Fuji Electric

Innovating Energy Technology

COMMAND SWITCHES

AR22•DR22/AR30•DR30
AH164•AH165•AH165-2
16mm/22mm/30mm Diameter



TÜV Rheinland

USEH417c

Preface

Fuji Electric manufactures FUJI COMMAND SWITCHES - pushbuttons, illuminated pushbuttons, emergency stops, 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. Raliability is of course, built in to handle complex multifunctional control.

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■ Command series

AR22/DR22



AF94-320

- 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



AF94-310



AF98-88

AH164, 165



SK-1103

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



SK-1138

AR30/DR30



AF95-4

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



AF95-6



AF98-195

AH165-2



AF87-211

- 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



AF87-208

AR22 and DR22
General information

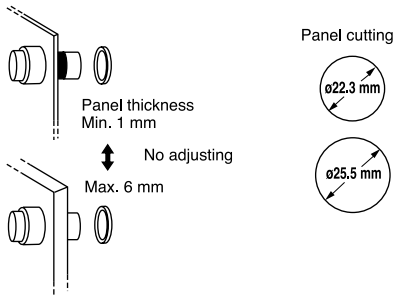
The AR22 now uses a release arm with a wedge mechanism developed by Fuji Electric FA. This enables you to mount or remove the operator and contact block without using any tools. When fitting the switch to a panel, you can ignore the panel thickness.
You have only to secure the operator with a locking 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

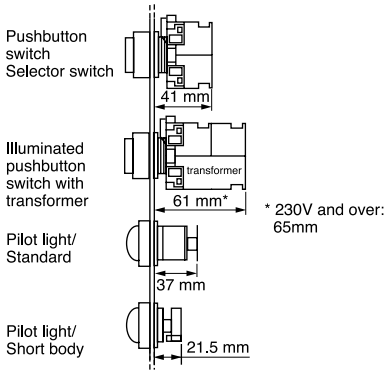
Facilitated mounting

- 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.



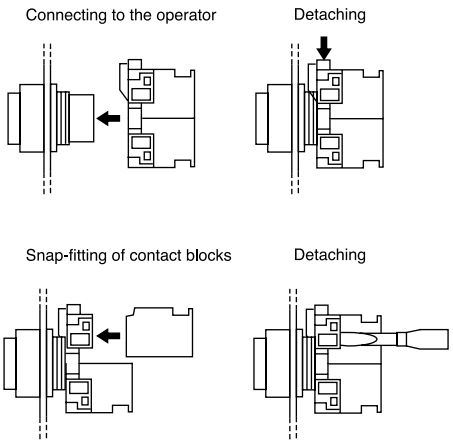
Miniaturization

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



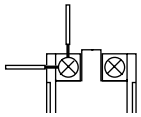
Easy replacing contact block and transformer

- 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

■ 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

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.)	**AR22V0R**  KKD05-020b	Push-lock, turn-reset (29mm dia.)	**AR22V4R**  AF95-53	Unibody push-lock, turn-reset (Soft-touch 40mm dia.)	**AR22VGE**  KKD16-078
Push-lock, turn-reset (40mm dia.) *See page 04/23, 04/44*	**AR22V2R**  KKD05-020b	Key release push-lock, turn-reset (40mm dia.)	**AR22V7R**  AF98-37		
Push-lock, turn-reset (Soft-touch 29mm dia.)	**AR22VSR**  KKD16-080	Push-lock, pull-reset (35mm dia.)	**AR22Q2R**  AF95-52		

Notes: Provided with the ⇒ (Direct opening action)

■ Emergency stop illuminated pushbutton switches (conform to EN418)

Operator	Type	Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia.)	**AR22V0L**  KKD16-061	Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors)	**AR22VDL**  KKD06-340	Push-lock, turn-reset (Soft touch 29mm dia.)	**AR22VSL**  KKD16-069
Push-lock, turn-reset (40mm dia.)	**AR22V2L**  KKD06-337	Push-lock, turn-reset (40mm dia. transparent in all colors)	**AR22VAL**  AF94-365	Unibody push-lock, turn-reset (Soft-touch 40mm dia.)	**AR22VGF**  KKD16-079

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

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

Discontinued

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

Discontinued

Discontinued

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*2
V0L: Push-lock, turn-reset (Soft-touch 40mm dia.)
V2L: Push-lock, turn-reset (40mm dia.)
VDL: Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors)
VAL: Push-lock, turn-reset (40mm dia. transparent in all colors)
VSL: Push-lock, turn-reset (Soft-touch 29mm dia.)
VGF: Unibody push-lock, turn-reset (Soft-touch 40mm dia.)

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
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
•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 *3	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 To order the V0L, VDL, VSL, and VGF types with white arrows, please append the code Z399 to the end of the standard part number.
*3 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.

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 *2
V0R: Push-lock, turn-reset (Soft-touch 40mm dia.)
V2R: Push-lock, turn-reset (40mm dia.)
VSR: Push-lock, turn-reset (Soft-touch 29mm dia.)
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.)

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
R: Red*3
B: Black
W: White
T: Green, Red, Black (For AR22F0R)
Y: Yellow
A: Orange
S: Blue
C: Clear (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	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

Notes: *1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.
*2 To order the V0R, VGE, and VSR types with white arrows, please append the code Z399 to the end of the standard part number.
*3 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.

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.

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

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

•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

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
R: Red
W: White
Y: Yellow
A: Orange
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.

Joy stick selector switches

AR22A 0 N – A0A0 B
① ②③ ④ ⑤

① **Product category**
AR22A: 22mm-dia. Joy stick selector switch

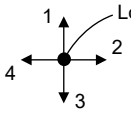
② **Handle**
0: Ball type (without lock, manual return)
1: Ball type with lock (manual return)
2: Rubber cap type (without lock, manual return)
5: Ball type (without lock, spring return)
6: Ball type with lock (spring return)
7: Rubber cap type (without lock, spring return)

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



Locked position
1: Upper 2: Right
3: Lower 4: Left

Ex. AR22A0N-A 0 A 0 B
1 2 3 4

⑤ **Handle color**
B: Black

Buzzers

DR22B 5 – E B
① ② ③④

① **Product category**
DR22B: 22mm-dia. buzzer

② **Sound**
5: Electronic sound
8: Electronic sound (IP54)

③ **Operating voltage**
6: 6V DC (Type “5”, “8”)
E: 12-24V AC/DC (Type “3” : 24V AC/DC)
H: 100-110V AC
M: 200-220V AC
1: 100-110V DC (Type “5”, “8”)

④ **Color of head**

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)**

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 EN60947-5-5	Emergency stop pushbutton 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/s^2), according to the test condition of EN60947-5-5 (1998)
*6 Emergency stop type: 150m/s^2
*7 AR22VGE type: -20 to +60°C, illuminated type: -20 to +50°C

● Mechanical durability

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

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

Discontinued

AR22 and DR22
Ratings and specifications

■ Contact ratings

● UL/CSA standards

AC (COS ø=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	10A	24V	6.0A	4.0A (AR22VG: 1.5A)
Pushbutton (Except the selector ring type)		120V	6.0A (AR22VG: 3A)	–
Emergency stop pushbutton switch		125V	–	1.3A (AR22VG: 0.3A)
Emergency stop illuminated pushbutton switch		240V	6.0A (AR22VG: 3A)	–
Selector switch (2-position)		250V	–	0.45A(AR22VG: 0.15A)
Illuminated selector switch (2-position)		480V	2.5A (AR22VG: –)	–
		600V	2.0A (AR22VG: –)	–
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	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
	24V AC/DC	APX510-24□	24V AC/DC	12mA AC, 11mA DC	AHX129	30V AC/DC	0.8W
With transformer (Standard type: AR9T511)	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
	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 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

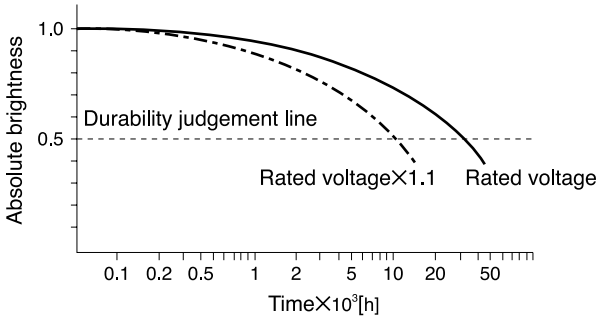
Notes: Lamp base: BA9S/13

■ 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

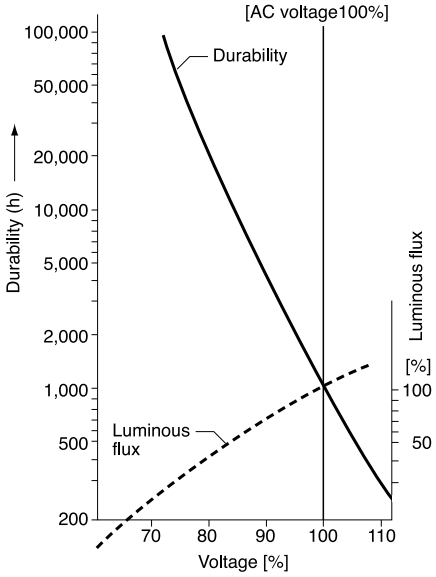
Note: The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.

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

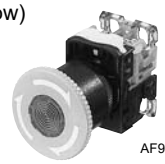
Lens		LED or neon lamp	
Color	Code	Luminous color	Type
Green	G	Green	APX510-■G
Red	R	Red	APX510-■R
White	W	Orange	APX510-■O
Yellow	Y	Yellow	APX510-■Y
Orange *	A	Amber	APX510-■A
Blue	S	Blue	APX510-■S
Red (AR22VGF)	R	Red	AR9L002-ER
		Orange (Neon lamp)	AR9N001-■A

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

■ Illuminated pushbutton switches

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

Note: ■ □ *See page 19*

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

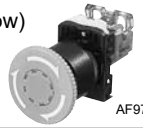
•Voltage

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

■ Pushbutton switches

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

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

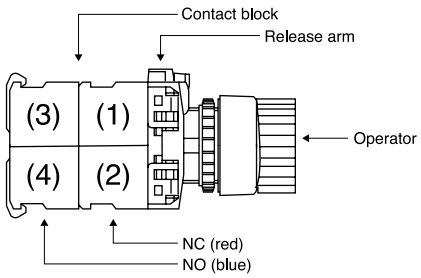
Symbol mark	◯		I		Ⓣ		◯	I	Ⓣ
Color of button	White	Black	White	Black	White	Black	Clear		
Color of mark	Red		Green		Green		Black		
Code	01	02	03	04	11	12	02B	04B	12B

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	**AR22S1R-22G**	(1)	NC	—	—	●	—
		Red	**AR22S1R-22R**						
		Black	**AR22S1R-22B**	(2)	NC	—	—	●	—
		White	**AR22S1R-22W**						
		Yellow	**AR22S1R-22Y**	(3)	NO	—	●	—	●
		Orange	**AR22S1R-22A**						
		Blue	**AR22S1R-22S**	(4)	NO	—	●	—	●
	2NO	Green	**AR22S2R-20G**	(1)	NO	—	●	—	—
		Red	**AR22S2R-20R**						
		Black	**AR22S2R-20B**	(2)	NO	—	—	—	●
		White	**AR22S2R-20W**						
		Yellow	**AR22S2R-20Y**						
		Orange	**AR22S2R-20A**						
		Blue	**AR22S2R-20S**						
	2NO+2NC	Green	**AR22S2R-22G**	(1)	NC	●	—	▬	
		Red	**AR22S2R-22R**						
		Black	**AR22S2R-22B**	(2)	NC	▬		●	—
		White	**AR22S2R-22W**						
		Yellow	**AR22S2R-22Y**	(3)	NO	—	●	—	—
		Orange	**AR22S2R-22A**						
		Blue	**AR22S2R-22S**	(4)	NO	—	—	—	●
	2NO+2NC	Green	**AR22S3R-22G**	(1)	NC	—	—	▬	
		Red	**AR22S3R-22R**						
		Black	**AR22S3R-22B**	(2)	NC	▬		—	—
		White	**AR22S3R-22W**						
		Yellow	**AR22S3R-22Y**	(3)	NO	—	●	—	—
		Orange	**AR22S3R-22A**						
		Blue	**AR22S3R-22S**	(4)	NO	—	—	—	●
	2NO+2NC	Green	**AR22S6R-22G**	(1)	NC	●	—	—	Locked
		Red	**AR22S6R-22R**						
		Black	**AR22S6R-22B**	(2)	NC	●	—	—	
		White	**AR22S6R-22W**						
		Yellow	**AR22S6R-22Y**	(3)	NO	—	●	●	
		Orange	**AR22S6R-22A**						
		Blue	**AR22S6R-22S**	(4)	NO	—	●	●	

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

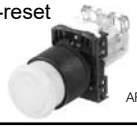
● Contact closed
— Contact open

•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.)  KKD05-020b	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.)  KKD16-080	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

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.)  KKD16-078	1NC 1NO+1NC 2NC	**AR22VGE-01R** **AR22VGE-11R** **AR22VGE-02R**

•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.
• **To order the AR22V0R, AR22VGE, and AR22VSR with white arrows, please append the code Z399 to the end of the standard part number.**

■ 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.)  KKD16-061	Without	1NC	**AR22V0L-01■3R**	**AR22V0L-01■4R**	—
		1NO+1NC	**AR22V0L-11■3R**	**AR22V0L-11■4R**	—
		2NC	**AR22V0L-02■3R**	**AR22V0L-02■4R**	—
		3NC	**AR22V0L-03■3R**	**AR22V0L-03■4R**	—
	With	1NC	**AR22V0L-01■3R**	**AR22V0L-01■4R**	—
		1NO+1NC	**AR22V0L-11■3R**	**AR22V0L-11■4R**	—
		2NC	**AR22V0L-02■3R**	**AR22V0L-02■4R**	—
Push-lock, turn-reset (40mm dia.)  AF94-307	Without	1NC	**AR22V2L-01■3R**	**AR22V2L-01■4R**	—
		1NO+1NC	**AR22V2L-11■3R**	**AR22V2L-11■4R**	—
		2NC	**AR22V2L-02■3R**	**AR22V2L-02■4R**	—
		3NC	**AR22V2L-03■3R**	**AR22V2L-03■4R**	—
	With	1NC	**AR22V2L-01■3R**	**AR22V2L-01■4R**	—
		1NO+1NC	**AR22V2L-11■3R**	**AR22V2L-11■4R**	—
		2NC	**AR22V2L-02■3R**	**AR22V2L-02■4R**	—
Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors)  KKD06-340	Without	1NC	**AR22VDL-01■3R**	**AR22VDL-01■4R**	—
		1NO+1NC	**AR22VDL-11■3R**	**AR22VDL-11■4R**	—
		2NC	**AR22VDL-02■3R**	**AR22VDL-02■4R**	—
		3NC	**AR22VDL-03■3R**	**AR22VDL-03■4R**	—
	With	1NC	**AR22VDL-01■3R**	**AR22VDL-01■4R**	—
		1NO+1NC	**AR22VDL-11■3R**	**AR22VDL-11■4R**	—
		2NC	**AR22VDL-02■3R**	**AR22VDL-02■4R**	—
Push-lock, turn-reset (40mm dia. transparent in all colors)  AF94-364	Without	1NC	**AR22VAL-01■3R**	**AR22VAL-01■4R**	—
		1NO+1NC	**AR22VAL-11■3R**	**AR22VAL-11■4R**	—
		2NC	**AR22VAL-02■3R**	**AR22VAL-02■4R**	—
		3NC	**AR22VAL-03■3R**	**AR22VAL-03■4R**	—
	With	1NC	**AR22VAL-01■3R**	**AR22VAL-01■4R**	—
		1NO+1NC	**AR22VAL-11■3R**	**AR22VAL-11■4R**	—
		2NC	**AR22VAL-02■3R**	**AR22VAL-02■4R**	—
Push-lock, turn-reset (Soft-touch 29mm dia.)  KKD16-069	Without	1NC	**AR22VSL-01■3R**	**AR22VSL-01■4R**	—
		1NO+1NC	**AR22VSL-11■3R**	**AR22VSL-11■4R**	—
		2NC	**AR22VSL-02■3R**	**AR22VSL-02■4R**	—
		3NC	**AR22VSL-03■3R**	**AR22VSL-03■4R**	—
	With	1NC	**AR22VSL-01■3R**	**AR22VSL-01■4R**	—
		1NO+1NC	**AR22VSL-11■3R**	**AR22VSL-11■4R**	—
		2NC	**AR22VSL-02■3R**	**AR22VSL-02■4R**	—
Unibody push-lock, turn-reset (Soft-touch 40mm dia.)  KKD16-079	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.
• **To order the AR22V0L, AR22VDL, AR22VSL, and AR22VGF with white arrows, please append the code Z399 to the end of the standard part number.**

•Voltage

Replace the ■ mark by the lamp voltage code

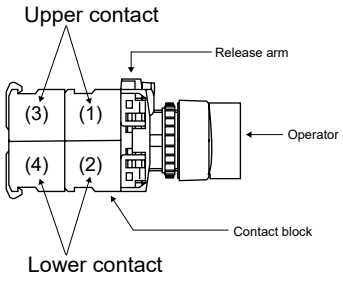
Transformer		Code LED	Incandescent	Neon
Without	6V DC	6	—	—
	6V AC	A	—	—
	5V AC/DC	—	5	—
	12V AC/DC	B	—	—
	15V AC/DC	C	C	—
	20V AC/DC	—	D	—
	24V AC/DC	E	E	—
	110V AC	—	—	H
	120V AC	—	—	K
	220V AC	—	—	M
	240V AC	—	—	P

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
2-position

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

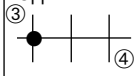
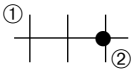
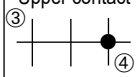
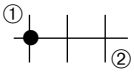
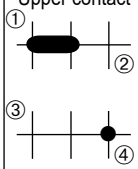
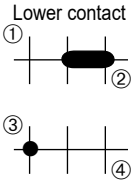
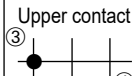
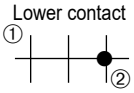
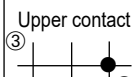
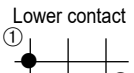
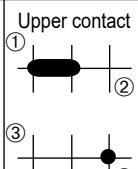
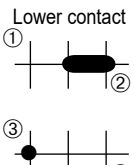
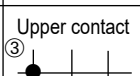
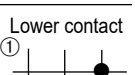
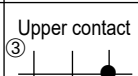
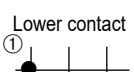
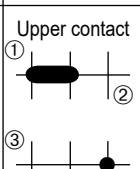
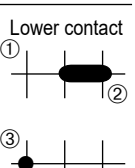


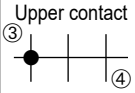
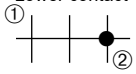
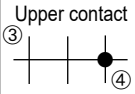
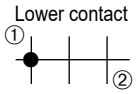
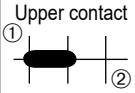
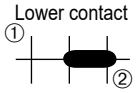
Notes: • (1) to (4): Contact block mounting position
• ① – ②, ③ – ④: Contact block terminal No.
• Contact arrangements: *See page 27*

● Contact closed

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

3-position

Operator	Operation	Knob color	Contact	Type: Switch with round bezel	Type: Switch with square bezel	Contact operation (Example): Contact arrangement	Contact operation (Example): Operation position L C R	Contact operation (Example): Operation position L C R
Knob  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)	Upper contact 	Lower contact 
	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)	Upper contact 	Lower contact 
	Spring return each 45°		2NO+2NC	**AR22PR-122B**	**AR22PY-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact 	Lower contact 
Lever  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)	Upper contact 	Lower contact 
	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)	Upper contact 	Lower contact 
	Spring return each 45°		2NO+2NC	**AR22WR-122B**	**AR22WY-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact 	Lower contact 
Cylindrical knob  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)	Upper contact 	Lower contact 
	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)	Upper contact 	Lower contact 
	Spring return each 45°		2NO+2NC	**AR22RR-122B**	**AR22RY-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact 	Lower contact 

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	Operator position L C R
Key  AF94-311	Maintained each 45˚	■: Key removable position ( ): Key type	1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-3■11( ) AR22JY-3■11( )** **AR22J□R-3■20( ) AR22JY-3■20( )** **AR22J□R-3■02( ) AR22JY-3■02( )** **AR22J□R-3■22( ) AR22JY-3■22( )**	1NO+1NC (1) (2)	Upper contact 	Lower contact 
	Spring/manual return each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-6■11( ) AR22JY-6■11( )** **AR22J□R-6■20( ) AR22JY-6■20( )** **AR22J□R-6■02( ) AR22JY-6■02( )** **AR22J□R-6■22( ) AR22JY-6■22( )**			
	Spring/manual return each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-7■11( ) AR22JY-7■11( )** **AR22J□R-7■20( ) AR22JY-7■20( )** **AR22J□R-7■02( ) AR22JY-7■02( )** **AR22J□R-7■22( ) AR22JY-7■22( )**	1NO+1NC (1) (2)	Upper contact 	Lower contact 
	Spring return each 45˚		2NO+2NC	**AR22J□R-1E22( ) AR22JY-1E22( )**	2NO+2NC (1) (2) (3) (4)	Upper contact 	Lower contact 

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

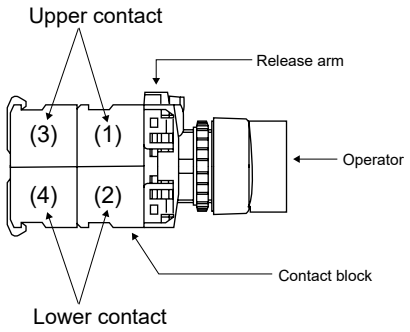
Mainted	Spring return Spring/manual return
6-contact block	4-contact block

• 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 (control type)

3-position

Operator	Operation	Knob color or key removable position	Contact arrangement	Type Switch with round bezel	Type 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 each 45˚			**AR22PCR-6■B**	**AR22PCY-6■B**
	Spring/manual return each 45˚			**AR22PCR-7■B**	**AR22PCY-7■B**
	Spring return 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 each 45˚			**AR22WCR-6■B**	**AR22WCY-6■B**
	Spring/manual return each 45˚			**AR22WCR-7■B**	**AR22WCY-7■B**
	Spring return 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 each 45˚			**AR22RCR-6■B**	**AR22RCY-6■B**
	Spring/manual return each 45˚			**AR22RCR-7■B**	**AR22RCY-7■B**
	Spring return 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 each 45˚			**AR22JCR-6□■( )**	**AR22JCY-6■□( )**
	Spring/manual return each 45˚			**AR22JCR-7□■( )**	**AR22JCY-7■□( )**
	Spring return 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

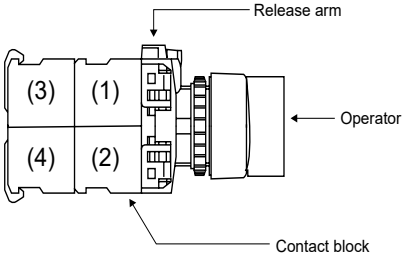
•Key code No.
Replace the ( ) mark with one of the following key code.
A, B, C, D, E and F
Standard key code is A.

• 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			●
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	●		

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

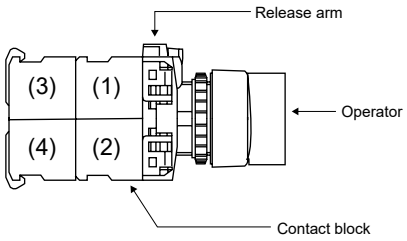
• Contact arrangement code (Typical example)

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			●

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	●		

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

• Position of contact block

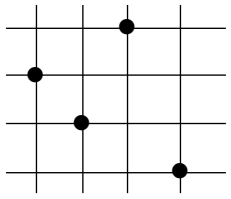
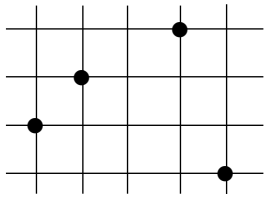


Notes: Contact block color
NC: red
NO: blue

4, 5-position

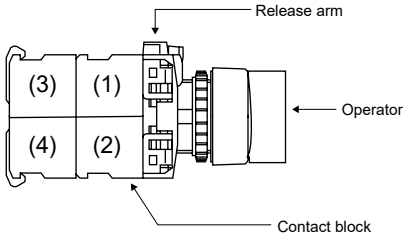
Operator	Contact (The following contact is only available.)	Operation	Knob color	Contact arrangement	Type Switch with round bezel	Switch with square bezel
Knob  AF94-435	2NO+2NC	4-position maintained	Color code: B: Black (Standard) Color other than above are available (G: Green R: Red)	Replace the ■ 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		
			Contact block		Operator position
			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.

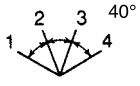
• Position of contact block

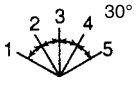


Notes: Contact block color
NC: red
NO: blue

Operator position

4-position **5-position**





■ Illuminated selector switches

2-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
Knob  AF94-306	Maintained each 90°	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□**
Knob with square bezel  AF94-360	Maintained each 90°	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□**
	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
Knob  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□**
Knob with square bezel  AF94-360	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□**
	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	Code 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

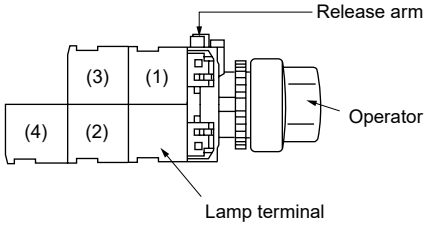
3-position

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	–	–	●

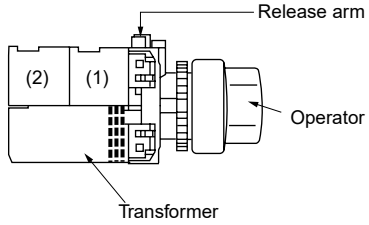
Notes: *1 : AR22PL-3, 6 AR22PP-3, 6 *3 : AR22PL-3 AR22PP-3
*2 : AR22PL-7, AR22PP-7
● : Contact closed, – : Contact open

● Position of contact block

Without transformer



With transformer



■ Pilot lights/standard

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

Note: ☐ *See page 37*

■ Pilot lights/short-body without transformer

Lens	LED lamp		Incandescent lamp	
	Lamp voltage	Type	Lamp voltage	Type
Dome  AF98-88	5.5V AC/DC	—	5.5V AC/DC	**DR22D0L-58**□
	6V AC 6V DC 12V AC/DC	**DR22D0L-A9**□ **DR22D0L-69**□ **DR22D0L-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22D0L-C8**□
	24V AC/DC	**DR22D0L-E9**□	24V AC/DC	**DR22D0L-E8**□
Extended round  AF98-90	5.5V AC/DC	—	5.5V AC/DC	**DR22E3L-58**□
	6V AC 6V DC 12V AC/DC	**DR22E3L-A9**□ **DR22E3L-69**□ **DR22E3L-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22E3L-C8**□
	24V AC/DC	**DR22E3L-E9**□	24V AC/DC	**DR22E3L-E8**□
Faceted  AF98-89	5.5V AC/DC	—	5.5V AC/DC	**DR22K0L-58**□
	6V AC 6V DC 12V AC/DC	**DR22K0L-A9**□ **DR22K0L-69**□ **DR22K0L-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22K0L-C8**□
	24V AC/DC	**DR22K0L-E9**□	24V AC/DC	**DR22K0L-E8**□
Flush square  AF98-92	5.5V AC/DC	—	5.5V AC/DC	**DR22F3M-58**□
	6V AC 6V DC 12V AC/DC	**DR22F3M-A9**□ **DR22F3M-69**□ **DR22F3M-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22F3M-C8**□
	24V AC/DC	**DR22F3M-E9**□	24V AC/DC	**DR22F3M-E8**□
Flush square (Transparent lens)  AF98-92	5.5V AC/DC	—	5.5V AC/DC	**DR22F4M-58**□
	6V AC 6V DC 12V AC/DC	**DR22F4M-A9**□ **DR22F4M-69**□ **DR22F4M-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22F4M-C8**□
	24V AC/DC	**DR22F4M-E9**□	24V AC/DC	**DR22F4M-E8**□
Flush square (12mm high frame)  AF98-94	5.5V AC/DC	—	5.5V AC/DC	**DR22F5M-58**□
	6V AC 6V DC 12V AC/DC	**DR22F5M-A9**□ **DR22F5M-69**□ **DR22F5M-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22F5M-C8**□
	24V AC/DC	**DR22F5M-E9**□	24V AC/DC	**DR22F5M-E8**□
Extended square  AF98-93	5.5V AC/DC	—	5.5V AC/DC	**DR22E3M-58**□
	6V AC 6V DC 12V AC/DC	**DR22E3M-A9**□ **DR22E3M-69**□ **DR22E3M-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22E3M-C8**□
	24V AC/DC	**DR22E3M-E9**□	24V AC/DC	**DR22E3M-E8**□
Flush rectangular  KK02-234B	5.5V AC/DC	—	5.5V AC/DC	**DR22E3N-58**□
	6V AC 6V DC 12V AC/DC	**DR22E3N-A9**□ **DR22E3N-69**□ **DR22E3N-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22E3N-C8**□
	24V AC/DC	**DR22E3N-E9**□	24V AC/DC	**DR22E3N-E8**□
Extended round with square bezel  AF98-91	5.5V AC/DC	—	5.5V AC/DC	**DR22E3P-58**□
	6V AC 6V DC 12V AC/DC	**DR22E3P-A9**□ **DR22E3P-69**□ **DR22E3P-B9**□	6V AC 6V DC 15V AC/DC	— — **DR22E3P-C8**□
	24V AC/DC	**DR22E3P-E9**□	24V AC/DC	**DR22E3P-E8**□

Note: □ *See page 37*

■ 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.

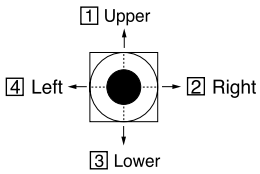
Description	Voltage	Code			
		Standard type		Short-body type	
		LED	Incandescent	LED	Incandescent
Without transformer	5.5V AC/DC	–	54	–	58
	6V AC	A3	–	A9	–
	6V DC	63	–	69	–
	12V AC/DC	B3	–	B9	–
	15V AC/DC	C3	C4	C9	C8
	20V AC/DC	–	D4	–	D8
	24V AC/DC	E3	E4	E9	E8
With transformer	100-110V AC	H3	H4	H9	H8
	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

Handle	Terminal	Operating directions	Contact arrangement	Type: Manual return	Type: Spring return
Ball type without lock	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**
		✛	1NO + 1NC × 4	**AR22A0H-1111B**	**AR22A5H-1111B**
			2NO + 2NC × 4	**AR22A0H-2222B**	**AR22A5H-2222B**
 AF97-49					
Ball type with lock	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**
		✛	1NO + 1NC × 4	**AR22A1H-1111B**	**AR22A6H-1111B**
			2NO + 2NC × 4	**AR22A1H-2222B**	**AR22A6H-2222B**
 AF97-45					
Rubber cap type without lock	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**
 AF97-56					

• 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.

