□22M1 AH165-TL□33M1	AH164-TL5□11M1 AH164-TL5□22M1 AH164-TL5□33M1	AH165-TL5□11M1 AH165-TL5□22M1 AH165-TL5□33M1

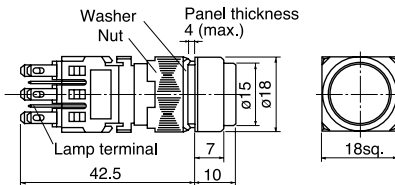
Note: Replace the □ mark by the button color code, see page 137.

Illuminated Pushbuttons AH164 and AH165

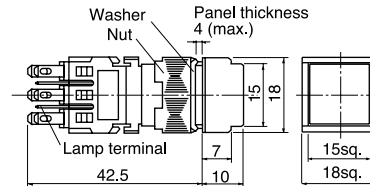
Operator	Lamp	Voltage	Contact	Momentary action		Alternate action	
				AH164 type	AH165 (oil-tight) type	AH164 type	AH165 (oil-tight) type
Flush rectangular head with guard  SK-1101	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TGL□11E3 AH164-TGL□22E3 AH164-TGL□33E3	AH165-TGL□11E3 AH165-TGL□22E3 AH165-TGL□33E3	AH164-TGL5□11E3 AH164-TGL5□22E3 AH164-TGL5□33E3	AH165-TGL5□11E3 AH165-TGL5□22E3 AH165-TGL5□33E3
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TGL□11E AH164-TGL□22E AH164-TGL□33E	AH165-TGL□11E AH165-TGL□22E AH165-TGL□33E	AH164-TGL5□11E AH164-TGL5□22E AH164-TGL5□33E	AH165-TGL5□11E AH165-TGL5□22E AH165-TGL5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TGL□11H1 AH164-TGL□22H1 AH164-TGL□33H1	AH165-TGL□11H1 AH165-TGL□22H1 AH165-TGL□33H1	AH164-TGL5□11H1 AH164-TGL5□22H1 AH164-TGL5□33H1	AH165-TGL5□11H1 AH165-TGL5□22H1 AH165-TGL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TGL□11M1 AH164-TGL□22M1 AH164-TGL□33M1	AH165-TGL□11M1 AH165-TGL□22M1 AH165-TGL□33M1	AH164-TGL5□11M1 AH164-TGL5□22M1 AH164-TGL5□33M1	AH165-TGL5□11M1 AH165-TGL5□22M1 AH165-TGL5□33M1
Flush square head with guard  AF90-301	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SGL□11E3 AH164-SGL□22E3 AH164-SGL□33E3	AH165-SGL□11E3 AH165-SGL□22E3 AH165-SGL□33E3	AH164-SGL5□11E3 AH164-SGL5□22E3 AH164-SGL5□33E3	AH165-SGL5□11E3 AH165-SGL5□22E3 AH165-SGL5□33E3
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SGL□11E AH164-SGL□22E AH164-SGL□33E	AH165-SGL□11E AH165-SGL□22E AH165-SGL□33E	AH164-SGL5□11E AH164-SGL5□22E AH164-SGL5□33E	AH165-SGL5□11E AH165-SGL5□22E AH165-SGL5□33E
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SGL□11H1 AH164-SGL□22H1 AH164-SGL□33H1	AH165-SGL□11H1 AH165-SGL□22H1 AH165-SGL□33H1	AH164-SGL5□11H1 AH164-SGL5□22H1 AH164-SGL5□33H1	AH165-SGL5□11H1 AH165-SGL5□22H1 AH165-SGL5□33H1
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SGL□11M1 AH164-SGL□22M1 AH164-SGL□33M1	AH165-SGL□11M1 AH165-SGL□22M1 AH165-SGL□33M1	AH164-SGL5□11M1 AH164-SGL5□22M1 AH164-SGL5□33M1	AH165-SGL5□11M1 AH165-SGL5□22M1 AH165-SGL5□33M1

■ Dimensions, mm

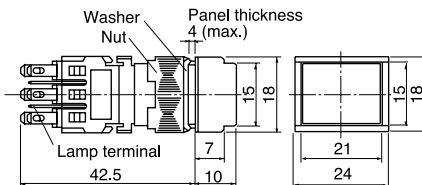
L, L5



SL, SL5

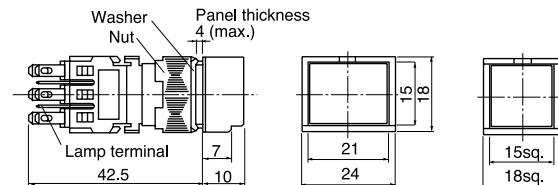


TL, TL5



TGL, TGL5

SGL, SGL5



• Button color

Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

- The color lens is made of a tinted transparent material.
- A white illuminated pushbutton is fitted with a transparent color lens. (Except the neon lamp)
- With wire-wrap pin terminals have a depth of 47mm.

• Lamp voltage

Voltages other than above are available

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
K	—	—	120V AC
P	—	—	240V AC

Illuminated Pushbuttons AH164 and AH165

■ Illuminated pushbutton switches/without transformer (Red/green LED)

Operator	Lamp	Voltage	Contact	Momentary action		Alternate action	
				AH164 type	AH165 (oil-tight) type	AH164 type	AH165 (oil-tight) type
Extended round head  SK-1103	Red/green LED	24V DC	1NO+1NC	AH164-LRG11E3	AH165-LRG11E3	AH164-L5RG11E3	AH165-L5RG11E3
			2NO+2NC	AH164-LRG22E3	AH165-LRG22E3	AH164-L5RG22E3	AH165-L5RG22E3
			3NO+3NC	AH164-LRG33E3	AH165-LRG33E3	AH164-L5RG33E3	AH165-L5RG33E3
Flush square head  SK-1102	Red/green LED	24V DC	1NO+1NC	AH164-SLRG11E3	AH165-SLRG11E3	AH164-SL5RG11E3	AH165-SL5RG11E3
			2NO+2NC	AH164-SLRG22E3	AH165-SLRG22E3	AH164-SL5RG22E3	AH165-SL5RG22E3
			3NO+3NC	AH164-SLRG33E3	AH165-SLRG33E3	AH164-SL5RG33E3	AH165-SL5RG33E3
Flush rectangular head  SK-1100	Red/green LED	24V DC	1NO+1NC	AH164-TLRG11E3	AH165-TLRG11E3	AH164-TL5RG11E3	AH165-TL5RG11E3
			2NO+2NC	AH164-TLRG22E3	AH165-TLRG22E3	AH164-TL5RG22E3	AH165-TL5RG22E3
			3NO+3NC	AH164-TLRG33E3	AH165-TLRG33E3	AH164-TL5RG33E3	AH165-TL5RG33E3
Flush square head with guard  AF90-301	Red/green LED	24V DC	1NO+1NC	AH164-SGLRG11E3	AH165-SGLRG11E3	AH164-SGL5RG11E3	AH165-SGL5RG11E3
			2NO+2NC	AH164-SGLRG22E3	AH165-SGLRG22E3	AH164-SGL5RG22E3	AH165-SGL5RG22E3
			3NO+3NC	AH164-SGLRG33E3	AH165-SGLRG33E3	AH164-SGL5RG33E3	AH165-SGL5RG33E3
Flush rectangular head with guard  SK-1101	Red/green LED	24V DC	1NO+1NC	AH164-TGLRG11E3	AH165-TGLRG11E3	AH164-TGL5RG11E3	AH165-TGL5RG11E3
			2NO+2NC	AH164-TGLRG22E3	AH165-TGLRG22E3	AH164-TGL5RG22E3	AH165-TGL5RG22E3
			3NO+3NC	AH164-TGLRG33E3	AH165-TGLRG33E3	AH164-TGL5RG33E3	AH165-TGL5RG33E3

Note: • The only color codes used for red/green LEDs are R and G. The color lens is transparent.
 Red/green LEDs do not have high-brightness specifications.
 • 24V DC only

Illuminated Pushbuttons AH164 and AH165

■ Illuminated pushbutton switches/with transformer

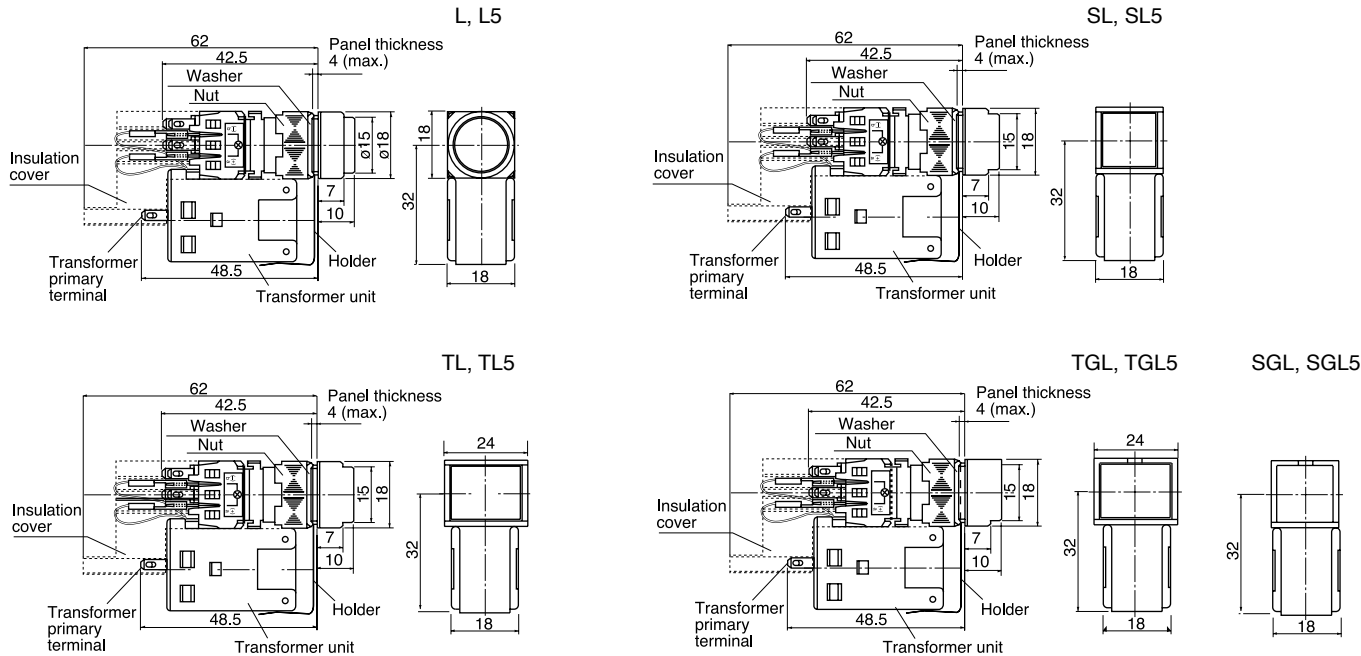
Operator	Lamp	Voltage	Contact	Momentary action		Alternate action		
				AH164 type	AH165 (oil-tight) type	AH164 type	AH165 (oil-tight) type	
Extended round head  AF90-945	Flat LED	■ Voltage code H: 100-110V AC M: 200-220V AC	1NO+1NC	AH164-L□11■3	AH165-L□11■3	AH164-L5□11■3	AH165-L5□11■3	
			2NO+2NC	AH164-L□22■3	AH165-L□22■3	AH164-L5□22■3	AH165-L5□22■3	
			Incandes-cent	1NO+1NC	AH164-L□11■	AH165-L□11■	AH164-L5□11■	AH165-L5□11■
				2NO+2NC	AH164-L□22■	AH165-L□22■	AH164-L5□22■	AH165-L5□22■
Flush square head  AF90-946	Flat LED	■ Voltage code H: 100-110V AC M: 200-220V AC	1NO+1NC	AH164-SL□11■3	AH165-SL□11■3	AH164-SL5□11■3	AH165-SL5□11■3	
			2NO+2NC	AH164-SL□22■3	AH165-SL□22■3	AH164-SL5□22■3	AH165-SL5□22■3	
			Incandes-cent	1NO+1NC	AH164-SL□11■	AH165-SL□11■	AH164-SL5□11■	AH165-SL5□11■
				2NO+2NC	AH164-SL□22■	AH165-SL□22■	AH164-SL5□22■	AH165-SL5□22■
Flush rectangular head  AF90-947	Flat LED	■ Voltage code H: 100-110V AC M: 200-220V AC	1NO+1NC	AH164-TL□11■3	AH165-TL□11■3	AH164-TL5□11■3	AH165-TL5□11■3	
			2NO+2NC	AH164-TL□22■3	AH165-TL□22■3	AH164-TL5□22■3	AH165-TL5□22■3	
			Incandes-cent	1NO+1NC	AH164-TL□11■	AH165-TL□11■	AH164-TL5□11■	AH165-TL5□11■
				2NO+2NC	AH164-TL□22■	AH165-TL□22■	AH164-TL5□22■	AH165-TL5□22■
Flush rectangular head with guard  AF90-941	Flat LED	■ Voltage code H: 100-110V AC M: 200-220V AC	1NO+1NC	AH164-TGL□11■3	AH165-TGL□11■3	AH164-TGL5□11■3	AH165-TGL5□11■3	
			2NO+2NC	AH164-TGL□22■3	AH165-TGL□22■3	AH164-TGL5□22■3	AH165-TGL5□22■3	
			Incandes-cent	1NO+1NC	AH164-TGL□11■	AH165-TGL□11■	AH164-TGL5□11■	AH165-TGL5□11■
				2NO+2NC	AH164-TGL□22■	AH165-TGL□22■	AH164-TGL5□22■	AH165-TGL5□22■
Flush square head with guard  AF90-948	Flat LED	■ Voltage code H: 100-110V AC M: 200-220V AC	1NO+1NC	AH164-SGL□11■3	AH165-SGL□11■3	AH164-SGL5□11■3	AH165-SGL5□11■3	
			2NO+2NC	AH164-SGL□22■3	AH165-SGL□22■3	AH164-SGL5□22■3	AH165-SGL5□22■3	
			Incandes-cent	1NO+1NC	AH164-SGL□11■	AH165-SGL□11■	AH164-SGL5□11■	AH165-SGL5□11■
				2NO+2NC	AH164-SGL□22■	AH165-SGL□22■	AH164-SGL5□22■	AH165-SGL5□22■

Note: Replace the □ mark by the button color code, see page 140.

Illuminated Pushbuttons

AH164 and AH165

■ Dimensions, mm

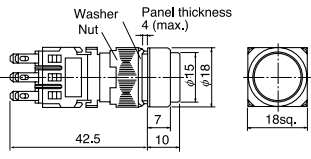
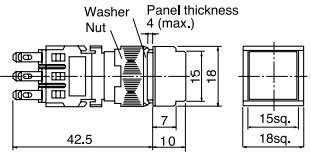
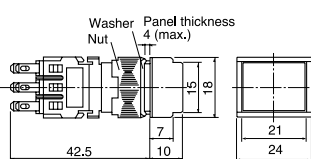
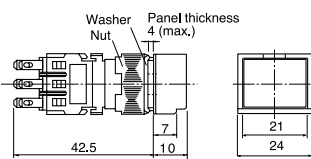
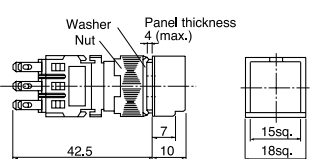
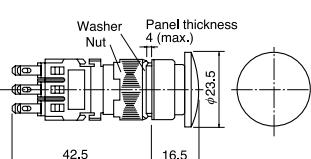
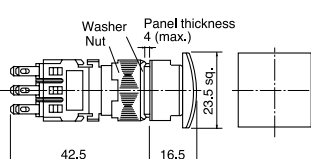
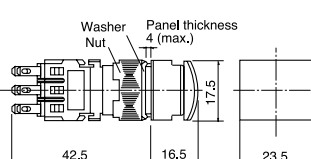


•Button color

Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

- The color lens is made of a tinted transparent material.

■ Pushbutton switches

Operator	Contact	Momentary action		Alternate action		Dimensions, mm
		AH164 type	AH165 (oil-tight) type	AH164 type	AH165 (oil-tight) type	
Extended round head  SK-1103	1NO+1NC 2NO+2NC 3NO+3NC	AH164-E□11 AH164-E□22 AH164-E□33	AH165-E□11 AH165-E□22 AH165-E□33	AH164-E5□11 AH164-E5□22 AH164-E5□33	AH165-E5□11 AH165-E5□22 AH165-E5□33	
Flush square head  SK-1102	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SF□11 AH164-SF□22 AH164-SF□33	AH165-SF□11 AH165-SF□22 AH165-SF□33	AH164-SF5□11 AH164-SF5□22 AH164-SF5□33	AH165-SF5□11 AH165-SF5□22 AH165-SF5□33	
Flush rectangular head  SK-1100	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TF□11 AH164-TF□22 AH164-TF□33	AH165-TF□11 AH165-TF□22 AH165-TF□33	AH164-TF5□11 AH164-TF5□22 AH164-TF5□33	AH165-TF5□11 AH165-TF5□22 AH165-TF5□33	
Flush rectangular head with guard  SK-1101	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TGF□11 AH164-TGF□22 AH164-TGF□33	AH165-TGF□11 AH165-TGF□22 AH165-TGF□33	AH164-TGF5□11 AH164-TGF5□22 AH164-TGF5□33	AH165-TGF5□11 AH165-TGF5□22 AH165-TGF5□33	
Flush square head with guard  AF90-301	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SGF□11 AH164-SGF□22 AH164-SGF□33	AH165-SGF□11 AH165-SGF□22 AH165-SGF□33	AH164-SGF5□11 AH164-SGF5□22 AH164-SGF5□33	AH165-SGF5□11 AH165-SGF5□22 AH165-SGF5□33	
Mushroom head  SK-1136	1NO+1NC 2NO+2NC 3NO+3NC	AH164-M□11 AH164-M□22 AH164-M□33	AH165-M□11 AH165-M□22 AH165-M□33	AH164-M5□11 AH164-M5□22 AH164-M5□33	AH165-M5□11 AH165-M5□22 AH165-M5□33	
Convex square head  SK-1134	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SM□11 AH164-SM□22 AH164-SM□33	AH165-SM□11 AH165-SM□22 AH165-SM□33	AH164-SM5□11 AH164-SM5□22 AH164-SM5□33	AH165-SM5□11 AH165-SM5□22 AH165-SM5□33	
Convex rectangular head  SK-1135	1NO+1NC 2NO+2NC 3NO+3NC	AH164-TM□11 AH164-TM□22 AH164-TM□33	AH165-TM□11 AH165-TM□22 AH165-TM□33	AH164-TM5□11 AH164-TM5□22 AH164-TM5□33	AH165-TM5□11 AH165-TM5□22 AH165-TM5□33	

•Button color

Replace the □ mark by the following color code

Color	Green	Red	Black	White	Blue	Yellow	Orange
Code	G	R	B	W	S	Y	O

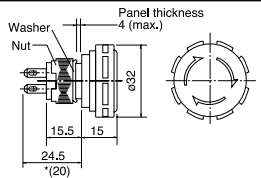
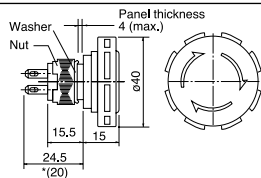
- The color lens is made of a tinted transparent material. (Except the M, SM, TM types)
- A white pushbutton is fitted with a transparent color lens.(Except the M, SM, TM types) A black pushbutton consists of a transparent color lens and an attached black legend plate. (Except M, SM, TM types)
- With wire-wrap pin terminals have a depth of 47mm.

Pushbuttons

AH165

■ Pushbutton switches

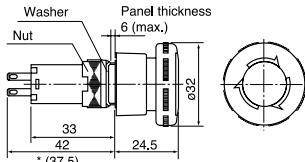
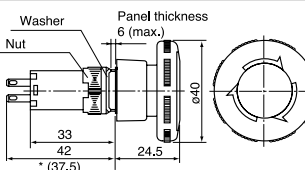
⊖ (Direct opening action)

Operator	Button color	Contact	Terminal	AH165 (oil-tight) type	Dimensions, mm
Push-lock, turn-reset (32mm dia.)  AF91-584	Red	1NC	Solder/Tab Solder	AH165-VR01 (AH165-VR01-S)	
		2NC		AH165-VR02 (AH165-VR02-S)	
Push-lock, turn-reset (40mm dia.)  AF91-583		1NC		AH165-V1R01 (AH165-V1R01-S)	
		2NC		AH165-V1R02 (AH165-V1R02-S)	

Notes: * () For switch with solder terminal.
 • Contact arrangements indicated in the table can be supplied.
 • Product with no trigger action mechanism.

■ Emergency stop pushbutton switches

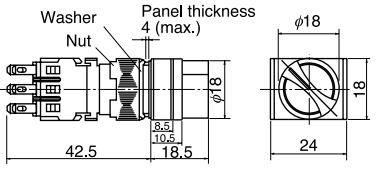
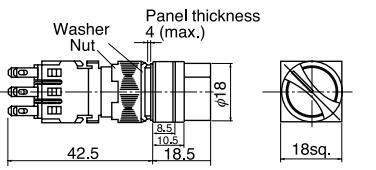
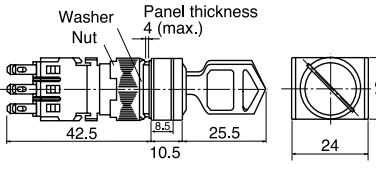
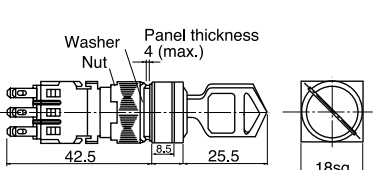
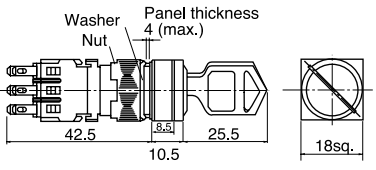
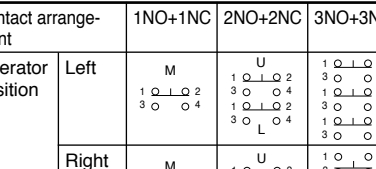
⊖ (Direct opening action), conform to EN418

Operator	Button color	Contact	Terminal	AH165 (oil-tight) type	Dimensions, mm
Push-lock, turn-reset (32mm dia.)  AF97-232	Red	1NC	Solder/Tab Solder	AH165-V5R01 (AH165-V5R01-S)	
2NC		AH165-V5R02 (AH165-V5R02-S)			
Push-lock, turn-reset (40mm dia.)  AF97-231		1NC		AH165-V6R01 (AH165-V6R01-S)	
2NC		AH165-V6R02 (AH165-V6R02-S)			

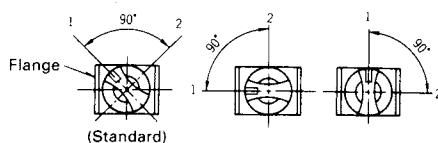
Notes: * () For switch with solder terminal.
 • Contact arrangements indicated in the table can be supplied.

Selector Switches AH164 and AH165

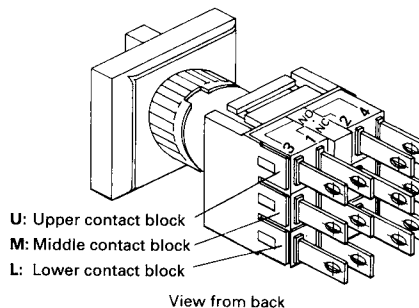
■ Selector switches/2-position (90-degree)

Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel  AF89-564	Maintained	—	1NO+1NC 2NO+2NC 3NO+3NC	AH164-P2B11 AH164-P2B22 AH164-P2B33	AH165-P2B11 AH165-P2B22 AH165-P2B33	
	Spring return 	—	1NO+1NC 2NO+2NC 3NO+3NC	AH164-P0B11 AH164-P0B22 AH164-P0B33	AH165-P0B11 AH165-P0B22 AH165-P0B33	
Knob with square bezel  AF89-563	Maintained	—	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SP2B11 AH164-SP2B22 AH164-SP2B33	AH165-SP2B11 AH165-SP2B22 AH165-SP2B33	
	Spring return 	—	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SP0B11 AH164-SP0B22 AH164-SP0B33	AH165-SP0B11 AH165-SP0B22 AH165-SP0B33	
Key with rectangular bezel  AF89-561	Maintained	 A	1NO+1NC 2NO+2NC 3NO+3NC	AH164-J2A11A AH164-J2A22A AH164-J2A33A	AH165-J2A11A AH165-J2A22A AH165-J2A33A	
		 B	1NO+1NC 2NO+2NC 3NO+3NC	AH164-J2B11A AH164-J2B22A AH164-J2B33A	AH165-J2B11A AH165-J2B22A AH165-J2B33A	
		 D	1NO+1NC 2NO+2NC 3NO+3NC	AH164-J2D11A AH164-J2D22A AH164-J2D33A	AH165-J2D11A AH165-J2D22A AH165-J2D33A	
	Spring return 	 A	1NO+1NC 2NO+2NC 3NO+3NC	AH164-J0A11A AH164-J0A22A AH164-J0A33A	AH165-J0A11A AH165-J0A22A AH165-J0A33A	
	Maintained	 A	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SJ2A11A AH164-SJ2A22A AH164-SJ2A33A	AH165-SJ2A11A AH165-SJ2A22A AH165-SJ2A33A	
		 B	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SJ2B11A AH164-SJ2B22A AH164-SJ2B33A	AH165-SJ2B11A AH165-SJ2B22A AH165-SJ2B33A	
		 D	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SJ2D11A AH164-SJ2D22A AH164-SJ2D33A	AH165-SJ2D11A AH165-SJ2D22A AH165-SJ2D33A	
Key with square bezel  AF89-562	Spring return 	 A	1NO+1NC 2NO+2NC 3NO+3NC	AH164-SJ0A11A AH164-SJ0A22A AH164-SJ0A33A	AH165-SJ0A11A AH165-SJ0A22A AH165-SJ0A33A	

- The operating angle range can be changed as shown below by setting the attached flange shifted by 45° in combination with the contact block.
In this case, the minimum mounting pitch is 26mm because the contact block is shifted by 45° from the flange.



• Contact block position



• Contact arrangement and operator position: 2-position selector switch

Contact arrangement		1NO+1NC	2NO+2NC	3NO+3NC
Operator position	Left	M 1 0 1 0 2 3 0 0 4	U 1 0 1 0 2 3 0 0 4 L 0 4	U 1 0 1 0 2 3 0 0 4 M 0 4 L 0 4
	Right	M 1 0 1 0 2 3 0 0 4	U 1 0 1 0 2 3 0 0 4 L 0 4	U 1 0 1 0 2 3 0 0 4 M 0 4 L 0 4

3-position selector switch

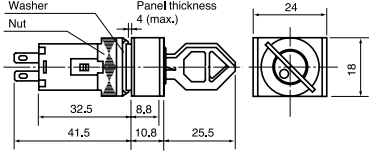
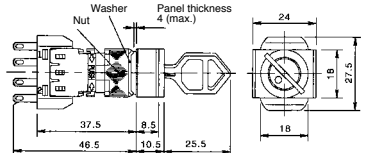
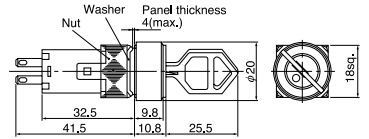
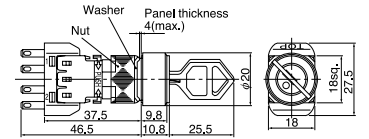
Contact arrangement		2NO+2NC	3NO+3NC
Operator position	Left	U 1 0 1 0 2 3 0 0 4 L 0 4	U 1 0 1 0 2 3 0 0 4 M 0 4 L 0 4
	Center	U 1 0 1 0 2 3 0 0 4 L 0 4	U 1 0 1 0 2 3 0 0 4 M 0 4 L 0 4
	Right	U 1 0 1 0 2 3 0 0 4 L 0 4	U 1 0 1 0 2 3 0 0 4 M 0 4 L 0 4

- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- With wire-wrap pin terminals have a depth of 47mm.

Selector Switches AH165

■ Selector switches/2-position (90-degree)

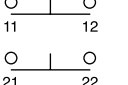
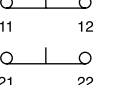
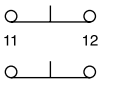
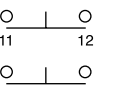
⊖ (Direct opening action)

Operator	Operation	Key removable position	Contact	AH165 (oil-tight) type	Dimensions, mm
Key with rectangular bezel  AF95-57  AF97-334	Maintained	A ⊖	1NO+1NC	AH165-JM2A11A	
		B ⊗		AH165-JM2B11A	
		D ⊕		AH165-JM2D11A	
		A ⊖	2NO+2NC	AH165-JM2A22A	
		B ⊗		AH165-JM2B22A	
		D ⊕		AH165-JM2D22A	
Key with round bezel  AF99-320	Maintained	A ⊖	1NO+1NC	AH165-RJM2A11A	
		B ⊗		AH165-RJM2B11A	
		D ⊕		AH165-RJM2D11A	
		A ⊖	2NO+2NC	AH165-RJM2A22A	
		B ⊗		AH165-RJM2B22A	
		D ⊕		AH165-RJM2D22A	

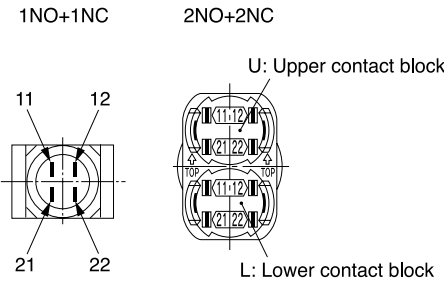
• There are 6 available key types; A, B, C, D, E and F. Standard key code is A.

• Contact arrangement and operator positions: 2-position selector switch

Contact arrangement	1NO+1NC	
Operator position	Left	
	Right	

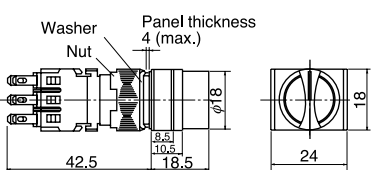
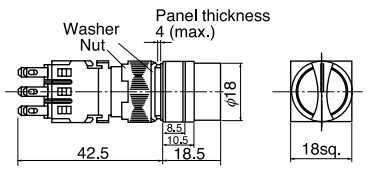
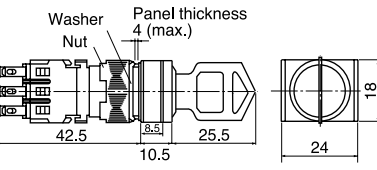
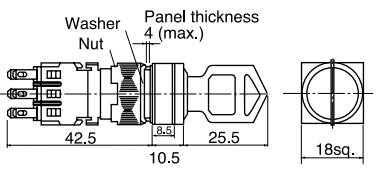
Contact arrangement	2NO+2NC			
Operator position	Left	U	L	
				
	Right			

• Terminal number



Selector Switches AH164 and AH165

■ Selector switches/3-position (90-degree)

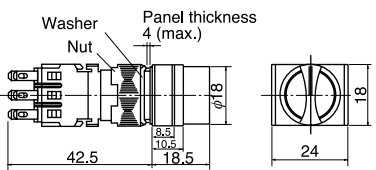
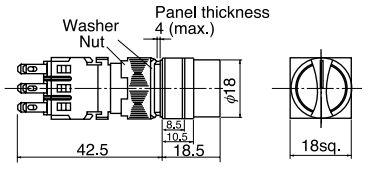
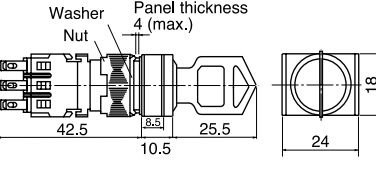
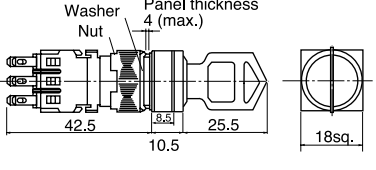
Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm		
Knob with rectangular bezel  SK-1099	Maintained	—	2NO+2NC 3NO+3NC	AH164-P3B22 AH164-P3B33	AH165-P3B22 AH165-P3B33			
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-P6B22 AH164-P6B33	AH165-P6B22 AH165-P6B33			
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-P7B22 AH164-P7B33	AH165-P7B22 AH165-P7B33			
	Spring return	—	2NO+2NC 3NO+3NC	AH164-P1B22 AH164-P1B33	AH165-P1B22 AH165-P1B33			
Knob with square bezel  SK-1133	Maintained	—	2NO+2NC 3NO+3NC	AH164-SP3B22 AH164-SP3B33	AH165-SP3B22 AH165-SP3B33			
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-SP6B22 AH164-SP6B33	AH165-SP6B22 AH165-SP6B33			
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-SP7B22 AH164-SP7B33	AH165-SP7B22 AH165-SP7B33			
	Spring return	—	2NO+2NC 3NO+3NC	AH164-SP1B22 AH164-SP1B33	AH165-SP1B22 AH165-SP1B33			
Key with rectangular bezel  SK-1098	Maintained*	⊖ A	2NO+2NC 3NO+3NC	AH164-J3A22A AH164-J3A33A	AH165-J3A22A AH165-J3A33A			
		Ⓜ E	2NO+2NC 3NO+3NC	AH164-J3E22A AH164-J3E33A	AH165-J3E22A AH165-J3E33A			
		⊖ D	2NO+2NC 3NO+3NC	AH164-J3D22A AH164-J3D33A	AH165-J3D22A AH165-J3D33A			
		⊕ C	2NO+2NC 3NO+3NC	AH164-J3C22A AH164-J3C33A	AH165-J3C22A AH165-J3C33A			
	Spring/ manual return	Ⓜ E	2NO+2NC 3NO+3NC	AH164-J6E22A AH164-J6E33A	AH165-J6E22A AH165-J6E33A			
		⊖ D	2NO+2NC 3NO+3NC	AH164-J6D22A AH164-J6D33A	AH165-J6D22A AH165-J6D33A			
	Spring/ manual return	⊖ A	2NO+2NC 3NO+3NC	AH164-J7A22A AH164-J7A33A	AH165-J7A22A AH165-J7A33A			
		Ⓜ E	2NO+2NC 3NO+3NC	AH164-J7E22A AH164-J7E33A	AH165-J7E22A AH165-J7E33A			
	Spring return	Ⓜ E	2NO+2NC 3NO+3NC	AH164-J1E22A AH164-J1E33A	AH165-J1E22A AH165-J1E33A			
	Key with square bezel  SK-1132	Maintained*	⊖ A	2NO+2NC 3NO+3NC	AH164-SJ3A22A AH164-SJ3A33A		AH165-SJ3A22A AH165-SJ3A33A	
			Ⓜ E	2NO+2NC 3NO+3NC	AH164-SJ3E22A AH164-SJ3E33A		AH165-SJ3E22A AH165-SJ3E33A	
⊖ D			2NO+2NC 3NO+3NC	AH164-SJ3D22A AH164-SJ3D33A	AH165-SJ3D22A AH165-SJ3D33A			
⊕ C			2NO+2NC 3NO+3NC	AH164-SJ3C22A AH164-SJ3C33A	AH165-SJ3C22A AH165-SJ3C33A			
Spring/ manual return		Ⓜ E	2NO+2NC 3NO+3NC	AH164-SJ6E22A AH164-SJ6E33A	AH165-SJ6E22A AH165-SJ6E33A			
		⊖ D	2NO+2NC 3NO+3NC	AH164-SJ6D22A AH164-SJ6D33A	AH165-SJ6D22A AH165-SJ6D33A			
Spring/ manual return		⊖ A	2NO+2NC 3NO+3NC	AH164-SJ7A22A AH164-SJ7A33A	AH165-SJ7A22A AH165-SJ7A33A			
		Ⓜ E	2NO+2NC 3NO+3NC	AH164-SJ7E22A AH164-SJ7E33A	AH165-SJ7E22A AH165-SJ7E33A			
Spring return		Ⓜ E	2NO+2NC 3NO+3NC	AH164-SJ1E22A AH164-SJ1E33A	AH165-SJ1E22A AH165-SJ1E33A			

- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- Contact arrangement and operator position: *See page 147.*
- Spring return, spring/manual return (spring return): Operation angle 70-degree

- * Available key removable position: Code B ⊖
- With wire-wrap pin terminals have a depth of 47mm.

Selector Switches AH164 and AH165

■ Selector switches/3-position (45-degree)

Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel  SK-1099	Maintained	—	2NO+2NC 3NO+3NC	AH164-PK3B22 AH164-PK3B33	AH165-PK3B22 AH165-PK3B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-PK6B22 AH164-PK6B33	AH165-PK6B22 AH165-PK6B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-PK7B22 AH164-PK7B33	AH165-PK7B22 AH165-PK7B33	
	Spring return	—	2NO+2NC 3NO+3NC	AH164-PK1B22 AH164-PK1B33	AH165-PK1B22 AH165-PK1B33	
Knob with square bezel  SK-1133	Maintained	—	2NO+2NC 3NO+3NC	AH164-SPK3B22 AH164-SPK3B33	AH165-SPK3B22 AH165-SPK3B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-SPK6B22 AH164-SPK6B33	AH165-SPK6B22 AH165-SPK6B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH164-SPK7B22 AH164-SPK7B33	AH165-SPK7B22 AH165-SPK7B33	
	Spring return	—	2NO+2NC 3NO+3NC	AH164-SPK1B22 AH164-SPK1B33	AH165-SPK1B22 AH165-SPK1B33	
Key with rectangular bezel  SK-1098	Maintained	⊖ A	2NO+2NC 3NO+3NC	AH164-JK3A22A AH164-JK3A33A	AH165-JK3A22A AH165-JK3A33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-JK3E22A AH164-JK3E33A	AH165-JK3E22A AH165-JK3E33A	
		⊙ D	2NO+2NC 3NO+3NC	AH164-JK3D22A AH164-JK3D33A	AH165-JK3D22A AH165-JK3D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH164-JK3C22A AH164-JK3C33A	AH165-JK3C22A AH165-JK3C33A	
	Spring/ manual return	⊕ E	2NO+2NC 3NO+3NC	AH164-JK6E22A AH164-JK6E33A	AH165-JK6E22A AH165-JK6E33A	
		⊙ D	2NO+2NC 3NO+3NC	AH164-JK6D22A AH164-JK6D33A	AH165-JK6D22A AH165-JK6D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH164-JK6C22A AH164-JK6C33A	AH165-JK6C22A AH165-JK6C33A	
	Spring/ manual return	⊖ A	2NO+2NC 3NO+3NC	AH164-JK7A22A AH164-JK7A33A	AH165-JK7A22A AH165-JK7A33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-JK7E22A AH164-JK7E33A	AH165-JK7E22A AH165-JK7E33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-JK1E22A AH164-JK1E33A	AH165-JK1E22A AH165-JK1E33A	
	Spring return	⊕ E	2NO+2NC 3NO+3NC	AH164-JK1E22A AH164-JK1E33A	AH165-JK1E22A AH165-JK1E33A	
Key with square bezel  SK-1132	Maintained	⊖ A	2NO+2NC 3NO+3NC	AH164-SJK3A22A AH164-SJK3A33A	AH165-SJK3A22A AH165-SJK3A33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-SJK3E22A AH164-SJK3E33A	AH165-SJK3E22A AH165-SJK3E33A	
		⊙ D	2NO+2NC 3NO+3NC	AH164-SJK3D22A AH164-SJK3D33A	AH165-SJK3D22A AH165-SJK3D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH164-SJK3C22A AH164-SJK3C33A	AH165-SJK3C22A AH165-SJK3C33A	
	Spring/ manual return	⊕ E	2NO+2NC 3NO+3NC	AH164-SJK6E22A AH164-SJK6E33A	AH165-SJK6E22A AH165-SJK6E33A	
		⊙ D	2NO+2NC 3NO+3NC	AH164-SJK6D22A AH164-SJK6D33A	AH165-SJK6D22A AH165-SJK6D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH164-SJK6C22A AH164-SJK6C33A	AH165-SJK6C22A AH165-SJK6C33A	
	Spring/ manual return	⊖ A	2NO+2NC 3NO+3NC	AH164-SJK7A22A AH164-SJK7A33A	AH165-SJK7A22A AH165-SJK7A33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-SJK7E22A AH164-SJK7E33A	AH165-SJK7E22A AH165-SJK7E33A	
		⊕ E	2NO+2NC 3NO+3NC	AH164-SJK1E22A AH164-SJK1E33A	AH165-SJK1E22A AH165-SJK1E33A	
	Spring return	⊕ E	2NO+2NC 3NO+3NC	AH164-SJK1E22A AH164-SJK1E33A	AH165-SJK1E22A AH165-SJK1E33A	

- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- Contact arrangement and operator position: See page 147.