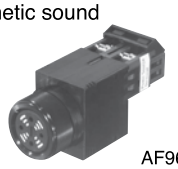


• Contact arrangement

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	**DR22B5-AB** Discontinued
			6V DC	**DR22B5-6B**
			12 to 24V AC/DC	**DR22B5-EB**
			35 to 48V AC/DC	**DR22B5-FB** Discontinued
		With	100 to 110V AC	**DR22B5-HB**
			200 to 220V AC	**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	**DR22B3-HB**
			200 to 220V AC	**DR22B3-MB**
Electronic sound (IP54)  AF96-244	• Intermittent/continuous sound selection • Sound level: 80dB (0.1m) 60dB (1m)	Without	6V AC	**DR22B8-AB** Discontinued
			6V DC	**DR22B8-6B**
			12 to 24V AC/DC	**DR22B8-EB**
			35 to 48V AC/DC	**DR22B8-FB** Discontinued
		With	100 to 110V AC	**DR22B8-HB**
			200 to 220V AC	**DR22B8-MB**
		With resistor unit	100 to 110V DC	**DR22B8-1B** Discontinued

Discontinued 2009

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

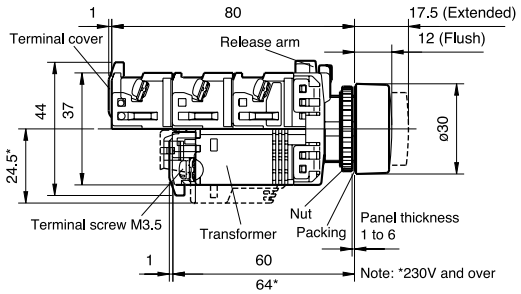
• Sound volume adjustment (DR22B3)
Use a flat-bladed screwdriver with a narrow tip to gently turn "Control knob" shown in the dimensions diagram on the 49 page, as follows.
• Clockwise → Increase sound pressure
• Counterclockwise → Decrease sound pressure

AR22 and DR22
Dimensions

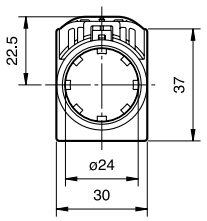
■ Dimensions, mm
•Illuminated pushbutton switches

Flush/Extended

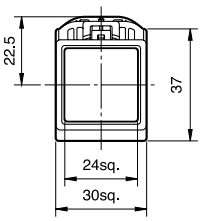
With transformer



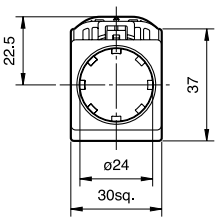
AR22F0L, F5L
AR22E0L, E5L



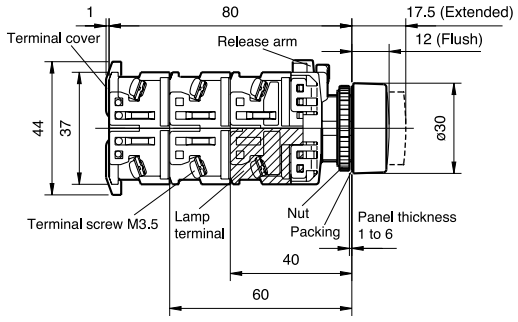
AR22F0M, F5M
AR22E0M, E5M



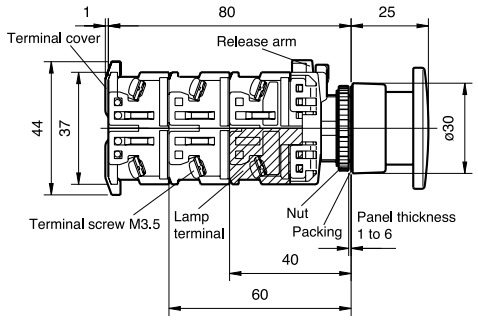
AR22F0P, F5P
AR22E0P, E5P



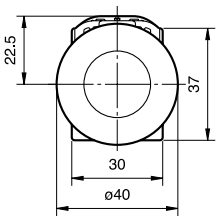
Without transformer



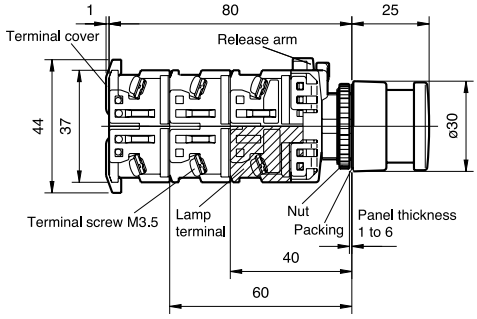
Mushroom (40mm dia.)



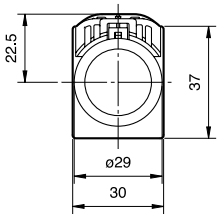
AR22M0L, M5L



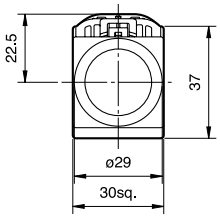
Mushroom (29mm dia.)



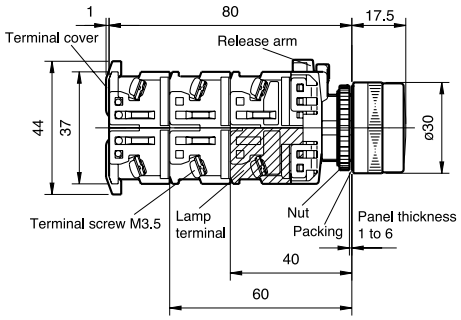
AR22M4L, M9L



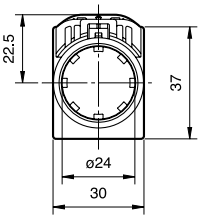
AR22M4P



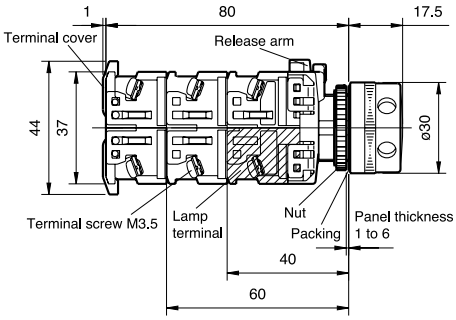
Extended with full guard



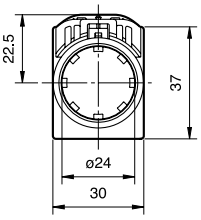
AR22G4L, G9L
AR22G1L, G6L



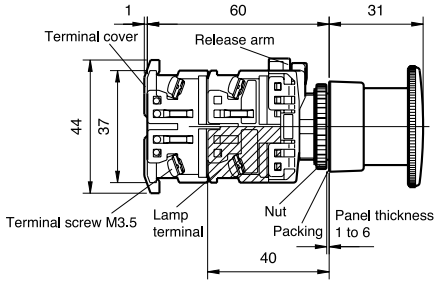
Extended with full guard (with openings)



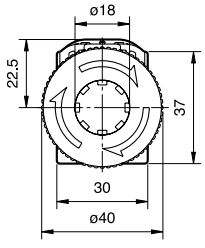
AR22G2L, G7L



Push-lock, turn-reset



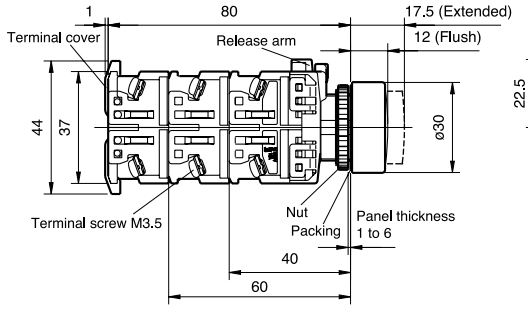
AR22V5L



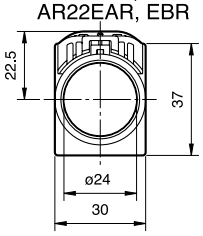
■ Dimensions, mm

•Pushbutton switches

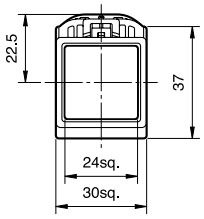
Flush/Extended



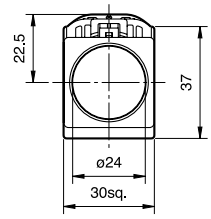
AR22F0R, F5R
AR22E0R, E5R
AR22FAR, FBR
AR22EAR, EBR



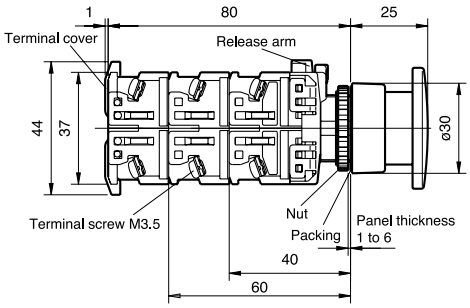
AR22F0S, F5S
AR22E0S, E5S



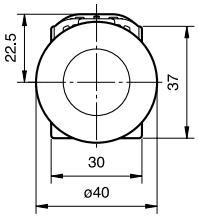
AR22F0Y, F5Y
AR22E0Y, E5Y



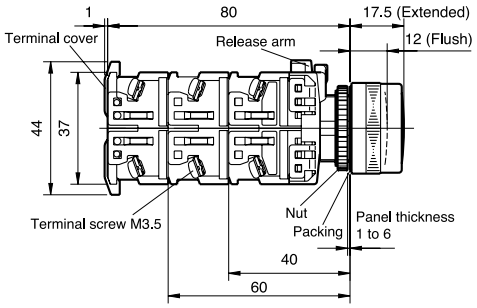
Mushroom (40mm dia.)



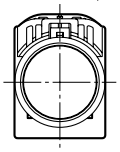
AR22M0R, M5R



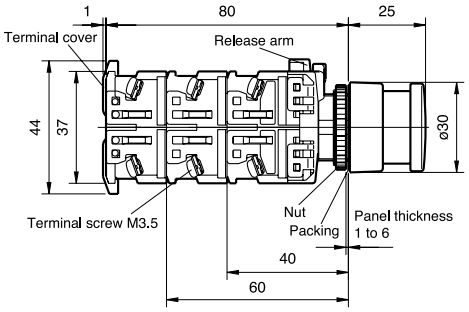
Flush/Extended with full guard



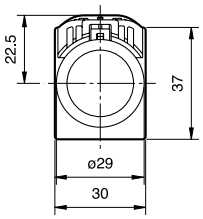
AR22G3R, G8R
AR22G2R, G7R



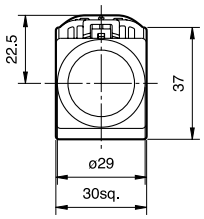
Mushroom (29mm dia.)



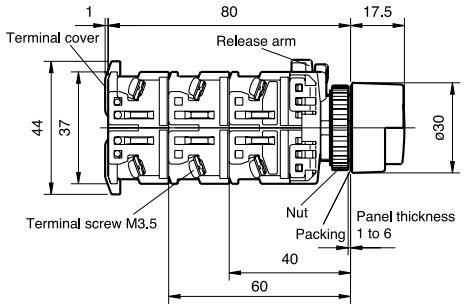
AR22M4R, M9R



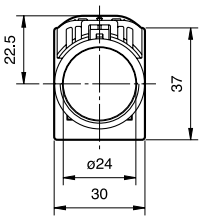
AR22M4Y



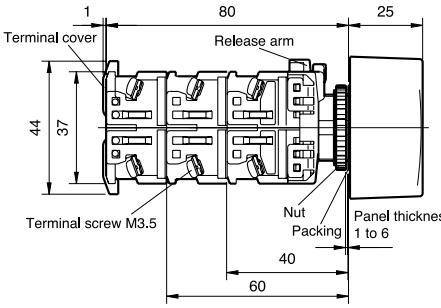
Extended with half guard



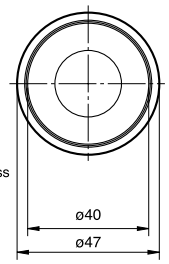
AR22G0R, G5R



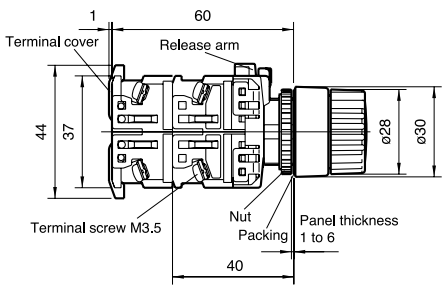
Mushroom with full guard (40mm dia.)



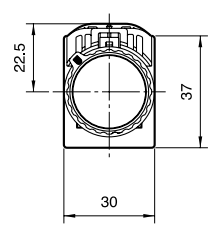
AR22M3R, M8R



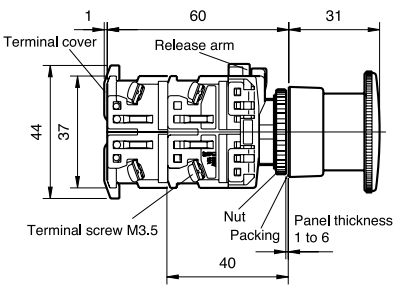
Pushbutton with selector ring



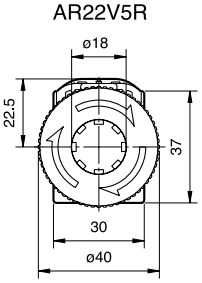
AR22S1R, S2R
AR22S3R, S6R



Push-lock, turn-reset



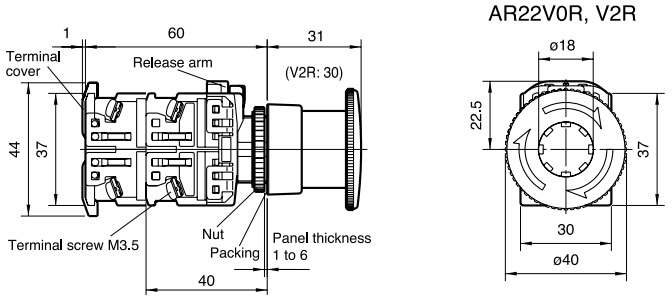
AR22V5R



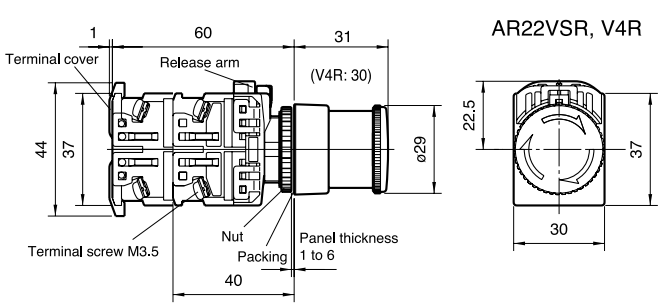
AR22 and DR22
Dimensions

■ Dimensions, mm
•Emergency stop pushbutton switches

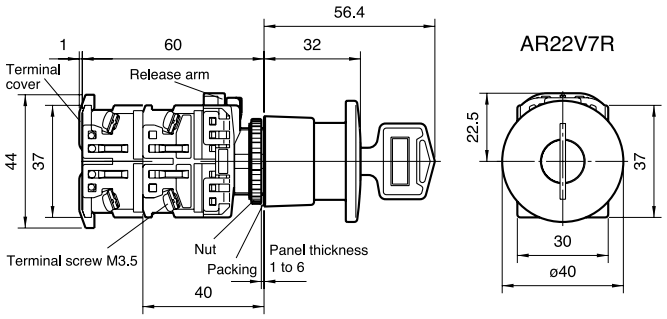
Push-lock, turn-reset (40mm dia.)



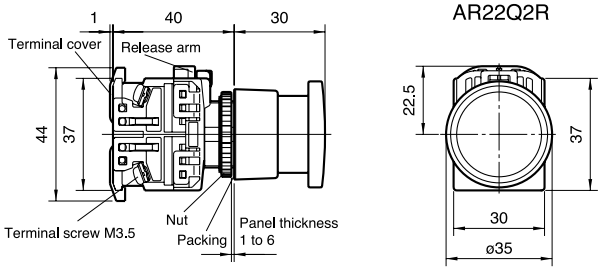
Push-lock, turn-reset (29mm dia.)



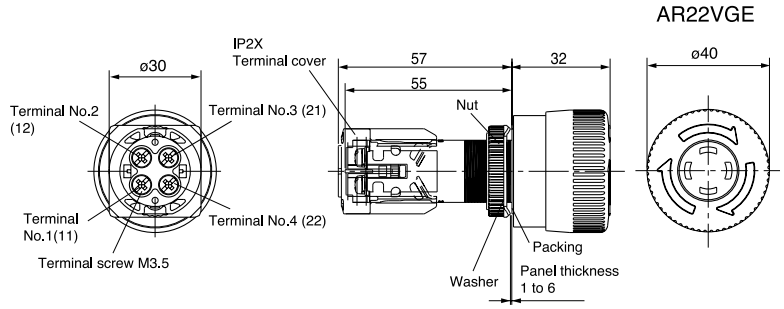
Key release push-lock, turn-reset (40mm dia.)



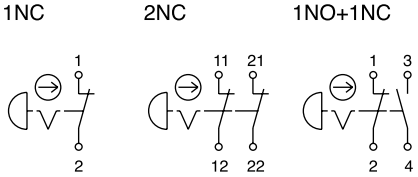
Push-lock, pull-reset (35mm dia.)



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



Wiring diagrams



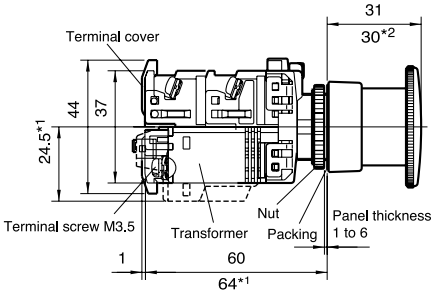
Note: Terminal No. shown in ( ) are for contact arrangement 2NC.

■ Dimensions, mm

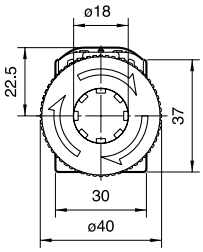
·Emergency stop illuminated pushbutton switches

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

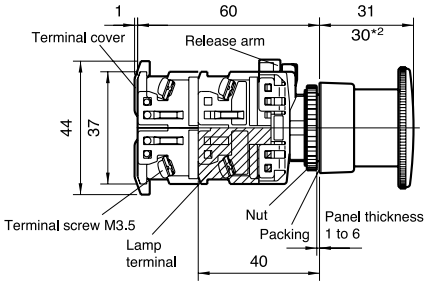
With transformer



AR22V0L, V2L
AR22VDL, VAL



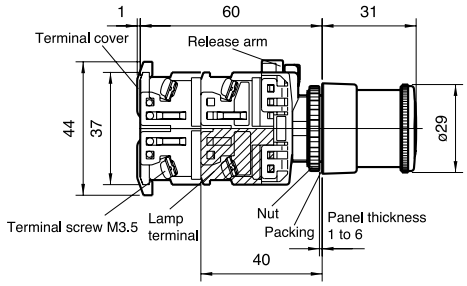
Without transformer



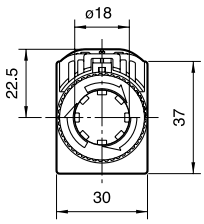
Note: *1 230V and over
*2 AR22V2L and VAL types only

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

Without transformer

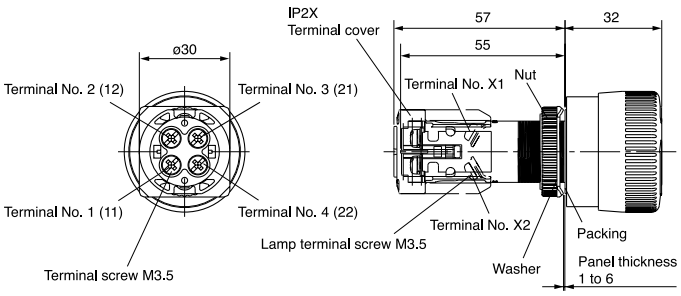


AR22VSL

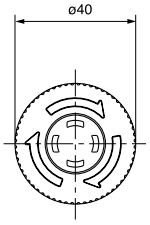


Unibody push-lock, turn-reset (40mm dia.)

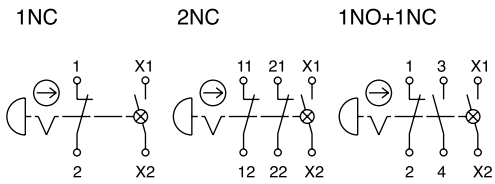
Without transformer



AR22VGF



Wiring diagrams

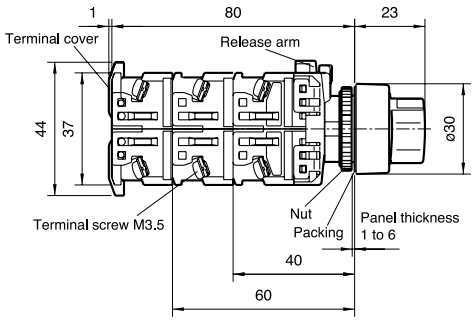


Note: Terminal No. shown in ( ) are for contact arrangement 2NC.

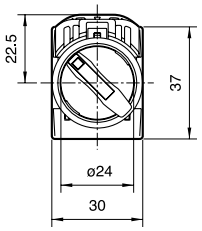
AR22 and DR22
Dimensions

■ Dimensions, mm
•Selector switches

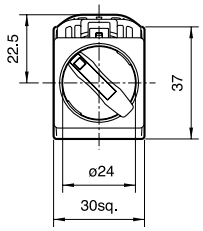
Knob



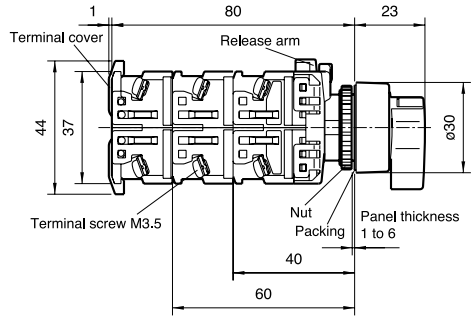
AR22PR, PCR



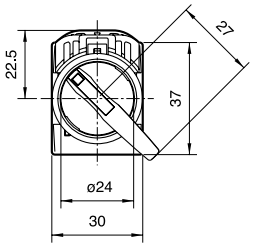
AR22PY, PCY



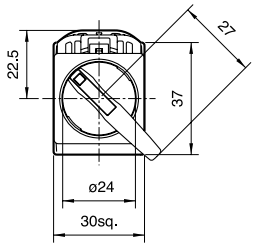
Lever



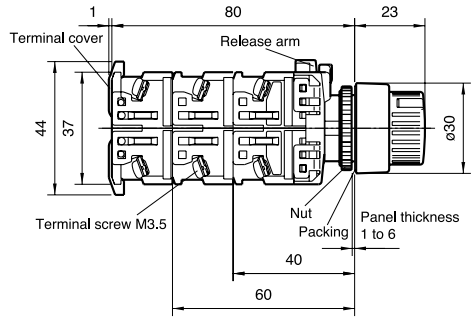
AR22WR, WCR



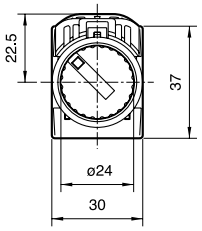
AR22WY, WCY



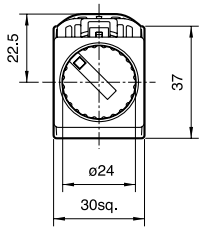
Cylindrical knob



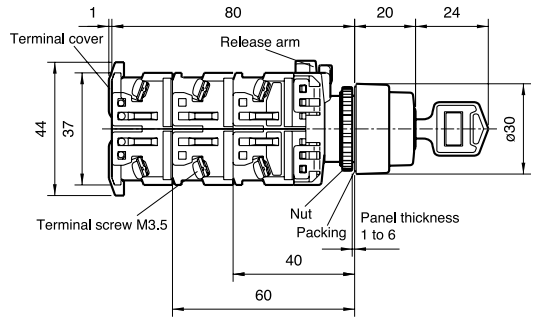
AR22RR, RCR



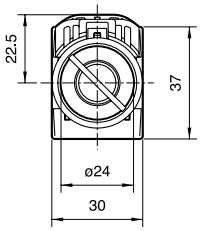
AR22RY, RCY



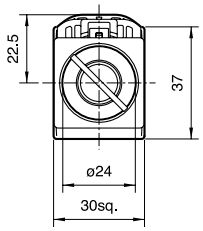
Key



AR22JR, JCR
AR22JAR



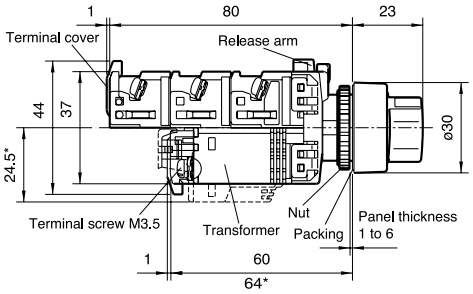
AR22JY, JCY



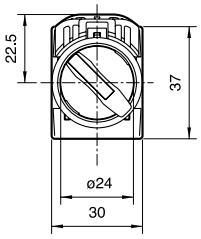
■ Dimensions, mm

•Illuminated selector switches

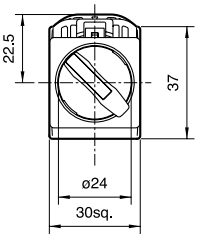
With transformer



AR22PL

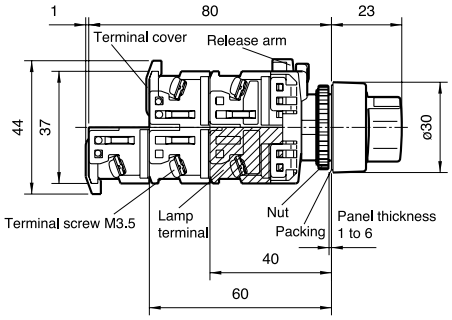


AR22PP



Note: * 230V and over

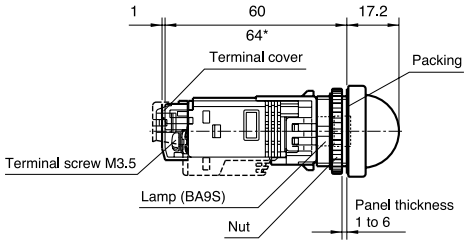
Without transformer



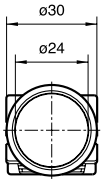
•Pilot lights

Dome

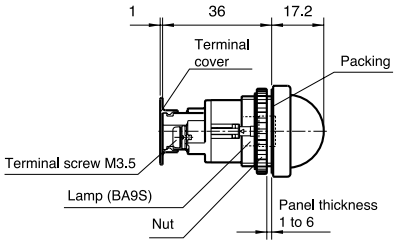
With transformer, with resistor unit



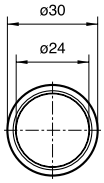
DR22D0L



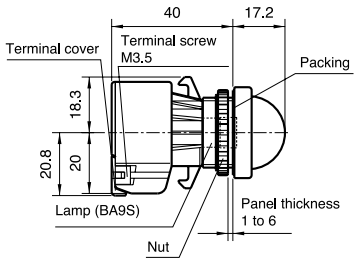
Without transformer



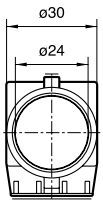
DR22D0L



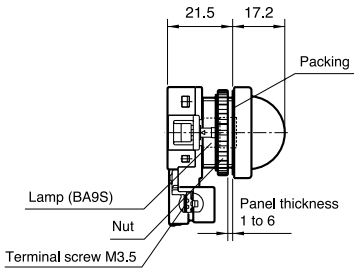
Short body/with transformer



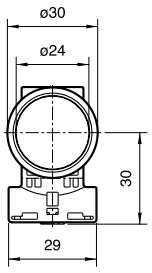
DR22D0L



Short body/without transformer



DR22D0L



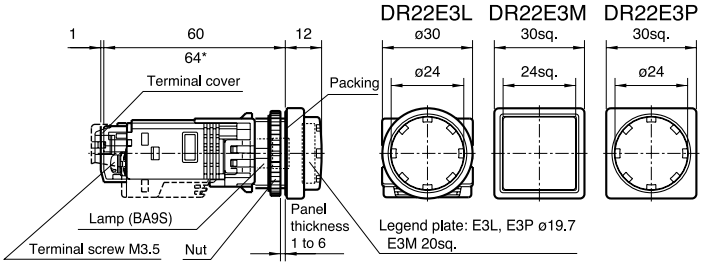
Note: * Except for the types 110V AC, 127V AC and 220V AC.

AR22 and DR22
Dimensions

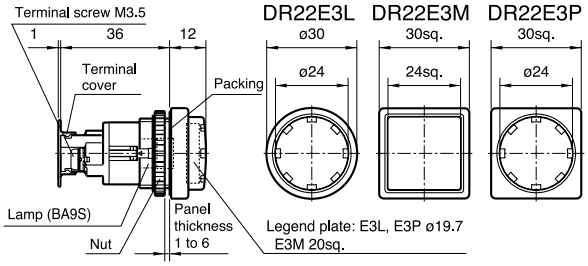
■ Dimensions, mm
•Pilot lights

Extended

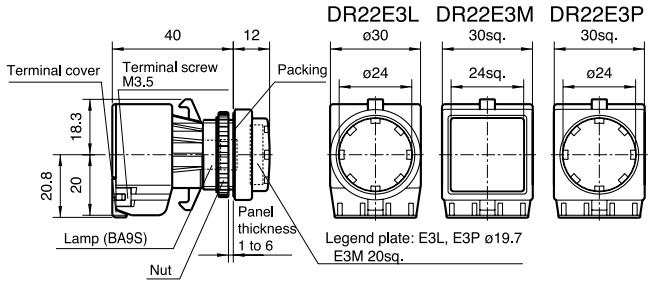
With transformer, with resistor unit



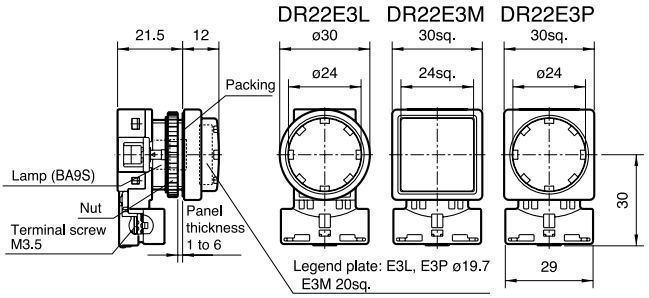
Without transformer



Short body/with transformer



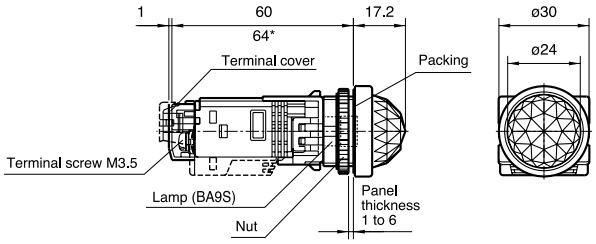
Short body/without transformer



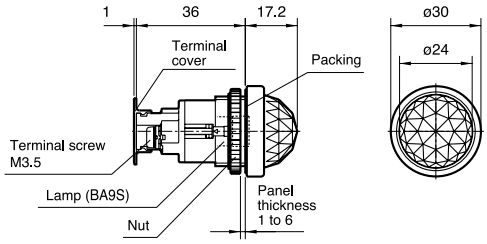
Note: * Except for the types 110V AC, 127V AC and 220V AC.

Faceted

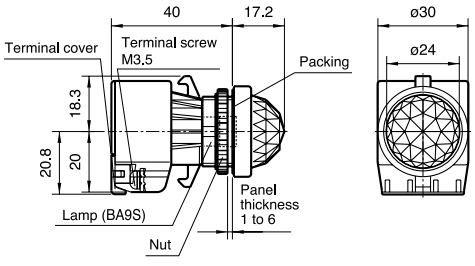
With transformer, with resistor unit



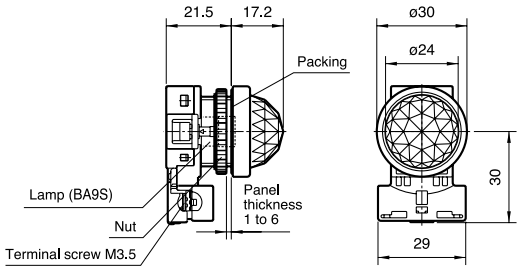
Without transformer



Short body/with transformer



Short body/without transformer

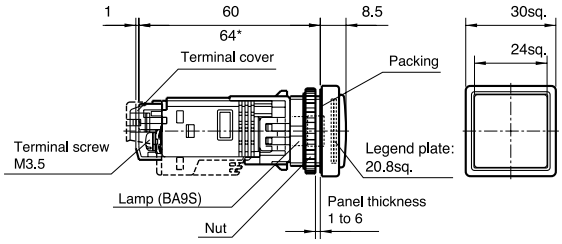


Note: * Except for the types 110V AC, 127V AC and 220V AC.