•Key removable positions (JK, SJK)

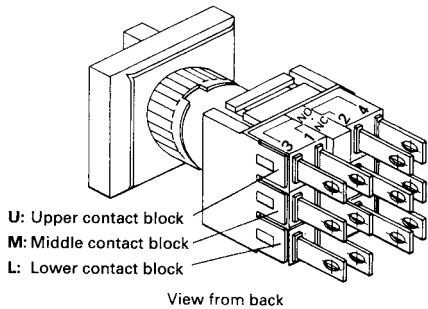
Remvable position							
Code	A	B	C	D	E	F	G

Operation code	Key removable position
3	A, B, C, D, E, F, G
6	D, E, F
7	A, E, G
1	E

•Key code No.

There are 6 available key types; A, B, C, D, E and F.
Standard key code is A.

• Contact block position

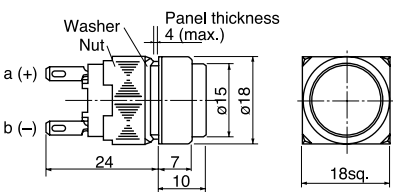
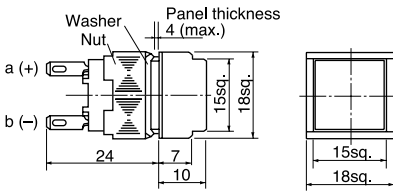
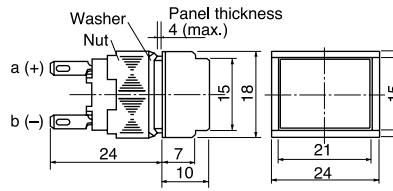
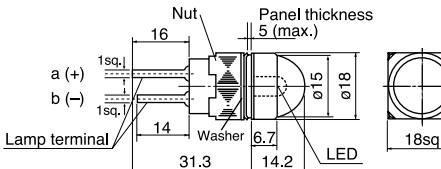


• Contact arrangement and operator position:
3-position selector switch

Contact arrange- ment		2NO+2NC	3NO+3NC
Operator position	Left 	$\begin{matrix} \text{U} & \text{L} & & \\ 1\text{O} & 1\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$	$\begin{matrix} \text{U} & \text{M} & \text{L} & & \\ 1\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$
	Center 	$\begin{matrix} 1\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} & 2\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$	$\begin{matrix} 1\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$
	Right 	$\begin{matrix} 1\text{O} & & 2\text{O} & 1\text{O} & 2\text{O} & 2\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$	$\begin{matrix} 1\text{O} & & 2\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} & 1\text{O} & 2\text{O} \\ 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} & 3\text{O} & 4\text{O} \end{matrix}$

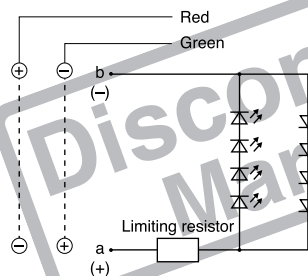
Pilot Lights AH164 and AH165

■ Pilot lights/without transformer

Lens	Lamp	Voltage	AH164 type	AH165 (oil-tight) type	Dimensions, mm
 SK-1139	Flat LED	24V DC	AH164-Z□E3	AH165-Z□E3	
	Spot LED	24V DC	AH164-Z□E2	AH165-Z□E2	
	Red/green LED	24V DC	AH164-ZRGE3	AH165-ZRGE3	
	Incandescent	24V AC/DC	AH164-Z□E	AH165-Z□E	
	Neon	110V AC 220V AC	AH164-Z□H1 AH164-Z□M1	AH165-Z□H1 AH165-Z□M1	
 SK-1138	Flat LED	24V DC	AH164-ZS□E3	AH165-ZS□E3	
	Spot LED	24V DC	AH164-ZS□E2	AH165-ZS□E2	
	Red/green LED	24V DC	AH164-ZSRGE3	AH165-ZSRGE3	
	Incandescent	24V AC/DC	AH164-ZS□E	AH165-ZS□E	
	Neon	110V AC 220V AC	AH164-ZS□H1 AH164-ZS□M1	AH165-ZS□H1 AH165-ZS□M1	
 SK-1137	Flat LED	24V DC	AH164-ZT□E3	AH165-ZT□E3	
	Spot LED	24V DC	AH164-ZT□E2	AH165-ZT□E2	
	Red/green LED	24V DC	AH164-ZTRGE3	AH165-ZTRGE3	
	Incandescent	24V AC/DC	AH164-ZT□E	AH165-ZT□E	
	Neon	110V AC 220V AC	AH164-ZT□H1 AH164-ZT□M1	AH165-ZT□H1 AH165-ZT□M1	
 AF87-45	LED	12V DC	—	AH165-ZM□B2	
		24V DC	—	AH165-ZM□E2	

Note: • The only color codes used for red/green LEDs are R and G. The color lens is transparent.
Red/green LEDs do not have high-brightness specifications.

Relationship between luminous color and terminal



• Lamp voltage

Voltages other than above are available

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
K	—	—	120V AC
P	—	—	240V AC

Note: Except for ZM types and red/green LED types

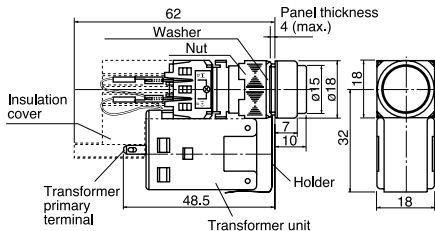
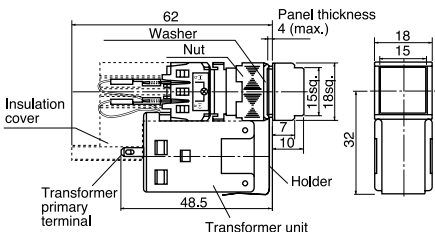
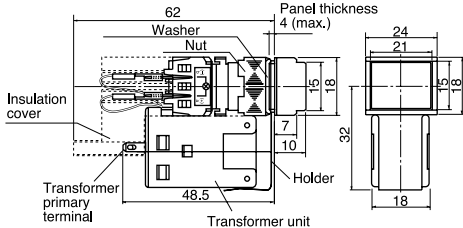
• Lens color

Replace the □ mark by the following lens color code

Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

- The color lens is made of a tinted transparent material.
- A white pilot lights is fitted with a transparent color lens. (Except the neon lamp and dome).
- With wire-wrap pin terminals have a depth of 29mm. (Except for ZM type)

■ Pilot lights/with transformer

Lens	Lamp	Voltage	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Extended square  AF90-944	Flat LED	■ Voltage H: 100-110V AC M: 200-220V AC	AH164-Z ■ ■ 3	AH165-Z ■ ■ 3	
	Incandescent		AH164-Z ■ ■	AH165-Z ■ ■	
Flush square  AF90-943	Flat LED	■ Voltage H: 100-110V AC M: 200-220V AC	AH164-ZS ■ ■ 3	AH165-ZS ■ ■ 3	
	Incandescent		AH164-ZS ■ ■	AH165-ZS ■ ■	
Flush rectangular  AF90-942	Flat LED	■ Voltage H: 100-110V AC M: 200-220V AC	AH164-ZT ■ ■ 3	AH165-ZT ■ ■ 3	
	Incandescent		AH164-ZT ■ ■	AH165-ZT ■ ■	

- **Lens color**

Replace the ☐ mark by the following lens color code

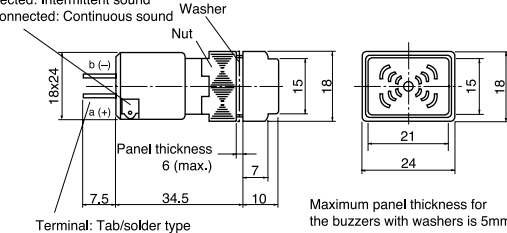
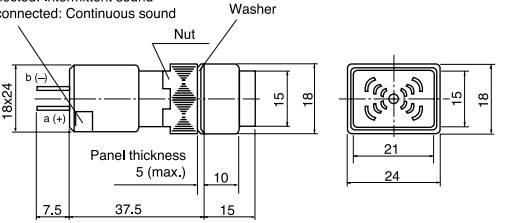
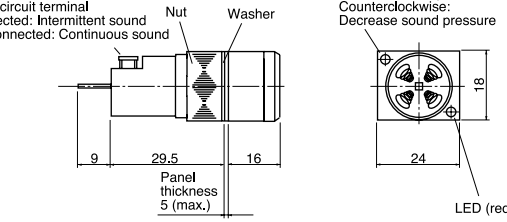
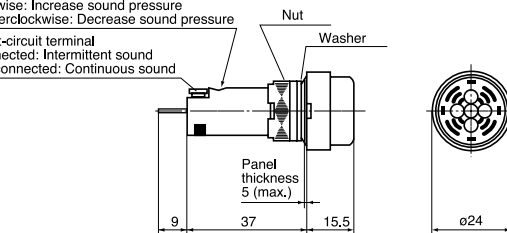
Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

- The color lens is made of a tinted transparent material.
- A white pilot lights is fitted with a transparent color lens.

Buzzers

AH164 and AH165

■ Buzzers

Sound	Operating voltage	Type	Dimensions, mm
Standard  AF87-317	6V AC	AH164-TXBAAC	Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound  Washer Nut Panel thickness 6 (max.) 7.5 34.5 10 15 18 21 24 Maximum panel thickness for the buzzers with washers is 5mm Terminal: Tab/solder type
	6V DC	AH164-TXBADC	
	12 to 24V AC/DC	AH164-TXBE	
	35 to 48V AC/DC	AH164-TXBF	
Loud sound  AF87-44	6V AC	AH164-TX1BAAC	Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound  Washer Nut Panel thickness 5 (max.) 7.5 37.5 10 15 18 21 24
	6V DC	AH164-TX1BADC	
	12 to 24V AC/DC	AH164-TX1BE	
	35 to 48V AC/DC	AH164-TX1BF	
Loud sound with volume control  AF93-297	6V AC/DC	AH164-TX2BA	Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound  Washer Nut Panel thickness 5 (max.) 9 29.5 16 18 24 Volume Clockwise: Increase sound pressure Counterclockwise: Decrease sound pressure LED (red)
	12 to 24V AC/DC	AH164-TX2BE	
	35 to 48V AC/DC	AH164-TX2BF	
Standard sound with volume control (IP54)  AF96-243	6V AC/DC	AH165-XBA	Volume Clockwise: Increase sound pressure Counterclockwise: Decrease sound pressure Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound  Washer Nut Panel thickness 5 (max.) 9 37 15.5 24
	12 to 24V AC/DC	AH165-XBE	
	35 to 48V AC/DC	AH165-XBF	

Pushbuttons/Selectors/Pilot Lights/Buzzers

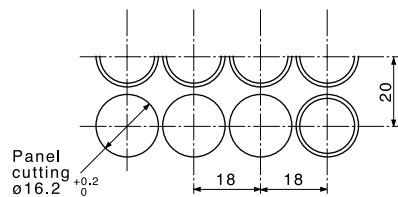
AH164 and AH165

Mounting space

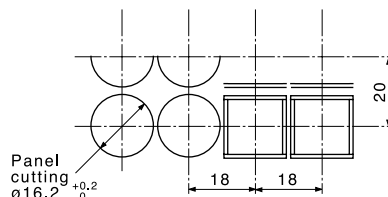
■ Mounting space, mm

- Pushbuttons and pilot lights

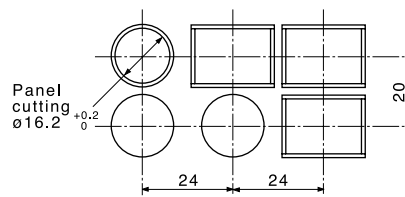
Extended round head or lens



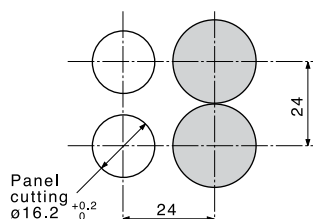
Flush square head or lens



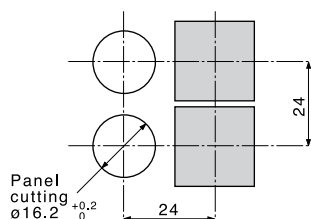
Flush rectangular head or lens



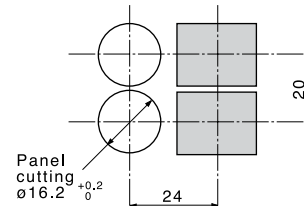
Mushroom head



Convex square head

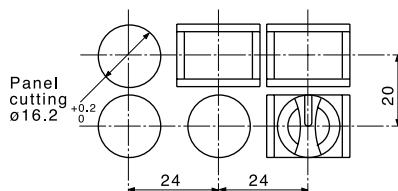


Convex rectangular head

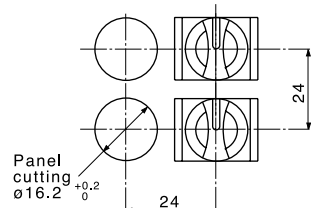


• Selector switches

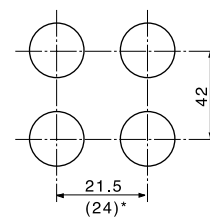
• When mounting the selector switches near the pilot light



• When mounting the selector switches near each other

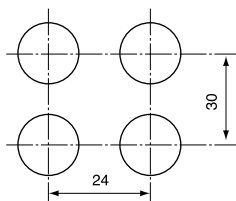


• With transformer

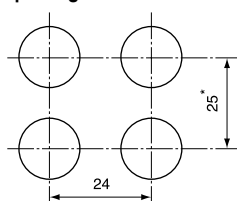


Note: * () For switch with flush rectangular head

• When mounting the JM or RJM selector switches near each other (2NO+2NC only)

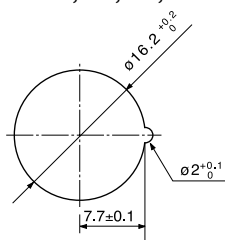


• When mounting the JM or RJM selector switches near the other selector switch, pushbutton switch and pilot lights

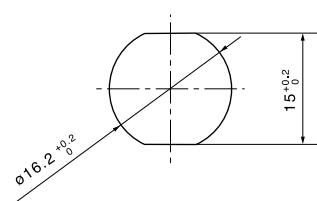


Note: * Mushroom, convex square, convex rectangular: 27

• AH165-V, V1, V5, V6



• AH165-JM, RJM



■ Terminal number

• AH164, 165

Type	Wiring	Terminal position
Illuminated pushbuttons	a (+) b (-)	Type number display side
Pushbuttons Selector switches (except for JM, RJM types)		
Pilot lights (without transformer)	a (+) b (-)	Type number display side

Pushbuttons/Selectors/Pilot Lights

AH165-2

Part number system

■ Part number system

Pushbuttons, illuminated pushbuttons and pilot lights

AH165-2 FL R 11 E 3 - W

① ② ③ ④ ⑤ ⑥ ⑦

① Product category

AH165-2: Oil-tight (Large operator)

② Operator or lens

• Operator for illuminated pushbutton

FL: Flush round head
 FL5: Flush round head (Alternate)
 SFL: Flush square head
 SFL5: Flush square head (Alternate)
 EL: Extended round head
 EL5: Extended round head (Alternate)
 SEL: Extended square head
 SEL5: Extended square head (Alternate)
 SCL: Concave square head
 SCL5: Concave square head (Alternate)
 ML: Mushroom head
 YML: Mushroom head with square bezel
 VL: Push-lock, turn-reset
 YVL: Push-lock, turn-reset with square bezel

• Operator for pushbuttons

F: Flush round head
 F5: Flush round head (Alternate)
 SF: Flush square head
 SF5: Flush square head (Alternate)
 E: Extended round head
 E5: Extended round head (Alternate)
 SE: Extended square head
 SE5: Extended square head (Alternate)
 SCE: Concave square head
 SCE5: Concave square head (Alternate)
 M: Mushroom head
 YM: Mushroom head with square bezel
 V: Push-lock, turn-reset
 YV: Push-lock, turn-reset with square bezel
 S2: With selector ring
 YS2: With selector ring with square bezel

• Lens for pilot lights

Z: Flush round
 SZ: Flush square
 ZE: Extended round
 SEZ: Extended square

③ Color of button or lens

Code	Color	Button	LED	Incandescent	Neon
G	Green	○	○	○	○
R	Red	○	○	○	○ (Orange)
B	Black*	○	—	—	—
Y	Yellow	○	○	○	○ (Orange)
W	White	○	○ (Orange)	○	○ (Orange)
S	Blue	○	○	○	○ (Green)
O	Orange	○	○ (Amber)	○	○

Notes: • (): indicates luminous color

* Not available for illuminated types

④ Contact arrangement (except pilot lights)

11: 1NO+1NC

22: 2NO+2NC

33: 3NO+3NC

⑤ Lamp voltage

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
E	24V DC	24V AC/DC	—
H	—	—	110V AC
K	—	—	120V AC
M	—	—	220V AC
P	—	—	240V AC

⑥ Type of lamp

Blank: Incandescent

1: Neon

3: Flat LED

⑦ Terminal

Blank: Solder/tab

W: Wire-wrap

Pushbuttons/Selectors/Pilot Lights

AH165-2

Part number system

■ Part number system

Selector switches

AH165-2 **J** **2** **B** **11** **A** - **W**
 ① ② ③ ④ ⑤ ⑥ ⑦

① **Product category**
 AH165-2: Oil-tight (Large operator)

② **Operator**
 • Knob and key type
 2-position (operating angle 90°)
 P: Knob
 YP: Knob with square bezel
 J: Key
 YJ: Key with square bezel

3-position (operating angle 45°)
 P: Knob
 YP: Knob with square bezel
 J: Key
 YJ: Key with square bezel

• Lever type
 2-position (operating angle 45°)
 H: Lever
 SH: Lever with square bezel
 Note: The operation angle is 45° on the upper and lower side.

③ **Operation**
 2: 2-position, maintained
 0: 2-position, spring return*
 3: 3-position, maintained
 6: 3-position, spring/manual return (Left to center)
 7: 3-position, spring/manual return (Right to center)
 1: 3-position, spring return
 Note: * Except for H and SH types

④ **Color of knob, lever or key removable position**
 • Color of knob or lever
 B: Black

• Key removable position

Code	2-position		3-position			
	2	0	1	3	6	7
A			—		—	
B		—	—		—	—
C	—	—	—		—	—
D		—	—		—	—
E	—	—	①	—	—	—
F	—	—	—		—	—
G	—	—	—		—	

⑤ **Contact arrangement**
 11: 1NO+1NC*
 22: 2NO+2NC
 33: 3NO+3NC
 Note: * Except for 3-position

⑥ **Key type No.**
 A (standard), B, C, D, E, F

⑦ **Terminal**
 Blank: Solder/tab
 W: Wire-wrap

Illuminated selector switches

AH165-2 **PL** **2** **G** **11** **E** **3**
 ① ② ③ ④ ⑤ ⑥ ⑦

① **Product category**
 AH165-2: Oil-tight (Large operator)

② **Operator**
 • 2-position (operating angle 90°)
 PL: Knob
 • 3-position (operating angle 45°)
 PL: Knob

③ **Operation**
 2: 2-position, maintained
 3: 3-position, maintained

④ Color of knob

Code	Color	LED	Incandescent	Neon
G	Green	○	○	○
R	Red	○	○	○ (Orange)
Y	Yellow	○	○	○ (Orange)
W	White	○ (Orange)	○	○ (Orange)
S	Blue	○	○	○ (Green)
O	Orange	○ (Amber)	○	○

Notes: • (): indicates luminous color
 • The part other than the arrow of the knob is black.

⑤ Contact arrangement

11: 1NO+1NC*
 22: 2NO+2NC
 Note: * Except for 3-position

⑥ Lamp voltage

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
E	24V DC	24V AC/DC	—
H	—	—	110V AC
K	—	—	120V AC
M	—	—	220V AC
P	—	—	240V AC

⑦ Type of lamp

Blank: Incandescent
 1: Neon
 3: Flat LED
 Note: Terminal with solder/tab only

Pushbuttons/Selectors/Pilot Lights

AH165-2

Ratings and specifications

■ Standards approved

UL508	File No. E44592
CSA C22.2 No.14	File No. LR20479 (except for AH165-2Z, 2ZE, 2SZ, 2SZE) File No. LR84365 (for AH165-2Z, 2ZE, 2SZ, 2SZE)
TÜV: EN60947-5-1	Pushbutton, illuminated pushbutton: R9250087 Selector (except for AH165-2H, SH), illuminated selector: R9250088 Selector (for AH165-2H, SH): R9250087 Pilot lights: R9250089

■ Specifications (Indoor use)

Item	AH165-2
Rated insulation voltage	250V AC/DC
Ambient temperature (no condensation or no icing)	−10 to +70°C *1
Humidity	45 to 85%RH (at −5 to +40°C), no condensation or no icing
Durability (operations)	Mechanical Pushbutton and illuminated pushbutton switch Momentary action: 1 million Alternate action: 250,000 Push-lock, turn-reset: 100,000 With selector ring: 250,000 Electrical Selector and illuminated selector switch: 250,000*2 100,000 (220V AC 0.7A)
Dielectric strength	2000V AC, 1 minute (Between lamp and contact terminals: 1500V AC, 1 minute)
Conditional short-circuit current	1000A
Short-circuit protective device	Fuse 1A
Pollution degree	3
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm Constant: 16.7Hz, double amplitude 3mm
Shock	Malfunction durability: 100m/s ² Mechanical durability: 500m/s ²
Operating frequency	1200 operation/hour (on-load factor: 40%)
Insulation resistance	100MΩ or more (500V DC megger)
Operator protection	IP65

Notes: *1 For illuminated pushbutton, illuminated selector switch and pilot light: −10 to +55°C

*2 Key insertion/removal durability for selector switch key types: 10,000

■ Contact ratings

See page 135

■ Lamp ratings

Rated operational voltage	Consumption		
	LED DC	Incandescent AC/DC	Neon AC
5V	14mA (Yellow: 28mA)	0.45W (6V)	—
6V	14mA (Yellow: 28mA)	—	—
12V	14mA	0.55W (14V)	—
24V	14mA	0.55W (28V)	—
110V	—	—	0.19VA
120V	—	—	0.21VA
220V	—	—	0.38VA
240V	—	—	0.42VA

Notes: For the incandescent lamps, the values in parentheses indicate the rated voltage of the lamps.

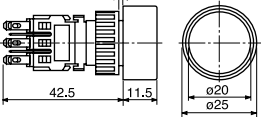
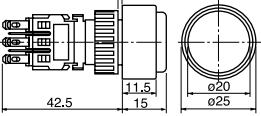
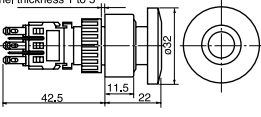
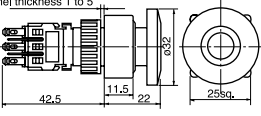
■ Contact reliability

FUJI has confirmed that the unit can be used in 1mA circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

Illuminated Pushbutton Switches

AH165-2

■ Illuminated pushbutton switches

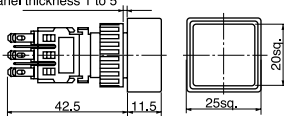
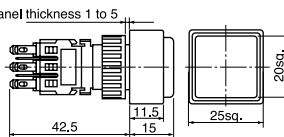
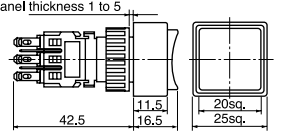
Operator	Lamp	Voltage	Contact	Momentary action	Alternate action	Dimensions, mm
				Type	Type	
Flush round head  AF87-211	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2FL□11E3 AH165-2FL□22E3 AH165-2FL□33E3	AH165-2FL5□11E3 AH165-2FL5□22E3 AH165-2FL5□33E3	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2FL□11E AH165-2FL□22E AH165-2FL□33E	AH165-2FL5□11E AH165-2FL5□22E AH165-2FL5□33E	
	Neon	110V AC	1NO+1NC	AH165-2FL□11H1	AH165-2FL5□11H1	
			2NO+2NC	AH165-2FL□22H1	AH165-2FL5□22H1	
			3NO+3NC	AH165-2FL□33H1	AH165-2FL5□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2FL□11M1 AH165-2FL□22M1 AH165-2FL□33M1	AH165-2FL5□11M1 AH165-2FL5□22M1 AH165-2FL5□33M1	
Extended round head  AF87-210	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2EL□11E3 AH165-2EL□22E3 AH165-2EL□33E3	AH165-2EL5□11E3 AH165-2EL5□22E3 AH165-2EL5□33E3	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2EL□11E AH165-2EL□22E AH165-2EL□33E	AH165-2EL5□11E AH165-2EL5□22E AH165-2EL5□33E	
	Neon	110V AC	1NO+1NC	AH165-2EL□11H1	AH165-2EL5□11H1	
			2NO+2NC	AH165-2EL□22H1	AH165-2EL5□22H1	
			3NO+3NC	AH165-2EL□33H1	AH165-2EL5□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2EL□11M1 AH165-2EL□22M1 AH165-2EL□33M1	AH165-2EL5□11M1 AH165-2EL5□22M1 AH165-2EL5□33M1	
Mushroom head  AF87-221	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2ML□11E3 AH165-2ML□22E3 AH165-2ML□33E3	— — —	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2ML□11E AH165-2ML□22E AH165-2ML□33E	— — —	
	Neon	110V AC	1NO+1NC	AH165-2ML□11H1	—	
			2NO+2NC	AH165-2ML□22H1	—	
			3NO+3NC	AH165-2ML□33H1	—	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2ML□11M1 AH165-2ML□22M1 AH165-2ML□33M1	— — —	
Mushroom head with square bezel  AF87-220	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YML□11E3 AH165-2YML□22E3 AH165-2YML□33E3	— — —	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YML□11E AH165-2YML□22E AH165-2YML□33E	— — —	
	Neon	110V AC	1NO+1NC	AH165-2YML□11H1	—	
			2NO+2NC	AH165-2YML□22H1	—	
			3NO+3NC	AH165-2YML□33H1	—	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YML□11M1 AH165-2YML□22M1 AH165-2YML□33M1	— — —	

Note: Replace the □ mark by the following color code, see page 157.

Illuminated Pushbutton Switches

AH165-2

■ Illuminated pushbutton switches

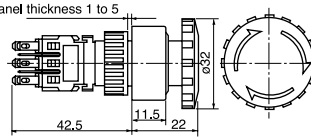
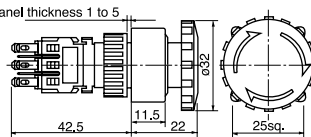
Operator	Lamp	Voltage	Contact	Momentary action Type	Alternate action Type	Dimensions, mm
 AF87-201	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SFL□11E3 AH165-2SFL□22E3 AH165-2SFL□33E3	AH165-2SFL5□11E3 AH165-2SFL5□22E3 AH165-2SFL5□33E3	
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SFL□11E AH165-2SFL□22E AH165-2SFL□33E	AH165-2SFL5□11E AH165-2SFL5□22E AH165-2SFL5□33E	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SFL□11H1 AH165-2SFL□22H1 AH165-2SFL□33H1	AH165-2SFL5□11H1 AH165-2SFL5□22H1 AH165-2SFL5□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SFL□11M1 AH165-2SFL□22M1 AH165-2SFL□33M1	AH165-2SFL5□11M1 AH165-2SFL5□22M1 AH165-2SFL5□33M1	
 AF87-200	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SEL□11E3 AH165-2SEL□22E3 AH165-2SEL□33E3	AH165-2SEL5□11E3 AH165-2SEL5□22E3 AH165-2SEL5□33E3	
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SEL□11E AH165-2SEL□22E AH165-2SEL□33E	AH165-2SEL5□11E AH165-2SEL5□22E AH165-2SEL5□33E	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SEL□11H1 AH165-2SEL□22H1 AH165-2SEL□33H1	AH165-2SEL5□11H1 AH165-2SEL5□22H1 AH165-2SEL5□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SEL□11M1 AH165-2SEL□22M1 AH165-2SEL□33M1	AH165-2SEL5□11M1 AH165-2SEL5□22M1 AH165-2SEL5□33M1	
 AF87-199	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SCL□11E3 AH165-2SCL□22E3 AH165-2SCL□33E3	AH165-2SCL5□11E3 AH165-2SCL5□22E3 AH165-2SCL5□33E3	
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SCL□11E AH165-2SCL□22E AH165-2SCL□33E	AH165-2SCL5□11E AH165-2SCL5□22E AH165-2SCL5□33E	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SCL□11H1 AH165-2SCL□22H1 AH165-2SCL□33H1	AH165-2SCL5□11H1 AH165-2SCL5□22H1 AH165-2SCL5□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SCL□11M1 AH165-2SCL□22M1 AH165-2SCL□33M1	AH165-2SCL5□11M1 AH165-2SCL5□22M1 AH165-2SCL5□33M1	

Note: Replace the □ mark by the following color code, see page 157.

Illuminated Pushbutton Switches

AH165-2

■ Illuminated pushbutton switches

Operator	Lamp	Voltage	Contact	Type	Dimensions, mm
Push-lock, turn-reset  AF87-219	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2VL□11E3 AH165-2VL□22E3 AH165-2VL□33E3	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2VL□11E AH165-2VL□22E AH165-2VL□33E	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2VL□11H1 AH165-2VL□22H1 AH165-2VL□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2VL□11M1 AH165-2VL□22M1 AH165-2VL□33M1	
Push-lock, turn-reset with square bezel  AF87-218	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YVL□11E3 AH165-2YVL□22E3 AH165-2YVL□33E3	Panel thickness 1 to 5 
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YVL□11E AH165-2YVL□22E AH165-2YVL□33E	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YVL□11H1 AH165-2YVL□22H1 AH165-2YVL□33H1	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YVL□11M1 AH165-2YVL□22M1 AH165-2YVL□33M1	

• Button color

Replace the □ mark by the following button color code

Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

- With wire-wrap pin terminals have a depth of 47mm.

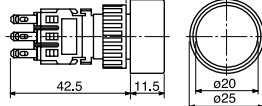
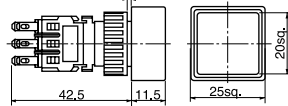
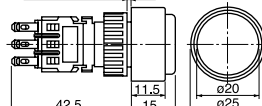
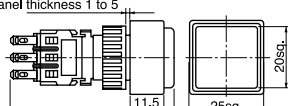
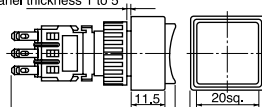
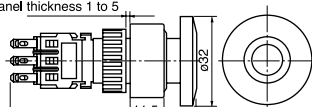
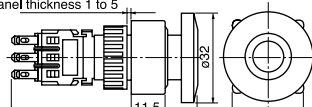
- A white illuminated pushbutton is fitted with a transparent color lens.
- The color lens is made of a tinted transparent material.

• Lamp voltage

Voltages other than above are available

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
K	—	—	120V AC
P	—	—	240V AC

■ Pushbutton switches

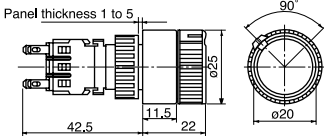
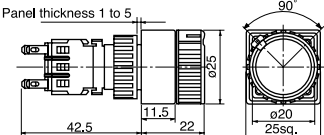
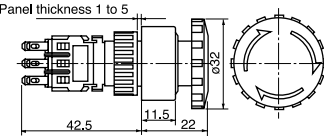
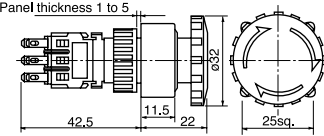
Operator	Contact	Momentary action Type	Alternate action Type	Dimensions, mm
Flush round head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2F□11 AH165-2F□22 AH165-2F□33	AH165-2F5□11 AH165-2F5□22 AH165-2F5□33	Panel thickness 1 to 5 
Flush square head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SF□11 AH165-2SF□22 AH165-2SF□33	AH165-2SF5□11 AH165-2SF5□22 AH165-2SF5□33	Panel thickness 1 to 5 
Extended round head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2E□11 AH165-2E□22 AH165-2E□33	AH165-2E5□11 AH165-2E5□22 AH165-2E5□33	Panel thickness 1 to 5 
Extended square head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SE□11 AH165-2SE□22 AH165-2SE□33	AH165-2SE5□11 AH165-2SE5□22 AH165-2SE5□33	Panel thickness 1 to 5 
Concave square head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SCE□11 AH165-2SCE□22 AH165-2SCE□33	AH165-2SCE5□11 AH165-2SCE5□22 AH165-2SCE5□33	Panel thickness 1 to 5 
Mushroom head 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2M□11 AH165-2M□22 AH165-2M□33	— — —	Panel thickness 1 to 5 
Mushroom head with square bezel 	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YM□11 AH165-2YM□22 AH165-2YM□33	— — —	Panel thickness 1 to 5 

Note: Replace the □ mark by the following color code, see page 159.

Pushbutton Switches

AH165-2

■ Pushbutton switches

Operator	Contact	Type	Dimensions, mm
With selector ring  AF87-207	2NO+2NC	AH165-2S2□22	
With selector ring with square bezel  AF87-206	2NO+2NC	AH165-2YS2□22	
Push-lock, turn-reset  AF87-210	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2V□11 AH165-2V□22 AH165-2V□33	
Push-lock, turn-reset with square bezel  AF87-200	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YV□11 AH165-2YV□22 AH165-2YV□33	

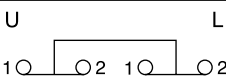
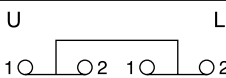
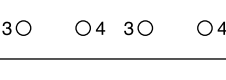
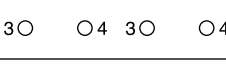
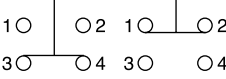
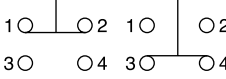
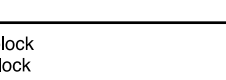
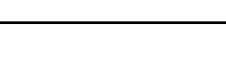
• Button color

Replace the □ mark by the following button color code

Color	Green	Red	Black	White	Blue	Yellow	Orange
Code	G	R	B	W	S	Y	O

• Contact arrangement and operator position

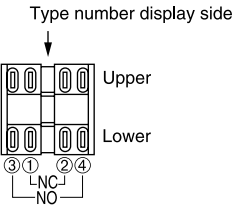
AH165-2S, 2YS

Button	Ring	Left	Right
			
Free	U		
	L		
Depressed	U		
	L		

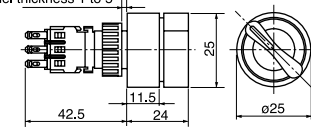
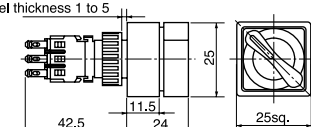
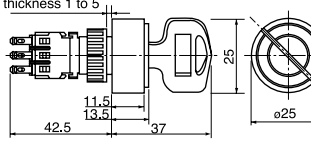
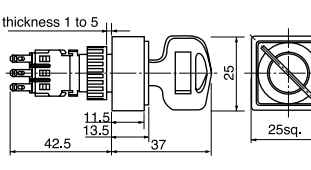
U: Upper contact block
L: Lower contact block

- The color lens is made of a tinted transparent material. (Except for M, YM, V, YV, types)
- A white pushbutton is fitted with a transparent color lens. A black pushbutton consists of a transparent color lens and an attached black legend plate. (Except for M, YM, V, YV, types)
- With wire-wrap pin terminals have a depth of 47mm.

• Terminal number and contact block position



■ Selector switches/2-position (90-degree)

Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
 AF02-111	Maintained	—	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2P2B11 AH165-2P2B22 AH165-2P2B33	
	Spring return	—	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2P0B11 AH165-2P0B22 AH165-2P0B33	
 AF02-112	Maintained	—	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YP2B11 AH165-2YP2B22 AH165-2YP2B33	
	Spring return	—	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YP0B11 AH165-2YP0B22 AH165-2YP0B33	
 AF02-113	Maintained	⊘ A	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2J2A11A AH165-2J2A22A AH165-2J2A33A	
		⊗ B	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2J2B11A AH165-2J2B22A AH165-2J2B33A	
		⊙ D	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2J2D11A AH165-2J2D22A AH165-2J2D33A	
	Spring return	⊘ A	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2J0A11A AH165-2J0A22A AH165-2J0A33A	
		⊗ B	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ2B11A AH165-2YJ2B22A AH165-2YJ2B33A	
		⊙ D	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ2D11A AH165-2YJ2D22A AH165-2YJ2D33A	
 AF02-114	Maintained	⊘ A	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ2A11A AH165-2YJ2A22A AH165-2YJ2A33A	
		⊗ B	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ2B11A AH165-2YJ2B22A AH165-2YJ2B33A	
		⊙ D	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ2D11A AH165-2YJ2D22A AH165-2YJ2D33A	
	Spring return	⊘ A	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2YJ0A11A AH165-2YJ0A22A AH165-2YJ0A33A	

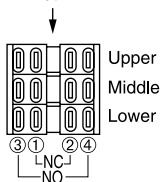
• The key can be removed only at the following positions:

A: ⊘ B: ⊗ D: ⊙

- For spring-return selector switches, the key can be removed at position A.
- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- With wire-wrap pin terminals have a depth of 47mm.

• Terminal number and contact block position

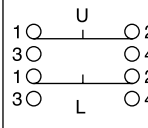
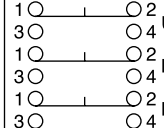
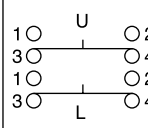
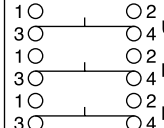
Type number display side



Contact arrangement (terminal No.: common)
 1NO+1NC: Middle
 2NO+2NC: Upper, lower
 3NO+3NC: Upper, middle, lower

• Contact arrangement and operator positions:

2-position

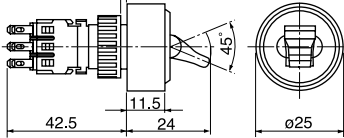
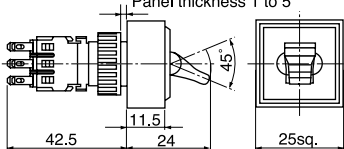
Contact arrangement	1NO+1NC	2NO+2NC	3NO+3NC
Operator position	Left		
	Right		

U: Upper contact block
 M: Middle contact block
 L: Lower contact block

Selector Switches

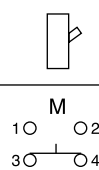
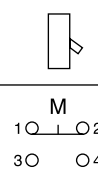
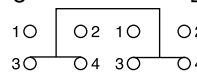
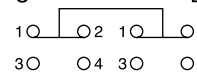
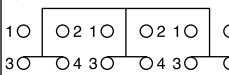
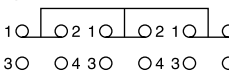
AH165-2

■ Selector switches/2-position

Operator	Lever color	Operation	Contact	Type	Dimensions, mm
Lever  AF87-209	Black	Maintained	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2H2B11 AH165-2H2B22 AH165-2H2B33	Panel thickness 1 to 5 
Lever with square bezel  AF87-203	Black	Maintained	1NO+1NC 2NO+2NC 3NO+3NC	AH165-2SH2B11 AH165-2SH2B22 AH165-2SH2B33	Panel thickness 1 to 5 

• Contact arrangement and operator position

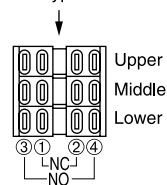
AH165-2H, 2SH

Lever Contact block	Up	Down
1NO+1NC		
2NO+2NC		
3NO+3NC		

U: Upper contact block
M: Middle contact block
L: Lower contact block

• Terminal number and contact block position

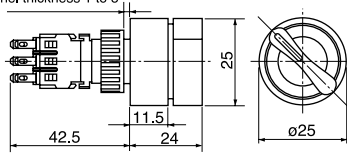
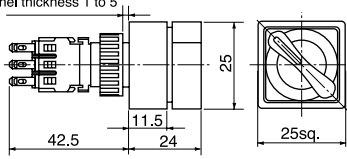
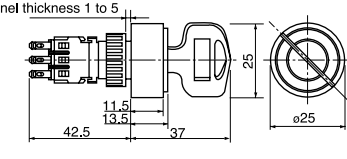
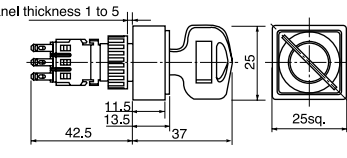
Type number display side



Contact arrangement (terminal No.: common)
 1NO+1NC: Middle
 2NO+2NC: Upper, lower
 3NO+3NC: Upper, middle, lower

• With wire-wrap pin terminals have a depth of 47mm.