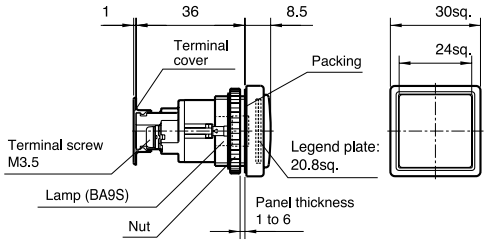
■ Dimensions, mm
•Pilot lights

Flush

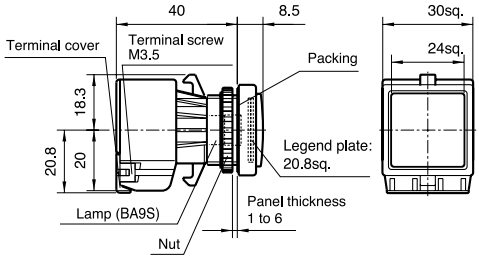
With transformer, with resistor unit DR22F3M, F4M



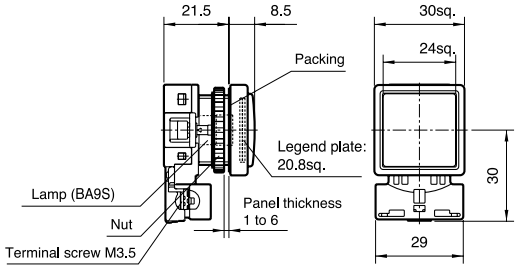
Without transformer DR22F3M, F4M



Short body/with transformer DR22F3M, F4M



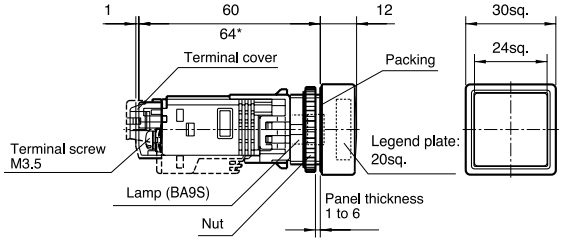
Short body/without transformer DR22F3M, F4M



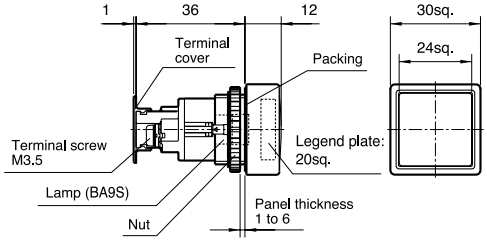
Note: * Except for the types 110V AC, 127V AC and 220V AC.

Flush (12mm high frame)

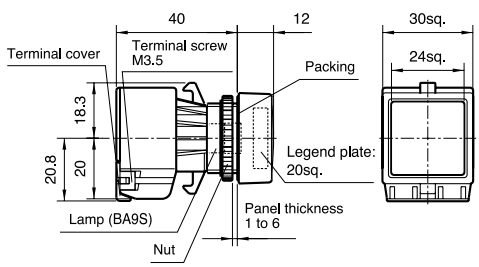
With transformer, with resistor unit DR22F5M



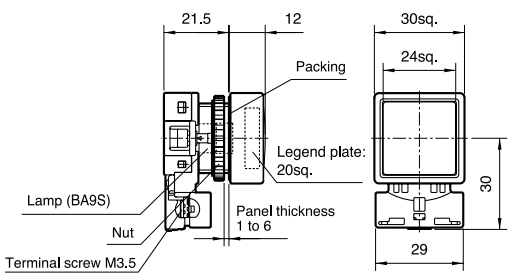
Without transformer DR22F5M



Short body/with transformer DR22F5M



Short body/without transformer DR22F5M



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

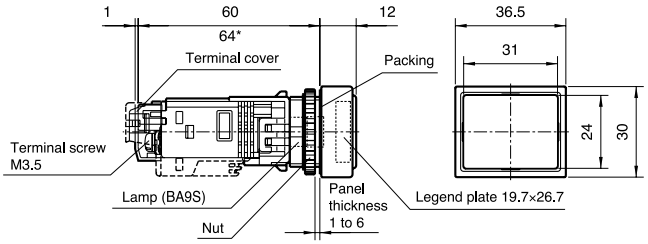
AR22 and DR22
Dimensions

■ Dimensions, mm

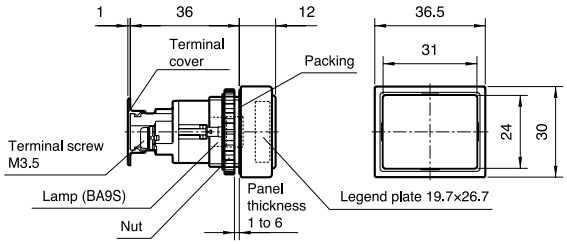
•Pilot lights

Flush rectangular

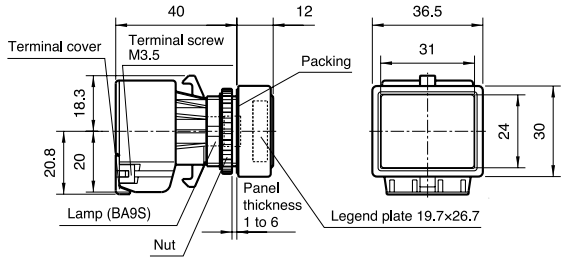
With transformer, with resistor unit DR22E3N



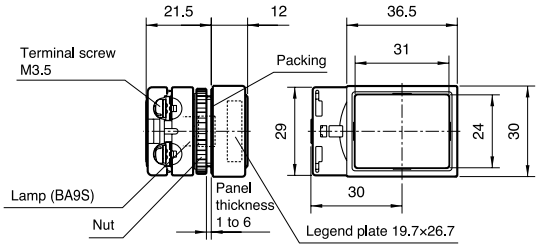
Without transformer DR22E3N



Short body/with transformer DR22E3N



Short body/without transformer DR22E3N

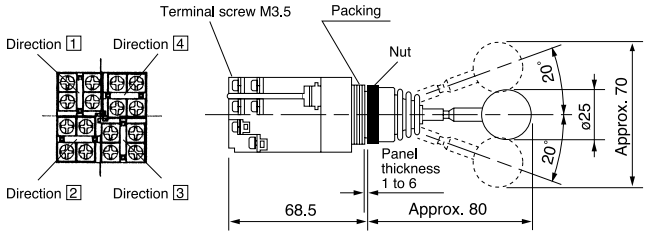


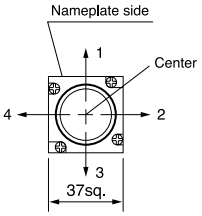
Note: * Except for the types 110V AC, 127V AC and 220V AC.

•Joy stick selector switches

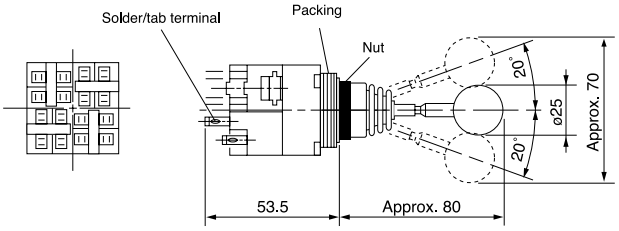
Ball type without lock

Screw terminal AR22A0N, A5N





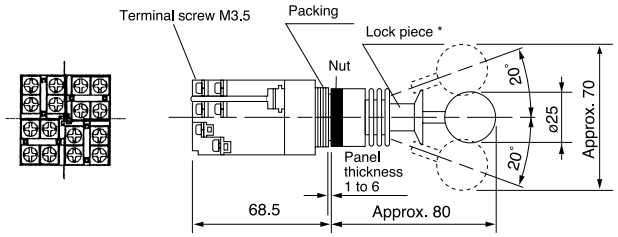
Solder/tab terminal AR22A0H, A5H



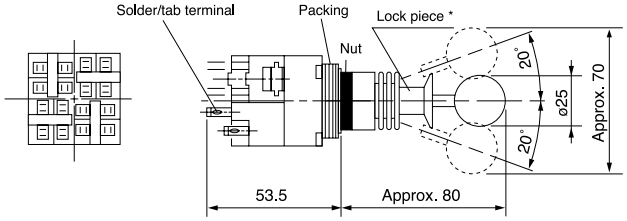
Notes * The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position.
The lock piece locks in the central position only.

Ball type with lock

Screw terminal AR22A1N, A6N



Solder/tab terminal AR22A1H, A6H

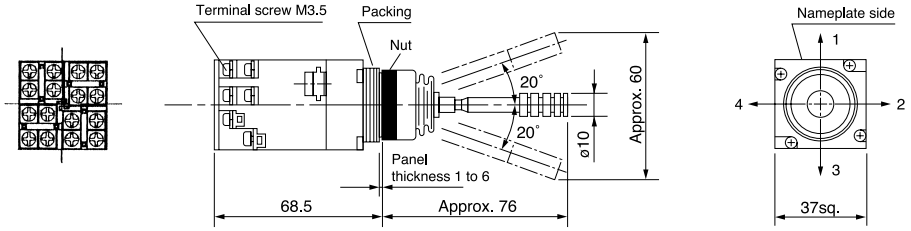


■ Dimensions, mm

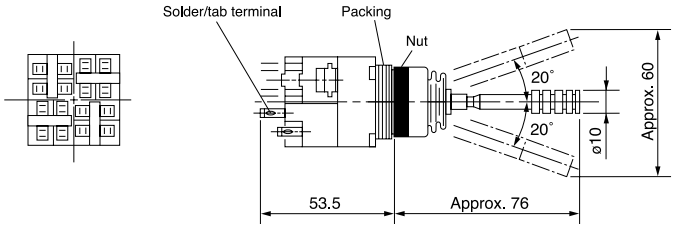
·Joy stick selector switches

Rubber cap type without lock

Screw terminal AR22A2N, A7N



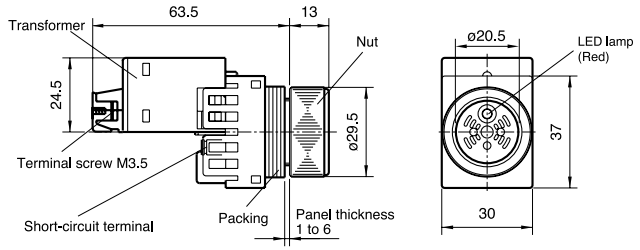
Solder/tab terminal AR22A2H, A7H



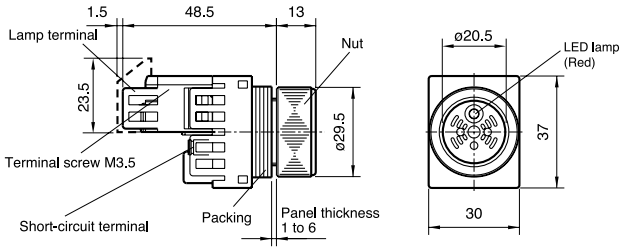
·Buzzers

Electronic sound

With transformer DR22B5

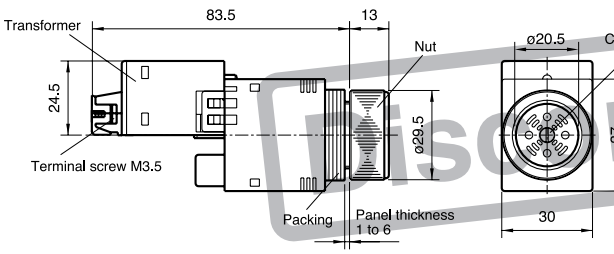


Without transformer DR22B5

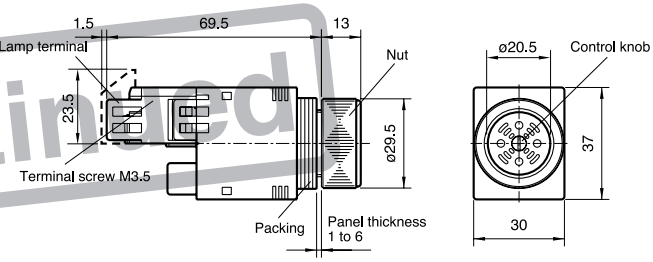


Magnetic sound

With transformer DR22B3



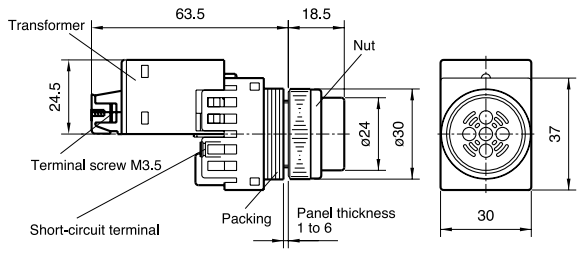
Without transformer DR22B3



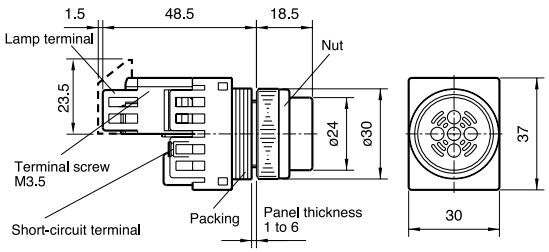
Discontinued

Electronic sound (IP54)

With transformer DR22B8



Without transformer DR22B8



Notes on use

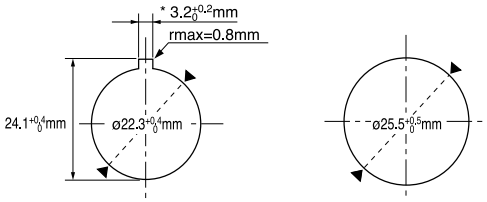
■ Fit two sizes of panel cutout holes

* 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 ϕ22mm diameter unit.

The switch mounted as a ϕ25mm diameter unit.

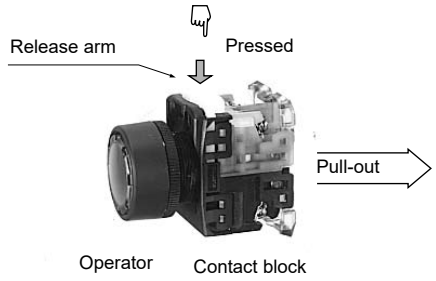


Note: * If key-washer or legend plate are not used, 3.2mm-wide location holes need not be cutout.

■ Detaching contact block from the operator

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

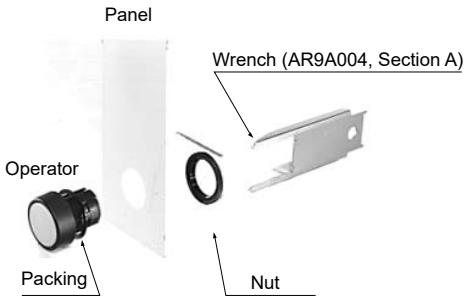
Fig. 2 Detaching contact block from the operator



■ 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, fi section “A” of the AR9A004 wrench from behind the panel and secure the operator with nut. *(See page 106 for the wrench)*

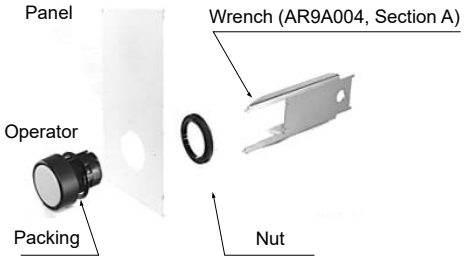
Fig. 3 Mounting an operator in a 22.3mm-dia. hole



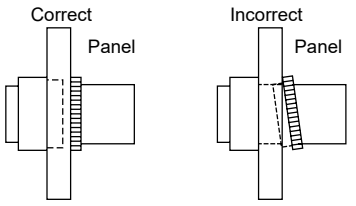
Note: Recommended tightening torque is from 1 to 1.5N•m

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

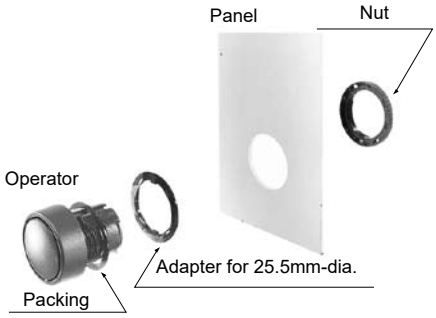


Note: 1. Recommended tightening torque is from 1 to 1.5N•m
2. Ensure that the step-out portion of the nut is correctly fitte in the cutout hole.



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

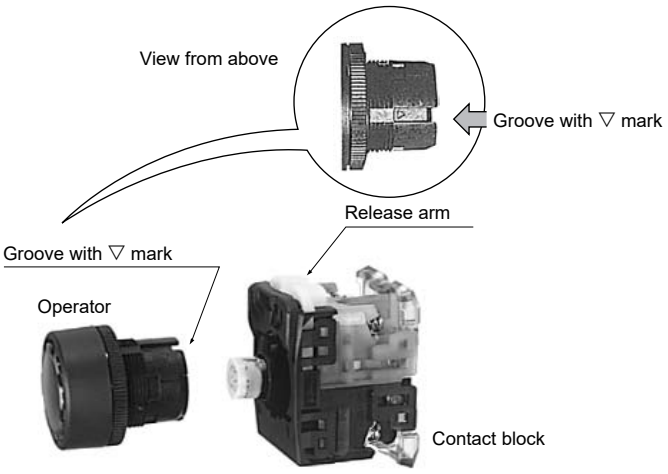
Fig. 5 Mounting with an adapter and locking nut



■ 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.

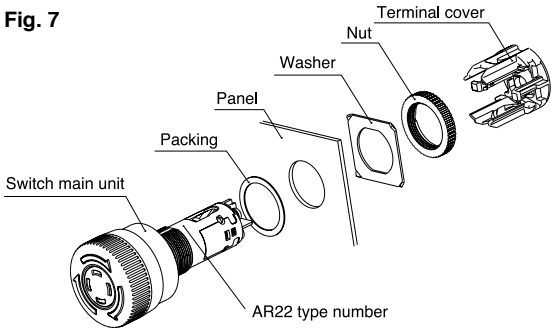
Fig. 6 Mounting the contact block to the operator



■ 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.

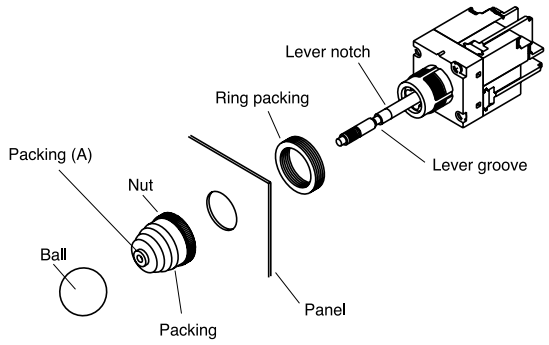
Fig. 7



■ 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 accesories	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

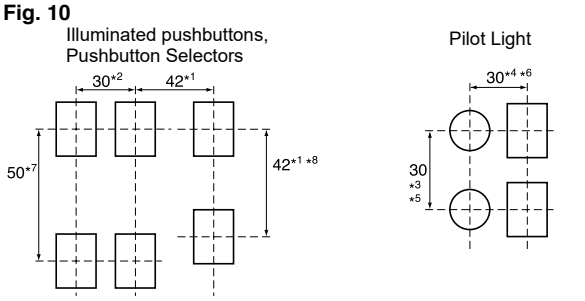
• When using a joy stick selector switch and buzzer
The applicable panel thickness is 1 to 6mm. Five 1.3mm packings (single-piece type) are included as standard equipment. Insert as many as required depending on the panel thickness, using the following table as a guide. When using a key washer, legend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

■ Minimum mounting space, mm

(1) Minimum mounting space

Fig. 10

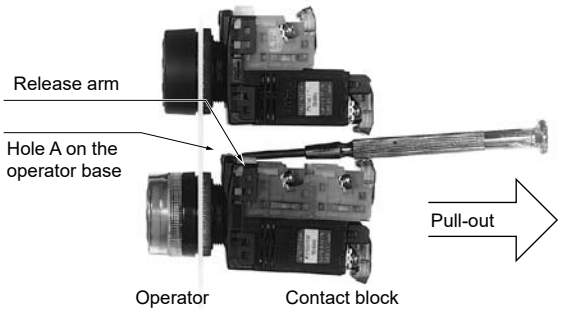


Notes: *1 AR22M0☐, M5☐, V5☐, V0☐, V2☐, V7R, VG☐: 42mm
AR22M3R, M8R: 49mm
AR22Q2R, WR, W0R, WY, WCY: 40mm
*2 When mounting contact blocks at 30mm pitch, use it circuit of 380V or less.
*3 Short body with transformer types: 50mm.
*4 Rectangular types: 36.5mm (except for short body without transformer types).
*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.

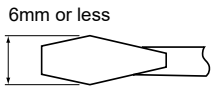
When mounting operators on a panel, orient all ▽ marks on the operator upwards.
(The operator release arms are oriented upwards.) This aligns the terminals of all contact blocks, thus making wiring easy.

(2) Detaching contact blocks from operators
As shown in Fig. 9, insert a flat-hea 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



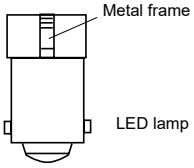
Note: Use a fla head screwdriver as shown at the right.



■ 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).

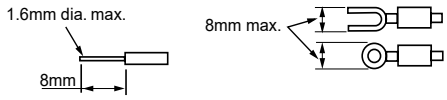
Fig. 12



■ Wiring

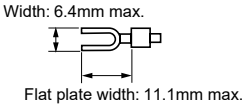
(1) The terminal screws are M3.5 pan head screws. Solid wires, stranded wires, or crimp terminals can be connected.

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 figur 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.

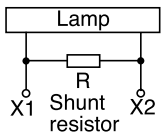
Notes:
- If solid wires are connected to the lamp terminals in the horizontal direction (on the side), be sure to insert the solid wires into the square washers.
- Terminal layout., *see page 54*
- See page 53 for the wiring of the joy stick selector switch and VG type.

■ 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.

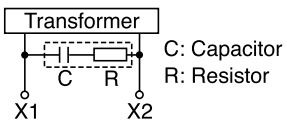
Fig. 15

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)

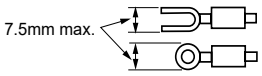
(2) Incoming surge
High luminance LED products use an element sensitive to static electricity. They may not be lit by an abnormal voltage like surge. Please note it.

■ 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, finis soldering the terminals within fiv seconds. If a 20W soldering iron is used, finis 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, 0.75mm^2 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.

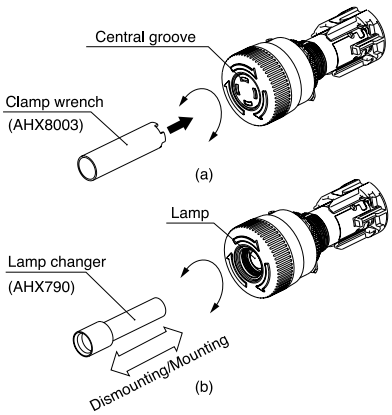
• Note that the buzzer is likely to sound erroneously due to leakage current or the like.

■ 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

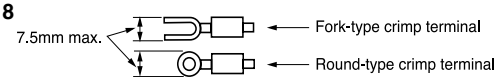


Note: The lamp and neon lamp are special models for the AR22VGF. Use only these special lamps for replacement.

• 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.

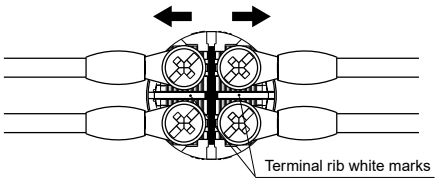
• Wiring precautions

(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.

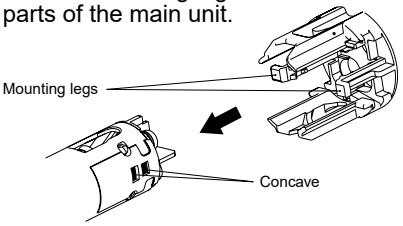
• Mount the live section cover and tighten the terminals securely.

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.

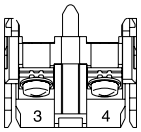
■ Operation

- 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

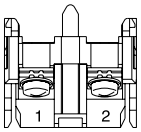
NO contact (AR9B290)
Blue



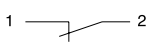
Terminal No.3, 4



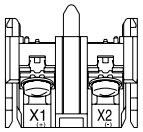
NC contact (AR9B291)
Red



Terminal No.1, 2

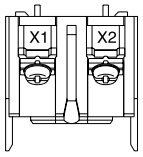


Lamp terminal (AR9B292)
Black



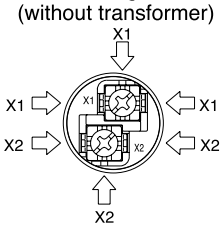
Terminal No.X1 (+), X2 (−)*

Lamp terminal (For buzzer)
(AHX291L) Brown



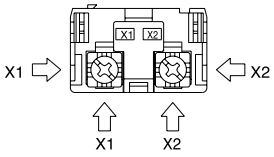
Terminal No.X1 (+), X2 (−)*

Pilot light
(without transformer)



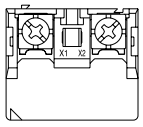
Terminal No.X1 (+), X2 (−)*

Transformer (AR9T511)
(220V or less)



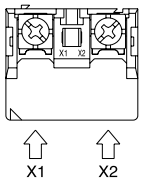
Terminal No.X1, X2

Transformer (AR9T511)
(230V or more)
Transformer (AHX511)
(For buzzer)



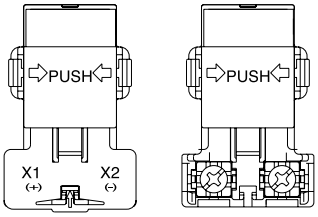
Terminal No.X1, X2

Resistor unit (AR9T519-H)
Voltage stabilizing unit
(AR9T001-E)
Flicker unit (AR9T002)



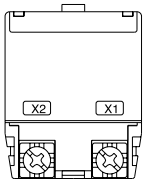
Terminal No.X1 (−), X2 (+)*

Pilot light
(short-body without transformer)



Terminal No.X1 (+), X2 (−)*

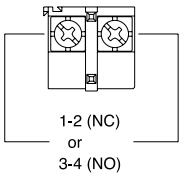
Pilot light
(short-body with transformer)



Terminal No.X1, X2

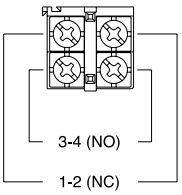
Note: * The positive and negative terminals are used for DC applications where the order of polarity is required.

Joy stick selector switch
(screw)
1NO or 1NC



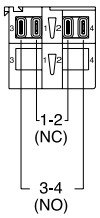
Terminal No. 1-2 or 3-4

Joy stick selector switch
(screw)
1NO + 1NC



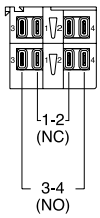
Terminal No. 1-2, 3-4

Joy stick selector switch
(solder/tab)
1NO + 1NC



Terminal No. 1-2, 3-4

Joy stick selector switch
(solder/tab)
2NO + 2NC



Terminal No. 1-2, 3-4

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

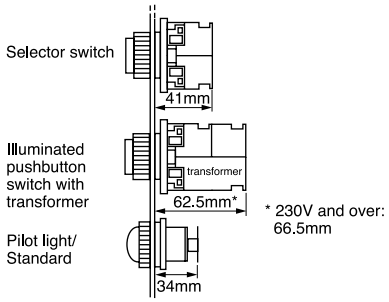
The snap-on construction makes replacement and addition of contact blocks and transformer units very simple and straightforward.

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.



Illuminated pushbuttons


AF95-4

AR30E0L


AF95-6

AR30G3L

Pushbuttons


AF95-10

AR30E0R


AF95-12

AR30M0R

Pilot lights


AF95-18

DR30D0L

Selectors


AF95-13

AR30PR

Emergency stop pushbuttons


KKD06-350

AR30V0L


KKD06-353

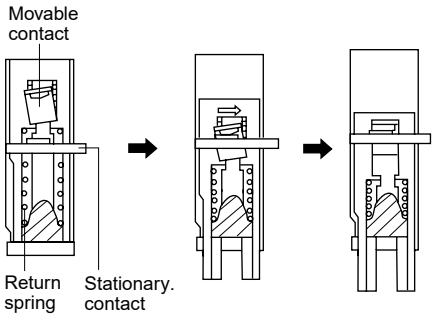
AR30V0R


KKD16-071

AR30V1R

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).



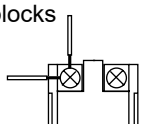
Metal nut

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

■ 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.)	**AR30V0R**  KKD06-353	Push-lock,turn-reset (65mm dia.)	**AR30V1R**  KKD16-071	Push-lock, pull-reset (35mm dia.)	**AR30Q2R**  AF95-3
Push-lock, turn-reset (40mm dia.) *See page 04/79, 04/101*	**AR30V2R**  AF95-176				

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.)	**AR30V0L**  KKD06-350	Push-lock, turn-reset (40mm dia.)	**AR30V2L**  AF95-2

Note: Provided with the ⊖ (Direct opening action)

AR30 and DR30
Quick reference guide

■ 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

■ 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

Discontinued
Discontinued

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.)
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
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

⑤ **Color of lens**

G: Green	Y: Yellow
R: Red *3	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 To order the V0L type with white arrows, please append the code Z399 to the end of the standard part number.
*3 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.

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.)
V2R: Push-lock, turn-reset (40mm dia.)
V1R: Push-lock, turn-reset (Soft-touch 65mm dia.)
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
R: Red*3
B: Black
W: White
T: Green, Red, Black (For AR30F0R)
Y: Yellow
A: Orange
S: Blue
C: Clear (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 To order the V0R and V1R types with white arrows, please append the code Z399 to the end of the standard part number.
*3 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.

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.