■ Selector switches/3-position (45-degree)

Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
 AF87-208	Maintained	—	2NO+2NC 3NO+3NC	AH165-2P3B22 AH165-2P3B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH165-2P6B22 AH165-2P6B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH165-2P7B22 AH165-2P7B33	
	Spring return	—	2NO+2NC 3NO+3NC	AH165-2P1B22 AH165-2P1B33	
 AF87-202	Maintained	—	2NO+2NC 3NO+3NC	AH165-2YP3B22 AH165-2YP3B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH165-2YP6B22 AH165-2YP6B33	
	Spring/ manual return	—	2NO+2NC 3NO+3NC	AH165-2YP7B22 AH165-2YP7B33	
	Spring return	—	2NO+2NC 3NO+3NC	AH165-2YP1B22 AH165-2YP1B33	
 AF87-223	Maintained	⊘ A	2NO+2NC 3NO+3NC	AH165-2J3A22A AH165-2J3A33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2J3E22A AH165-2J3E33A	
		⊘ D	2NO+2NC 3NO+3NC	AH165-2J3D22A AH165-2J3D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH165-2J3C22A AH165-2J3C33A	
	Spring/ manual return	⬆ E	2NO+2NC 3NO+3NC	AH165-2J6E22A AH165-2J6E33A	
		⊘ D	2NO+2NC 3NO+3NC	AH165-2J6D22A AH165-2J6D33A	
	Spring/ manual return	⊘ A	2NO+2NC 3NO+3NC	AH165-2J7A22A AH165-2J7A33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2J7E22A AH165-2J7E33A	
	Spring return	⬆ E	2NO+2NC 3NO+3NC	AH165-2J1E22A AH165-2J1E33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2J1E22A AH165-2J1E33A	
	Maintained	⊘ A	2NO+2NC 3NO+3NC	AH165-2YJ3A22A AH165-2YJ3A33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ3E22A AH165-2YJ3E33A	
		⊘ D	2NO+2NC 3NO+3NC	AH165-2YJ3D22A AH165-2YJ3D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH165-2YJ3C22A AH165-2YJ3C33A	
 AF87-222	Maintained	⊘ A	2NO+2NC 3NO+3NC	AH165-2YJ3A22A AH165-2YJ3A33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ3E22A AH165-2YJ3E33A	
		⊘ D	2NO+2NC 3NO+3NC	AH165-2YJ3D22A AH165-2YJ3D33A	
		⊗ C	2NO+2NC 3NO+3NC	AH165-2YJ3C22A AH165-2YJ3C33A	
	Spring/ manual return	⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ6E22A AH165-2YJ6E33A	
		⊘ D	2NO+2NC 3NO+3NC	AH165-2YJ6D22A AH165-2YJ6D33A	
	Spring/ manual return	⊘ A	2NO+2NC 3NO+3NC	AH165-2YJ7A22A AH165-2YJ7A33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ7E22A AH165-2YJ7E33A	
	Spring return	⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ1E22A AH165-2YJ1E33A	
		⬆ E	2NO+2NC 3NO+3NC	AH165-2YJ1E22A AH165-2YJ1E33A	

• The Key can be removed at the following positions:

A: ⊘ B: ⊗ C: ⊗ D: ⊘ E: ⬆ F: ⬆ G: ⬆

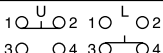
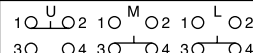
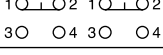
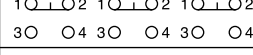
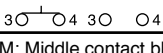
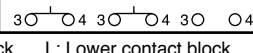
For spring-return selector switches, the key can be removed only at position E.
For manual/spring-return selector switches, the key can be removed at positions D, E and F for type J6, and position A, E and G for type J7.

• There are 6 available key types; A, B, C, D, E and F.

Standard key code is A.

• With wire-wrap pin terminals have a depth of 47mm.

• Contact arrangement and operator positions:

Contact arrangement	2NO+2NC	3NO+3NC
Operator position		
Left		
Center		
Right		

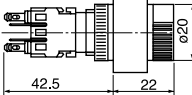
U: Upper contact block M: Middle contact block L: Lower contact block

• Contact block positions: See page 161

Selector Switches

AH165-2

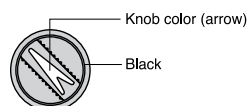
■ Illuminated selector switches

Operator	Operation	Lamp voltage	No. of positions	Contact	Type	Dimensions, mm
 AF90-607	Maintained	Flat LED 24V DC	2	1NO+1NC	AH165-2PL2□11E3	 
			3	2NO+2NC	AH165-2PL3□22E3	
		Incandescent 24V AC/DC	2	1NO+1NC	AH165-2PL2□11E	
			3	2NO+2NC	AH165-2PL3□22E	
		Neon 110V AC	2	1NO+1NC	AH165-2PL2□11H1	
			3	2NO+2NC	AH165-2PL3□22H1	
		Neon 220V AC	2	1NO+2NC	AH165-2PL2□11M1	
			2	2NO+2NC	AH165-2PL2□22M1	
			3	2NO+2NC	AH165-2PL3□22M1	

• Knob color (arrow)

Replace the □ mark by the following color code

Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	O

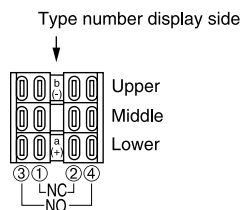


• Lamp voltage

Voltages other than above are available

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
K	—	—	120V AC
P	—	—	240V AC

• Terminal number and contact block position



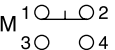
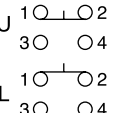
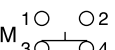
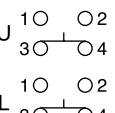
Contact arrangement (terminal No.: common)

1NO+1NC: Middle

2NO+2NC: Upper, lower

• Contact arrangement and operator positions:

2-position

Contact arrangement	1NO+1NC	2NO+2NC
Operator position	Left 	M  U 
	Right 	M  U 

3-position

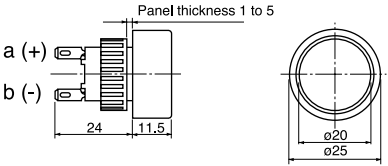
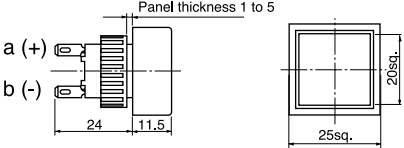
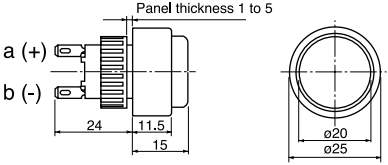
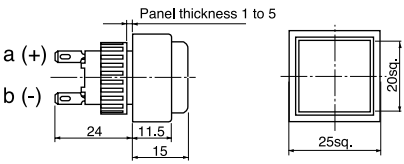
Contact arrangement		2NO+2NC
Operator position	Left 	U  L 
	Center 	U  L 
	Right 	U  L 

U: Upper contact block

M: Middle contact block

L: Lower contact block

■ Pilot lights

Lens	Lamp	Voltage	Type	Dimensions, mm
 AF87-213	Flat LED	24V DC	AH165-2Z□E3	
	Incandescent	24V AC/DC	AH165-2Z□E	
	Neon	110V AC	AH165-2Z□H1	
		220V AC	AH165-2Z□M1	
 AF87-205	Flat LED	24V DC	AH165-2SZ□E3	
	Incandescent	24V AC/DC	AH165-2SZ□E	
	Neon	110V AC	AH165-2SZ□H1	
		220V AC	AH165-2SZ□M1	
 AF87-212	Flat LED	24V DC	AH165-2ZE□E3	
	Incandescent	24V AC/DC	AH165-2ZE□E	
	Neon	110V AC	AH165-2ZE□H1	
		220V AC	AH165-2ZE□M1	
 AF87-204	Flat LED	24V DC	AH165-2SZE□E3	
	Incandescent	24V AC/DC	AH165-2SZE□E	
	Neon	110V AC	AH165-2SZE□H1	
		220V AC	AH165-2SZE□M1	

• Lens color

Replace the □ mark by the following lens color code

Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

• Lamp voltage

Voltage other than above is available

Code	LED	Incandescent	Neon
AA	5V DC	—	—
A	6V DC	5V AC/DC	—
B	12V DC	12V AC/DC	—
K	—	—	120V AC
P	—	—	240V AC

- The color lens is made of a tinted transparent material.
- A white lens is fitted with a transparent color lens.
- With wire-wrap pin terminals have a depth of 29mm.

Pushbuttons/Selectors/Pilot Lights

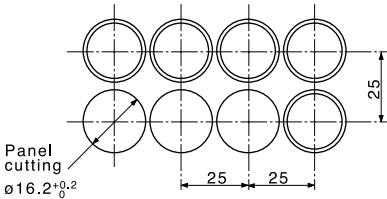
AH165-2

Mounting space

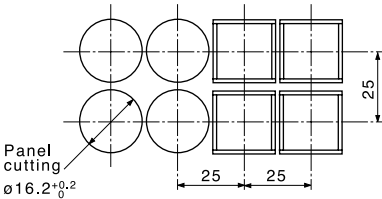
Mounting space, mm

- Illuminated pushbuttons, pushbuttons, selector switches, illuminated selector switches and pilot lights

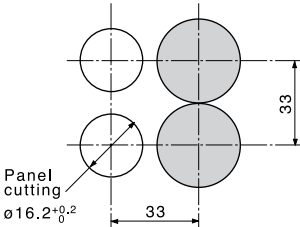
Round head



Square head



Mushroom head
Push-lock, turn-reset



Terminal number

Type	Wiring	Terminal position
Illuminated pushbuttons, Illuminated selector switches	a (+) b (-) ① ————— ② ③ ○ ○ ④	Type number display side

Pushbuttons/Selectors/Pilot Lights/Buzzers

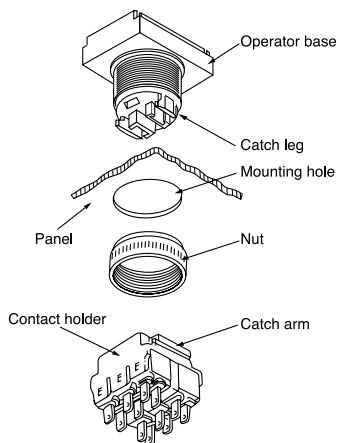
AH164, AH165 and AH165-2

Notes on use

Notes on use

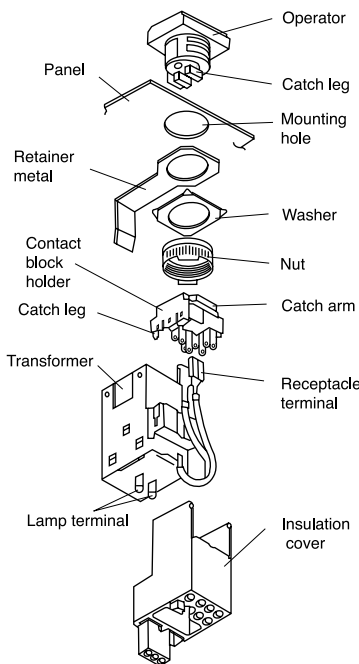
■ Installation on panel

- For installation, use dedicated wrench AHX601. The appropriate tightening torque is 0.6 to 1N·cm.
- The installation sequence is as follows:
Pass the operator base through the hole in the panel and secure it by tightening the bezel. Properly position the catch arms of the contact holder and the catch legs of the operator base and push the contact holder onto the operator base. To remove the contact holder, pull it while pressing the catch arms inward.



■ Mounting steps of switch with transformer

- Pass the switch operator through the panel hole and secure with a nut by way of the retainer metal from the front of the panel.
- Align the position of the catch arm of the contact block holder with that of the catch leg of the switch operator. Engage these two catches by pushing them together.
- Insert and secure the transformer unit while assembling the contact block holder with the retainer metal.
- Connect the receptacle terminal with lead wires extending from the transformer to the lamp terminal of the contact block holder. (Be care on the polarity of the LED. Red: +, Black: -)
- Push in and secure the standard accessory insulation cover by aligning its position with each terminal. To replace the transformer, remove the transformer by widening the catch leg of the contact block holder. Pay attention not to excessively widen the catch leg. Mounting steps are the same as the above steps ③, ④, and ⑤.



■ Installing the protection cover / dust-tight cover, guard-ring

- Be careful that the panel thickness does not exceed the following:
- Panel thickness
 - Protection cover: 2.6mm max.
 - Dust-tight cover: 2.0mm max.
 - Guard ring: 2.5mm max.

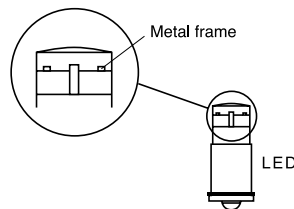
■ Operating voltage and rated voltage of incandescent lamps

Rated voltage	Operating voltage
6V	4 to 5V
14V	10 to 12V
28V (Standard)	20 to 24V

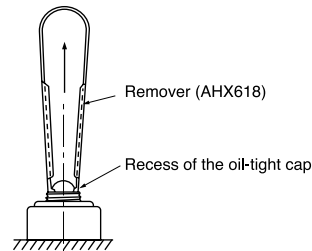
Incandescent lamps should be operated at the operating voltages if a lamp service life of 5,000 to 10,000 hours are needed. The ambient temperature must not exceed 30°C if the lamp is used at the rated voltage continuously.

■ Method of replacing lamp

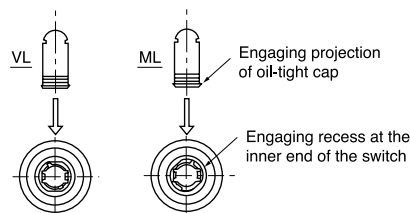
- Incandescent lamps/LED lamps/neon lamps
Remove the color lens and inner button with a remover AHX618.
Then draw out the lamp with a lamp changer AHX672.
When installing lamps, do it manually and in the reverse order of removing.
- Products with blue and green LEDs
The LED devices on products with high-brightness (blue and green) LEDs are very sensitive to static electricity. When replacing LED lamps do not allow static electricity to come into direct contact with the metal frame on the upper side of the LED lamp. The LED device may be damaged if this part is subjected to static electricity. When installing or removing an LED lamp, it is recommended that you use the lamp changer (AHX672).



- To replace the lamp of a AH165-2 illuminated pushbutton switch (ML,VL), remove the button and draw out the oil-tight cap.



- Then, replace the lamp using a lamp changer (AHX672) and push the oil-tight cap into its original position with its engaging projection properly adjusted (see the figure below).



Note: Lamp of AH165-ZM type can not be replaced.

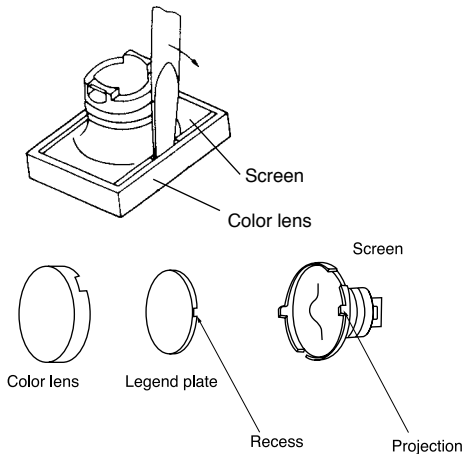
Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

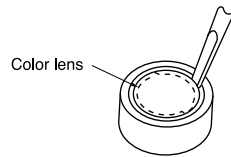
Notes on use

■ Method of replacing color lens

- To remove the color lens, insert a small screwdriver into the color lens and twist in direction of the arrow.



- For an AH165-2, use a small standard screwdriver or a similar tool with a flat end. If one side of the color lens is removed from the screen, insert the screwdriver or a similar tool deeper and remove the color lens together with the screen.



■ Replacing pushbuttons

In the case of alternative action type pushbutton switches and illuminated pushbutton switches, be sure not to replace the pushbuttons in their locked state. This could result in internal damage to the mechanism.

■ Description sheet

The Fuji description sheet is 25 μ m thick. If preparing custom description sheets, make sure that the thickness is 0.1mm or less.

■ Contact block

To replace a contact block, use removing tool AGX012. If excessive force is applied when attempting to open the support legs for the contact block holder, deformation or damage may occur.

■ Handling precautions

- Do not apply torque in excess of 1.0 N·m to operate the selectors switch (Type "P"). Required operating force of switches is less than 0.1 N·m.
- Do not tap on a pushbutton to turn it ON or OFF, such handling may damage it. Be sure to operate the pushbutton by hand.

■ Key type selector switch

- Five key types (Type B to Type F) are available besides Type A, which is the standard key type.



Symbol on the key



Symbol on the main unit

- Be sure to use a key with a symbol which is matched with the symbol on the main unit.
- Fully insert the key into the main unit before turning the key.
- The key turning force should not exceed 0.1 N·m.
- Do not pull out or insert the key forcibly.

■ Wiring connections

- Use a soldering iron with a wattage of not more than 30W and a tip length of more than 20mm.
Use a rosin-core solder
With a 30W iron complete soldering within 5 seconds, or 10 seconds with a 20W iron. Do not apply external force to the terminals. Do not deform the terminals.
Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorie is rather high.
- Wires that can be connected
Two solid wires with a maximum diameter of 0.8mm (solder)
One stranded wire with a maximum area of 0.75mm² (solder)
Flat connection terminal
(2.8□-1.25-5) 0.5 to 1.25mm²
(2.8□-0.5-5) 0.2 to 0.5mm²
- Using contact blocks
When using NO and NC contacts in the same contact block, avoid connection that involves opposite polarity or wiring from different types of power supply.
- For wiring to adjacent terminals, use insulated tubing to prevent short-circuit and to assure isolation. For solder terminals, be careful when connecting thick wires. Do not use too much solder.
- Wiring to wire-wrap pin terminals
Select the appropriate wire sizes and tools from the table below.

Wire size	Bit	Sleeve	Number of effective wraps
0.4mm dia.	3-A	1-B	About 8
0.5mm dia.	1-A	1-B	About 6
(0.65mm dia.)	(2-A)	(2-B)	(About 6)

Use ordinary wrapping for connection.

Wires of 0.65mm dia. must not be used on adjacent terminals. However, 0.65mm dia. wire can be mixed with 0.4 and 0.5mm dia. wires.

- Wiring to tab terminals
Use receptacles, No. 110.

■ Installing lamps in close order

When continuously lighting pilot lights or pressing illuminated pushbuttons installed in close order, care must be taken that the ambient temperature does not exceed the rated value.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Notes on use

■ LEDs

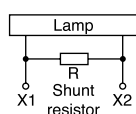
• LED Lamp Malfunctioning

The LED lamp is lit by a very small level of current (approximately 0.01mA). Therefore, the it may be erroneously lit by a current leaking from the surge absorption circuit or semiconductor circuit or due to stray capacitance between cables. In that case, provide a countermeasure (e.g., connect a resistor in parallel with the LED lamp).

• Countermeasure for Malfunctioning

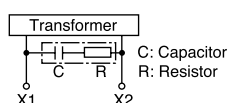
Shunt Resistor R or CR elements connected in parallel
Lamp malfunctions can be prevented by connecting a shunt resistor (R) or CR elements (a capacitor and resistor) in parallel with the LED lamp terminal. The resistance and CR values vary depending on the model and the operating conditions.