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*
H8: 100-110V AC, short-body with transformer
L8: 115-127V AC, short-body with transformer
M8: 200-220V AC, short-body 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
FR: 50V DC, with resistor*
HR: 110V DC, with resistor*
MR: 220V DC, with resistor*
H9: 100-110V AC, short-body with transformer
L9: 115-127V AC, short-body with transformer
M9: 200-220V AC, short-body with transformer

•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
R: Red
W: White
Y: Yellow
A: Orange
S: Blue

⑤ **Special product**
Z9: Resisting water-soluble cutting oils and heat
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standard
ZM: Metal nut

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

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

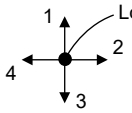
② **Handle**
0: Ball type (without lock, manual return)
1: Ball type with lock (manual return)
2: Rubber cap type (without lock, manual return)
5: Ball type (without lock, spring return)
6: Ball type with lock (spring return)
7: Rubber cap type (without lock, spring return)

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



Locked position
1: Upper 2: Right
3: Lower 4: Left

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

⑤ **Handle color**
B: Black

Buzzers

DR30B 5 – E B
① ② ③④

① **Product category**
DR30B: 30mm-dia. buzzer

② **Sound**
5: Electronic sound
6: Electronic sound (economy)
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

■ 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)**

■ 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 EN60947-5-5	Emergency stop pushbutton 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/s^2), according to the test condition of EN60947-5-5 (1998)
*6 Emergency stop type: 150m/s^2
*7 AR30Q7L and DR30D1L type: IP40

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 pusubutton switch	With selector ring	100,000
Emergency stop illuminated pusubutton	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

Discontinued

● 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

Discontinued

•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

Discontinued

■ Contact ratings

• UL/CSA standards

AC (COS ø=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)	

■ 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
	24V AC/DC	APX510-24□	24V AC/DC	12mA AC, 11mA DC	AHX129	30V AC/DC	0.8W
With transformer (Standard type: AR9T511)	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
	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□ DR9Q002-2□ DR9Q003-2□	12V AC	3VA	AHX135	6.3V AC/DC	2VA
	127V AC						2VA
	220V AC						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	–	–	–

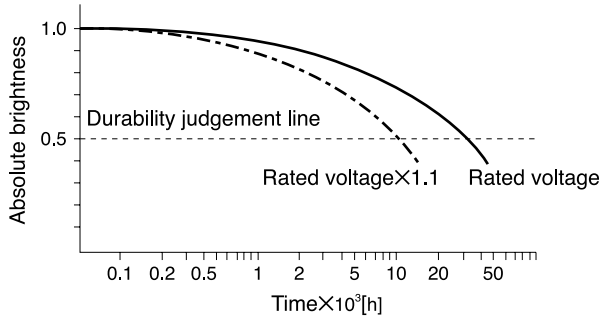
Notes: * DR9Q001: For DR30M4M type
DR9Q002: For DR30F4N type
DR9Q003: For DR30F4M type
• Replace the □ mark by the lamp luminous color code, *see page 70*

■ 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

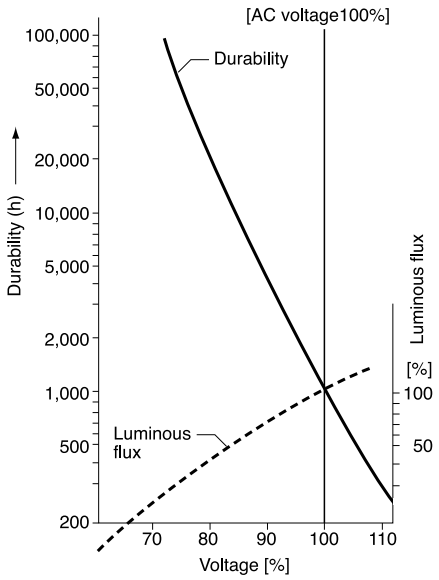
Note: The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.

Estimated durability for LED lamps



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

Incandescent lamp voltage characteristics



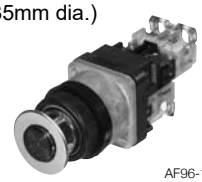
■ Combination of lens color and LED luminous color

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	–	–	–	–

Discontinued

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

•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

•Voltage

Replace the ■ mark by the lamp voltage code

Transformer		Code LED	Code 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

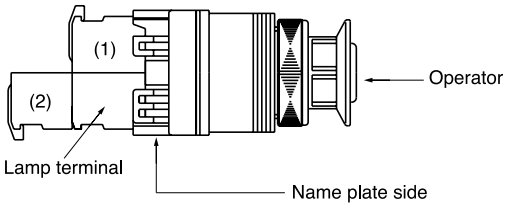
•Contact operation (AR30Q7L)

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

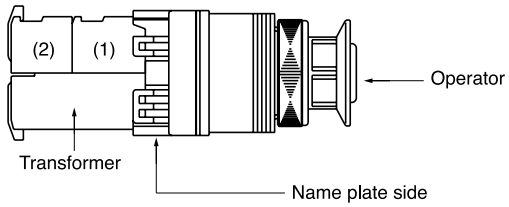
● Contact closed

•Position of contact block

AR30Q7L (without transformer)



AR30Q7L (with transformer)



■ Pushbutton switches

Operator	Contact	Momentary action Type	Alternate action Type
Flush round head  AF95-11	1NO	**AR30F0R-10□**	**AR30F5R-10□**
	1NC	**AR30F0R-01□**	**AR30F5R-01□**
	1NO+1NC	**AR30F0R-11□**	**AR30F5R-11□**
	2NO	**AR30F0R-20□**	**AR30F5R-20□**
	2NC	**AR30F0R-02□**	**AR30F5R-02□**
	2NO+2NC	**AR30F0R-22□**	**AR30F5R-22□**
Extended round head  AF95-10	1NO	**AR30E0R-10□**	**AR30E5R-10□**
	1NC	**AR30E0R-01□**	**AR30E5R-01□**
	1NO+1NC	**AR30E0R-11□**	**AR30E5R-11□**
	2NO	**AR30E0R-20□**	**AR30E5R-20□**
	2NC	**AR30E0R-02□**	**AR30E5R-02□**
	2NO+2NC	**AR30E0R-22□**	**AR30E5R-22□**
Flush round head symbol mark type  AF98-195	1NO	**AR30FAR-10C■**	**AR30FBR-10C■**
	1NC	**AR30FAR-01C■**	**AR30FBR-01C■**
	1NO+1NC	**AR30FAR-11C■**	**AR30FBR-11C■**
	2NO	**AR30FAR-20C■**	**AR30FBR-20C■**
	2NC	**AR30FAR-02C■**	**AR30FBR-02C■**
	2NO+2NC	**AR30FAR-22C■**	**AR30FBR-22C■**
Extended round head symbol mark type  AF98-194	1NO	**AR30EAR-10C■**	**AR30EBR-10C■**
	1NC	**AR30EAR-01C■**	**AR30EBR-01C■**
	1NO+1NC	**AR30EAR-11C■**	**AR30EBR-11C■**
	2NO	**AR30EAR-20C■**	**AR30EBR-20C■**
	2NC	**AR30EAR-02C■**	**AR30EBR-02C■**
	2NO+2NC	**AR30EAR-22C■**	**AR30EBR-22C■**
Mushroom head (40mm dia.)  AF95-12	1NO	**AR30M0R-10□**	**AR30M5R-10□**
	1NC	**AR30M0R-01□**	**AR30M5R-01□**
	1NO+1NC	**AR30M0R-11□**	**AR30M5R-11□**
	2NO	**AR30M0R-20□**	**AR30M5R-20□**
	2NC	**AR30M0R-02□**	**AR30M5R-02□**
	2NO+2NC	**AR30M0R-22□**	**AR30M5R-22□**
Mushroom head (29mm dia.)  AF95-8	1NO	**AR30M4R-10□**	—
	1NC	**AR30M4R-01□**	—
	1NO+1NC	**AR30M4R-11□**	—
	2NO	**AR30M4R-20□**	—
	2NC	**AR30M4R-02□**	—
	2NO+2NC	**AR30M4R-22□**	—
Extended with full guard (24mm dia.)  AF95-16	1NO	**AR30G1R-10□**	**AR30G6R-10□**
	1NC	**AR30G1R-01□**	**AR30G6R-01□**
	1NO+1NC	**AR30G1R-11□**	**AR30G6R-11□**
	2NO	**AR30G1R-20□**	**AR30G6R-20□**
	2NC	**AR30G1R-02□**	**AR30G6R-02□**
	2NO+2NC	**AR30G1R-22□**	**AR30G8R-22□**

Note: ■ □ *See page 74*

Operator	Contact	Momentary action Type	Alternate action Type
Extended with half guard  AF95-9	1NO	**AR30G0R-10□**	**AR30G5R-10□**
	1NC	**AR30G0R-01□**	**AR30G5R-01□**
	1NO+1NC	**AR30G0R-11□**	**AR30G5R-11□**
	2NO	**AR30G0R-20□**	**AR30G5R-20□**
	2NC	**AR30G0R-02□**	**AR30G5R-02□**
	2NO+2NC	**AR30G0R-22□**	**AR30G5R-22□**
Pin lock  AF96-240	1NO	**AR30GPR-10□**	—
	1NC	**AR30GPR-01□**	—
	1NO+1NC	**AR30GPR-11□**	—
	2NO	**AR30GPR-20□**	—
	2NC	**AR30GPR-02□**	—
	2NO+2NC	**AR30GPR-22□**	—
Mushroom head with full guard (40mm dia.)  AF95-17	1NO	**AR30M3R-10□**	**AR30M8R-10□**
	1NC	**AR30M3R-01□**	**AR30M8R-01□**
	1NO+1NC	**AR30M3R-11□**	**AR30M8R-11□**
	2NO	**AR30M3R-20□**	**AR30M8R-20□**
	2NC	**AR30M3R-02□**	**AR30M8R-02□**
	2NO+2NC	**AR30M3R-22□**	**AR30M8R-22□**
Mushroom head with full guard (35mm dia. metal nut)  AF96-239	1NO	**AR30GSR-10□**	—
	1NC	**AR30GSR-01□**	—
	1NO+1NC	**AR30GSR-11□**	—
	2NO	**AR30GSR-20□**	—
	2NC	**AR30GSR-02□**	—
	2NO+2NC	**AR30GSR-22□**	—
Giant head  AF95-579	1NO	**AR30B0R-10□**	—
	1NC	**AR30B0R-01□**	—
	1NO+1NC	**AR30B0R-11□**	—
	2NO	**AR30B0R-20□**	—
	2NC	**AR30B0R-02□**	—
	2NO+2NC	**AR30B0R-22□**	—
Giant head with guard  AF95-582	1NO	**AR30B1R-10□**	—
	1NC	**AR30B1R-01□**	—
	1NO+1NC	**AR30B1R-11□**	—
	2NO	**AR30B1R-20□**	—
	2NC	**AR30B1R-02□**	—
	2NO+2NC	**AR30B1R-22□**	—
Giant head with full guard  AF95-580	1NO	**AR30B2R-10□**	—
	1NC	**AR30B2R-01□**	—
	1NO+1NC	**AR30B2R-11□**	—
	2NO	**AR30B2R-20□**	—
	2NC	**AR30B2R-02□**	—
	2NO+2NC	**AR30B2R-22□**	—

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**□	—

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**□	—

•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

•Available numbers of contact blocks

Momentary action	Alternate action Push-lock, turn-reset
8-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	4NO+4NC
Code	22	40	04	50	05	33	44

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

Replace the ■ mark by the symbol mark code

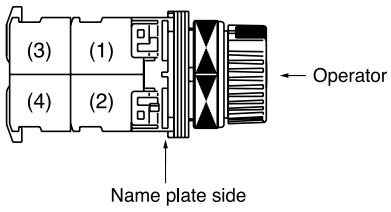
Symbol mark	◯		I		Ⓣ		◯	I	Ⓣ
Color of button	White	Black	White	Black	White	Black	Clear		
Color of mark	Red		Green		Green		Black		
Code	01	02	03	04	11	12	02B	04B	12B

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	**AR30S1R-22G**	(1)	NC	—	—	●	—
		Red	**AR30S1R-22R**						
		Black	**AR30S1R-22B**	(2)	NC	—	—	●	—
		White	**AR30S1R-22W**						
		Yellow	**AR30S1R-22Y**	(3)	NO	—	●	—	●
		Orange	**AR30S1R-22A**						
		Blue	**AR30S1R-22S**	(4)	NO	—	●	—	●
	2NO	Green	**AR30S2R-20G**	(1)	NO	—	●	—	—
		Red	**AR30S2R-20R**						
		Black	**AR30S2R-20B**	(2)	NO	—	—	—	●
		White	**AR30S2R-20W**						
		Yellow	**AR30S2R-20Y**						
		Orange	**AR30S2R-20A**						
		Blue	**AR30S2R-20S**						
	2NO+2NC	Green	**AR30S2R-22G**	(1)	NC	●	—		
		Red	**AR30S2R-22R**						
		Black	**AR30S2R-22B**	(2)	NC			●	—
		White	**AR30S2R-22W**						
		Yellow	**AR30S2R-22Y**	(3)	NO	—	●	—	—
		Orange	**AR30S2R-22A**						
		Blue	**AR30S2R-22S**	(4)	NO	—	—	—	●
	2NO+2NC	Green	**AR30S3R-22G**	(1)	NC	—	—		
		Red	**AR30S3R-22R**						
		Black	**AR30S3R-22B**	(2)	NC			—	—
		White	**AR30S3R-22W**						
		Yellow	**AR30S3R-22Y**	(3)	NO	—	●	—	—
		Orange	**AR30S3R-22A**						
		Blue	**AR30S3R-22S**	(4)	NO	—	—	—	●
	2NO+2NC	Green	**AR30S6R-22G**	(1)	NC	●	—	—	Locked
		Red	**AR30S6R-22R**						
		Black	**AR30S6R-22B**	(2)	NC	●	—	—	
		White	**AR30S6R-22W**						
		Yellow	**AR30S6R-22Y**	(3)	NO	—	●	●	
		Orange	**AR30S6R-22A**						
		Blue	**AR30S6R-22S**	(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 pushbutton switches

⊖ (Direct opening action), conform to EN418

Operator	Contact	Type
Push-lock, turn-reset (Soft-touch 40mm dia.)  KKD06-353	1NC	**AR30V0R-01R**
	1NO+1NC	**AR30V0R-11R**
	2NC	**AR30V0R-02R**
	1NO+3NC	**AR30V0R-13R**
	2NO+2NC	**AR30V0R-22R**
Push-lock, turn-reset (40mm dia.)  AF95-176	1NC	**AR30V2R-01R**
	1NO+1NC	**AR30V2R-11R**
	2NC	**AR30V2R-02R**
	1NO+3NC	**AR30V2R-13R**
	2NO+2NC	**AR30V2R-22R**
Push-lock, turn-reset (Soft-touch 65mm dia.)  KKD16-071	1NC	**AR30V1R-01R**
	1NO+1NC	**AR30V1R-11R**
	2NC	**AR30V1R-02R**
	1NO+3NC	**AR30V1R-13R**
	2NO+2NC	**AR30V1R-22R**
Push-lock, pull-reset (35mm dia.)  AF95-3	1NC	**AR30Q2R-01R**
	1NO+1NC	**AR30Q2R-11R**
	2NC	**AR30Q2R-02R**

Notes: • Button color: Yellow & Black also available for AR22V2R
• To order the V0R and V1R types with white arrows, please append the code Z399 to the end of the standard part number.

•Contact arrangements

Contact arrangements other than above are available

Contact arrangement	1NO	1NO+1NC	2NC	3NC	2NO+2NC	4NC	1NO+3NC
Code	10	11	02	03	22	04	13

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

■ 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.)  KKD06-350	Without	1NC	**AR30V0L-01■3R**	**AR30V0L-01■4R**
		1NO+1NC	**AR30V0L-11■3R**	**AR30V0L-11■4R**
		2NC	**AR30V0L-02■3R**	**AR30V0L-02■4R**
		1NO+2NC	**AR30V0L-12■3R**	**AR30V0L-12■4R**
		3NC	**AR30V0L-03■3R**	**AR30V0L-03■4R**
	With	1NC	**AR30V0L-01■3R**	**AR30V0L-01■4R**
		1NO+1NC	**AR30V0L-11■3R**	**AR30V0L-11■4R**
		2NC	**AR30V0L-02■3R**	**AR30V0L-02■4R**
Push-lock, turn-reset (40mm dia.)  AF95-2	Without	1NC	**AR30V2L-01■3R**	**AR30V2L-01■4R**
		1NO+1NC	**AR30V2L-11■3R**	**AR30V2L-11■4R**
		2NC	**AR30V2L-02■3R**	**AR30V2L-02■4R**
		3NC	**AR30V2L-03■3R**	**AR30V2L-03■4R**
	With	1NC	**AR30V2L-01■3R**	**AR30V2L-01■4R**
		1NO+1NC	**AR30V2L-11■3R**	**AR30V2L-11■4R**
		2NC	**AR30V2L-02■3R**	**AR30V2L-02■4R**

Notes: • Button Color: Yellow also available for AR22V0L
• Contact arrangements indicated in the table can be supplied.
• To order the V0L type with white arrows, please append the code Z399 to the end of the standard part number.

•Voltage

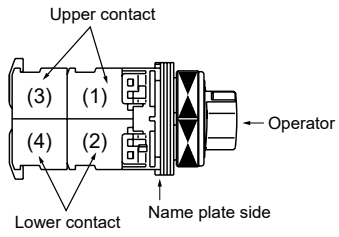
Replace the ■ mark by the lamp voltage code

Transformer		Code LED	Code 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	Code 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
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 ↗)
Knob  AF95-13	Maintained each 90°	Color code: B: Black (Standard) Color other than above are available (G: Green R: Red)	1NO	**AR30PR-210B**	1NO (1)	Upper contact ③ ④
			1NC	**AR30PR-201B**		
			1NO+1NC	**AR30PR-211B**		
			2NO	**AR30PR-220B**		
			2NC	**AR30PR-202B**		
			2NO+2NC	**AR30PR-222B**		
	Spring return ↖ 60°		1NO	**AR30PR-010B**	1NC (1)	Upper contact ① ②
			1NC	**AR30PR-001B**		
			1NO+1NC	**AR30PR-011B**		
			2NO	**AR30PR-020B**		
			2NC	**AR30PR-002B**		
			2NO+2NC	**AR30PR-022B**		
Lever  AF95-14	Maintained each 90°		1NO	**AR30WR-210B**	1NO+1NC (1)	Upper contact ③ ④
			1NC	**AR30WR-201B**		
			1NO+1NC	**AR30WR-211B**		
			2NO	**AR30WR-220B**	(2)	Lower contact ① ②
			2NC	**AR30WR-202B**		
			2NO+2NC	**AR30WR-222B**		
	Spring return ↖ 60°		1NO	**AR30WR-010B**	2NO+2NC (1)	Upper contact ③ ④
			1NC	**AR30WR-001B**		
			1NO+1NC	**AR30WR-011B**	(3)	③ ④
			2NO	**AR30WR-020B**		Lower contact
			2NC	**AR30WR-002B**	(2)	① ②
			2NO+2NC	**AR30WR-022B**	(4)	① ②
Key  AF95-15	Maintained each 90°	■: Key removable position ( ): Key type *See page 04/83*	1NO	**AR30J□R-2■10( )**		
			1NC	**AR30J□R-2■01( )**		
			1NO+1NC	**AR30J□R-2■11( )**		
			2NO	**AR30J□R-2■20( )**		
			2NC	**AR30J□R-2■02( )**		
			2NO+2NC	**AR30J□R-2■22( )**		
	Spring return ↖ 60°		1NO	**AR30J□R-0A10( )**		
			1NC	**AR30J□R-0A01( )**		
			1NO+1NC	**AR30J□R-0A11( )**		
			2NO	**AR30J□R-0A20( )**		
			2NC	**AR30J□R-0A02( )**		
			2NO+2NC	**AR30J□R-0A22( )**		



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 arrangement	Operation position L C R	Operation position L C R
Knob  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)	Upper contact ③ ④	Lower contact 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)	Upper contact ③ ④	Lower contact ① ②
	Spring return each 45˚		2NO+2NC	**AR30PR-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④
Lever  AF95-14	Maintained each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR30WR-311B** **AR30WR-320B** **AR30WR-302B** **AR30WR-322B**	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact 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)	Upper contact ③ ④	Lower contact ① ②
	Spring return each 45˚		2NO+2NC	**AR30WR-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④

Note: • Contact arrangements: *See page 80*

● Contact closed

Operator	Operation	Key removable position	Contact	Type Switch with round bezel	Contact operation (Example)		
					Contact arrangement	Operator position L C R	L C R
Key	Maintained each 45˚	■: Key removable position ( ): Key type	1NO+1NC 2NO 2NC 2NO+2NC	**AR30J□R-3■11( )** **AR30J□R-3■20( )** **AR30J□R-3■02( )** **AR30J□R-3■22( )**	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact ① ②
 AF95-15	Spring/manual return each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR30J□R-6■11( )** **AR30J□R-6■20( )** **AR30J□R-6■02( )** **AR30J□R-6■22( )**			
	Spring/manual return each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR30J□R-7■11( )** **AR30J□R-7■20( )** **AR30J□R-7■02( )** **AR30J□R-7■22( )**	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact ① ②
	Spring return each 45˚		2NO+2NC	**AR30J□R-1E22( )**	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④

● Contact closed

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 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

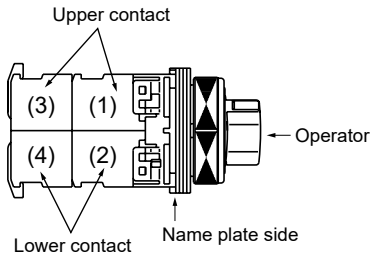
Mainted	Spring return Spring/manual return
8-contact block	4-contact block

• Key removable positions

Code	A	B	C	D	E	F	G
Removable position	45° 45°	45° 45°	45° 45°	45° 45°	45° 45°	45° 45°	45° 45°
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 each 45˚			**AR30PCR-6■B**
	Spring/manual return each 45˚			**AR30PCR-7■B**
	Spring return 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 each 45˚			**AR30WCR-6■B**
	Spring/manual return each 45˚			**AR30WCR-7■B**
	Spring return 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 each 45˚			**AR30JCR-6□■( )**
	Spring/manual return each 45˚			**AR30JCR-7□■( )**
	Spring return 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.

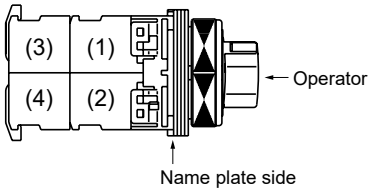
Replace the ( ) mark with one of the following key code.
A, B, C, D, E and F
Standard key code is A.

- **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			●
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	●		

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

- **Position of contact block**



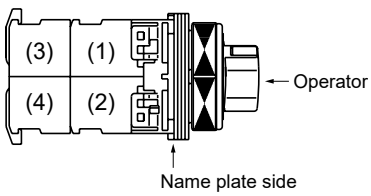
• **Contact arrangement code (Typical example)**

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			●

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	●		

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

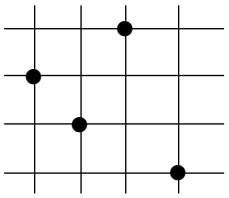
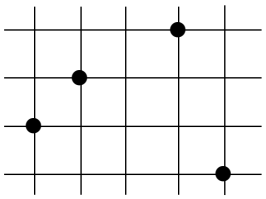
• **Position of contact block**



4, 5-position

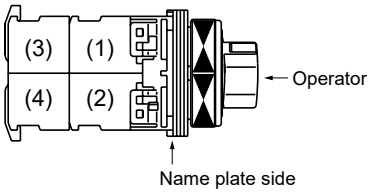
Operator	Contact (The following contact is only available.)	Operation	Knob color	Contact arrangement	Type Switch with round bezel
Knob  AF95-475	2NO+2NC	4-position maintained	Color code: B: Black (Standard) Color other than above are available (G: Green R: Red)	Replace the ■ mark by the contact arrangement 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 arrange-ment	Contact arrange-ment code	Contact operation		
			Contact block		Operator position
			Mounting position	Type	1 2 3 4 5
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	

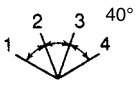
Notes: ●: Contact closed
* There may be some overlap in the contact when switching between notches.

• Position of contact block

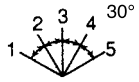


Operator position

4-position



5-position



■ Illuminated selector switches

2-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
Knob  AF95-5	Maintained each 90°	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□**
		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 60°	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□**
		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
Knob  AF95-5	Maintained each 45˚		1NO+1NC 2NO+2NC	Without	**AR30PL-311■3□** **AR30PL-322■3□**	Without	**AR30PL-311■4□** **AR30PL-322■4□**
			1NO+1NC	With	**AR30PL-311■3□**	With	**AR30PL-311■4□**
	Spring/manual return each 45˚		1NO+1NC 1NO+1NC	Without With	**AR30PL-611■3□** **AR30PL-611■3□**	Without With	**AR30PL-611■4□** **AR30PL-611■4□**
			1NO+1NC 1NO+1NC	Without With	**AR30PL-711■3□** **AR30PL-711■3□**	Without With	**AR30PL-711■4□** **AR30PL-711■4□**

Note: □, ■ *See page 86*

• Replace the ■ mark by the following lamp voltage code

Transformer	Voltage	Code LED	Code 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

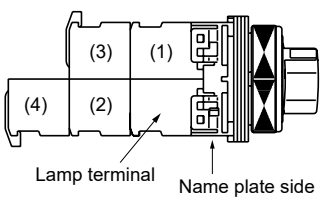
3-position

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	–	–	●
		(3)	NO	●	–	–
		(4)	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	●	–	–

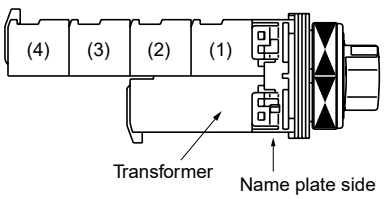
Notes: *1 : AR30PL-3, 6 *3 : AR30PL-3
*2 : AR30PL-7
● : Contact closed, – : Contact open

● 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/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□** **DR30E3L-L9□**	100–110V AC 200–220V AC 115–127V AC	**DR30E3L-H8□** **DR30E3L-M8□** **DR30E3L-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

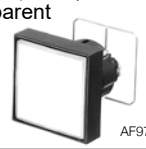
- **Lamp voltage**

Available lamp voltage are as follow.

Description	Voltage	Code Standard type		Code 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	–	–

Discontinued Discontinued

■ Pilot lights/standard

Lens	Transformer	LED unit Lamp voltage	Type	Incandescent lamp Lamp voltage	Type
Flush square (34mm sq. transparent lens)  AF97-65	Without	6V DC	**DR30F4M-65□**	5.5V AC/DC	**DR30F4M-54□**
		15V AC/DC	**DR30F4M-C5□**	15V AC/DC	**DR30F4M-C4□**
		24V AC/DC	**DR30F4M-E5□**	24V AC/DC	**DR30F4M-E4□**
	With	100–110V AC	**DR30F4M-H5□**	100–110V AC	**DR30F4M-H4□**
		200–220V AC	**DR30F4M-M5□**	200–220V AC	**DR30F4M-M4□**
Flush rectangular (Transparent lens)  AF97-61	Without	6V DC	**DR30F4N-65□**	5.5V AC/DC	**DR30F4N-54□**
		15V AC/DC	**DR30F4N-C5□**	15V AC/DC	**DR30F4N-C4□**
		24V AC/DC	**DR30F4N-E5□**	24V AC/DC	**DR30F4N-E4□**
	With	100–110V AC	**DR30F4N-H5□**	100–110V AC	**DR30F4N-H4□**
		200–220V AC	**DR30F4N-M5□**	200–220V AC	**DR30F4N-M4□**
Flush square (40mm sq. transparent lens)  AF97-63	Without	6V DC	**DR30M4M-65□**	5.5V AC/DC	**DR30M4M-54□**
		15V AC/DC	**DR30M4M-C5□**	15V AC/DC	**DR30M4M-C4□**
		24V AC/DC	**DR30M4M-E5□**	24V AC/DC	**DR30M4M-E4□**
	With	100–110V AC	**DR30M4M-H5□**	100–110V AC	**DR30M4M-H4□**
		200–220V AC	**DR30M4M-M5□**	200–220V AC	**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.

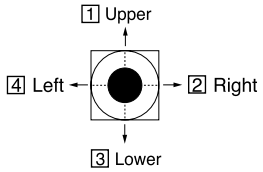
Description	Voltage	Code Standard type LED	Incandescent
Without transformer	5.5V AC/DC	–	54
	6V AC	A5	–
	6V DC	65	–
	12V AC	25	–
	12V AC/DC	B5	–
	15V AC/DC	C5	C4
	20V AC/DC	–	D4
	24V AC/DC	E5	E4
With transformer	100-110V AC	H5	H4
	115-127V AC	L5	L4
	200-220V AC	M5	M4
	230-254V AC	Q5	Q4
	350-380V AC	S5	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

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

• Operating direction

- Directions other than those shown in the table above can be provided.
- For types AR30A□N-1234 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	**DR30B5-AB** Discontinued
			6V DC	**DR30B5-6B**
			12 to 24V AC/DC	**DR30B5-EB**
			35 to 48V AC/DC	**DR30B5-FB** Discontinued
		With	100 to 110V AC	**DR30B5-HB**
			200 to 220V AC	**DR30B5-MB**
		With resistor unit	100 to 110V DC	**DR30B5-1B** Discontinued
Electronic sound (economy)  KK02-145A	• Sound level: 90dB (0.1m) 70dB (1m)	Without	6V DC	**DR30B6-6B**
			24V AC	**DR30B6-GB**
			24V DC	**DR30B6-EB**
		With	100 to 110V AC	**DR30B6-HB**
			200 to 220V AC	**DR30B6-MB**
Magnetic sound  AF96-378	• Sound level: 90dB (0.1m) 70dB (1m)	Without	100 to 110V AC	**DR30B0-HB**
			200 to 220V AC	**DR30B0-MB**
Electronic sound (IP54)  AF96-245	• Intermittent/continuous sound selection • Sound level: 80dB (0.1m) 60dB (1m)	Without	6V AC	**DR30B8-AB** Discontinued
			6V DC	**DR30B8-6B**
			12 to 24V AC/DC	**DR30B8-EB**
			35 to 48V AC/DC	**DR30B8-FB** Discontinued
		With	100 to 110V AC	**DR30B8-HB**
			200 to 220V AC	**DR30B8-MB**
		With resistor unit	100 to 110V DC	**DR30B8-1B** Discontinued

Discontinued

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

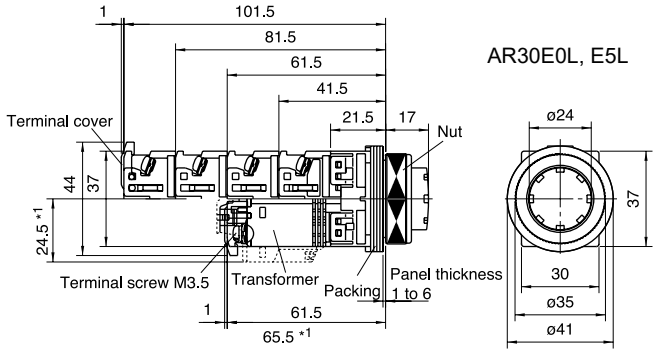
AR30 and DR30
Dimensions

■ Dimensions, mm

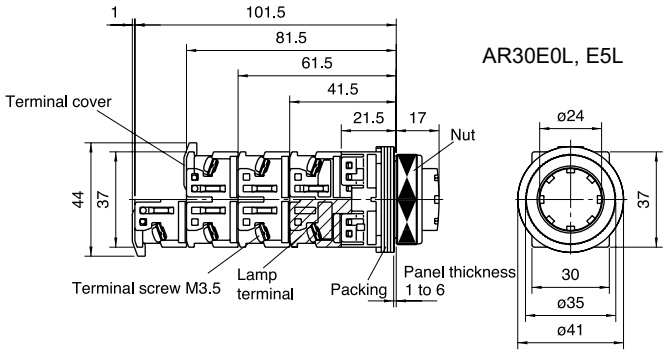
● Illuminated pushbuttons

Extended

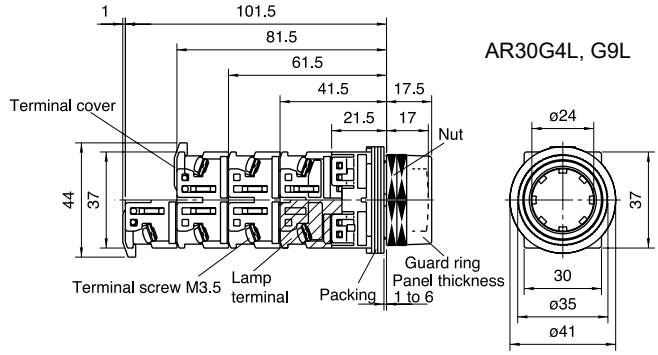
With transformer



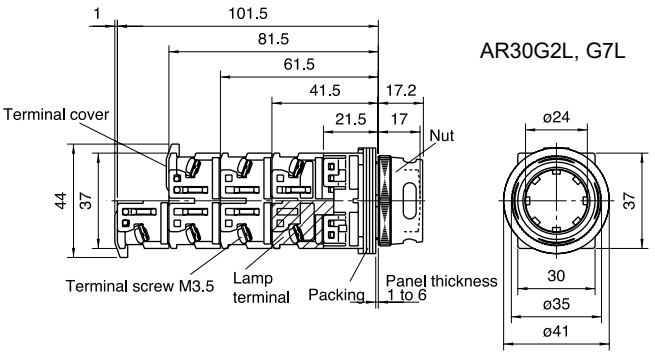
Without transformer



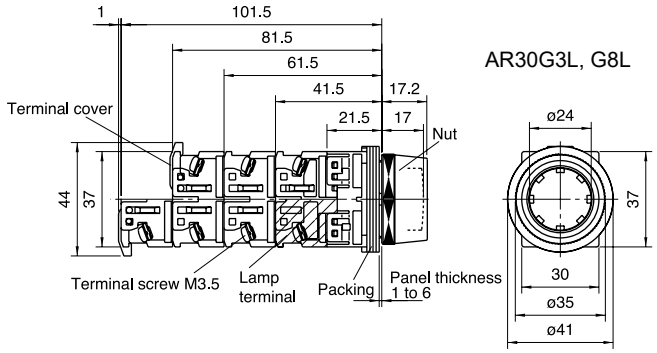
Extended with transparent full guard (24mm dia.)