Example 1



- 24V DC
R: 10k Ω (1W)

Example 2



- 110V AC
C: 0.33 μ F (250V AC)
R: 120 Ω (0.25W)
- 220V AC
C: 0.33 μ F (250V AC)
R: 120 Ω (0.25W)

• Incoming surge

Be careful that since high luminance LED products use an element sensitive to static electricity, they may not be lit by an abnormal voltage like surge.

■ Using a flat LED in 48V DC circuit

When a flat LED lamps having a rated voltage of 24V DC is used with 48V DC circuit, connect an external resistor of 1,800 Ω (2W).

■ Preventing the neon lamp from incorrectly turning ON

The neon lamp may incorrectly turn ON due to current leakage or voltage induction. In such a case, connect a shunt resistor in parallel with the lamp.

Example) 110V AC: 100k Ω (0.25W)
220V AC: 50k Ω (2W)

If an external surge of 3kV or more may occur, connect a surge absorption element in parallel with the lamp.

■ Numerical indicators

To ensure high reliability and long life for the LED, design the circuit not to exceed the maximum ratings under any operating conditions.

- Keep in mind that the display may malfunction or be damaged due to noise in input signals. (TC type)
- Wire the TC type as shown on the nameplate. The IC may break if the supply voltage is connected in reverse.
- Keep in mind that the correct display will not appear with negative logic input because the TC type accepts positive logic input.

■ Operation

Do not use a hitting or bouncing action to operate the button, or the switch may break. Always operate the switch by hand.

■ Storage and operation site

- Use the unit within the rated operating ambient temperature and humidity ranges.
- Do not use the enclosed type in places where oil or water is sprayed or where dust accumulates. In places such as these, use the oil-tight type or provide a dust cover.
- The oil-tight type is evaluated with standard cutting oil and cooling oil applied. The oil-tight type cannot be used with some special oils.

■ Buzzer

• Noise

If the application circuit is likely to generate excessively strong noise, connect a surge absorber (e.g., FUJI'S ENC390D, provided that the switch is a 24V type) in parallel with the buzzer.

• Place of Use

The buzzer does not have a drip-proof construction. Do not use the buzzer in places where oil or water is sprayed or where dust accumulates. If the buzzer is a splash-proof type, it will resist sprays of water.

- Do not use the buzzer in places that are subject to an excessive amount of corrosive gas.
- Be careful that the buzzer is likely to sound erroneously due to leakage current or the like.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Accessories

■ Accessories for AH164 and AH165

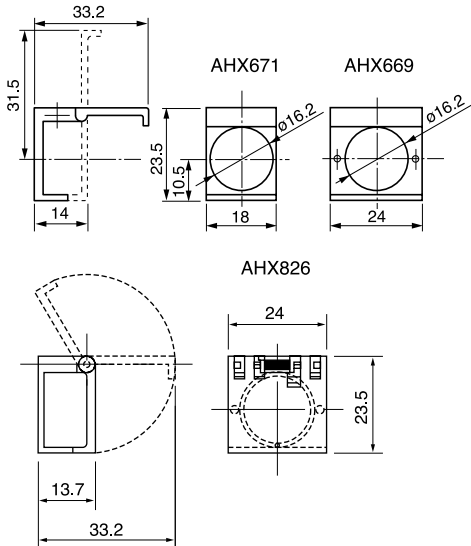
Description	Type	
Color chips (Round)	Color	Type
	L, L5, E, E5, Z	Green AHX631-G Red AHX631-R White (For Neon) AHX631-W Blue AHX631-S Yellow AHX631-Y Orange AHX631-O Clear AHX631-C
	SF-682 For LED, Neon	Green AHX653-G
Color chips (Square)	Color	Type
	SL, SL5, SGL, SGL5, SF, SF5, SGF, SGF5, ZS	Green AHX632-G Red AHX632-R White (For Neon) AHX632-W Blue AHX632-S Yellow AHX632-Y Orange AHX632-O Clear AHX632-C
	SF-681 For LED, Neon	Green AHX653-SG
Color chips (Rectangular)	Color	Type
	TL, TL5, TGL, TGL5, TF, TF5, TGF, TGF5, ZT	Green AHX633-G Red AHX633-R White (For Neon) AHX633-W Blue AHX633-S Yellow AHX633-Y Orange AHX633-O Clear AHX633-C
	SF-680 For LED, Neon	Green AHX653-TG
Mushroom head button	Color	Type
	M, M5	Green AHX682-G Red AHX682-R White AHX682-W Blue AHX682-S Yellow AHX682-Y Orange AHX682-O Black AHX682-B
	SI-40	
Convex square head button	Color	Type
	SM, SM5	Green AHX683-G Red AHX683-R White AHX683-W Blue AHX683-S Yellow AHX683-Y Orange AHX683-O Black AHX683-B
	SI-43	
Convex rectangular head button	Color	Type
	TM, TM5	Green AHX684-G Red AHX684-R White AHX684-W Blue AHX684-S Yellow AHX684-Y Orange AHX684-O Black AHX684-B
	SI-44	

Description	Type		
Legend sheet	Round Type: AHX615 -□ Legend: ON, OFF, UP, DOWN Square Type: AHX616 -□ Legend: ON, OFF, UP, DOWN START, STOP, OPEN CLOSE, AUTO, MAN, RESET, POWER, REV, FWD, HIGH, LOW Rectangular Type: AHX617 -□ Legend: ON, OFF, UP, DOWN START, STOP, AUTO, MAN, FOWARD, REVERSE When ordering, specify desired legend in the □ at the end of ordering code, Transparent blank sheets are also available. Use black oil ink.		
SH-165			
Legend plate (Acrylic resin)	Type	Color	Dimensions, mm
Round	AHX665	White	ø12.2 x 0.9
	AHX665-C	Transparent	
	AHX665-B	Black	
Square	AHX666	White	12.2sq. x 0.9
	AHX666-C	Transparent	
	AHX666-B	Black	
Rectangular	AHX667	White	12.2 x 18.2 x 0.9
	AHX667-C	Transparent	
	AHX667-B	Black	
SH-164			
Legend plate for spot LED (Acrylic resin)	Type	Dimensions, mm	
Round	AHX650	ø12.2 x 0.9	
Square	AHX651	12.2sq. x 0.9	
Rectangular	AHX652	12.2 x 18.2 x 0.9	
SP-113			
Legend plate for selector switch (2-position)	Type: AHX664	Legend: ON-OFF Legend: Blank	
	Dimensions, mm: 24sq. x 0.5		
SH-226A			
Legend plate for symbol mark	Mark	Type	
Square	○	AHX666-E	
Rectangular	□	AHX667-E	
Square	ⓘ	AHX666-H	
Rectangular	Ⓜ	AHX667-H	
Square	Ⓣ	AHX666-T	
Rectangular	Ⓜ	AHX667-T	
AF87-74			

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164 and AH165

Accessories

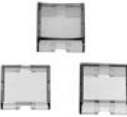
Description Protection cover  SM-378	Type For round and square head button Type: AHX671 For rectangular head button Type: AHX669 AHX826 This cover protect against accidental operation. Note: Not used for illuminated pushbuttons with guard. Applicable panel thickness is 2.6mm max. Dimensions, mm 															
Dust-tight cover  AF91-123, SI-41	For round and square head button Type: AHX822 Dimensions, mm: 24sq. x 14.2 For rectangular head button Type: AHX668 Dimensions, mm: 24 x 30 x 14.2 For mushroom head button Type: AHX649 Dimensions, mm: ø30 x 18 These covers protect against dust. Note: Applicable panel thickness is 2.0mm max.															
Guard ring  SI-42	<table><tr><th>Type</th><th>Color</th><th>Dimensions, mm</th></tr><tr><td>AHX676-B</td><td>Black</td><td>ø21 x 12</td></tr><tr><td>AHX676-GY</td><td>Gray</td><td></td></tr></table> This guard ring is used in combination with an extended round head pushbutton (L or E). Note: Applicable panel thickness is 2.5mm max. Please place an order for a packing (AHX685) separately when you intend to use for AH165 series.	Type	Color	Dimensions, mm	AHX676-B	Black	ø21 x 12	AHX676-GY	Gray							
Type	Color	Dimensions, mm														
AHX676-B	Black	ø21 x 12														
AHX676-GY	Gray															
Transformer  AF90-949	<table><tr><th>Voltage</th><th>Type</th><th>Lamp</th></tr><tr><td>100 to 110V AC</td><td>AHX805-H</td><td>LED</td></tr><tr><td>200 to 220V AC</td><td>AHX805-M</td><td></td></tr><tr><td>100 to 110V AC</td><td>AHX806-H</td><td>Incandescent</td></tr><tr><td>200 to 220V AC</td><td>AHX806-M</td><td></td></tr></table>	Voltage	Type	Lamp	100 to 110V AC	AHX805-H	LED	200 to 220V AC	AHX805-M		100 to 110V AC	AHX806-H	Incandescent	200 to 220V AC	AHX806-M	
Voltage	Type	Lamp														
100 to 110V AC	AHX805-H	LED														
200 to 220V AC	AHX805-M															
100 to 110V AC	AHX806-H	Incandescent														
200 to 220V AC	AHX806-M															

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH165-2

Accessories

■ Accessories for AH165-2

Description	Type														
Color lens (Round) 	For flush head (Used with 2F, 2F5, 2FL, 2FL5, 2Z)														
	<table> <tr><th>Color</th><th>Type</th></tr> <tr><td>Green</td><td>AHX2604-G</td></tr> <tr><td>Red</td><td>AHX2604-R</td></tr> <tr><td>Yellow</td><td>AHX2604-Y</td></tr> <tr><td>Blue</td><td>AHX2604-S</td></tr> <tr><td>Orange</td><td>AHX2604-O</td></tr> <tr><td>Clear</td><td>AHX2604-C</td></tr> </table>	Color	Type	Green	AHX2604-G	Red	AHX2604-R	Yellow	AHX2604-Y	Blue	AHX2604-S	Orange	AHX2604-O	Clear	AHX2604-C
Color	Type														
Green	AHX2604-G														
Red	AHX2604-R														
Yellow	AHX2604-Y														
Blue	AHX2604-S														
Orange	AHX2604-O														
Clear	AHX2604-C														
	For extended head (Used with 2E, 2E5, 2EL, 2EL5, 2ZE)														
	<table> <tr><th>Color</th><th>Type</th></tr> <tr><td>Green</td><td>AHX2605-G</td></tr> <tr><td>Red</td><td>AHX2605-R</td></tr> <tr><td>Yellow</td><td>AHX2605-Y</td></tr> <tr><td>Blue</td><td>AHX2605-S</td></tr> <tr><td>Orange</td><td>AHX2605-O</td></tr> <tr><td>Clear</td><td>AHX2605-C</td></tr> </table>	Color	Type	Green	AHX2605-G	Red	AHX2605-R	Yellow	AHX2605-Y	Blue	AHX2605-S	Orange	AHX2605-O	Clear	AHX2605-C
Color	Type														
Green	AHX2605-G														
Red	AHX2605-R														
Yellow	AHX2605-Y														
Blue	AHX2605-S														
Orange	AHX2605-O														
Clear	AHX2605-C														
Color lens (Square) 	For flush head (Used with 2SF, 2SF5, 2SFL, 2SFL5, 2SZ)														
	<table> <tr><th>Color</th><th>Type</th></tr> <tr><td>Green</td><td>AHX2606-G</td></tr> <tr><td>Red</td><td>AHX2606-R</td></tr> <tr><td>Yellow</td><td>AHX2606-Y</td></tr> <tr><td>Blue</td><td>AHX2606-S</td></tr> <tr><td>Orange</td><td>AHX2606-O</td></tr> <tr><td>Clear</td><td>AHX2606-C</td></tr> </table>	Color	Type	Green	AHX2606-G	Red	AHX2606-R	Yellow	AHX2606-Y	Blue	AHX2606-S	Orange	AHX2606-O	Clear	AHX2606-C
Color	Type														
Green	AHX2606-G														
Red	AHX2606-R														
Yellow	AHX2606-Y														
Blue	AHX2606-S														
Orange	AHX2606-O														
Clear	AHX2606-C														
	For extended head (Used with 2SE, 2SE5, 2SEL, 2SEL5, 2SZE)														
	<table> <tr><th>Color</th><th>Type</th></tr> <tr><td>Green</td><td>AHX2607-G</td></tr> <tr><td>Red</td><td>AHX2607-R</td></tr> <tr><td>Yellow</td><td>AHX2607-Y</td></tr> <tr><td>Blue</td><td>AHX2607-S</td></tr> <tr><td>Orange</td><td>AHX2607-O</td></tr> <tr><td>Clear</td><td>AHX2607-C</td></tr> </table>	Color	Type	Green	AHX2607-G	Red	AHX2607-R	Yellow	AHX2607-Y	Blue	AHX2607-S	Orange	AHX2607-O	Clear	AHX2607-C
Color	Type														
Green	AHX2607-G														
Red	AHX2607-R														
Yellow	AHX2607-Y														
Blue	AHX2607-S														
Orange	AHX2607-O														
Clear	AHX2607-C														
	For concave head (Used with 2SCE, 2SCE5, 2SCL, 2SCL5)														
	<table> <tr><th>Color</th><th>Type</th></tr> <tr><td>Green</td><td>AHX2608-G</td></tr> <tr><td>Red</td><td>AHX2608-R</td></tr> <tr><td>Yellow</td><td>AHX2608-Y</td></tr> <tr><td>Blue</td><td>AHX2608-S</td></tr> <tr><td>Orange</td><td>AHX2608-O</td></tr> <tr><td>Clear</td><td>AHX2608-C</td></tr> </table>	Color	Type	Green	AHX2608-G	Red	AHX2608-R	Yellow	AHX2608-Y	Blue	AHX2608-S	Orange	AHX2608-O	Clear	AHX2608-C
Color	Type														
Green	AHX2608-G														
Red	AHX2608-R														
Yellow	AHX2608-Y														
Blue	AHX2608-S														
Orange	AHX2608-O														
Clear	AHX2608-C														

AF87-631

AF87-632

Description	Type	
Legend plate 	For flush head	
	Color Type Used with	
	White AHX2609-W Incandescent lamp, LED lamp, Pushbutton *1	
	Clear AHX2609-C Neon lamp *2	
	Black AHX2609-B Pushbutton *3	
	Dimensions, mm: $\varnothing 18 \times 0.9$ *4	
	For extended head	
	Color Type Used with	
	White AHX2610-W Incandescent lamp, LED lamp, Pushbutton *1	
	Clear AHX2610-C Neon lamp *2	
Black AHX2610-B Pushbutton *3		
Dimensions, mm: $\varnothing 18 \times 4.4$ *4		
For flush square 	Color Type Used with	
	White AHX2611-W Incandescent lamp, LED lamp, Pushbutton *1	
	Clear AHX2611-C Neon lamp *2	
	Black AHX2611-B Pushbutton *3	
	Dimensions, mm: 17sq. x 0.9	
	For extended square, concave square	
	Color Type Used with	
	White AHX2612-W Incandescent lamp, LED lamp, Pushbutton *1	
	Clear AHX2612-C Neon lamp *2	
	Black AHX2612-B Pushbutton *3	
Dimensions, mm: 17sq. x 4.4		
*1 Illuminated pushbutton switches and pilot lights with incandescent lamps or LED lamps, Pushbutton switches (excluding). *2 Illuminated pushbutton switches and pilot lights with neon lamps. *3 Pushbutton switches (black) *4 Engraved range: 17mm dia.		
	Mushroom head button	For illuminated pushbuttons (Used with 2ML, 2YML)
		Color Type
Green AHX2614-G		
Red AHX2614-R		
White AHX2614-W		
Yellow AHX2614-Y		
Blue AHX2614-S		
Orange AHX2614-O		
For non-illuminated pushbuttons (Used with 2M, 2YM)		
	Color Type	
	Green AHX2613-G	
	Red AHX2613-R	
	White AHX2613-W	
	Yellow AHX2613-Y	
	Blue AHX2613-S	
	Orange AHX2613-O	
Black AHX2613-B		

AF87-631

AF87-630

AF87-633

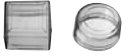
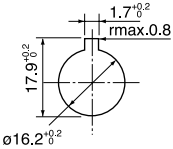
AF87-631
AF87-630

AF87-633

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH165-2

Accessories

Description	Type
Push-lock, turn-reset button  AF87-634	For illuminated pushbuttons (Used with 2VL, 2YVL) Color Type Green AHX2616-G Red AHX2616-R White AHX2616-W Yellow AHX2616-Y For pushbuttons (Used with 2V, 2YV) Color Type Green AHX2615-G Red AHX2615-R Yellow AHX2615-Y Black AHX2615-B
Dust-tight cover  AF87-636	For flush round (Used with 2F, 2FL, 2F5, 2FL5) Type: AHX2603-2 For flush square (Used with 2SF, 2SFL, 2SF5, 2SFL5) Type: AHX2603-2S These covers protect against dust.
Key washer  AF87-635	Type: AHX2601 Mounting hole, mm 

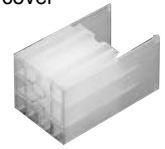
Pushbuttons/Selectors/Pilot Lights/buzzers

AH164, AH165 and AH165-2

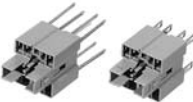
Accessories

■ Accessories for AH164, AH165 and AH165-2

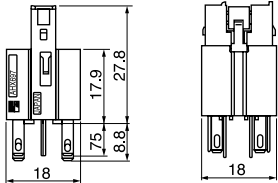
Description	Type			
Incandescent lamp	Voltage	Type		
	6V, 0.6W	AHX641		
	14V, 0.7W	AHX642		
	28V, 0.7W	AHX643		
SD-924				
LED lamp	Voltage	Type		
	5V DC	AHX695-5 □		
	6V DC	AHX695-6 □		
	12V DC	AHX695-12 □		
	24V DC	AHX695-24 □		
AF02-116	Replace the □ mark by the luminous color code Red (R), Green (G), Orange (O), Amber (A), Yellow (Y), Blue (S)			
Neon lamp	Voltage	Type	Luminous color	
	110V AC	AHX655-H AHX654-H	Green Orange	
	120V AC	AHX655-K AHX654-K	Green Orange	
	220V AC	AHX655-M AHX654-M	Green Orange	
	240V AC	AHX655-P AHX654-P	Green Orange	
SP-119				
Panel plug	Color	Type		
	Round	Black	AHX622-B IP40	
		Gray	AHX622-GY IP40	
	Square	Black	AHX644-B IP40	
		Gray	AHX644-GY IP40	
	Rectangular	Black	AHX645-B IP40	
		Gray	AHX645-GY IP40	
		Black	AHX850-B IP65	
SI-186				
Lamp changer	Type: AHX672			
	If the switch is fitted with a lamp, use this tool to remove the lamp. The tool is unnecessary when installing a lamp.			
AF02-117				
Remover	Type: AHX618			
	This tool is used for replacing the color chips or screens.			
SE-34				
Contact holder remover	Type: AHX699			
	This tool is used to remove a contact holder when switches are densely installed.			
SP-522				

Description	Type
Wrench	Type: AHX601
	When installing a command switch on a panel, this tool is useful for tightening the switch firmly and efficiently.
Terminal cover	Type: AHX2602
	This cover is used with AH164 and AH165 and AH165-2 (except pilot lights). Pass the wires through the cover, then mount the cover in position.
Contact block	Terminal Type
	Solder/Tab AGX001
	Wire-wrap AGX001-W
Dummy unit	Type: AGX002
	A dummy unit is used to fill the space where no contact blocks are installed. For example, two dummy units are used if 1NO+1NC contact block is installed, and one dummy unit is used if 2NO+2NC contact blocks are installed.
Remover	Type: AGX012
	This tool is used for replacing the contact blocks or dummy units.

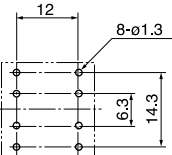
Pushbuttons/Selectors/Pilot Lights/Buzzers **AH164, AH165 and AH165-2** **Accessories**

Description	Type		
Sockets 	Terminal	Type	Used with
	Solder/Tab Wire-wrap PC board	AHX697-S AHX697-W AHX697-P	Pushbuttons
Sockets for LED 	Solder/Tab Wire-wrap	AHX697-SH3 AHX697-WH3	Illuminated pushbuttons • Contact arrangement is 2NO+2NC only. • These sockets are used only when LED lamps rated for 24V DC are used under 110V AC/DC. • Except for AH164, 165 and 165-2 series pilot lights or AH165-2PL type. • When side-by-side mounting and continuous lighting, note that a socket has higher temperature over the ambient temperature.

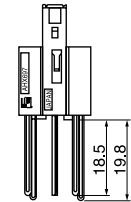
Dimensions, mm
 Solder/Tab



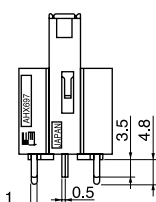
PC board mounting
 Pushbuttons



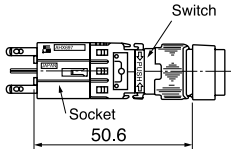
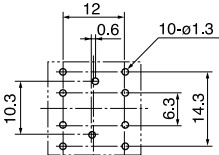
Wire-wrap



PC board



Illuminated pushbuttons



For wiring to wire-wrap pin terminals, select appropriate wire sizes and tool from the table below.

Wire size	Bit	Sleeve	Number of effective wraps
0.4mm dia.	3-A	1-B	About 8
0.5mm dia.	1-A	1-B	About 6
(0.65mm dia.)	(2-A)	(2-B)	(About 6)

Use ordinary wrapping for connection. Wires of 0.65mm dia. must not be used on adjacent terminals. However, 0.65mm dia. wire can be mixed with 0.4mm and 0.5mm dia. wires.

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Mass

■ Mass, gram

AH164 series

Type	1NO + 1NC	2NO + 2NC	3NO + 3NC
AH164-L,L5 (Without transformer)	12.5	13.5	14.5
L,L5 (With transformer)	53.5	54.5	-
SL,SL5 (Without transformer)	13.1	14.1	15.1
SL,SL5 (With transformer)	54.1	55.1	-
TL,TL5 (Without transformer)	13.9	14.9	15.9
TL,TL5 (With transformer)	54.9	55.9	-
TGL,TGL5 (Without transformer)	13.9	14.9	15.9
TGL,TGL5 (With transformer)	54.9	55.9	-
SGL,SGL5 (Without transformer)	13.1	14.1	15.1
SGL,SGL5 (With transformer)	54.1	55.1	-
AH164-E,E5	10.5	11.5	12.5
M,M5	12.5	13.5	14.5
SF,SF5	11.1	12.1	13.1
TF,TF5	11.9	12.9	13.9
TGF,TGF5	11.9	12.9	13.9
SGF,SGF5	11.1	12.1	13.1
SM,SM5	13.4	14.4	15.4
TM,TM5	13.1	14.1	15.1
AH164-P2,P0	16.4	17.4	18.4
P3,P6,P7,P1	-	17.4	18.4
PK3,PK6,PK7,PK1	-	17.4	18.4
SP2,SP0	15.8	16.8	17.8
SP3,SP6,SP7,SP1	-	16.8	17.8
SPK3,SPK6,SPK7,SPK1	-	16.8	17.8
J2,J0	30.4	31.4	32.4
J3,J6,J7,J1	-	31.6	32.6
JK3,JK6,JK7,JK1	-	31.6	32.6
SJ2,SJ0	29.8	30.8	31.8
SJ3,SJ6,SJ7,SJ1	-	30.8	31.8
SJK3,SJK6,SJK7,SJK1	-	30.8	31.8
AH164-Z (Without transformer)	6.9		
Z (With transformer)	50.9		
ZS (Without transformer)	7.5		
ZS (With transformer)	51.5		
ZT (Without transformer)	8.2		
ZT (With transformer)	52.2		
AH164-TX	16		
TX1	17.5		
TX2B	13.2		
AH164-TS	9.7		
TC	15.6		
TC4□E-□K1	46.4		
TC4□E-□K	52.8		

AH165 series

Type	1NO + 1NC	2NO + 2NC	3NO + 3NC
AH165-L,L5 (Without transformer)	12.5	13.5	14.5
L,L5 (With transformer)	53.5	54.5	-
SL,SL5 (Without transformer)	13.1	14.1	15.1
SL,SL5 (With transformer)	54.1	55.1	-
TL,TL5 (Without transformer)	13.9	14.9	15.9
TL,TL5 (With transformer)	54.9	55.9	-
TGL,TGL5 (Without transformer)	13.9	14.9	15.9
TGL,TGL5 (With transformer)	54.9	55.9	-
SGL,SGL5 (Without transformer)	13.1	14.1	15.1
SGL,SGL5 (With transformer)	54.1	55.1	-
AH165-E,E5	10.5	11.5	12.5
M,M5	12.5	13.5	14.5
SF,SF5	11.1	12.1	13.1
TF,TF5	11.9	12.9	13.9
TGF,TGF5	11.9	12.9	13.9
SGF,SGF5	11.1	12.1	13.1
SM,SM5	13.4	14.4	15.4
TM,TM5	13.1	14.1	15.1
VR	13.4 * ¹	14 * ²	-
V1R	14.3 * ¹	14.9 * ²	-
AH165-V5R	18 * ¹	18.6 * ²	-
V6R	18.9 * ¹	19.5 * ²	-
AH165-P2,P0	16.7	17.7	18.7
P3,P6,P7,P1	-	17.7	18.7
PK3,PK6,PK7,PK1	-	18	19
SP2,SP0	16.1	17.1	18.1
SP3,SP6,SP7,SP1	-	17.1	18.1
SPK3,SPK6,SPK7,SPK1	-	17.1	18.1
J2,J0	31.1	32.1	33.1
J3,J6,J7,J1	-	32.1	33.1
JK3,JK6,JK7,JK1	-	32.1	33.1
SJ2,SJ0	30.5	31.5	32.5
SJ3,SJ6,SJ7,SJ1	-	31.5	32.5
SJK3,SJK6,SJK7,SJK1	-	31.5	32.5
AH165-JM2	30	34.4	-
RJM2	29.6	34	-
AH165-Z (Without transformer)	6.9		
Z (With transformer)	50.9		
ZS (Without transformer)	7.5		
ZS (With transformer)	51.5		
ZT (Without transformer)	8.2		
ZT (With transformer)	52.2		
ZM (Without transformer)	5.4		
AH165-X	13.6		
AH165-TS	9.7		
TC	15.6		
TC4□E-□K1	46.4		
TC4□E-□K	52.8		

Note: *¹ For 1NC

*² For 2NC

Pushbuttons/Selectors/Pilot Lights/Buzzers

AH164, AH165 and AH165-2

Mass

■ Mass, gram

AH165-2 series

Type	1NO + 1NC	2NO + 2NC	3NO + 3NC
AH165-2FL,FL5	15.2	16.2	17.2
2EL,EL5	15.6	16.6	17.6
2ML	18.7	19.7	20.7
2YML	20.2	21.2	22.2
2SFL,SFL5	16.5	17.5	18.5
2SEL,SEL5	17.4	18.4	19.4
2SCL,SCL5	17.6	18.6	19.6
2VL	19.9	20.9	21.9
2YVL	21.4	22.4	23.4
AH165-2F,F5	14.4	15.4	16.4
2E,E5	14.8	15.8	16.8
2M	16.7	17.7	18.7
2YM	18.2	19.2	20.2
2SF,SF5	14.5	15.5	16.5
2SE,SE5	15.4	16.4	17.4
2SCE,SCE5	15.6	16.6	17.6
2S2	-	19	-
2YS2	-	20.6	-
2V	17.9	18.9	19.9
2YV	19.4	20.4	21.4
AH165-2P2,P0	17.1	18.1	19.1
2P3,P6,P7,P1	-	18.1	19.1
2YP2,YP0	18.7	19.7	20.7
2YP3,YP6,YP7,YP1	-	19.7	20.7
2J2,J0	40	41	42
2J3,J6,J7,J1	-	41	42
2YJ2	41.6	42.6	43.6
2YJ3,YJ6,YJ7,YJ1	-	42.6	43.6
2H	14.3	15.3	16.3
2SH	16.1	17.1	18.1
AH165-2PL2	17.3	18.3	-
2PL3	-	18.3	-
AH165-2Z	9.7		
2ZE	10.1		
2SZ	10.9		
2SZE	11.4		

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	Discontinued	Replacement	
PART #	PART #	PART #	PART #	TYPE
AH22-AA@.....@	AR22A5N-@@@@B	AH30-SAA@.....@	AR30A5N-@@@@B	Joy stick selector switch
-	AR22A5H-@@@@B	AH30-SAA@.....@-S	AR30A5H-@@@@B	
AH22-ALA@.....@	AR22A6N-@@@@B	AH30-SALA@.....@	AR30A6N-@@@@B	
-	AR22A6H-@@@@B	AH30-SALA@.....@-S	AR30A6H-@@@@B	
AH22-ALM@.....@	AR22A1N-@@@@B	AH30-SALM@.....@	AR30A1N-@@@@B	
AH22-AM@.....@	AR22A0N-@@@@B	AH30-SAM@.....@	AR30A0N-@@@@B	
-	AR22A0H-@@@@B	AH30-SAM@.....@-S	AR30A0H-@@@@B	
-	AR22A1H-@@@@B	AH30-SALM@.....@-S	AR30A1H-@@@@B	
-	AR22A2N-@@@@B	-	AR30A2N-@@@@B	
-	AR22A2H-@@@@B	-	AR30A2H-@@@@B	
-	AR22A7N-@@@@B	-	AR30A7N-@@@@B	
-	AR22A7H-@@@@B	-	AR30A7H-@@@@B	
-	-	AH30-B1#@@	AR30B0R-@@#	Giant head
-	-	AH30-B2#@@	AR30B1R-@@#	
-	-	AH30-B3#@@	AR30B2R-@@#	
-	-	AH30-B4#@@	AR30B3R-@@#	
-	-	AH30-C@@%	-	Coin
-	-	AH30-D@@%	-	Key
AH22/25-E#@@	AR22E0R-@@#	AH30-E#@@	AR30E0R-@@#	Round
AH22/25-E5#@@	AR22E5R-@@#	AH30-E5#@@	AR30E5R-@@#	extended
AH22-EL#@*%&	AR22E0L-@@*%&	-	-	head
AH22-EL5#@*%&	AR22E5L-@@*%&	-	-	
-	-	AH30F#@@/ES	AR30FVR-@@#	E-stop
AH22/25-F#@@	AR22F0R-@@#	AH30-F#@@	AR30F0R-@@#	Flush
AH22/25-F5#@@	AR22F5R-@@#	AH30-F5#@@	AR30F5R-@@#	head
AH25-G#@@	AR22G0R-@@#	AH30-G#@@	AR30G0R-@@#	w/guard
AH22/25-G1#@@	AR22G3R-@@#	AH30-G1#@@	AR30G1R-@@#	Pin-lock
-	-	AH30-G3#@@	AR30GPR-@@#	
AH25-G5#@@	-	AH30-G5#@@	-	w/guard
AH22/25-G6#@@	AR22G8R-@@#	AH30-G6#@@	AR30G6R-@@#	w/guard
AH22-GL1#@*%&	AR22G4L-@@*%&	-	-	
AH22-GL6#@*%&	AR22G9L-@@*%&	-	-	
-	-	AH30-H2@@	AR30WR-2@@#	Selector switch
-	-	AH30-H3@@	AR30WR-3@@#	
AH22/25-J0A@@%	AR22JR-0A@@%	AH30-J0A@@%	AR30JR-0A@@%	Key selector switch
AH22/25-J1E@@%	AR22JR-1E@@%	AH30-J1E@@%	AR30JR-1E@@%	
AH22/25-J2\$@@%	AR22JR-2\$@@%	AH30-J2\$@@%	AR30JR-2\$@@%	
AH22/25-J3\$@@%	AR22JR-3\$@@%	AH30-J3\$@@%	AR30JR-3\$@@%	
AH22/25-J6\$@@%	AR22JR-6\$@@%	AH30-J6\$@@%	AR30JR-6\$@@%	
AH22/25-J7\$@@%	AR22JR-7\$@@%	AH30-J7\$@@%	AR30JR-7\$@@%	
AH22-JC1E@@@%	AR22JCR-1\$@@@%	AH30-JC\$@@@%	AR30JCR-3\$@@@%	
AH22-JC3\$@@@%	AR22JCR-3\$@@@%	-	-	
AH22-JC6\$@@@%	AR22JCR-6\$@@@%	-	-	
AH22-JC7\$@@@%	AR22JCR-7\$@@@%	-	-	
-	-	AH30-K2\$@@	-	
-	-	AH30-K3\$@@	-	

@: contacts arrangement
#: color of button or groove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	Discontinued	Replacement	
PART #	PART #	PART #	PART #	TYPE
AH25-L#@*&	AR22E0L-@@*&#	AH30-L#@*&	AR30E0L-@@*&#	Extended w/guard
AH25-L2#@*&	AR22G4L-@@*&#	AH30-L2#@*&	AR30G4L-@@*&#	
AH25-L3#@*&	AR22G4L-@@*&#	AH30-L3#@*&	AR30G3L-@@*&#	
AH25-L4#@*&	AR22G4L-@@*&#	AH30-L4#@*&	AR30G4L-@@*&#	
AH25-L5#@*&	AR22E5L-@@*&#	AH30-L5#@*&	AR30E5L-@@*&#	Extended
AH25-L6#@*&	AR22G9L-@@*&#	AH30-L6#@*&	AR30G9L-@@*&#	w/guard
AH25-L7#@*&	AR22G9L-@@*&#	AH30-L7#@*&	AR30G8L-@@*&#	
AH22-M#@@	AR22M0R-@@#	AH30-M#@@	AR30M0R-@@#	Mushroom head
AH25-M#@@	AR22M4R-@@#	-	-	
-	-	AH30-M2#@@		
AH22-M2#@@	AR22M3R-@@#	AH30-M1#@@	AR30M3R-@@#	
AH22-M5#@@	AR22M5R-@@#	AH30-M5#@@	AR30M5R-@@#	
AH25-M5#@@	AR22M5R-@@#	-	-	
-	-	AH30-M6#@@	-	
AH22-M7#@@	-	AH30-M7#@@	-	
AH22-ML#@*&	AR22M0L-@@*&#	-	-	
AH22-ML5#@*&	AR22M5L-@@*&#	-	-	
AH22-MS#@@	AR22M4R-@@#	AH30-MS#@@	AR30M4R-@@#	
AH22-MS5#@@	-	AH30-MS5#@@	-	
AH22-MSL#@*&	AR22M4L-@@*&#	-	-	
AH22-MSL5#@*&	-	-	-	
-	-	AH30-NR@@	AR30N0R-@@R	Turn-lock
AH22/25-P0#@@	AR22PR-0@@#	AH30-P0#@@	AR30PR-0@@#	Selector switch
AH22/25-P1#@@	AR22PR-1@@#	AH30-P1#@@	AR30PR-1@@#	
AH22/25-P2#@@	AR22PR-2@@#	AH30-P2#@@	AR30PR-2@@#	
AH22/25-P3#@@	AR22PR-3@@#	AH30-P3#@@	AR30PR-3@@#	
AH25-P5#@@	AR22PR-6@@#	-	-	
AH22-P6#@@	AR22PR-6@@#	AH30-P5#@@	AR30PR-6@@#	
AH22-P7#@@	AR22PR-7@@#	AH30-P6#@@	AR30PR-7@@#	
AH25-PC#@@@	AR22PCR-3@@@#	AH30-PC#@@	AR30PCR-3@@@#	
AH22-PC1#@@@	AR22PCR-1@@@#	-	-	
AH22-PC3#@@@	AR22PCR-3@@@#	-	-	
AH22-PC4#@@@	AR22PCR-4@@@#	-	-	
AH22-PC5#@@@	AR22PCR-5@@@#	-	-	
AH22-PC6#@@@	AR22PCR-6@@@#	-	-	
AH22-PC7#@@@	AR22PCR-7@@@#	-	-	
AH22-PCL3#@@*&	-	-	-	
AH22-PCL4#@@*&	-	-	-	
AH22-PCL5#@@*&	-	-	-	
AH22/25-PL0#@@*&	AR22PL-0@@*&#	AH30-PL0#@@*&	AR30PL-0@@*&#	
AH22-PL1#@@*&	-	AH30-PL1#@@*&	-	
AH22/25-PL2#@@*&	AR22PL-2@@*&#	AH30-PL2#@@*&	AR30PL-2@@*&#	
AH22-PL3#@@*&	AR22PL-3@@*&#	AH30-PL3#@@*&	AR30PL-3@@*&#	
AH22-PL6#@@*&	AR22PL-6@@*&#	AH30-PL6#@@*&	AR30PL-6@@*&#	
AH22-PL7#@@*&	AR22PL-7@@*&#	AH30-PL7#@@*&	AR30PL-7@@*&#	

@: contacts arrangement
#: color of button or grove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	Discontinued	Replacement	
PART #	PART #	PART #	PART #	TYPE
AH22-PR0#@@	AR22RR-0@@#	-	-	Selector switch
AH22-PR1#@@	AR22RR-1@@#	-	-	
AH22-PR2#@@	AR22RR-2@@#	-	-	
AH22-PR3#@@	AR22RR-3@@#	-	-	
AH22-PR6#@@	AR22RR-6@@#	-	-	
AH22-PR7#@@	AR22RR-7@@#	-	-	
AH22-PRC1#@#@	AR22RCR-1#@@#	-	-	
AH22-PRC3#@#@	AR22RCR-3#@@#	-	-	
AH22-PRC4#@#@	AR22RCR-4#@@#	-	-	
AH22-PRC5#@#@	AR22RCR-5#@@#	-	-	
AH22-PRC6#@#@	AR22RCR-6#@@#	-	-	
AH22-PRC7#@#@	AR22RCR-7#@@#	-	-	
AH22/25-PW0#@@	AR22WR-0@@#	AH30-PW0#@@	AR30WR-0@@#	
AH22/25-PW1#@@	AR22WR-1@@#	AH30-PW1#@@	AR30WR-1@@#	
AH22/25-PW2#@@	AR22WR-2@@#	AH30-PW2#@@	AR30WR-2@@#	
AH22/25-PW3#@@	AR22WR-3@@#	AH30-PW3#@@	AR30WR-3@@#	
AH25-PW5#@@	AR22WR-6@@#	-	-	
AH22-PW6#@@	AR22WR-6@@#	AH30-PW5#@@	AR30WR-6@@#	
AH22-PW7#@@	AR22WR-7@@#	-	AR30WR-7@@#	
AH22-PWC1#@#@	AR22WCR-1#@@#	-	-	
AH22-PWC3#@#@	AR22WCR-3#@@#	-	-	
AH22-PWC4#@#@	AR22WCR-4#@@#	-	-	
AH22-PWC5#@#@	AR22WCR-5#@@#	-	-	
AH22-PWC6#@#@	AR22WCR-6#@@#	-	-	
AH22-PWC7#@#@	AR22WCR-7#@@#	-	-	
-	-	AH30-Q#11	-	Push-pull
AH22-Q2#@@	AR22Q2R-@@#	AH30-Q2#@@	AR30Q2R-@@#	Numerical indicator
AH22-S1C4#*(-N)	DR22N1-(N)*#	AH30-S1C4#*(-N)	DR30N1-(N)*#	
AH22-S2C4#*(-N)	DR22N2-(N)*#	AH30-S2C4#*(-N)	DR30N2-(N)*#	w/selector ring
AH22/25-S1#@@	AR22S1R-22#	AH30-S1#@@	AR30S1R-22#	
AH22/25-S2#@@	AR22S2R-@@#	AH30-S2#@@	AR30S2R-@@#	
AH22/25-S3#@@	AR22S3R-@@#	AH30-S3#@@	AR30S3R-@@#	
AH22/25-S4#@@	-	AH30-S4#@@	-	
AH22/25-S5#@@	-	AH30-S5#@@	-	Extended head
AH22/25-S6#@@	AR22S6R-@@#	AH30-S6#@@	AR30S6R-@@#	
AH22/25-SE#@@	AR22E0S-@@#	AH30-SE#@@	(AR22 series+AR9Y003)	
AH22/25-SE5#@@	AR22E5S-@@#	AH30-SE5#@@	(AR22 series+AR9Y003)	
AH22-SEL#@@*&	AR22E0M-@@*&#	-	-	Flush head
AH22-SEL5#@@*&	AR22E5M-@@*&#	-	-	
AH22/25-SF#@@	AR22F0S-@@#	AH30-SF#@@	(AR22 series+AR9Y003)	
AH22/25-SF5#@@	AR22F5S-@@#	AH30-SF5#@@	(AR22 series+AR9Y003)	
AH22-SFL#@@*&	AR22F0M-@@*&#	-	-	Selector switch
AH22-SFL5#@@*&	AR22F5M-@@*&#	-	-	
AH25-SJ2#@@	AR22JY-2\$@@%	AH30-SJ2#@@	(AR22 series+AR9Y003)	
AH25-SJ3#@@	AR22JY-3\$@@%	AH30-SJ3#@@	(AR22 series+AR9Y003)	
AH25-SL#@@*&	AR22E0M-@@*&#	AH30-SL#@@*&	(AR22 series+AR9Y003)	Extended
AH25-SL1#@@*&	AR22F0M-@@*&#	AH30-SL1#@@*&	(AR22 series+AR9Y003)	Flush
AH25-SL5#@@*&	AR22E5M-@@*&#	AH30-SL5#@@*&	(AR22 series+AR9Y003)	Extended
AH25-SL6#@@*&	AR22F5M-@@*&#	AH30-SL6#@@*&	(AR22 series+AR9Y003)	Flush
AH25-SP2#@@	AR22PY-2@@#	AH30-SP2#@@	(AR22 series+AR9Y003)	Selector switch
AH25-SP3#@@	AR22PY-3@@#	AH30-SP3#@@	(AR22 series+AR9Y003)	