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



Extended with full guard (24mm dia.)



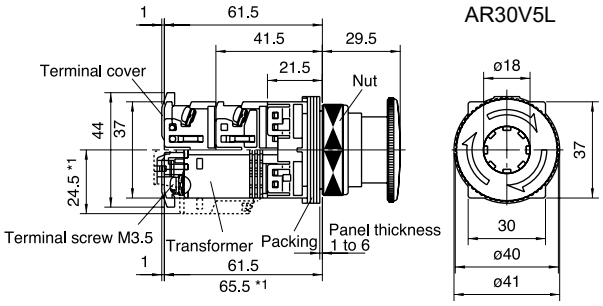
Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

■ Dimensions, mm

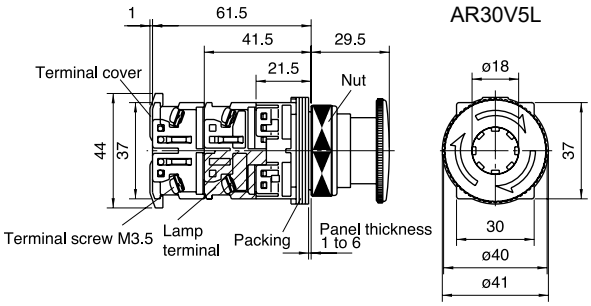
● Illuminated pushbuttons

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

With transformer

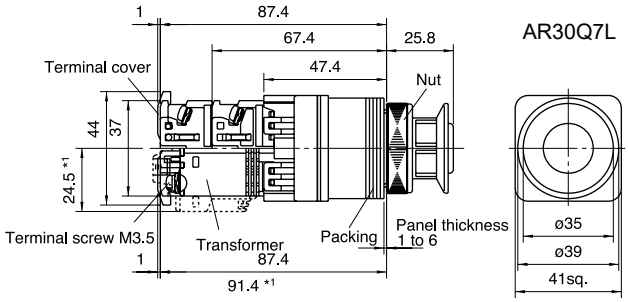


Without transformer

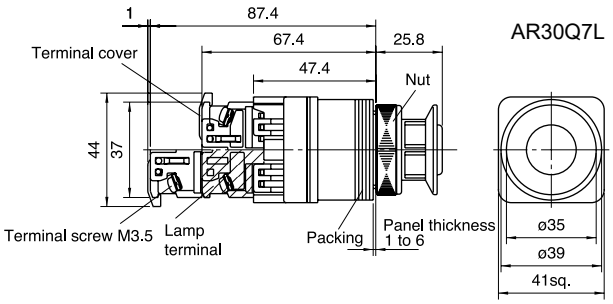


Push-pull

With transformer



Without transformer



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

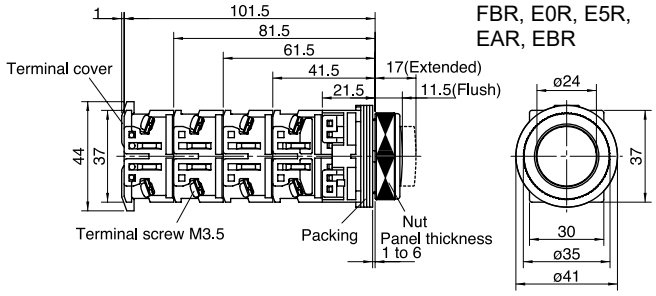
AR30 and DR30
Dimensions

■ Dimensions, mm

● Pushbuttons

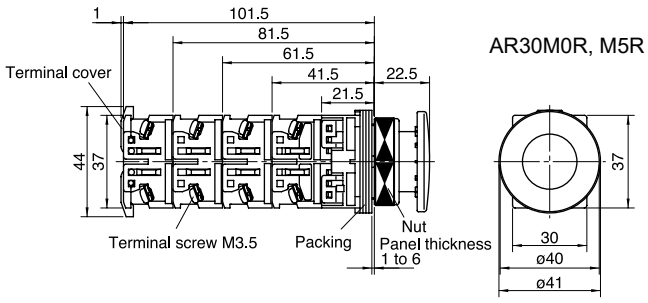
Flush/Extended

AR30F0R, F5R, FAR, FBR, E0R, E5R, EAR, EBR



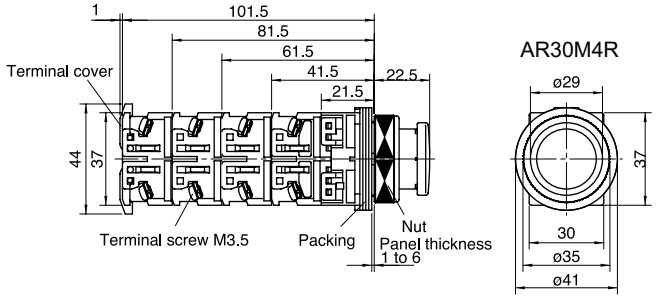
Mushroom (40mm dia.)

AR30M0R, M5R



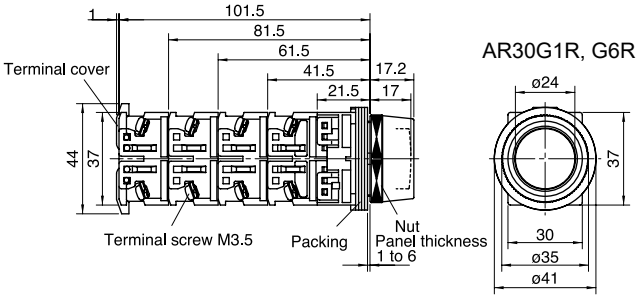
Mushroom (29mm dia.)

AR30M4R



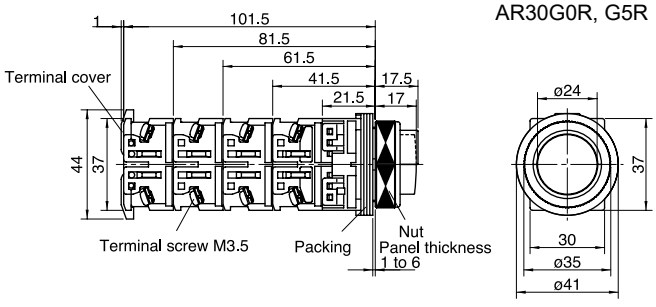
Extended with full guard (24mm dia.)

AR30G1R, G6R



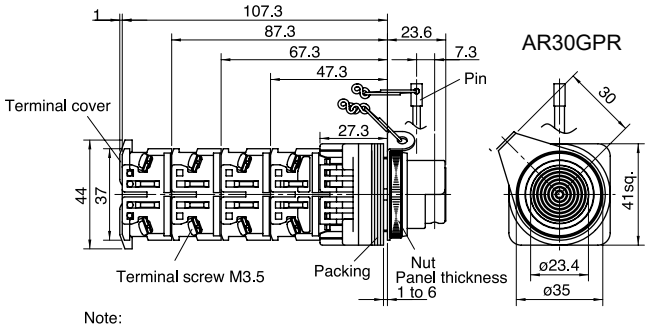
Extended with half guard

AR30G0R, G5R



Pin lock

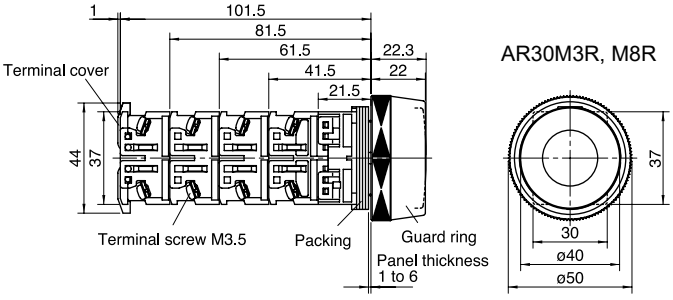
AR30GPR



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

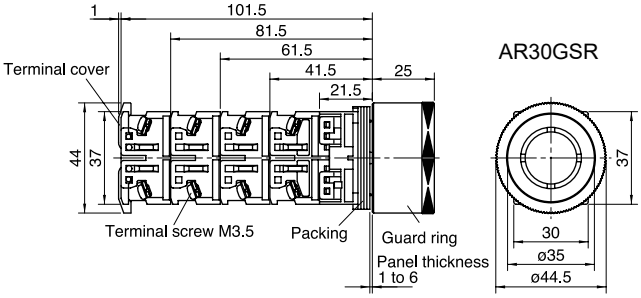
Mushroom with full guard (40mm dia.)

AR30M3R, M8R



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

AR30GSR

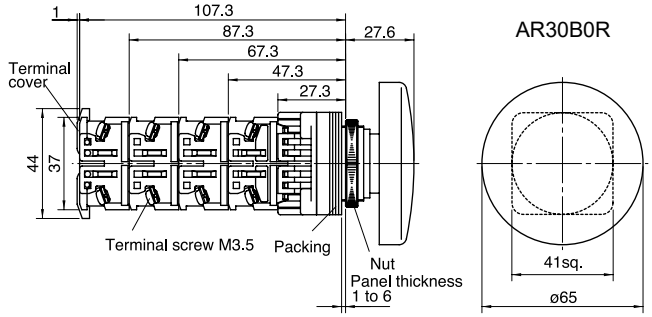


■ Dimensions, mm

● Pushbuttons

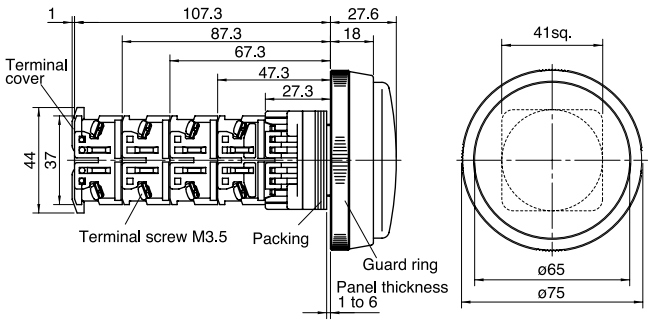
Giant

AR30B0R



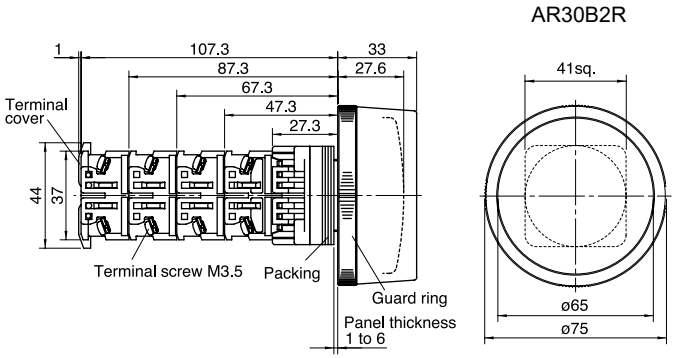
Giant with guard

AR30B1R



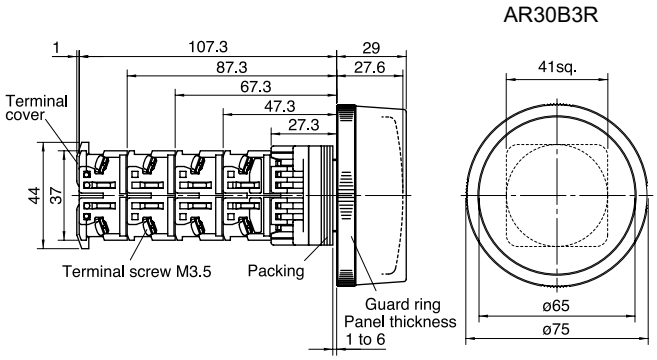
Giant with full guard

AR30B2R



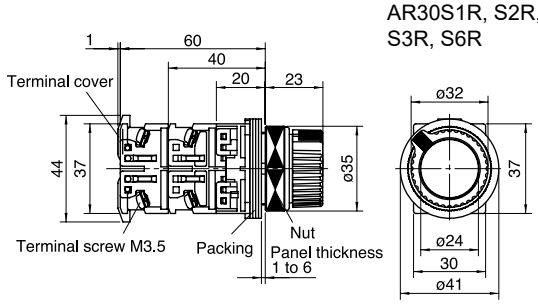
Giant with full guard

AR30B3R



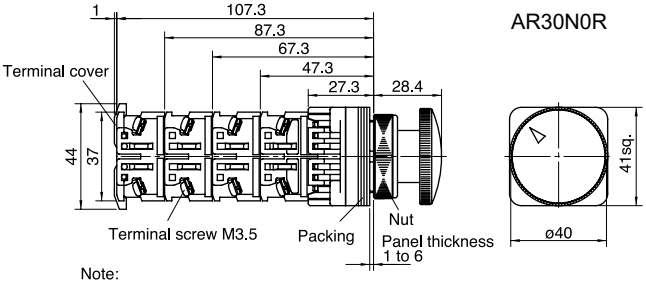
Pushbutton with selector ring (2-position)

AR30S1R, S2R,
S3R, S6R



Push, turn-lock

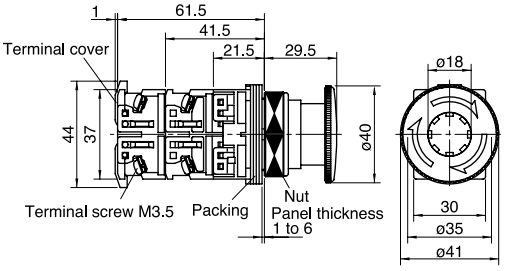
AR30N0R



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)

AR30V5R

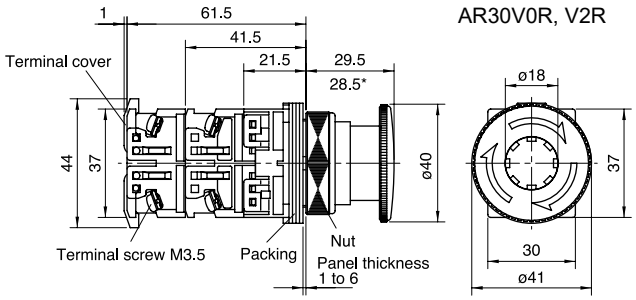


AR30 and DR30
Dimensions

■ Dimensions, mm

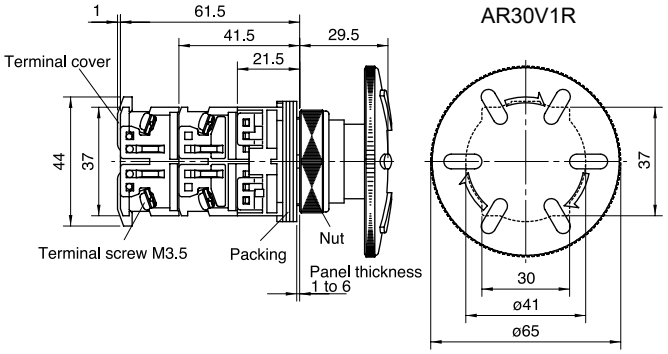
● Emergency stop pushbuttons

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

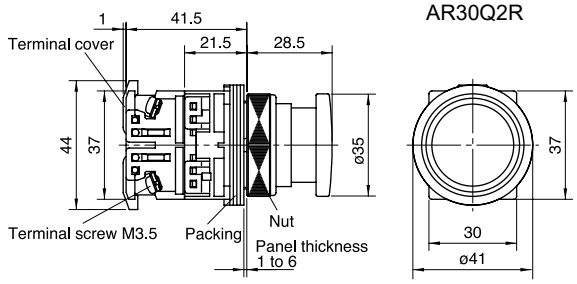


Note: * AR30V2R type

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



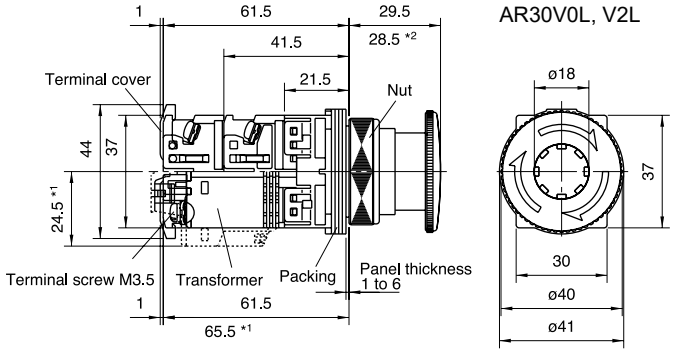
Push-lock, pull-reset (35mm dia.)



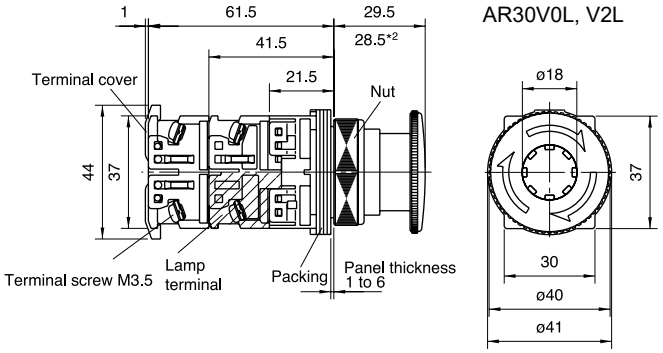
● Emergency stop illuminated pushbuttons

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

With transformer



Without transformer

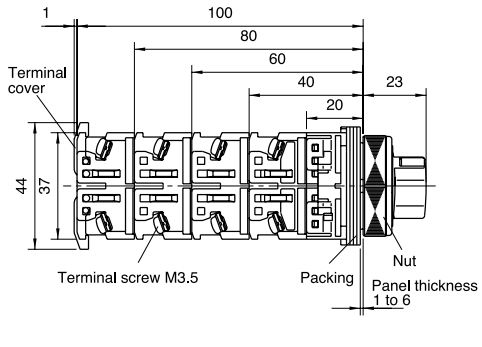


Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.
*2 AR30V2L type

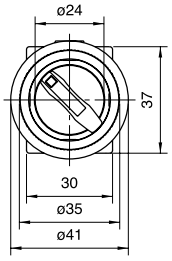
■ Dimensions, mm

● Selector switches

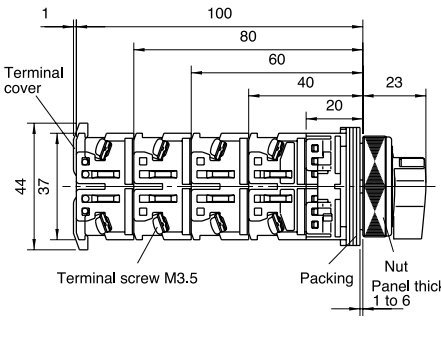
Knob



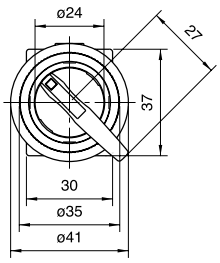
AR30PR, PCR



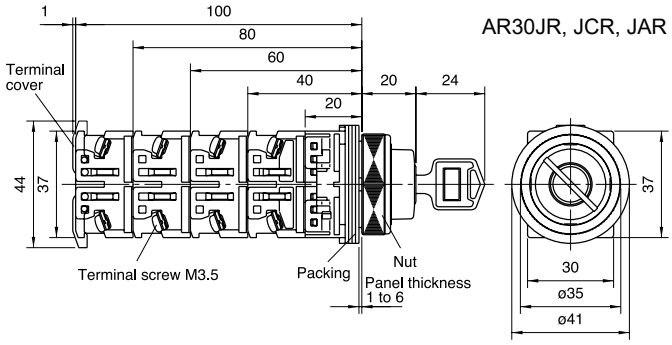
Lever



AR30WR, WCR



Key

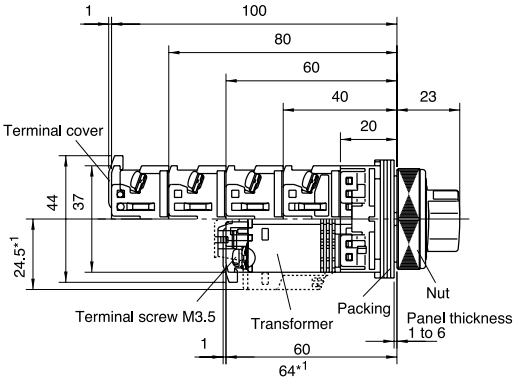


AR30JR, JCR, JAR

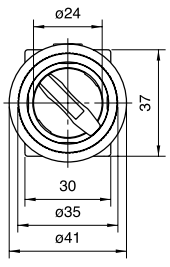
● Illuminated selector switches

Knob

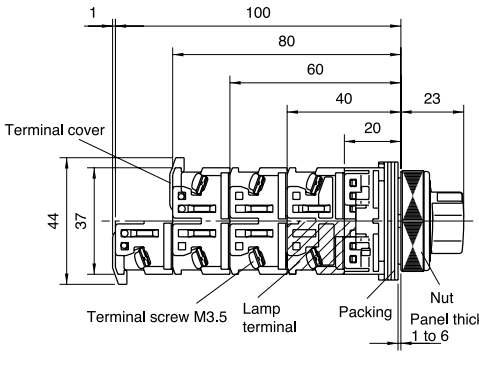
With transformer



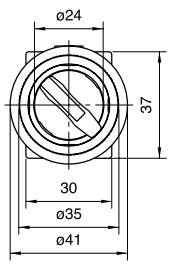
AR30PL



Without transformer



AR30PL



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

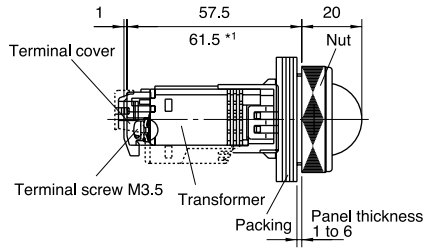
AR30 and DR30
Dimensions

■ Dimensions, mm

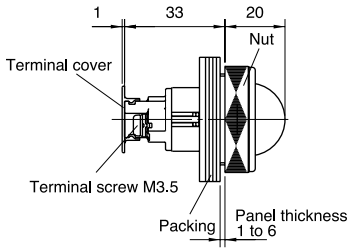
● Pilot lights

Dome

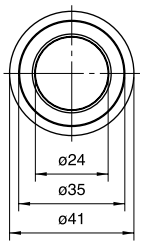
With transformer, with resistor unit



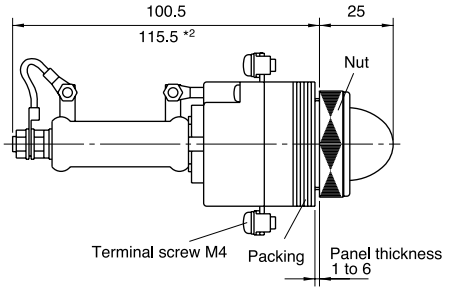
Without transformer



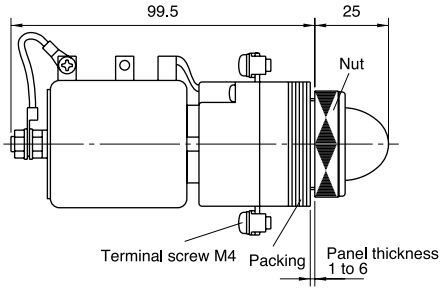
DR30D0L



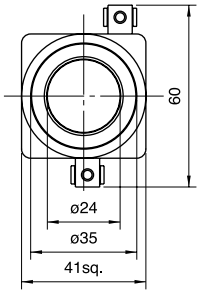
With resistor LED, incandecent (50V DC)



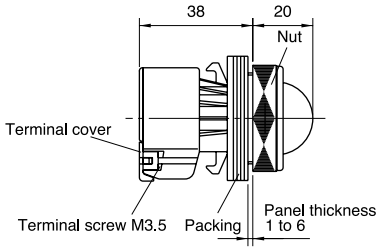
With resistor Incandescent (110, 220V DC)



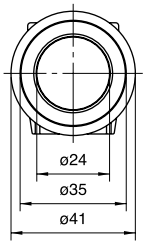
DR30D0L



Short-body / with transformer

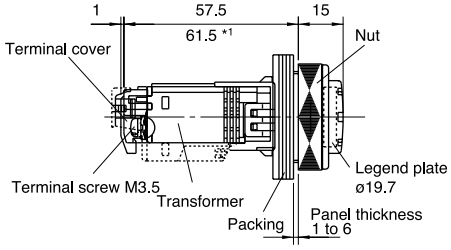


DR30D0L

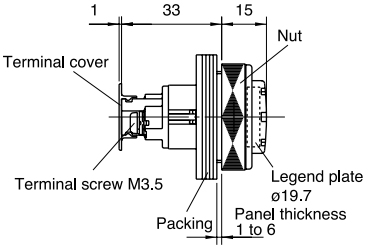


Extended

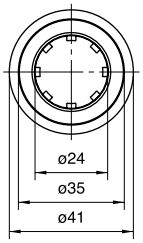
With transformer, with resistor unit



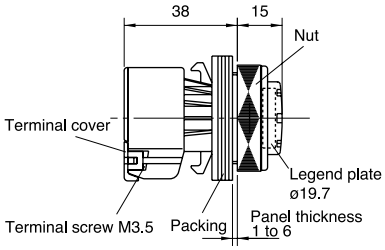
Without transformer



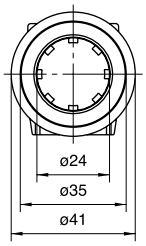
DR30E3L



Short-body / with transformer



DR30E3L



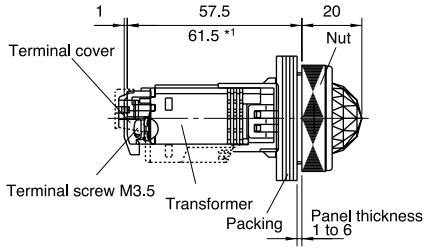
Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.
*2 Incandecent (50V DC) type only

■ Dimensions, mm

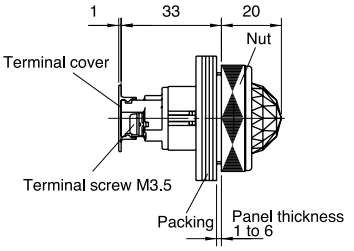
● Pilot lights

Faceted

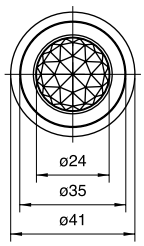
With transformer, with resistor unit



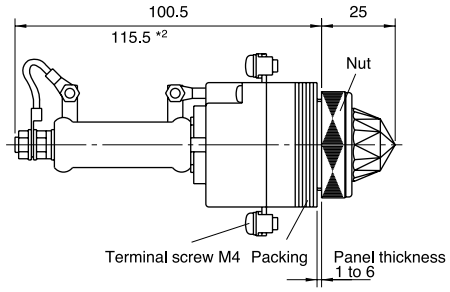
Without transformer



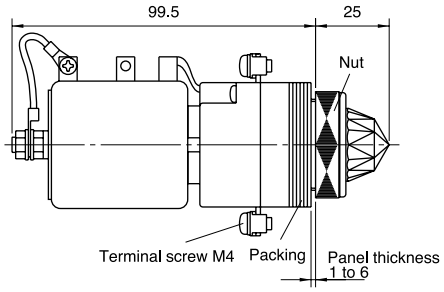
DR30K0L



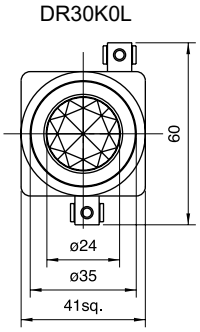
With resistor LED, incandescent (50V DC)



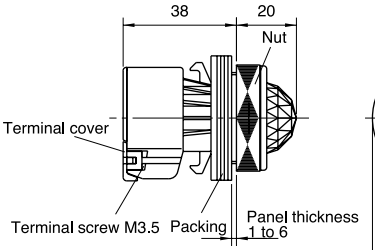
With resistor LED, incandescent (110, 220V DC)



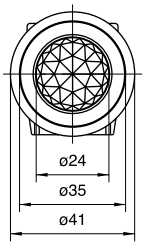
DR30K0L



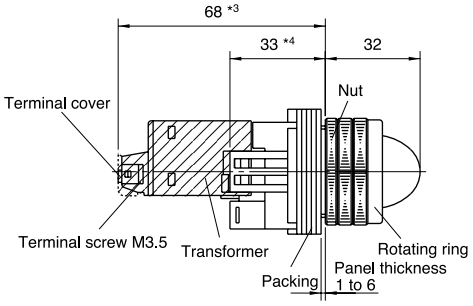
Short-body / with transformer



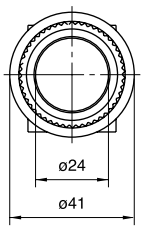
DR30K0L



Dome with dimmer control



DR30D1L



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

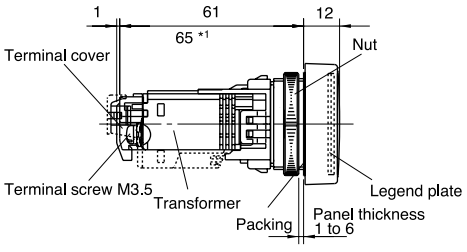
AR30 and DR30
Dimensions

■ Dimensions, mm

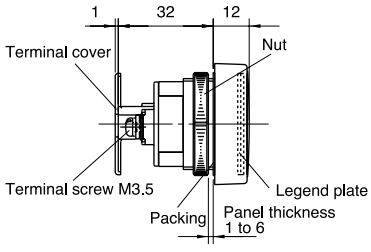
● Pilot lights

Flush square (34mm sq. transparent lens)

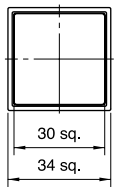
With transformer, with resistor unit



Without transformer

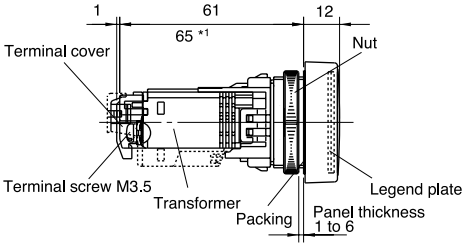


DR30F4M

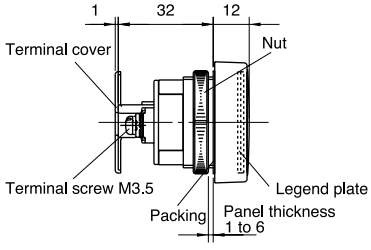


Flush rectangular (Transparent lens)

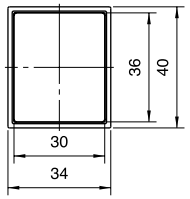
With transformer, with resistor unit



Without transformer

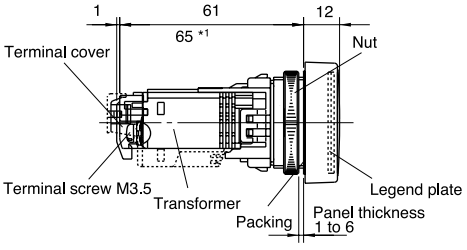


DR30F4N

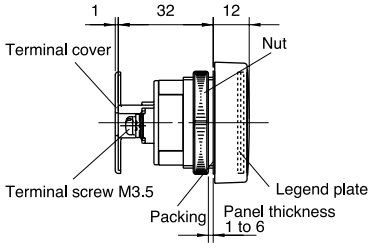


Flush square (40mm sq. transparent lens)

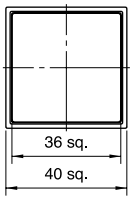
With transformer, with resistor unit



Without transformer



DR30M4M

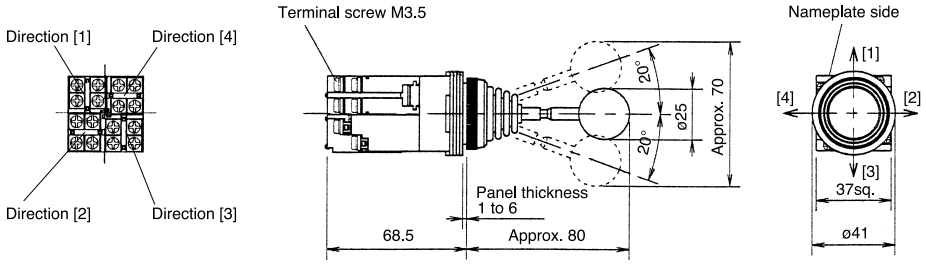


Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

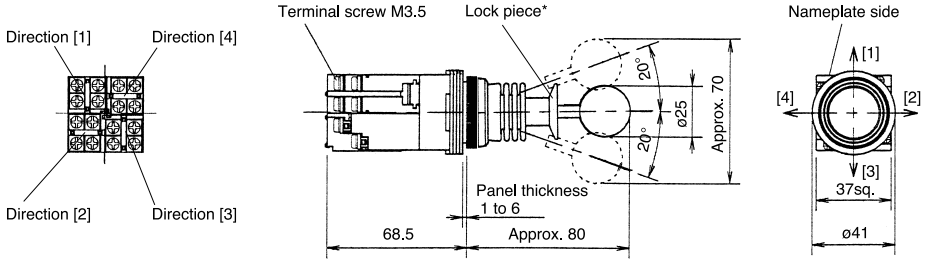
■ Dimensions, mm

● Joy stick selector switches

Ball type (without lock)
AR30A0N, A5N: Screw terminal

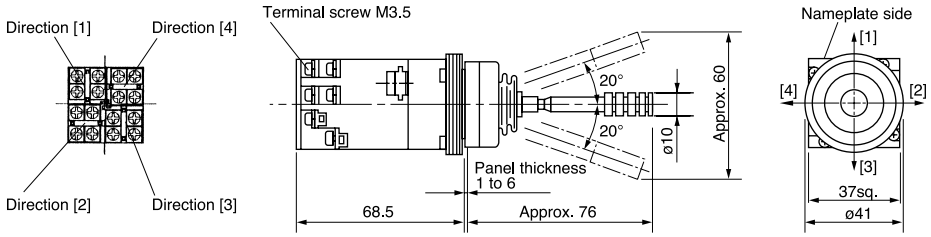


Ball type with lock
AR30A1N, A6N: Screw terminal

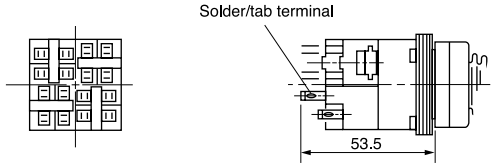


Notes * The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position.
The lock piece locks in the central position only.