@: contacts arrangement
#: color of button or groove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	Discontinued	Replacement	
PART #	PART #	PART #	PART #	TYPE
AH22-SZ#*&	DR22F3M-*&#	AH30-SZ#*&		Pilot light
AH22-TZ#*&	DR22E3N-*&#	-	-	
-	-	AH30-T#11*&	AR30Q7L-11*&#	Push-pull
AH22-UH@@	-	-	-	Wobble
AH25-UB@@	-	AH30-UB@@	-	stick
-	-	AH30-V1R@@	AR30V1R-@@R	E-stop
-	-	AH30-V5R@@	-	
-	-	AH30-V6R@@	-	
-	-	AH30-VEL1R@@	-	
-	-	AH30-VELR@@*&	AR30V2L-@@*&R	
-	-	AH30-VER@@	AR30V2R-@@R	
AH22-VJR@@	AR22V7R-@@R	-	-	
AH22-VL1R@@*&	AR22VAL-@@*&R	-	-	
AH22/25-VLR@@*&	AR22V2L-@@*&R	AH30VLR@@*&	AR30V2L-@@*&R	
AH22-VNLR@@*&	AR22VKL-@@*&R	-	-	
AH22-VNR@@	AR22VKR-@@R	-	-	Lever select
AH22/25-VR@@	AR22V2R-@@R	AH30-VR@@*	AR30V2R-@@R	
AH22-VSJR@@	AR22V7R-@@R	-	-	
AH22-VSLR@@*&	AR22V2L-@@*&R	-	-	
AH22-VSR@@	AR22V4R-@@R	-	-	
-	-	AH30-W1#@@	-	
-	-	AH30-W3#@@	-	
-	-	AH30-X1B*	DR30B6-*B	Buzzer
AH22-X2B*	DR22B3-*B	AH30-X2B*	DR30B0-*B	
AH22-XB*	DR22B5-*B	AH30-XB*	DR30B5-*B	Extended head
AH22-YE#@@	AR22E0Y-@@#	-	-	
AH22-YE5#@@	AR22E5Y-@@#	-	-	
AH22-YEL#@@*&	AR22E0P-@@*&#	-	-	
AH22-YEL5#@@*&	AR22E5P-@@*&#	-	-	
AH22-YF#@@	AR22F0Y-@@#	-	-	Flush head
AH22-YF5#@@	AR22F5Y-@@#	-	-	Selector switch
AH22-YJ0A@@%	AR22JY-0A@@%	-	-	
AH22-YJ1E@@%	AR22JY-1E@@%	-	-	
AH22-YJ2\$@@%	AR22JY-2\$@@%	-	-	
AH22-YJ3\$@@%	AR22JY-3\$@@%	-	-	
AH22-YJ6\$@@%	AR22JY-6\$@@%	-	-	
AH22-YJ7\$@@%	AR22JY-7\$@@%	-	-	
AH22-YJC1E@@@%	AR22JCY-1\$@@@%	-	-	
AH22-YJC3\$@@@%	AR22JCY-3\$@@@%	-	-	
AH22-YJC6\$@@@%	AR22JCY-6\$@@@%	-	-	
AH22-YJC7\$@@@%	AR22JCY-7\$@@@%	-	-	Mushroom head
AH22-YMS#@@	AR22M4Y-@@#	-	-	
AH22-YMS5#@@	-	-	-	

@: contacts arrangement
#: color of button or groove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	Discontinued	Replacement	
PART #	PART #	PART #	PART #	TYPE
AH22-YP0#@@	AR22PY-0@@#	-	-	Selector switch
AH22-YP1#@@	AR22PY-1@@#	-	-	
AH22-YP2#@@	AR22PY-2@@#	-	-	
AH22-YP3#@@	AR22PY-3@@#	-	-	
AH22-YP6#@@	AR22PY-6@@#	-	-	
AH22-YP7#@@	AR22PY-7@@#	-	-	
AH22-YPC1#@@@	AR22PCY-1@@@#	-	-	
AH22-YPC3#@@@	AR22PCY-3@@@#	-	-	
AH22-YPC6#@@@	AR22PCY-6@@@#	-	-	
AH22-YPC7#@@@	AR22PCY-7@@@#	-	-	
AH22-YPL0#@*%&	AR22PP-0@@*%&#	-	-	
AH22-YPL1#@*%&	AR22PP-1@@*%&#	-	-	
AH22-YPL2#@*%&	AR22PP-2@@*%&#	-	-	
AH22-YPL3#@*%&	AR22PP-3@@*%&#	-	-	
AH22-YPL6#@*%&	AR22PP-6@@*%&#	-	-	
AH22-YPL7#@*%&	AR22PP-7@@*%&#	-	-	
AH22-YPR0#@@	AR22RY-0@@#	-	-	
AH22-YPR1#@@	AR22RY-1@@#	-	-	
AH22-YPR2#@@	AR22RY-2@@#	-	-	
AH22-YPR3#@@	AR22RY-3@@#	-	-	
AH22-YPR6#@@	AR22RY-6@@#	-	-	
AH22-YPR7#@@	AR22RY-7@@#	-	-	
AH22-YPRC1#@@@	AR22RCY-1@@@#	-	-	
AH22-YPRC3#@@@	AR22RCY-3@@@#	-	-	
AH22-YPRC6#@@@	AR22RCY-6@@@#	-	-	
AH22-YPRC7#@@@	AR22RCY-7@@@#	-	-	
AH22-YPW0#@@	AR22WY-0@@#	-	-	
AH22-YPW1#@@	AR22WY-1@@#	-	-	
AH22-YPW2#@@	AR22WY-2@@#	-	-	
AH22-YPW3#@@	AR22WY-3@@#	-	-	
AH22-YPW6#@@	AR22WY-6@@#	-	-	
AH22-YPW7#@@	AR22WY-7@@#	-	-	
AH22-YPWC1#@@@	AR22WCY-1@@@#	-	-	
AH22-YPWC3#@@@	AR22WCY-3@@@#	-	-	
AH22-YPWC6#@@@	AR22WCY-6@@@#	-	-	
AH22-YPWC7#@@@	AR22WCY-7@@@#	-	-	
AH22-YS1 to 6#*%&	-	-	-	w/selector ring
AH22-YZ#*%&	DR22E3P-*%&#	-	-	Pilot light
AH22-Z#*%&	DR22E3L-*%&#	-	-	
AH22/25-ZM#*%&	DR22D0L-*%&#	AH30-ZM#*%&	DR30D0L-*%&#	
AH25-ZN#*%&		AH30-ZN#*%&	DR30F4M-*%&#	
-	DR22F4M-*%&#	-	-	
-	-	AH30-ZN1#*%&	DR30F4N-*%&#	
-	-	AH30-ZN2#*%&	DR30F4N-*%&#	
-	-	AH30-ZN4#*%&	DR30M4M-*%&#	
AH25-ZK#*%&	DR22K0L-*%&#	AH30-ZK#*%&	DR30K0L-*%&#	
AH25-ZS#*%&	DR22E3M-*%&#	-	-	
-	-	AH30-ZS#*%&	DR30F4M-*%&#	
-	-	AH30-ZV#*%&	DR30D1L-*%&#	

@: contacts arrangement
#: color of button or groove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement		Discontinued	Replacement
AH22	AH25 (*1)	AR22	AH30 (*1)	AR30
AH22-#012	AH25-PC#012	AR22&-3014#	AH30-#012	AR30&-3014#
AH22-#022	AH25-PC#022	AR22&-3024#	AH30-#022	AR30&-3024#
AH22-#032	AH25-PC#032	AR22&-303C#	AH30-#032	AR30&-303C#
AH22-#033 (*1)	-	AR22&-303C#	-	-
AH22-#042	AH25-PC#042	AR22&-3044#	AH30-#042	AR30&-3044#
AH22-#052	AH25-PC#052	AR22&-3054#	AH30-#052	AR30&-3054#
AH22-#062	AH25-PC#062	AR22&-3064#	AH30-#062	AR30&-3064#
AH22-#071	-	AR22&-307F#	-	-
AH22-#072	AH25-PC#072	AR22&-307C#	AH30-#072	AR30&-307C#
AH22-#073 (*1)	-	AR22&-307C#	-	-
AH22-#082	AH25-PC#082	AR22&-3084#	AH30-#082	AR30&-3084#
AH22-#092	AH25-PC#092	AR22&-3094#	AH30-#092	AR30&-3094#
AH22-#102	AH25-PC#102	AR22&-3104#	AH30-#102	AR30&-3104#
AH22-#112	AH25-PC#112	AR22&-311C#	AH30-#112	AR30&-311C#
AH22-#114 (*1)	-	AR22&-311C#	-	-
AH22-#122	AH25-PC#122	AR22&-3124#	AH30-#122	AR30&-3124#
AH22-#132	AH25-PC#132	AR22&-3134#	AH30-#132	AR30&-3134#
-	AH25-PC#142	AR22&-314D#	AH30-#142	AR30&-314D#
AH22-#143	-	AR22&-314D#	-	-
-	AH25-PC#152	AR22&-315A#	AH30-#152	AR30&-315A#
AH22-#153	-	AR22&-315A#	-	-
AH22-#162	AH25-PC#162	AR22&-3164#	AH30-#162	AR30&-3164#
AH22-#172	AH25-PC#172	AR22&-3174#	AH30-#172	AR30&-3174#
AH22-#182	AH25-PC#182	AR22&-3184#	AH30-#182	AR30&-3184#
AH22-#192	AH25-PC#192	AR22&-3194#	AH30-#192	AR30&-3194#
-	AH25-PC#202	AR22&-320B#	AH30-#202	AR30&-320B#
AH22-#204	-	AR22&-320B#	-	-
-	AH25-PC#212	AR22&-3094#	AH30-#212	AR30&-3094#
AH22-#412	-	AR22&-441C#	-	-
AH22-#512	-	AR22&-551C#	-	-

%: JC, PC, PRC, PWC, YPC, YPRC, YPW, YJC, PCL

\$: PC, JC

&: JCR, PCR, RCR, WCR, JCY, PCY, RCY, WCY

Note *1: Terminal wirings for AR series are different from AH series

Knob	Bezel	AH22	AH25 (*1)	AR22	AH30 (*1)	AR30
Standard	Round	PC	PC	PCR	PC	PCR
	Square	YPC	-	PCY	-	-
Long	Round	PWC	-	WCR	-	-
	Square	YPWC	-	WCY	-	-
Round	Round	PRC	-	RCR	-	-
	Square	YPRC	-	RCY	-	-
Key	Round	JC	-	JCR	JC	JCR
	Square	YJC	-	JCY	-	-
Illuminated Standard	Round	PCL	-	-	-	-

AH-series Pushbutton cross to AR-series Pushbutton

Discontinued	Replacement	
PART #	PART #	TYPE
RCa470-AE#@	AR30E5R-@@#	Round extended head
RCa470-AF@	AR30F5R-@@#	Flush head
RCa470-AG#@	-	w/guard
RCa470-AG1#@	AR30G6R-@@#	w/guard
RCa470-B1#@	AR30B0R-@@#	Giant head
RCa470-B2#@	AR30B1R-@@#	
RCa470-B3#@	AR30B2R-@@#	
RCa470-B4#@	AR30B3R-@@#	
RCa470-D@%	-	Push button w/key
RCa470-EF#@	AR30E0R-@@#	Round extended head
RCa470-F#@	AR30F0R-@@#	Flush head
RCa470-G#@	AR30G0R-@@#	w/guard
RCa470-G1#@	AR30G1R-@@#	
RCa470-H2#@	AR30WR-2@@#	Selector switch
RCa470-H3#@	AR30WR-3@@#	
RCa470-HA01#@	AR30WR-1@@#	
RCa470-J2\$@%	AR30JR-2\$@@%	Key selector switch
RCa470-J3\$@%	AR30JR-3\$@@%	
RCa470-JA01\$@%	AR30JR-1E@@%	
RCa470-JA2\$@%	AR30JR-0A@@%	
RCa470-JA3\$@%	AR30JR-6\$@@%	
RCa470-JC3\$@@@%	AR30JCR-3\$@@@%	
RCa470-K2\$@%	-	
RCa470-K3\$@%	-	
RCa470-L#@ (T)*	AR30E0L-@@*&#	Round extended head
RCa470-L#@ (T)*G	AR30G4L-@@*&#	w/guard
RCa470-L#@*GS	AR30G3L-@@*&#	
RCa470-L3#@ (T)*	-	Round extended head
RCa470-L4#1 (T)*	-	
RCa470-M#@	AR30M0R-@@#	Mushroom head
RCa470-M1#@	-	
RCa470-M2#@	AR30M3R-@@#	
RCa470-N#@	AR30N0R-@@@R	Turn-lock

@: contacts arrangement
#: color of button or groove
*: lamp voltage

&: lamp type
\$: draw-out position of key
%: type of key

Discontinued	Replacement	
PART #	PART #	TYPE
RCa470-P2#@	AR30PR-2@@#	Selector switch
RCa470-P3#@	AR30PR-3@@#	
RCa470-PA01#@	AR30PR-1@@#	
RCa470-PA2#@	AR30PR-0@@#	
RCa470-PA3#@	AR30PR-6@@#	
RCa470-PC#@@@	AR30PCR-3@@@#	
RCa470-PL3#2@*	AR30PL-2@*&#	
RCa470-PL3#3@*	AR30PL-3@*&#	
RCa470-Q#@	-	Pull type
RCa470-S1#2	AR30S1R-22#	w/selector ring
RCa470-S2#2	AR30S2R-22#	
RCa470-S3#2	AR30S3R-22#	
RCa470-S4#2	-	
RCa470-S5#2	-	
RCa470-S6#2	AR30S6R-22#	
RCa470-T#1 (T)*	AR30Q7L-11*&#	Push-pull
RCa470-UB@	AR30A!!-@@@B	Wabble stick type
RCa470-V#@	AR30V0R-@@#	E-stop
RCa470-V1#@	AR30V1R-@@R	
RCa470-V1J#@	-	
RCa470-VJ#@	-	
RCa470-W1#@	-	Lever select
RCa470-W3#@	-	
RCa470-ZK# (T)*	DR30K0L-*&#	Pilot light
RCa470-ZK3# (T)*	-	
RCa470-ZM# (T)*	DR30D0L-*&#	
RCa470-ZM3# (T)*	-	
RCa470-ZN# (T)*	DR30F4M-*&#	
RCa470-ZN1# (T)*	DR30F4N-*&#	
RCa470-ZN2# (T)*	-	
RCa470-ZN3# (T)*	-	
RCa470-ZS# (T)*	-	
RCa470-ZS3# (T)*	-	

■ TERMS AND CONDITIONS OF SALE

Prices

All prices are subject to change without notice. In the event of a price change, the effective date of the change will be the date on the new price or discount schedule sheet.

All quotations made or orders accepted after the effective date will be based on the new prices.

Quotations

Written quotations are valid for 30 days from its date unless otherwise stated in the quotation. Verbal quotations expire the same day they are made.

Taxes

The price does not include any taxes. Buyer shall be responsible for the payment of all applicable taxes.

Terms of payment

Terms of payment will be listed on the quotations.

Minimum orders

Terms of minimum order will be shown on quotations, or if orders amounting to less than the latest minimum order amount, a handling fee will be applied.

Delivery

Delivery of products shall be FOB point of origin in the U.S. Seller shall determine the point of origin of shipment. All shipping and other charges shall be paid by Buyer.

Packing

Prices include standard domestic packing. Additional special packing costs required for export or by Buyer's request will be charged to Buyer.

Weight and Dimensions

The weight and dimensions of products described in this catalog are the best information available at the time of going to press. As Seller follows a policy of continuous product improvement, design changes may make this information obsolete. Information in this catalog is subject to change without notice.

Inspection and acceptance of products

Buyer is responsible for evaluating received products or damage for final acceptance. All claims of shortage must be made within thirty (30) days of receipt of products.

Return / Cancellation

No product shall be returned or canceled unless return/order cancel authorization has been secured from Seller. All returns/cancellations must comply with Seller's then current Return / Cancellation policy.

Risk of Loss

Risk of loss or damage to the product shall pass to Buyer at the FOB point.

Catalog Disclaimer

The information contained in this catalog does not constitute an express or implied warranty of quality, any warranty of merchantability or fitness for a particular purpose is hereby disclaimed.

Since the Buyer's product information, specific use application, and conditions of use are all outside of Seller's control, it shall be the responsibility of the Buyer to determine the suitability of any of the products mentioned for the Buyer's application.

ONE YEAR LIMITED WARRANTY

The products identified in this catalog shall be sold pursuant to the terms and conditions identified in the Conditions of Sale issued by Fuji Electric with each order confirmation.

Except to the extent otherwise provided for in the Conditions of Sale issued by Fuji Electric, Fuji Electric warrants that the Fuji Electric products identified in this catalog shall be free from significant defects in materials and workmanship provided the products have not been: (1) repaired or altered by others than Fuji Electric; (2) subjected to negligence, accident, misuse, or damage by circumstances beyond Fuji Electric's control; (3) improperly operated, maintained or stored; or (4) used in other than normal use or service. This warranty shall apply only to defects appearing within one (1) year from the date of shipment by Fuji Electric, and in such case, only if such defects are reported to Fuji Electric within thirty (30) days of discovery by purchaser.

Such notice should be submitted in writing to Fuji Electric Corp. of America. The sole and exclusive remedy with respect to the above warranty whether such claim is based on warranty, contract, negligence, strict liability or any other theory, is limited to the repair or replacement of such

product or, at Fuji Electric's option, reimbursement by Fuji Electric of the purchase price paid to Fuji Electric for the particular product.

FUJI ELECTRIC DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, WHETHER ORAL OR IN WRITING, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY REGARDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Except as provided in the Conditions of Sale, no agent or representative of Fuji Electric is authorized to modify the terms of this Warranty in writing or orally.

In no event shall Fuji Electric be liable for special, indirect or consequential damages, including but not limited to, loss of use of the product, other equipment, plant, power system, loss of profits or revenues, cost of capital, or claims against the purchaser or user by its customers resulting from the use of information, recommendations and descriptions contained herein. Purchaser agrees to pass on to its customers and users, in writing at the time inquiries and orders are received by buyer, Fuji Electric's warranty as set forth above.

Your local authorized stocking distributor is:

FUJI ELECTRIC CORP. OF AMERICA

Website: www.fujielectric.com

FUJI ELECTRIC (JAPAN)

Website: www.fujielectric.co.jp

INFORMATION IN THIS CATALOG IS SUBJECT TO CHANGE WITHOUT NOTICE.

Printed in USA 2008/5M