Rubber cap type (without lock)
AR30A2N, A7N: Screw terminal



Solder/tab terminal: **AR30A□H**



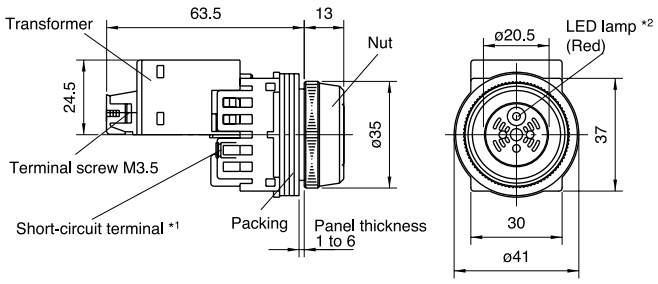
AR30 and DR30
Dimensions

■ Dimensions, mm

● Buzzers

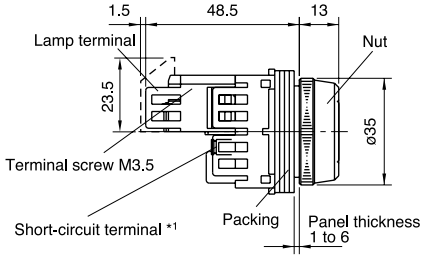
Electronic sound

With transformer

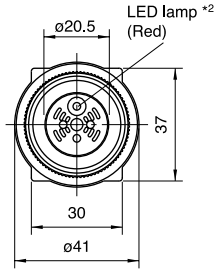


DR30B5, B6

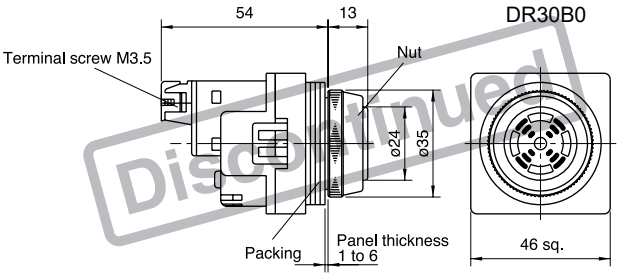
Without transformer



DR30B5, B6



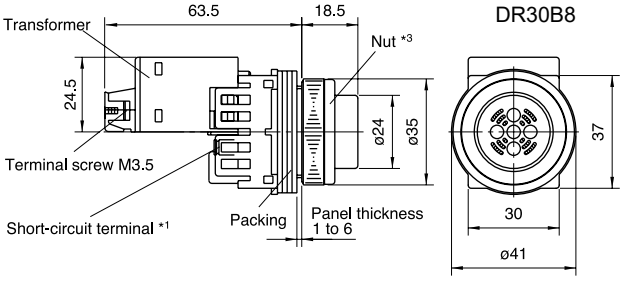
Magnetic sound



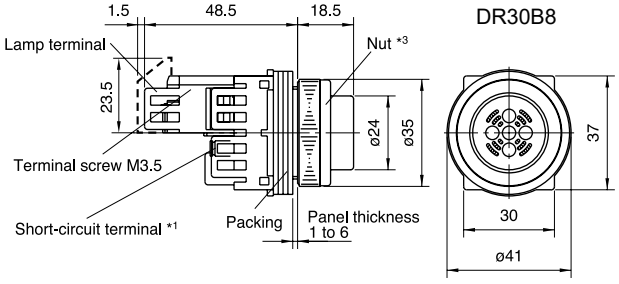
Discontinued

Electronic sound (IP54)

With transformer



Without transformer

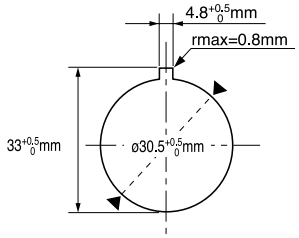


Notes: *1 There are no short-circuit terminals with DR30B6. (Continuous sound only)
*2 There are no LED lamps with DR30B6.
*3 The nut and cap are united with DR30B8.

Notes on use

■ Panel cutout hole

Fig. 1 Panel cutout hole dimensions, mm



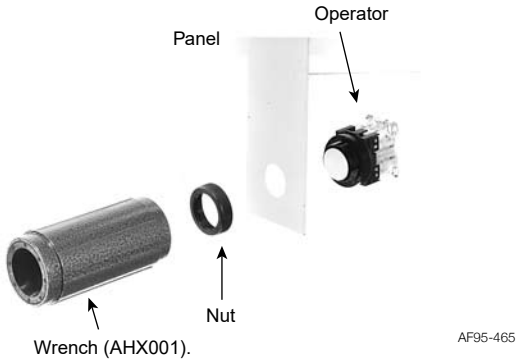
Note : If key-washer or legend plate are not used, 4.8mm-wide. location holes shown in Fig. 1 need not be cutout.

■ 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

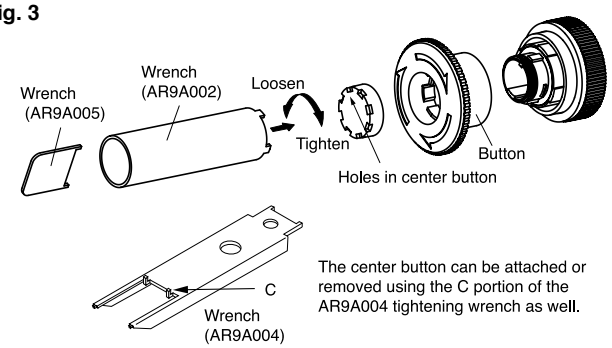


Note : Recommended tightening torque is from 1.5 to 2N·m.

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

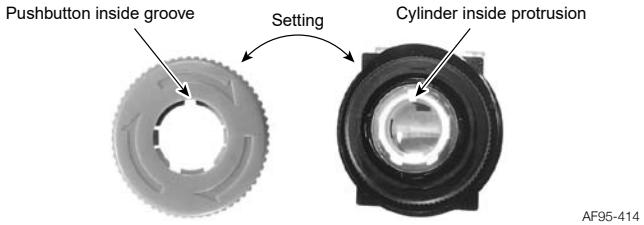
(1) The button is removed after loosening the center button by inserting the end of the AR9A002 tightening wrench or the AR9A005 wrench (enclosed with pushbutton) into the holes in the center button and turning counterclockwise, as shown in Fig.3.
(2) Attach the operator in the same manner as described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

Fig. 3



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.

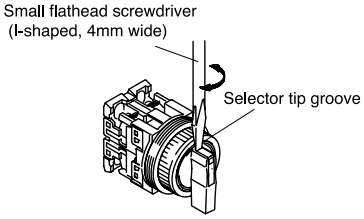
Fig. 4 Setting pushbutton to operator cylinder



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.

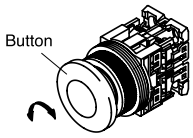
Fig. 5



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)

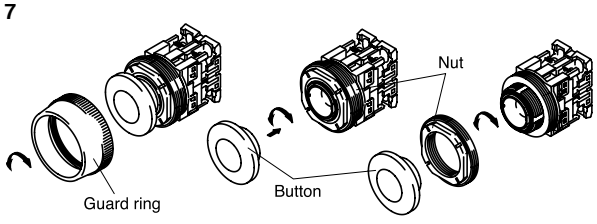
Fig. 6



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)

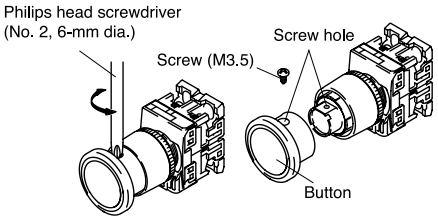
Fig. 7



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

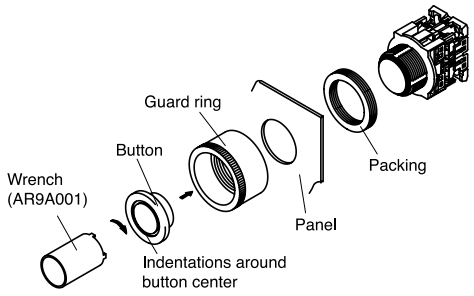
Fig. 8



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)

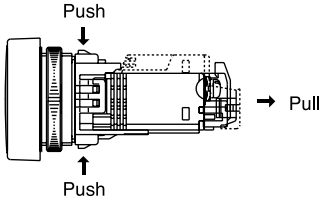
Fig. 9



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)

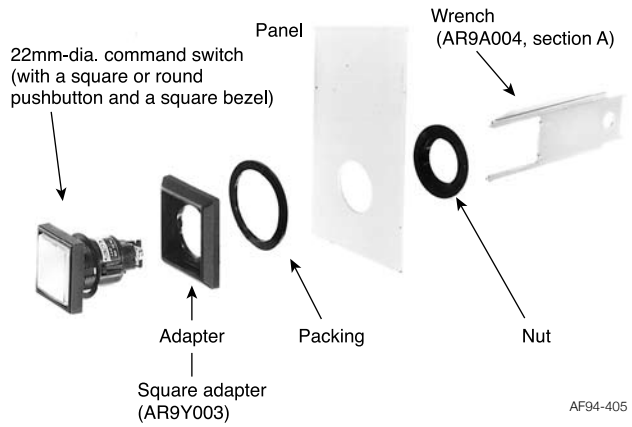
Fig. 10



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



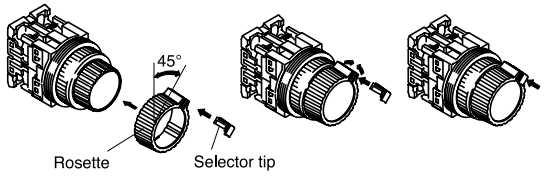
Note : • Recommended tightening torque is from 1 to 1.5N•m.
• Panel thickness: 2.5 to 5mm

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

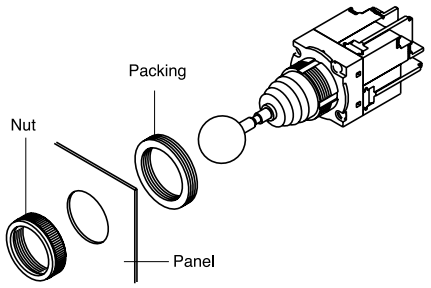
(1) Attach the operator in the same manner as described in step 1.
(2) Attach the rosette assembly to the operator.
(3) Pressing the rosette from the directions indicated by the arrows, insert the selector tip in the groove.
(4) Make sure that the selector tip is inserted completely.
(5) To remove the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

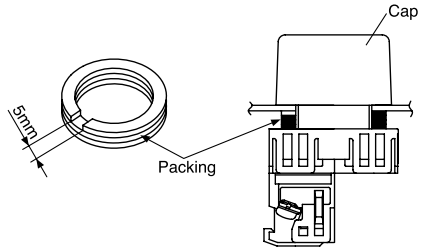


■ Water-proof and dust-proof cap

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.

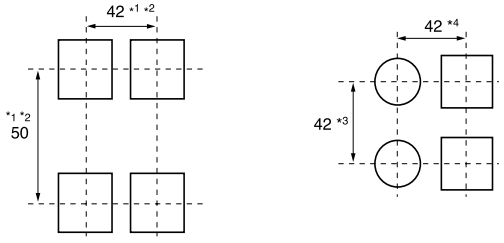
Panel thickness vs. number of packings (reference data)

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

■ 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

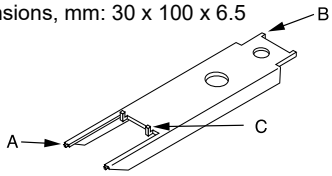


Notes: *1 AR30M3R, M8R, GSR: 55mm
*2 AR30B□R, GPR, V1R: 80mm

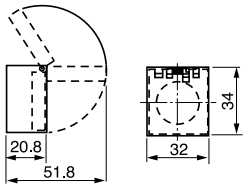
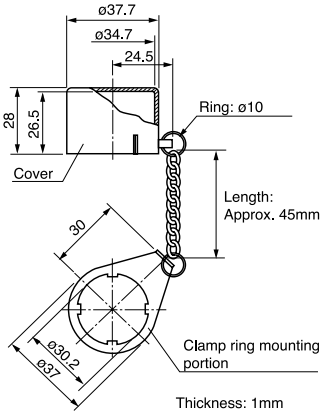
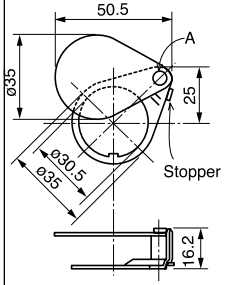
Type	*3	*4
F4M	34	34
F4N (Vertical lengthwise mounting)	40	34
(Horizontal lengthwise mounting)	34	40
M4M	40	40
Pilot lights short-body with transformer	50	42
Pilot lights with resistor	80	42

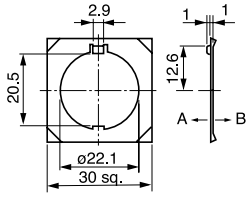
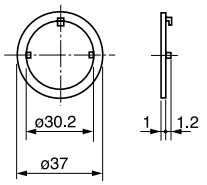
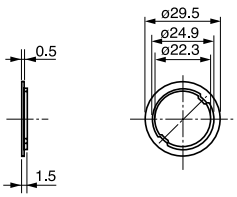
Other items are the same as for the AR22 and DR22 series, *see page 50 to 54*.

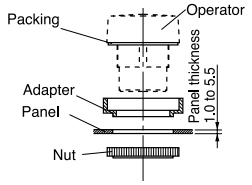
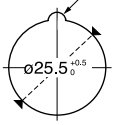
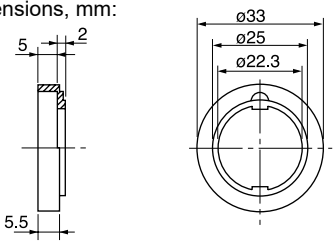
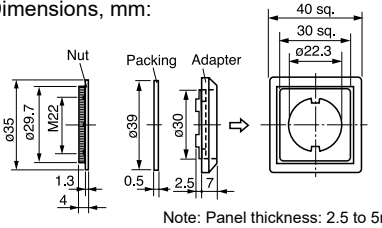
■ Accessories

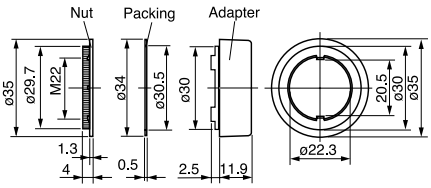
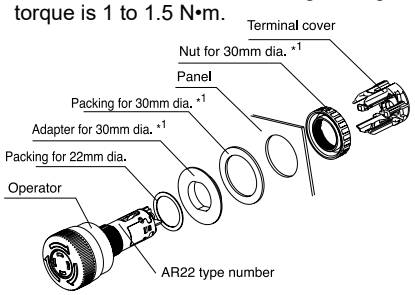
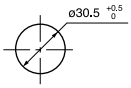
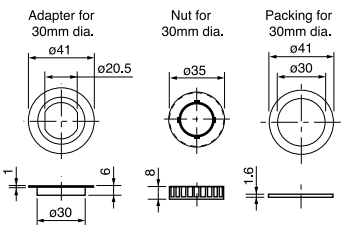
Description	Type
Wrench  KK02-261	**AR9A004** Dimensions, mm: 30 x 100 x 6.5  Remarks Section “A” Use this section to tighten the nut for mounting the operator on a panel. Section “B” Use this section to tighten or remove the lens. Applicable type: AR22F0L, F5L, E0L, E5L, F0P, F5P, E0P, E5P AR22G1L, 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: ø28 x 70 Application: AR22, DR22 nut tightening
Wrench  KK02-097A	**AHX536** Dimensions, mm: ø32 x 76 Application: DR30F4M, F4N, M4M, N1, N2 nut tightening
Wrench  KK02-098A	**AR9A001** Dimensions, mm: ø22 x 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: ø18 x 60 Application: AR22V center button tightening (except V4R, VG type) AR30V center button tightening (except V1R type)
Wrench  AF03-5	**AHX701** Dimensions, mm: ø25 x 72.5 Application: DR22N, AR22VG nut tightening

Description	Type
Wrench (for center button)  AF93-6	**AHX8003** Dimensions, mm: ø14 x 50 Attaching and removing the center button of the AR22VGF type.
Wrench for AR22,30 and DR22, 30 For ø30  AF96-241	**AR9A006** Dimensions, mm: ø40 x 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  AF95-467	**AHX001** Dimensions, mm: ø47 x 100 To mount an AR30 or DR30 command switch to a panel, use this wrench to tighten the nut securely.
Special tool  SG-873  AF95-21	**AHX321** Dimensions, mm: 42 x 130 x 6.5 For all types except pilot lights **DR9A321-T** Dimensions, mm: 57 x 130 x 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  SI-1030	**AHX702** Dimensions, mm: ø36 x 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 For BA9S/13 lamp  AF95-22	**AHX790** Dimensions, mm: ø14 x 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.

Description	Type
Protection cover  AF95-29	**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  AF91-671	**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  .AF93-420	**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  AF95-25	**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  SC-1016	**AHX082** Use this metal washer when securing an operator in a 30.5mm dia. panel cutout hole. Dimension, mm: 
Operator base cover  AF95-26	**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  .AF95-28	**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: 

Description	Type
Adapter for AR22 and DR22	**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: ø4.5 +0.2   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:  AF98-198
Adapter for AR30 and DR30	**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  AF95-416

Description	Type
Round-frame adapter for 30mm dia. types	**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  KK02-100A
Round-frame adapter for 30mm dia. type VG	**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  AF93-4

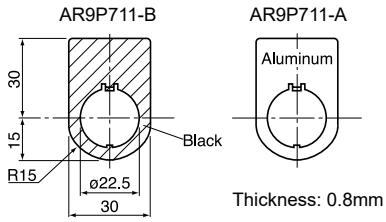
Description	Type
Legend plate for AR22	**AR9P711-**①②③ ① Color B: Black A: Aluminum This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)



SI-1033

Legend	Code ②	Code ③
Blank	0	0
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A

Dimensions, mm:



Thickness: 0.8mm

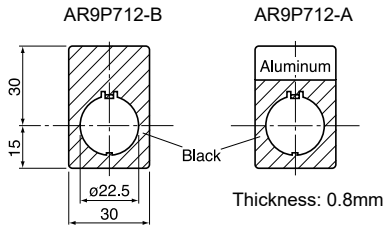
Description	Type
Legend plate for AR22	**AR9P712-**①②③ ① Color B: Black A: Partially black This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)



SI-1032

Legend	Code ②	Code ③
Blank	0	0
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A

Dimensions, mm:



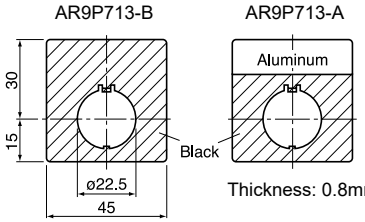
Thickness: 0.8mm

Description	Type
Legend plate for AR22	**AR9P713-**①②③ ① Color B: Black A: Partially black This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)

AF95-114

Legend	Code ②	Code ③
Blank	0	0
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A

Dimensions, mm:



Thickness: 0.8mm

Description	Type
Legend plate for AR22 emergency stop	**AR9P719-**①② Plate color: Yellow Letter color: Black This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)

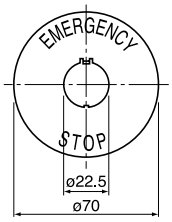


KK02-265A

Legend	Code ①	Code ②	Letter hight
Blank	0	0	–
EMERGENCY STOP	5	A	7mm
	5	B	13mm
EMERGENCY OFF	5	C	13mm

Dimensions, mm:

AR9P719



Thickness: 0.8mm

Note: Engraving for making letters is not available.

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

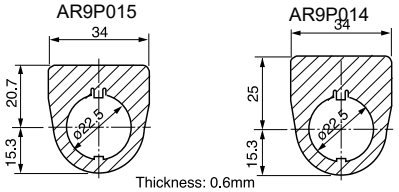
Legend	code ①	②
Blank	0	0
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A



.AF96-190

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:



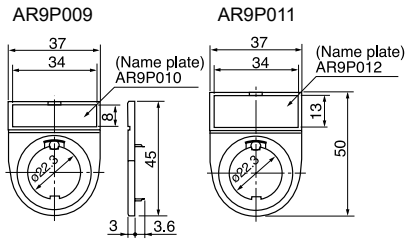
Description	Type
Legend plate with name plate for AR22	Legend plate **AR9P009-B** Name plate **AR9P010-B** ①② (34 × 8mm) Legend plate **AR9P011-B** Name plate **AR9P012-B** ①② (34 × 13mm) Legend plate **AR9P007-B** Name plate **AR9P008-B** ①② (27 × 16mm)

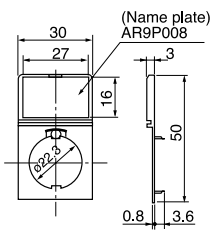
Name plate	Code ①	②
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A



.AF96-190

Dimensions, mm:





Description	Type
Legend plate for AR30	**AHX177-**①②③④ ① Material and color This legend plate is for a 30.5mm dia. panel cutout hole.

Code	Material	Color
S	Brass	Silver
B	Aluminum	Black
A		Aluminum



Y-1545

② Size
H: Standard
S: Short size

Legend	Code ③	④
Blank	0	0
ON	0	A
OFF	0	B
START	0	C
STOP	0	D
OFF-ON	2	A

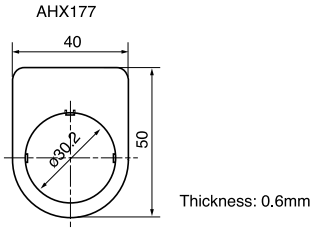


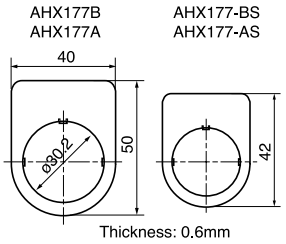
AF89-466



AF87-49

Dimensions, mm:





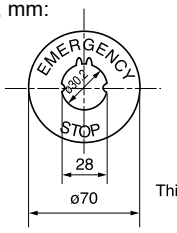
Description	Type
Legend plate for AR30 emergency stop	**AHX720-**①② Plate color: Yellow Letter color: Black This aluminum legend plate is for a 30.5mm dia. panel cutout hole.

Legend	Code ①	②	Letter hight
Blank	0	0	–
EMERGENCY STOP	5	A	7mm

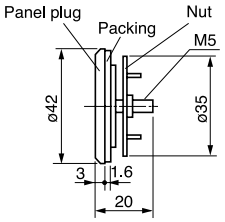


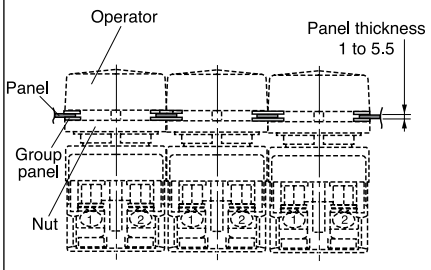
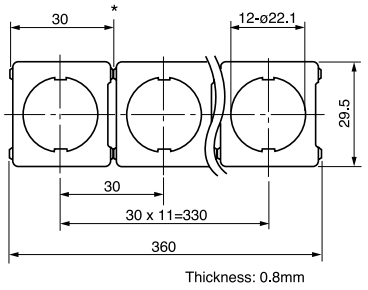
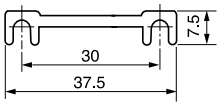
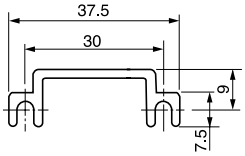
SK-598

Dimensions, mm:



Note: Engraving for making letters is not available.

Description	Type
Panel plug for AR22 and DR22  SI-1027	Round: **AHX725-B** Black **AHX725-H** Gray Square: **AHX726-B** Black **AHX726-H** Gray Dimensions, mm: ø29.5 x 17 (AHX725) 29.5 sq. x 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  T-1993	**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  AF97-233	**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  AF95-153  AF95-27	**APCX029** (For pilot light without transformer) **DR9Y001** (For pilot light with transformer) Use this jumper to connect terminals allocated in a 30mm pich. Rated current is 3A Dimensions, mm APCX029  DR9Y001  Thickness: 0.5mm

AR22/DR22 and AR30/DR30 Accessories

Lens for illuminated pushbutton switch and pilot lights



AF94-458

Type	Used with
AR9C011-□[*1]	AR22F0L, F5L, F0P, F5P
AR9C012-□[*1]	AR22E0L, E5L, E0P, E5P AR22G1L, G2L, G4L, G6L, G7L, G9L DR22E3L, E3P AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L DR30E3L
AR9C013-□[*1]	AR22F0M, F5M
AR9C014-□[*1]	AR22E0M, E5M DR22E3M, F5M
AR9C015-□	AR22M4L, M4P
AR9C016-□	AR22M0L, M5L
DR9C001-□	DR22D0L DR30D0L*[2]
DR9C002-□	DR22K0L DR30K0L*[2]
DR9C120-C	DR30M4M
DR9C121-C	DR30F4N
DR9C122-C	DR30F4M
DR9C126-□[*1]	DR22F3M
DR9C126-C	DR22F4M
DR9C127-□[*1]	DR22E3N

Replace the □ mark by the lens color code

Color	Green	Red	Clear	Yellow
Code	G	R	C	Y

Color	Orange	Blue	White
Code	A	S	W

Notes: *[1] When the main unit code is "W" (white), use a lens of clear color.
*[2] Except for pilot lights with resistor

Button for pushbutton switch



AF94-461



KK02-101A



KK02-102A



KK02-103A

Type	Used with
AR9C001-□	AR22F0R, F5R, F0Y, F5Y, G2R, G7R AR30F0R, F5R, FVR AR22S1R, S2R, S3R, S6R AR30S1R, S2R, S3R, S6R
AR9C003-□	AR22E0R, E5R, G0R, G3R, G5R, G8R AR22E0Y, E5Y AR30E0R, E5R, G0R, G1R, G5R, G6R
AR9C004-□	AR22F0S, F5S
AR9C005-□	AR22E0S, E5S
AR9C006-□	AR22M4R, M9R, M4Y AR30M4R
AR9C007-□	AR22M0R, M5R AR30M0R, M3R, M5R, M8R
AR9C024-□	AR30B0R, B1R, B2R, B3R
AR9C027-C	AR22FAR, FBR, AR30FAR, FBR
AR9C028-C	AR22EAR, EBR, AR30EAR, EBR
AR9C041-R	AR30N0R

Replace the □ mark by the button color code

Color	Green	Red	Black	White
Code	G	R	B	W

Color	Yellow	Orange	Blue
Code	Y	A	S

Center button (For V type)



AF95-32

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*

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)



AF95-31



KK02-104A

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

Replace the □ mark by the button color code

Color	Red	Black	Yellow
Code	R	B	Y

Note: * V5L: Red and yellow only

Knob



AF95-43

Type	Used with
AR9M006-□	AR22PR, PCR, PY, PCY AR30PR, PCR

Replace the □ mark by the knob color code

Color	Black	Green	Red
Code	B	G	R

Lever



AF95-42

Type	Used with
AR9M007-□	AR22WR, WCR, WY, WCY AR30WR, WCR

Replace the □ mark by the lever color code

Color	Black	Green	Red
Code	B	G	R

Cylindrical knob



AF95-44

Type	Used with
AR9M008-□	AR22RR, RCR, RY, RCY

Replace the □ mark by the knob color code

Color	Black	Green	Red
Code	B	G	R

Knob (for illuminated selector switch)


AF94-465

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

Key


AF94-464

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.

Legend plate (for F type with round bezel)


AF94-459

AR9P001-W

This part is made of acrylic resin.
Use paint or thinner compatible with resin.

Dimensions, mm: ø17.8 x 0.9

Legend plate (for E type with round bezel)


AF94-459

AR9P002-W

This part is made of acrylic resin.
Use paint or thinner compatible with resin.

Dimensions, mm: ø19.7 x 4.2

Symbol mark plate


AF98-197

Type	Used with
AR9P019-☐☐■	AR22FAR, FBR, AR30FAR, FBR
AR9P020-☐☐■	AR22EAR, EBR, AR30EAR, EBR

☐☐■:

Symbol	◯		I		Ⓣ		◯	I	Ⓣ
Plate	W	B	W	B	W	B	Clear		
Symbol	Red		Green		Green		Black		
Code	01	02	03	04	11	12	02B	04B	12B

W: White, B: black

Legend plate and color plate (for F type with square bezel)


AF94-460


KK02-105A


KK02-106A


KK02-107A

• Legend plate

Type	Used with
DR9P241-W	AR22F0M, F5M
	DR22F3M, F4M
DR9P242-WP	DR30M4M
DR9P242-W	DR30M4M, LED(W)
DR9P243-WP	DR30F4N
DR9P243-W	DR30F4N, LED(W)
DR9P244-WP	DR30F4M
DR9P244-W	DR30F4M, 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

Type	Used with
DR9P241-☐	DR22F3M, F4M
DR9P242-☐	DR30M4M
DR9P243-☐	DR30F4N
DR9P244-☐	DR30F4M

Replace the ☐ mark by the color code

Color	Green	Red	White
Code	G	R	W

Color	Yellow	Orange	Blue
Code	Y	A	S

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)


AF94-460

AF94-460

Type	Used with
AR9P003-W	AR22E0M, E5M
	DR22F5M, E3M
DR9P001-W	DR22E3N

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


AF95-34

AHX727

Affix this seal to the DR9P241 ☐/AR9P003 legend plate for marking or labeling.

Dimensions, mm: 20 sq. x 0.025

LED lamp



KK02-109A

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

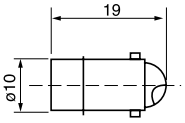
Replace the ☐ mark by the luminous color code

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)



KK02-110A

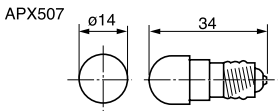


KK02-111A

Type	Lamp voltage
APX507-24 ☐ **APX509-24O**	24V AC/DC

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.509-24O)

Dimensions, mm:
APX507-24S is discontinued



Lamp base: E12/15

LED lamp (for AR22VGF type)

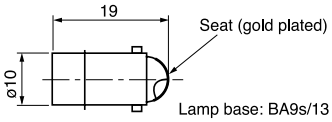


KK02-109A

Type	Lamp voltage
AR9L002-ER	24V AC/DC

Luminous color: Red

Dimensions, mm:



Lamp base: BA9s/13

Do not use the LED lamp for other types.

Neon lamp (for AR22VGF type)

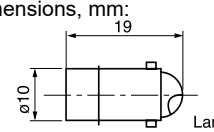


KK03-038

Type	Lamp voltage
AR9N001-HA	110V AC
AR9N001-KA	120V AC
AR9N001-MA	220V AC
AR9N001-PA	240V AC

Luminous color: Orange

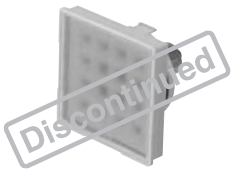
Dimensions, mm:



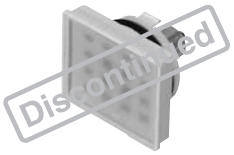
Lamp base: BA9s/13

Do not use the LED lamp for other types.

LED unit for DR30 (square type)



KK02-112A



.KK02-113A



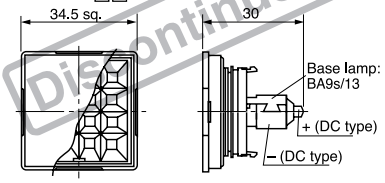
Type	Lamp voltage	Used with
DR9Q001-6 ☐	6V DC	DR30M4M
DR9Q001-2 ☐	12V AC	
DR9Q001-B ☐	12V AC/DC	
DR9Q001-E ☐	24V AC/DC	
DR9Q002-6 ☐	6V DC	DR30F4N
DR9Q002-2 ☐	12V AC	
DR9Q002-B ☐	12V AC/DC	
DR9Q002-E ☐	24V AC/DC	
DR9Q003-6 ☐	6V DC	DR30F4M
DR9Q003-2 ☐	12V AC	
DR9Q003-B ☐	12V AC/DC	
DR9Q003-E ☐	24V AC/DC	

Replace the ☐ mark by the luminous color code

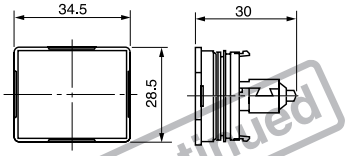
Luminous color	Yellow	Red	Orange	Amber
Code	Y	R	O	A
Lens color	G, Y	R	W	A

Dimensions, mm:

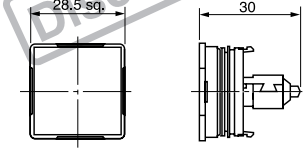
DR9Q001-☐☐



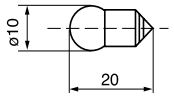
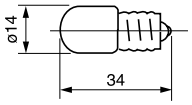
DR9Q002-☐☐

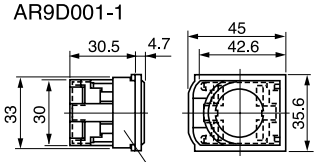
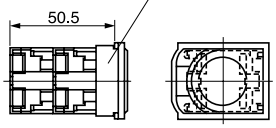
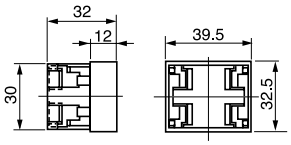
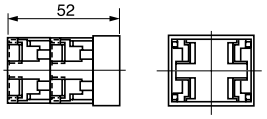


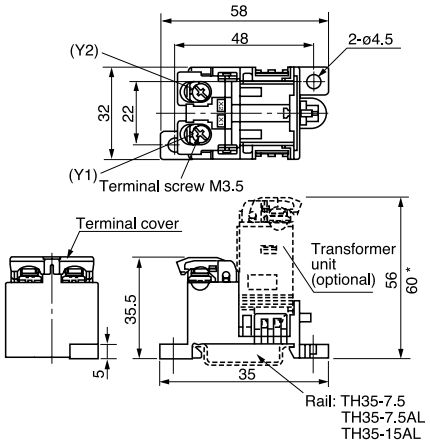
DR9Q003-☐☐



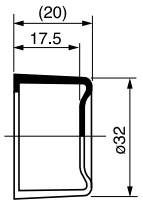
Discontinued
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Description	Type
Incandescent lamp	Type / Lamp voltage / Rated voltage, consumption **AHX135** 5.5V AC/DC 6.3V AC/DC, 1W **AHX279** 15V AC/DC 18V AC/DC, 1W **AHX144** 20V AC/DC 24V AC/DC, 1W **AHX129** 24V AC/DC 30V AC/DC, 1W Dimensions, 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)  AF94-455	**AR9B290** Standard **AR9B290-S** Overlap Color: Blue Dimensions, mm: 19.3 x 29 x 27 Note: Terminal cover is not supplied with this.
Contact block (1NC)  AF94-455	**AR9B291** Standard **AR9B291-S** Overlap Color: Red Dimensions, mm: 19.3 x 29 x 27 Note: Terminal cover is not supplied with this.
Lamp terminal  AF94-456	**AR9B292** Color: Black Dimensions, mm: 19.3 x 29 x 27 Note: Terminal cover is not supplied with this.

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 
 KK02-117A	
 KK02-118A	
Transformer unit  AF94-457  AF95-33	Type / Primary voltage / Used with **AR9T511-H** 100-110V AC Standard type (except buzzers) **AR9T511-L** 115-127V AC **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

Description	Type
Base unit for transformer separate mounting  KK02-118A	**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 flickerin  AF95-33	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  AF94-462  KK2-119A	Type / Used with / Dimensions, mm **AR9R744** AR22, DR22* ø29.7 x 4 **DR9R001** DR30F4M, DR30F4N, DR30M4M ø33.8 x 5 * Except AR22VG□, Joy stick selectors, buzzers and numerical indicators

Description	Type
Nut for 30mm dia. types (Resin types are black, metallic types are silver.)  KK2-120A  KK2-121A  KK2-122A  KK2-123A	**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  AF94-462  KK04-115A  KK04-113C  KK04-117C  KK04-112B	**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 **AR9R009**: Transparent guard Used with: AR22G4L **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  KK2-124A	**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. Code — Color G — Green R — Red B — Black Y — Yellow Blank — Clear (standard) Dimensions, mm: 
Water-tight cap for 30mm dia. types  Y-1559	**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

Key	Type	Used with
	AR9C022-☐	AR22JR, AR30JR, AR22JCR, AR30JCR
	AR9C025-☐	AR22JAR, AR30JAR
	Note: Replace the ☐ mark by the key type code. Code: A, B, C, D , E, F Types	

AR22/DR22 and AR30/DR30 Accessories

Dust-proof cap for 30mm dia. types



SC-993

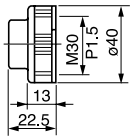


AF89-772

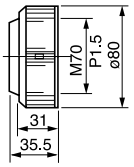
Type	Color	Used with	Spec.
AHX032	Red	AR30E0R	Oil-proof
AHX033	Green		
AHX034	Black		
AHX041	Red	AR30F0R	Oil-proof
AHX042	Green		
AHX043	Black		
AHX157-R	Red	AR30B2R, B3R	Oil-proof
AHX157-G	Green		
AHX157-B	Black		
AHX113-R	Red	AR30E0R	Weather resistance
AHX113-G	Green		
AHX113-B	Black		
AHX111-R	Red	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



AF94-462



KK2-125A

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

Terminal cover



AF94-466



KK2-126A

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



AHX305

SG-842



AHX426

AF92-339



AHX376

SG-5

Type	Used with	Dimensions, mm
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.

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

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)

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 finge 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.

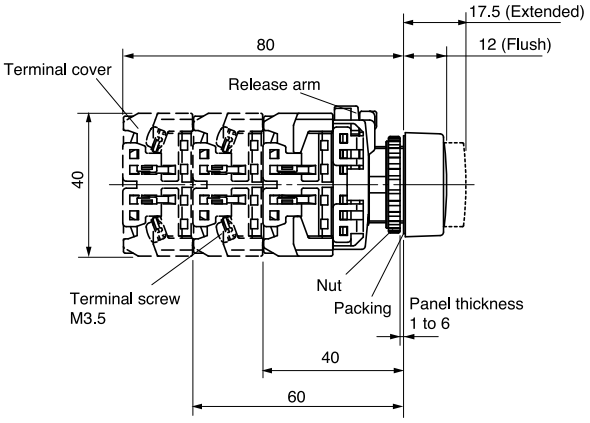
■ Applicable types
• AR22, DR22 series
AR22 (except for joy stick selectors)
DR22: Without transformer, with transformer (except for short-body types, buzzers and numerical indicators)

• 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)

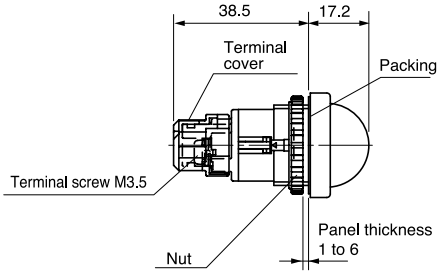
Note: The terminal of the standard type VG has IP2X protection.

■ Dimensions, mm

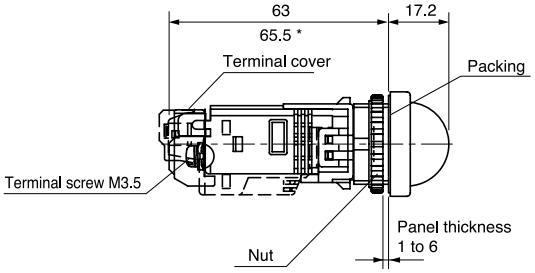
AR22/Pushbutton switches



DR22/Without transformer



DR22/With transformer



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

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).


KK02-147A
AR30E0R ☐ ZM


KK02-148A
AR30PR ☐ ZM


KK02-149A
DR30D0L ☐ ZM

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)

■ 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 E5R, EBR, F5S, F5Y, G5R	28	37	56
E0S, E0Y, M4R, G2R E5S, E5Y, M9R, G7R	29	38	57
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

● Numerical indicators

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

Discontinued

■ 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
DR30	D0L, 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
DR30	D0L, K0L (LED)	103	103
	D0L, K0L (incandescent)	107	179

● Selector switches

Type		1NO (1NC)	2NO (2NC) (1NO+1NC)	2NO+2NC
AR30	PR, 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)
AR30	PL	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
AR30	A2N, 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
AR30	A2H, 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
DR30	B5, B6	47	102	49 (Except B6)
	B8	48	103	50
	B0	86	–	–

AH164, AH165 and AH165-2
General information

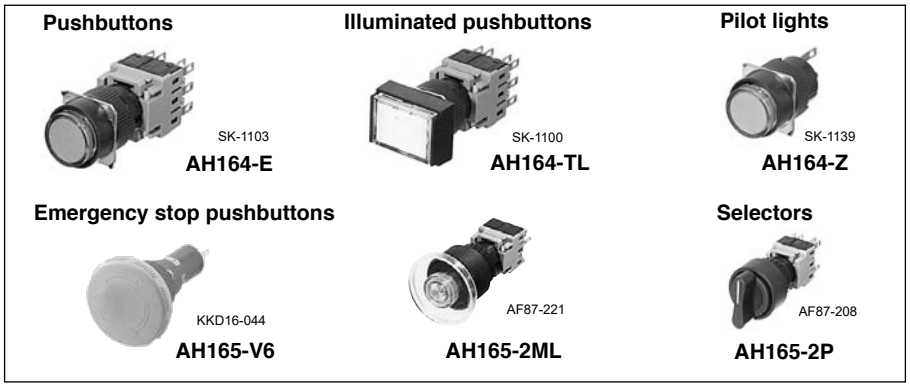
■ Features

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.

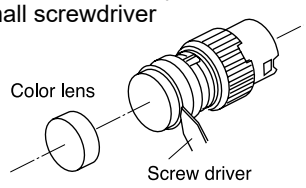
Selector switches
Selector switches can also be supplied in either knob-handle operated or key operated types.

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 (Offic 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.

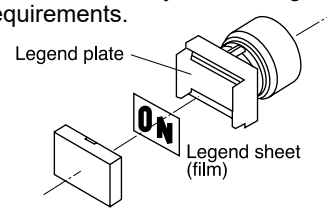


Easy color change
Color lenses fit over the inner button
The lens can easily be removed using a small screwdriver



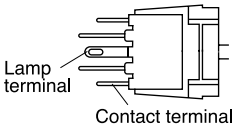
Note: The luminous color of LEDs and neon illumination types varies with the body color of the product.

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.



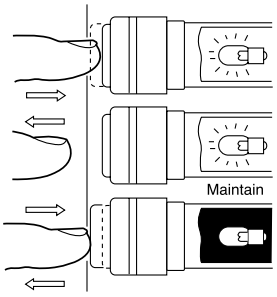
Excellent switch reliability
The switch uses a snap-action mechanism. The pushbuttons are available with either momentary or alternative actions. The snap-action switch has a double break movement which operates independently of the speed of switching. The contacts are made from gold-flashed silve . 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 reguest.



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

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**  KKD16-043	Push-lock, turn-reset (40mm dia.)	**AH165-V6R**  KKD16-044

■ Selector switches

Operator	Type	Operator	Type	Operator	Type
Knob with rectangular bezel	**AH164-P** **AH165-P**  SK-1099	Knob with square bezel	**AH164-SP** **AH165-SP**  SK-1133	Key with rectangular bezel	**AH164-J** **AH165-J**  SK-1098
Key with square bezel *0*	**AH164-SJ** **AH165-SJ**  SK-1132	Key with rectangular bezel ⊖ (Direct opening action)	**AH165-JM**  AF95-57	Key ⊖ (Direct opening action)	**AH165-RJM**  AF99-320

■ Pilot lights

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

■ Buzzers

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

AH164, AH165 and AH165-2
Quick reference guide

Discontinued

■ 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 decorder (±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

■ 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 bezell	**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

■ 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				

■ 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
02: 2NC*1
11: 1NO+1NC
22: 2NO+2NC
33: 3NO+3NC*2

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)

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

Notes: *1 Except for TX and TX1 types
*2 Except for TX2 and X types

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	
Electrical	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 *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/s^2), according to the test condition of EN60947-5-5 (1998)
*6 Emergency stop type:150m/s^2

•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

■ Contact ratings

•UL/CSA standards

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

•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	–	–	–	0.7A	1.0A
	100 to 120V	0.3A	1.0A	1.5A	–	–
	100 to 125V	–	–	–	0.15A	0.2A
	200 to 240V	0.3A	0.7A	1.0A	–	–

■ 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 1m circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

■ 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	Flat LED	24V DC	1NO+1NC	**AH164-L□11E3**	**AH165-L□11E3**	**AH164-L5□11E3**	**AH165-L5□11E3**
			2NO+2NC	**AH164-L□22E3**	**AH165-L□22E3**	**AH164-L5□22E3**	**AH165-L5□22E3**
			3NO+3NC	**AH164-L□33E3**	**AH165-L□33E3**	**AH164-L5□33E3**	**AH165-L5□33E3**
	Spot LED	24V DC	1NO+1NC	**AH164-L□11E2**	**AH165-L□11E2**	**AH164-L5□11E2**	**AH165-L5□11E2**
			2NO+2NC	**AH164-L□22E2**	**AH165-L□22E2**	**AH164-L5□22E2**	**AH165-L5□22E2**
			3NO+3NC	**AH164-L□33E2**	**AH165-L□33E2**	**AH164-L5□33E2**	**AH165-L5□33E2**
	Incandes-cent	24V AC/DC	1NO+1NC	**AH164-L□11E**	**AH165-L□11E**	**AH164-L5□11E**	**AH165-L5□11E**
			2NO+2NC	**AH164-L□22E**	**AH165-L□22E**	**AH164-L5□22E**	**AH165-L5□22E**
			3NO+3NC	**AH164-L□33E**	**AH165-L□33E**	**AH164-L5□33E**	**AH165-L5□33E**
	Neon	110V AC	1NO+1NC	**AH164-L□11H1**	**AH165-L□11H1**	**AH164-L5□11H1**	**AH165-L5□11H1**
			2NO+2NC	**AH164-L□22H1**	**AH165-L□22H1**	**AH164-L5□22H1**	**AH165-L5□22H1**
			3NO+3NC	**AH164-L□33H1**	**AH165-L□33H1**	**AH164-L5□33H1**	**AH165-L5□33H1**
		220V AC	1NO+1NC	**AH164-L□11M1**	**AH165-L□11M1**	**AH164-L5□11M1**	**AH165-L5□11M1**
			2NO+2NC	**AH164-L□22M1**	**AH165-L□22M1**	**AH164-L5□22M1**	**AH165-L5□22M1**
			3NO+3NC	**AH164-L□33M1**	**AH165-L□33M1**	**AH164-L5□33M1**	**AH165-L5□33M1**
Flush square head	Flat LED	24V DC	1NO+1NC	**AH164-SL□11E3**	**AH165-SL□11E3**	**AH164-SL5□11E3**	**AH165-SL5□11E3**
			2NO+2NC	**AH164-SL□22E3**	**AH165-SL□22E3**	**AH164-SL5□22E3**	**AH165-SL5□22E3**
			3NO+3NC	**AH164-SL□33E3**	**AH165-SL□33E3**	**AH164-SL5□33E3**	**AH165-SL5□33E3**
	Spot LED	24V DC	1NO+1NC	**AH164-SL□11E2**	**AH165-SL□11E2**	**AH164-SL5□11E2**	**AH165-SL5□11E2**
			2NO+2NC	**AH164-SL□22E2**	**AH165-SL□22E2**	**AH164-SL5□22E2**	**AH165-SL5□22E2**
			3NO+3NC	**AH164-SL□33E2**	**AH165-SL□33E2**	**AH164-SL5□33E2**	**AH165-SL5□33E2**
	Incandes-cent	24V AC/DC	1NO+1NC	**AH164-SL□11E**	**AH165-SL□11E**	**AH164-SL5□11E**	**AH165-SL5□11E**
			2NO+2NC	**AH164-SL□22E**	**AH165-SL□22E**	**AH164-SL5□22E**	**AH165-SL5□22E**
			3NO+3NC	**AH164-SL□33E**	**AH165-SL□33E**	**AH164-SL5□33E**	**AH165-SL5□33E**
	Neon	110V AC	1NO+1NC	**AH164-SL□11H1**	**AH165-SL□11H1**	**AH164-SL5□11H1**	**AH165-SL5□11H1**
			2NO+2NC	**AH164-SL□22H1**	**AH165-SL□22H1**	**AH164-SL5□22H1**	**AH165-SL5□22H1**
			3NO+3NC	**AH164-SL□33H1**	**AH165-SL□33H1**	**AH164-SL5□33H1**	**AH165-SL5□33H1**
		220V AC	1NO+1NC	**AH164-SL□11M1**	**AH165-SL□11M1**	**AH164-SL5□11M1**	**AH165-SL5□11M1**
			2NO+2NC	**AH164-SL□22M1**	**AH165-SL□22M1**	**AH164-SL5□22M1**	**AH165-SL5□22M1**
			3NO+3NC	**AH164-SL□33M1**	**AH165-SL□33M1**	**AH164-SL5□33M1**	**AH165-SL5□33M1**
Flush rectangular head	Flat LED	24V DC	1NO+1NC	**AH164-TL□11E3**	**AH165-TL□11E3**	**AH164-TL5□11E3**	**AH165-TL5□11E3**
			2NO+2NC	**AH164-TL□22E3**	**AH165-TL□22E3**	**AH164-TL5□22E3**	**AH165-TL5□22E3**
			3NO+3NC	**AH164-TL□33E3**	**AH165-TL□33E3**	**AH164-TL5□33E3**	**AH165-TL5□33E3**
	Spot LED	24V DC	1NO+1NC	**AH164-TL□11E2**	**AH165-TL□11E2**	**AH164-TL5□11E2**	**AH165-TL5□11E2**
			2NO+2NC	**AH164-TL□22E2**	**AH165-TL□22E2**	**AH164-TL5□22E2**	**AH165-TL5□22E2**
			3NO+3NC	**AH164-TL□33E2**	**AH165-TL□33E2**	**AH164-TL5□33E2**	**AH165-TL5□33E2**
	Incandes-cent	24V AC/DC	1NO+1NC	**AH164-TL□11E**	**AH165-TL□11E**	**AH164-TL5□11E**	**AH165-TL5□11E**
			2NO+2NC	**AH164-TL□22E**	**AH165-TL□22E**	**AH164-TL5□22E**	**AH165-TL5□22E**
			3NO+3NC	**AH164-TL□33E**	**AH165-TL□33E**	**AH164-TL5□33E**	**AH165-TL5□33E**
	Neon	110V AC	1NO+1NC	**AH164-TL□11H1**	**AH165-TL□11H1**	**AH164-TL5□11H1**	**AH165-TL5□11H1**
			2NO+2NC	**AH164-TL□22H1**	**AH165-TL□22H1**	**AH164-TL5□22H1**	**AH165-TL5□22H1**
			3NO+3NC	**AH164-TL□33H1**	**AH165-TL□33H1**	**AH164-TL5□33H1**	**AH165-TL5□33H1**
		220V AC	1NO+1NC	**AH164-TL□11M1**	**AH165-TL□11M1**	**AH164-TL5□11M1**	**AH165-TL5□11M1**
			2NO+2NC	**AH164-TL□22M1**	**AH165-TL□22M1**	**AH164-TL5□22M1**	**AH165-TL5□22M1**
			3NO+3NC	**AH164-TL□33M1**	**AH165-TL□33M1**	**AH164-TL5□33M1**	**AH165-TL5□33M1**


SK-1103


SK-1102

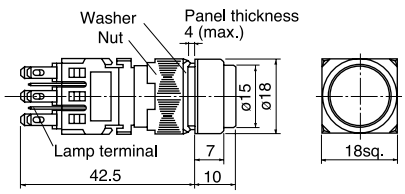

SK-1100

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

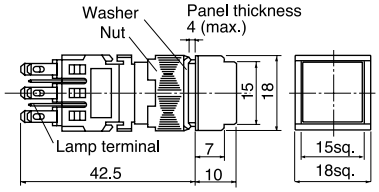
Operator	Lamp	Voltage	Contact	Momentary action		Alternate action	
				AH164 type	AH165 (oil-tight) type	AH164 type	AH165 (oil-tight) type
Flush rectangular head with guard	Flat LED	24V DC	1NO+1NC	**AH164-TGL□11E3**	**AH165-TGL□11E3**	**AH164-TGL5□11E3**	**AH165-TGL5□11E3**
			2NO+2NC	**AH164-TGL□22E3**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

■ Dimensions, mm

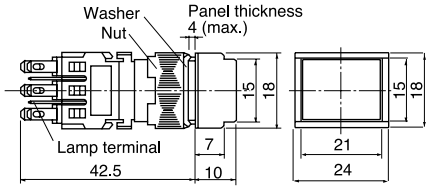
L, L5



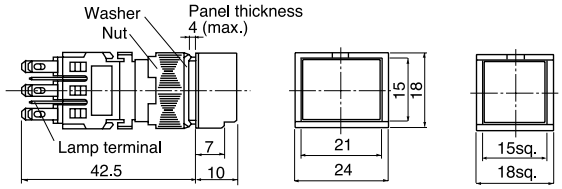
SL, SL5



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 fi ted 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 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

Discontinued Mar. 2007

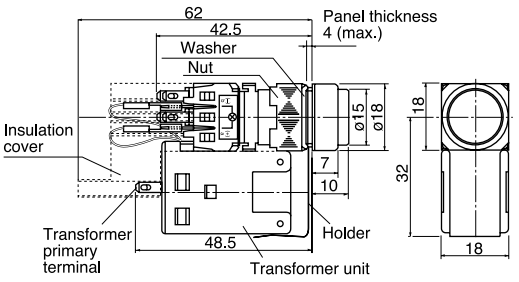
■ Illuminated pushbutton switches/with transformer

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**
	Incandescent		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**
	Incandescent		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**
	Incandescent		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**
	Incandescent		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**
	Incandescent		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■**

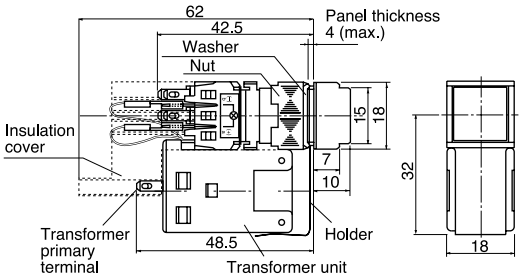
Note: Replace the □ mark by the button color code, *see page 140.*

■ Dimensions, mm

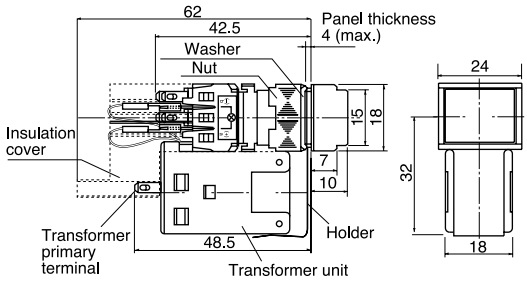
L, L5



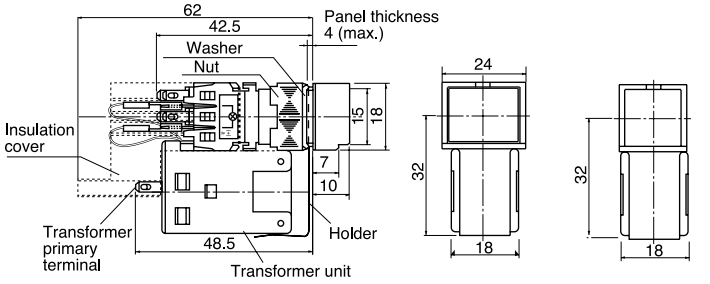
SL, SL5



TL, TL5



TGL, TGL5 SGL, SGL5

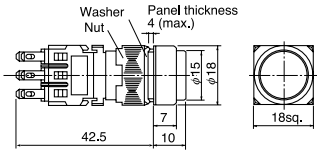
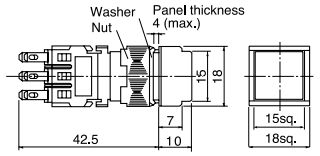
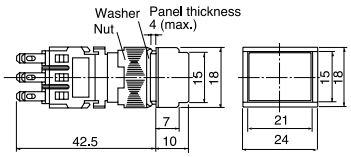
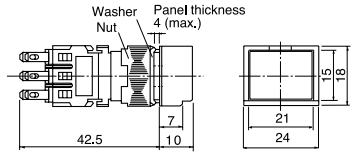
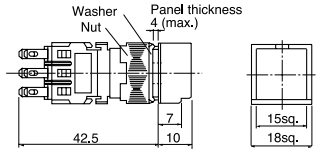
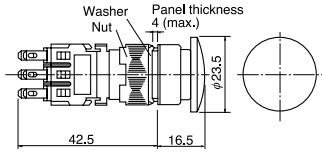
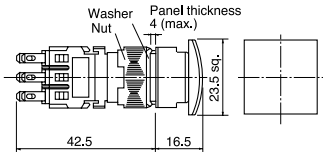
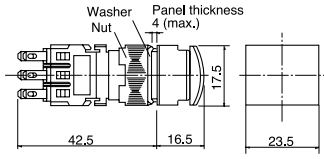


•Button color

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

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

■ 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	**AH164-E□11**	**AH165-E□11**	**AH164-E5□11**	**AH165-E5□11**	
	2NO+2NC	**AH164-E□22**	**AH165-E□22**	**AH164-E5□22**	**AH165-E5□22**	
	3NO+3NC	**AH164-E□33**	**AH165-E□33**	**AH164-E5□33**	**AH165-E5□33**	
Flush square head  SK-1102	1NO+1NC	**AH164-SF□11**	**AH165-SF□11**	**AH164-SF5□11**	**AH165-SF5□11**	
	2NO+2NC	**AH164-SF□22**	**AH165-SF□22**	**AH164-SF5□22**	**AH165-SF5□22**	
	3NO+3NC	**AH164-SF□33**	**AH165-SF□33**	**AH164-SF5□33**	**AH165-SF5□33**	
Flush rectangular head  SK-1100	1NO+1NC	**AH164-TF□11**	**AH165-TF□11**	**AH164-TF5□11**	**AH165-TF5□11**	
	2NO+2NC	**AH164-TF□22**	**AH165-TF□22**	**AH164-TF5□22**	**AH165-TF5□22**	
	3NO+3NC	**AH164-TF□33**	**AH165-TF□33**	**AH164-TF5□33**	**AH165-TF5□33**	
Flush rectangular head with guard  SK-1101	1NO+1NC	**AH164-TGF□11**	**AH165-TGF□11**	**AH164-TGF5□11**	**AH165-TGF5□11**	
	2NO+2NC	**AH164-TGF□22**	**AH165-TGF□22**	**AH164-TGF5□22**	**AH165-TGF5□22**	
	3NO+3NC	**AH164-TGF□33**	**AH165-TGF□33**	**AH164-TGF5□33**	**AH165-TGF5□33**	
Flush square head with guard  AF90-301	1NO+1NC	**AH164-SGF□11**	**AH165-SGF□11**	**AH164-SGF5□11**	**AH165-SGF5□11**	
	2NO+2NC	**AH164-SGF□22**	**AH165-SGF□22**	**AH164-SGF5□22**	**AH165-SGF5□22**	
	3NO+3NC	**AH164-SGF□33**	**AH165-SGF□33**	**AH164-SGF5□33**	**AH165-SGF5□33**	
Mushroom head  SK-1136	1NO+1NC	**AH164-M□11**	**AH165-M□11**	**AH164-M5□11**	**AH165-M5□11**	
	2NO+2NC	**AH164-M□22**	**AH165-M□22**	**AH164-M5□22**	**AH165-M5□22**	
	3NO+3NC	**AH164-M□33**	**AH165-M□33**	**AH164-M5□33**	**AH165-M5□33**	
Convex square head  SK-1134	1NO+1NC	**AH164-SM□11**	**AH165-SM□11**	**AH164-SM5□11**	**AH165-SM5□11**	
	2NO+2NC	**AH164-SM□22**	**AH165-SM□22**	**AH164-SM5□22**	**AH165-SM5□22**	
	3NO+3NC	**AH164-SM□33**	**AH165-SM□33**	**AH164-SM5□33**	**AH165-SM5□33**	
Convex rectangular head  SK-1135	1NO+1NC	**AH164-TM□11**	**AH165-TM□11**	**AH164-TM5□11**	**AH165-TM5□11**	
	2NO+2NC	**AH164-TM□22**	**AH165-TM□22**	**AH164-TM5□22**	**AH165-TM5□22**	
	3NO+3NC	**AH164-TM□33**	**AH165-TM□33**	**AH164-TM5□33**	**AH165-TM5□33**	

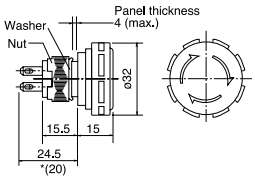
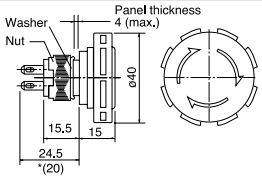
•Button color
Replace the □ mark by the following color code

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 ransparent 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.

■ Pushbutton switches

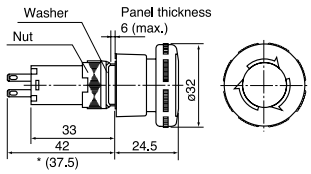
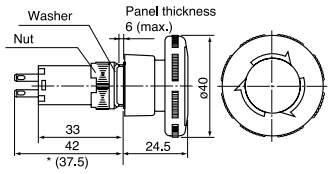
⊖ (Direct opening action)

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.

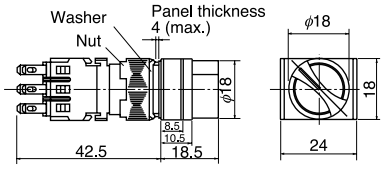
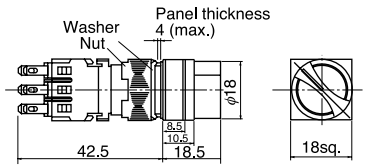
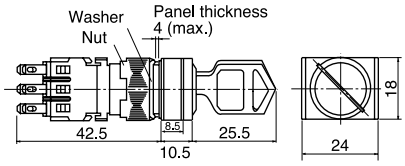
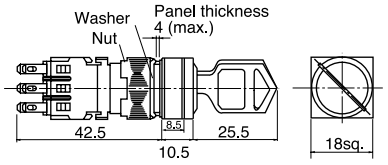
■ Emergency stop pushbutton switches

⊖ (Direct opening action), conform to EN418

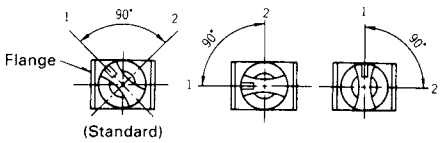
Operator	Button color	Contact	Terminal	AH165 (oil-tight) type	Dimensions, mm
Push-lock, turn-reset (32mm dia.)  KKD16-043	Red	1NC	Solder/Tab Solder	**AH165-V5R01 (AH165-V5R01-S)**	
		2NC		**AH165-V5R02 (AH165-V5R02-S)**	
Push-lock, turn-reset (40mm dia.)  KKD16-044		1NC		**AH165-V6R01 (AH165-V6R01-S)**	
		2NC		**AH165-V6R02 (AH165-V6R02-S)**	

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

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

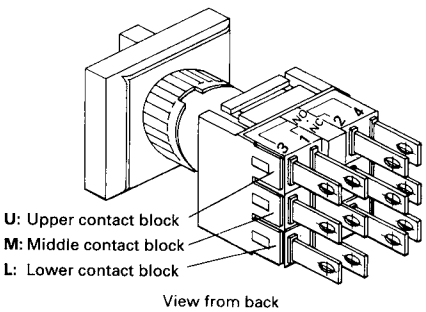
Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel  AF89-564	Maintained	—	1NO+1NC	**AH164-P2B11**	**AH165-P2B11**	
			2NO+2NC	**AH164-P2B22**	**AH165-P2B22**	
			3NO+3NC	**AH164-P2B33**	**AH165-P2B33**	
	Spring return ⟲	—	1NO+1NC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



- 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 block position**



- **Contact arrangement and operator position:**

2-position selector switch

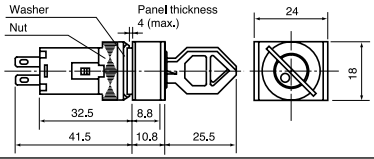
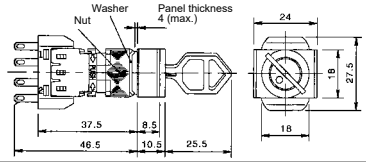
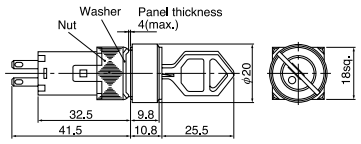
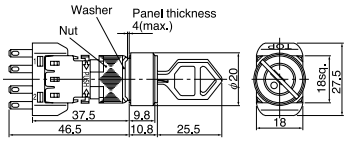
Contact arrangement		1NO+1NC	2NO+2NC	3NO+3NC
Operator position	Left	M	U	U / M / L
	Right ⊘	M	U	U / M / L

3-position selector switch

Contact arrangement		2NO+2NC	3NO+3NC
Operator position	Left ⟵	U L	U M L
	Center ↑		
	Right ⟶		

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

⊖ (Direct opening action)

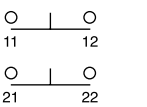
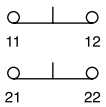
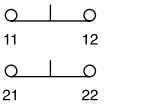
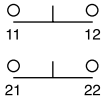
Operator	Operation	Key removable position	Contact	AH165 (oil-tight) type	Dimensions, mm
Key with rectangular bezel  AF95-57	Maintained	A ⊘	1NO+1NC	**AH165-JM2A11A**	
		B ⊗		**AH165-JM2B11A**	
		D ⊘		**AH165-JM2D11A**	
		A ⊘	2NO+2NC	**AH165-JM2A22A**	
 AF97-334		B ⊗		**AH165-JM2B22A**	
		D ⊘		**AH165-JM2D22A**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

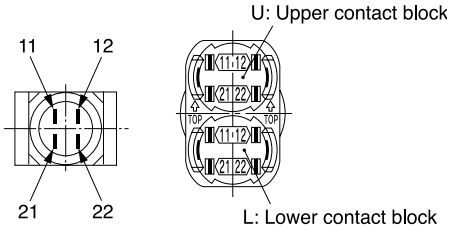
2-position selector switch

Contact arrangement		1NO+1NC
Operator position	Left ⊘	
	Right ⊘	

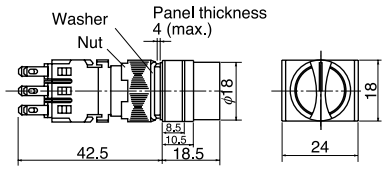
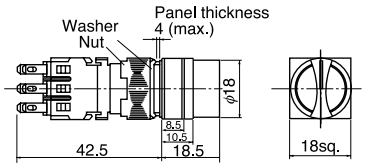
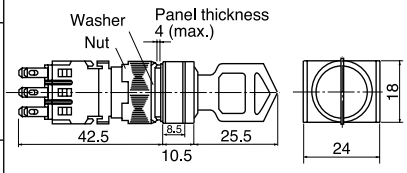
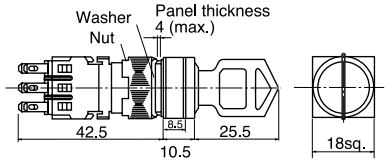
Contact arrangement		2NO+2NC	
Operator position	Left ⊘	U 	L 
	Right ⊘		

• Terminal number

1NO+1NC 2NO+2NC

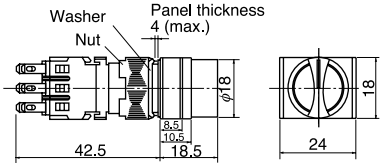
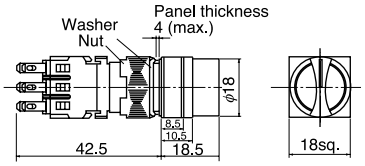
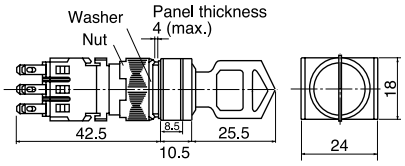
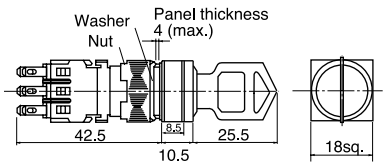


■ Selector switches/3-position (90-degree)

Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel	Maintained	—	2NO+2NC	**AH164-P3B22**	**AH165-P3B22**	
			3NO+3NC	**AH164-P3B33**	**AH165-P3B33**	
	Spring/ manual return	—	2NO+2NC	**AH164-P6B22**	**AH165-P6B22**	
			3NO+3NC	**AH164-P6B33**	**AH165-P6B33**	
	Spring/ manual return	—	2NO+2NC	**AH164-P7B22**	**AH165-P7B22**	
			3NO+3NC	**AH164-P7B33**	**AH165-P7B33**	
	Spring return	—	2NO+2NC	**AH164-P1B22**	**AH165-P1B22**	
 SK-1099			3NO+3NC	**AH164-P1B33**	**AH165-P1B33**	
Knob with square bezel	Maintained	—	2NO+2NC	**AH164-SP3B22**	**AH165-SP3B22**	
			3NO+3NC	**AH164-SP3B33**	**AH165-SP3B33**	
	Spring/ manual return	—	2NO+2NC	**AH164-SP6B22**	**AH165-SP6B22**	
			3NO+3NC	**AH164-SP6B33**	**AH165-SP6B33**	
	Spring/ manual return	—	2NO+2NC	**AH164-SP7B22**	**AH165-SP7B22**	
			3NO+3NC	**AH164-SP7B33**	**AH165-SP7B33**	
	Spring return	—	2NO+2NC	**AH164-SP1B22**	**AH165-SP1B22**	
 SK-1133			3NO+3NC	**AH164-SP1B33**	**AH165-SP1B33**	
Key with rectangular bezel	Maintained*	A	2NO+2NC	**AH164-J3A22A**	**AH165-J3A22A**	
			3NO+3NC	**AH164-J3A33A**	**AH165-J3A33A**	
		E	2NO+2NC	**AH164-J3E22A**	**AH165-J3E22A**	
			3NO+3NC	**AH164-J3E33A**	**AH165-J3E33A**	
		D	2NO+2NC	**AH164-J3D22A**	**AH165-J3D22A**	
			3NO+3NC	**AH164-J3D33A**	**AH165-J3D33A**	
		C	2NO+2NC	**AH164-J3C22A**	**AH165-J3C22A**	
			3NO+3NC	**AH164-J3C33A**	**AH165-J3C33A**	
	Spring/ manual return	E	2NO+2NC	**AH164-J6E22A**	**AH165-J6E22A**	
			3NO+3NC	**AH164-J6E33A**	**AH165-J6E33A**	
		D	2NO+2NC	**AH164-J6D22A**	**AH165-J6D22A**	
			3NO+3NC	**AH164-J6D33A**	**AH165-J6D33A**	
	Spring/ manual return	A	2NO+2NC	**AH164-J7A22A**	**AH165-J7A22A**	
			3NO+3NC	**AH164-J7A33A**	**AH165-J7A33A**	
		E	2NO+2NC	**AH164-J7E22A**	**AH165-J7E22A**	
			3NO+3NC	**AH164-J7E33A**	**AH165-J7E33A**	
 SK-1098	Spring return	E	2NO+2NC	**AH164-J1E22A**	**AH165-J1E22A**	
			3NO+3NC	**AH164-J1E33A**	**AH165-J1E33A**	
Key with square bezel	Maintained*	A	2NO+2NC	**AH164-SJ3A22A**	**AH165-SJ3A22A**	
			3NO+3NC	**AH164-SJ3A33A**	**AH165-SJ3A33A**	
		E	2NO+2NC	**AH164-SJ3E22A**	**AH165-SJ3E22A**	
			3NO+3NC	**AH164-SJ3E33A**	**AH165-SJ3E33A**	
		D	2NO+2NC	**AH164-SJ3D22A**	**AH165-SJ3D22A**	
			3NO+3NC	**AH164-SJ3D33A**	**AH165-SJ3D33A**	
		C	2NO+2NC	**AH164-SJ3C22A**	**AH165-SJ3C22A**	
			3NO+3NC	**AH164-SJ3C33A**	**AH165-SJ3C33A**	
	Spring/ manual return	E	2NO+2NC	**AH164-SJ6E22A**	**AH165-SJ6E22A**	
			3NO+3NC	**AH164-SJ6E33A**	**AH165-SJ6E33A**	
		D	2NO+2NC	**AH164-SJ6D22A**	**AH165-SJ6D22A**	
			3NO+3NC	**AH164-SJ6D33A**	**AH165-SJ6D33A**	
	Spring/ manual return	A	2NO+2NC	**AH164-SJ7A22A**	**AH165-SJ7A22A**	
			3NO+3NC	**AH164-SJ7A33A**	**AH165-SJ7A33A**	
		E	2NO+2NC	**AH164-SJ7E22A**	**AH165-SJ7E22A**	
			3NO+3NC	**AH164-SJ7E33A**	**AH165-SJ7E33A**	
 SK-1132	Spring return	E	2NO+2NC	**AH164-SJ1E22A**	**AH165-SJ1E22A**	
			3NO+3NC	**AH164-SJ1E33A**	**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/3-position (45-degree)

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

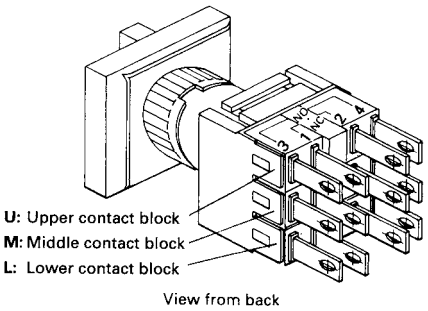
Remvable position							
Code	A	B	C	D	E	F	G

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

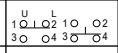
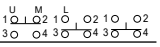
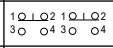
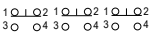
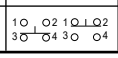
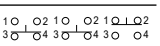
•Key code No.

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

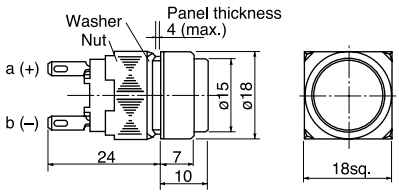
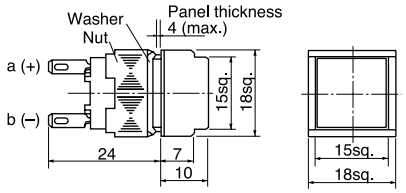
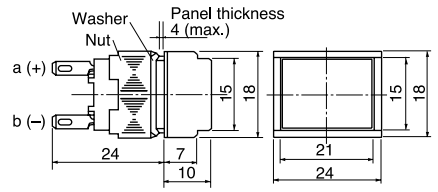
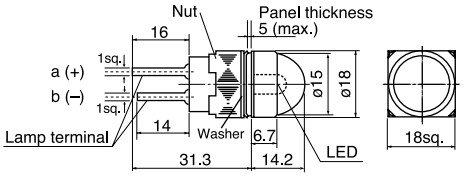
• **Contact block position**



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

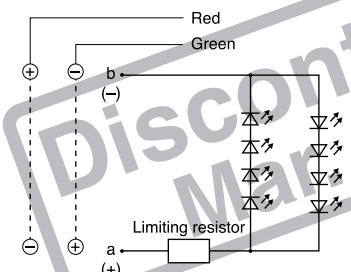
Contact arrangement		2NO+2NC	3NO+3NC
Operator position	Left		
	Center		
	Right		

■ Pilot lights/without transformer

Lens	Lamp	Voltage	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Extended round  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	**AH164-Z□H1**	**AH165-Z□H1**	
		220V AC	**AH164-Z□M1**	**AH165-Z□M1**	
Flush square  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	**AH164-ZS□H1**	**AH165-ZS□H1**	
		220V AC	**AH164-ZS□M1**	**AH165-ZS□M1**	
Flush rectangular  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	**AH164-ZT□H1**	**AH165-ZT□H1**	
		220V AC	**AH164-ZT□M1**	**AH165-ZT□M1**	
Dome  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



Discontinued Mar. 2007

•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 fitte 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)

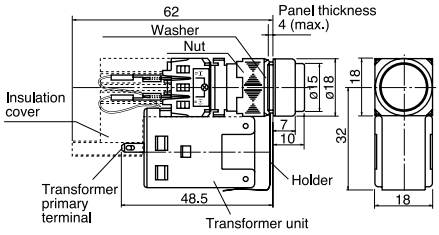
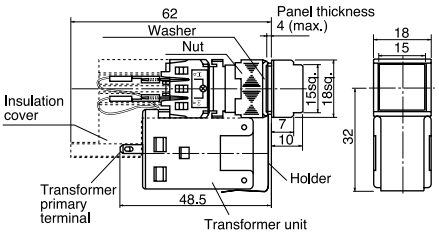
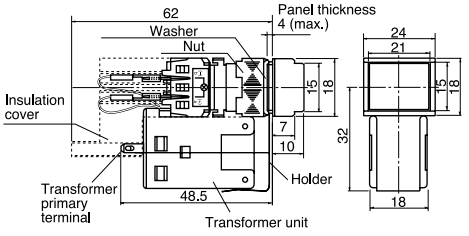
• Lamp voltage

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

■ 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□■**	

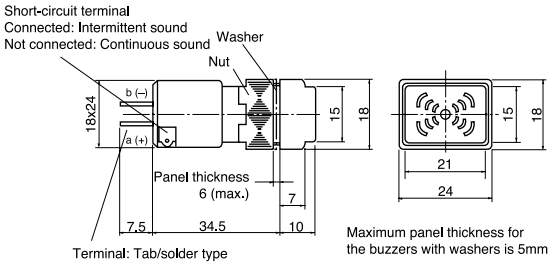
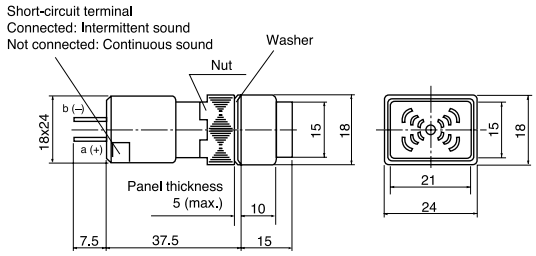
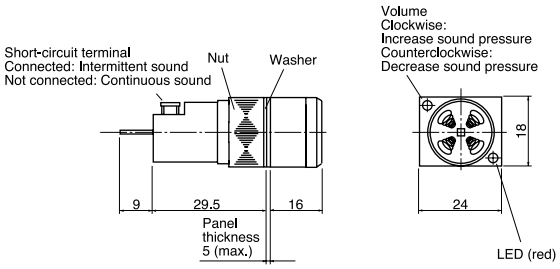
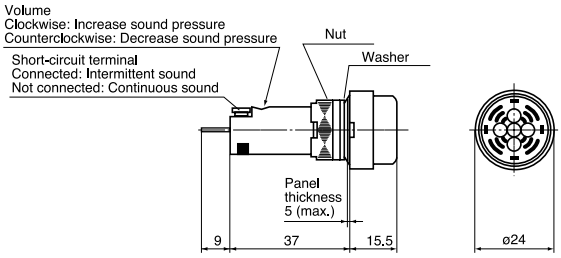
•Lens color

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 fitte with a transparent color lens.

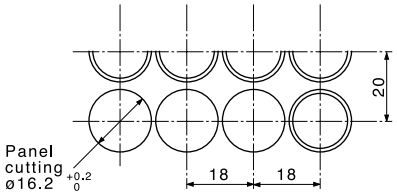
■ Buzzers

Sound	Operating voltage	Type	Dimensions, mm
Standard  AF87-317	6V AC	**AH164-TXBAAC** Discontinued	
	6V DC	**AH164-TXBADC**	
	12 to 24V AC/DC	**AH164-TXBE**	
	35 to 48V AC/DC	**AH164-TXBF** Discontinued	
Loud sound  AF87-44	6V AC	**AH164-TX1BAAC** Discontinued	
	6V DC	**AH164-TX1BADC**	
	12 to 24V AC/DC	**AH164-TX1BE**	
	35 to 48V AC/DC	**AH164-TX1BF** Discontinued	
Loud sound with volume control  AF93-297	6V AC/DC	**AH164-TX2BA**	
	12 to 24V AC/DC	**AH164-TX2BE**	
	35 to 48V AC/DC	**AH164-TX2BF** Discontinued	
Standard sound with volume control (IP54)  AF96-243	6V AC/DC	**AH165-XBA**	
	12 to 24V AC/DC	**AH165-XBE**	
	35 to 48V AC/DC	**AH165-XBF** Discontinued	

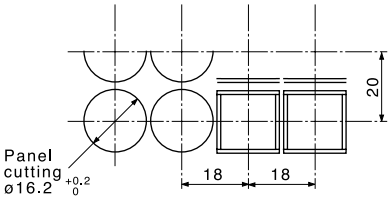
■ Mounting space, mm

• Pushbuttons and pilot lights

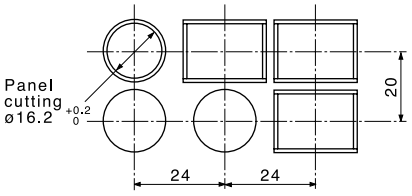
Extended round head or lens



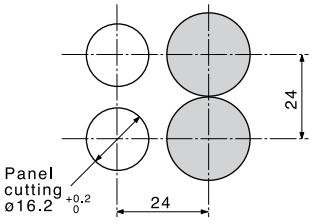
Flush square head or lens



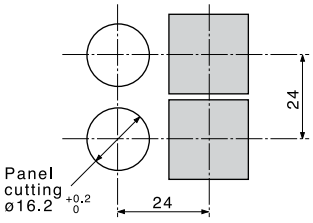
Flush rectangular head or lens



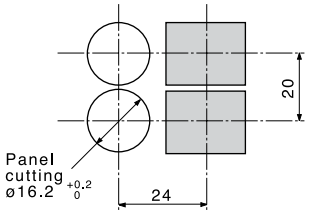
Mushroom head



Convex square head

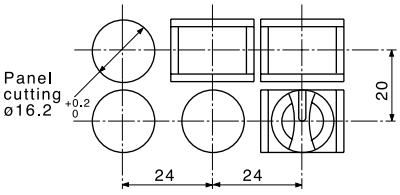


Convex rectangular head

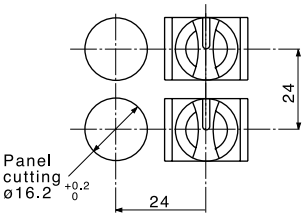


• Selector switches

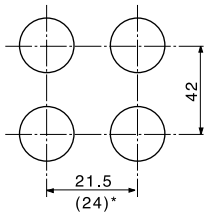
•When mounting the selector switches near the pilot light



• When mounting the selector switches near each other

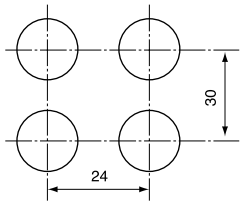


• With transformer

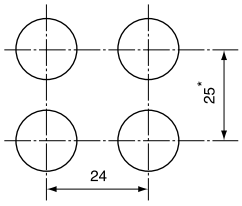


Note: *( ) For switch with flush rectangular head

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

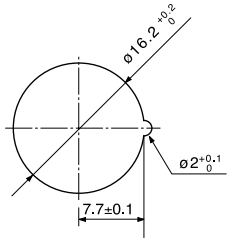


• When mounting the JM or RJM selector switches near the other selector switch, pushbutton switch and pilot lights

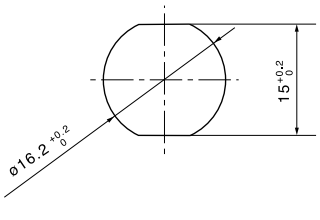


Note: * Mushroom, convex square, convex rectangular: 27

• AH165-V, V1, V5, V6

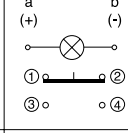
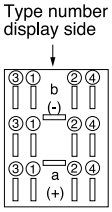
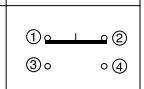
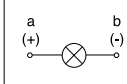
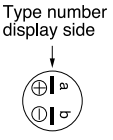


• AH165-JM, RJM



■ Terminal number

• AH164, 165

Type	Wiring	Terminal position
Illuminated pushbuttons		
Pushbuttons Selector switches (except for JM, RJM types)		
Pilot lights (without transformer)		

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

■ 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	–	–	ⓘ			
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

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 pushubutton switch Momentary action: 1 million Alternate action: 250,000 Push-lock, turn-reset: 100,000 With selector ring: 250,000 Selector and illuminated selector switch: 250,000*2
	Electrical	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

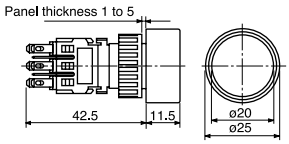
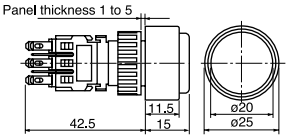
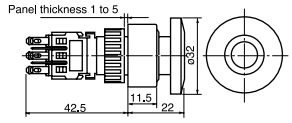
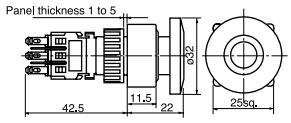
■ Lamp ratings

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.

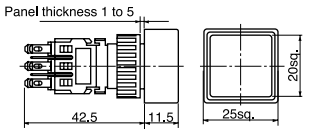
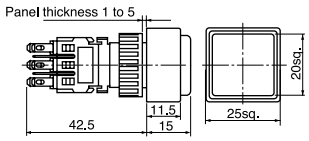
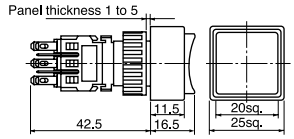
■ Contact reliability
FUJI has confirmed that the unit can be used in 1m circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

■ Illuminated pushbutton switches

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

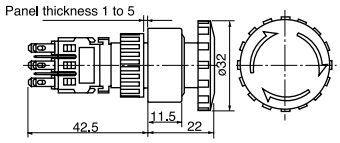
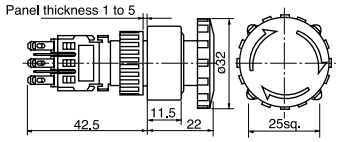
Note: Replace the □ mark by the following color code, *see page 157.*

■ Illuminated pushbutton switches

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

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

■ Illuminated pushbutton switches

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

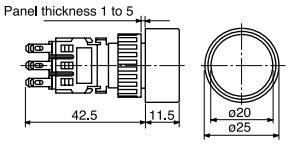
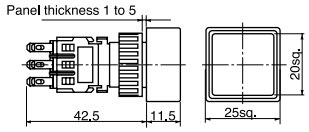
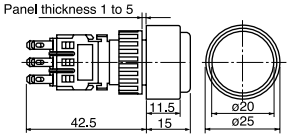
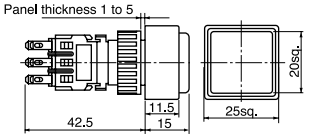
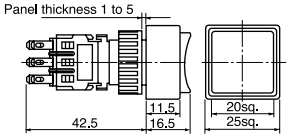
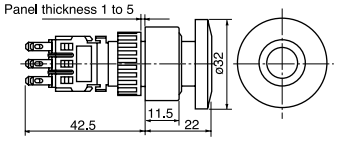
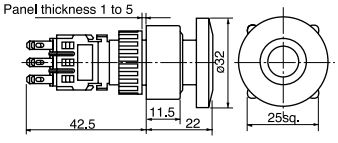
• With wire-wrap pin terminals have a depth of 47mm.

• 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

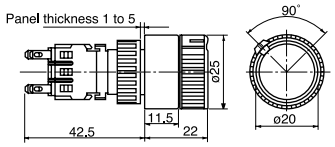
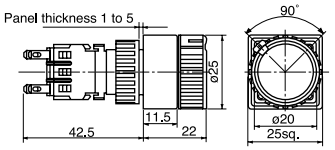
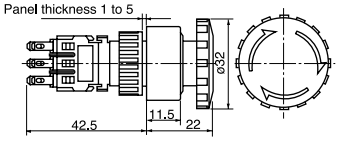
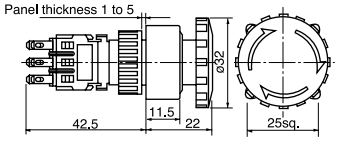
Code	LED	Incandescent	Neon
AA	5V DC	–	–
A	6V DC	5V AC/DC	–
B	12V DC	12V AC/DC	–
K	–	–	120V AC
P	–	–	240V AC

■ Pushbutton switches

Operator	Contact	Momentary action	Alternate action	Dimensions, mm
		Type	Type	
Flush round head  AF87-211	1NO+1NC	**AH165-2F□11**	**AH165-2F5□11**	
	2NO+2NC	**AH165-2F□22**	**AH165-2F5□22**	
	3NO+3NC	**AH165-2F□33**	**AH165-2F5□33**	
Flush square head  AF87-201	1NO+1NC	**AH165-2SF□11**	**AH165-2SF5□11**	
	2NO+2NC	**AH165-2SF□22**	**AH165-2SF5□22**	
	3NO+3NC	**AH165-2SF□33**	**AH165-2SF5□33**	
Extended round head  AF87-210	1NO+1NC	**AH165-2E□11**	**AH165-2E5□11**	
	2NO+2NC	**AH165-2E□22**	**AH165-2E5□22**	
	3NO+3NC	**AH165-2E□33**	**AH165-2E5□33**	
Extended square head  AF87-200	1NO+1NC	**AH165-2SE□11**	**AH165-2SE5□11**	
	2NO+2NC	**AH165-2SE□22**	**AH165-2SE5□22**	
	3NO+3NC	**AH165-2SE□33**	**AH165-2SE5□33**	
Concave square head  AF87-199	1NO+1NC	**AH165-2SCE□11**	**AH165-2SCE5□11**	
	2NO+2NC	**AH165-2SCE□22**	**AH165-2SCE5□22**	
	3NO+3NC	**AH165-2SCE□33**	**AH165-2SCE5□33**	
Mushroom head  AF87-215	1NO+1NC	**AH165-2M□11**	–	
	2NO+2NC	**AH165-2M□22**	–	
	3NO+3NC	**AH165-2M□33**	–	
Mushroom head with square bezel  AF87-214	1NO+1NC	**AH165-2YM□11**	–	
	2NO+2NC	**AH165-2YM□22**	–	
	3NO+3NC	**AH165-2YM□33**	–	

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

■ 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

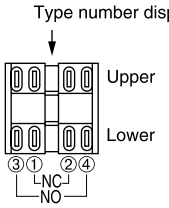
AH165-2S, 2YS

Ring / Button	Left	Right
Free	U L 1 2 1 2 3 4 3 4	U L 1 2 1 2 3 4 3 4
Depressed	1 2 1 2 3 4 3 4	1 2 1 2 3 4 3 4

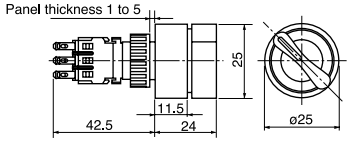
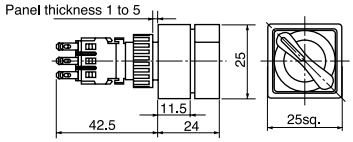
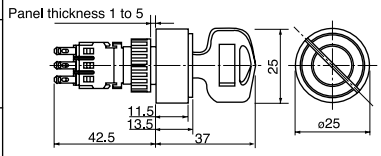
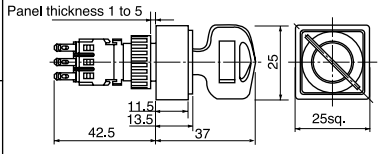
U: Upper contact block
L: Lower contact block

- 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)

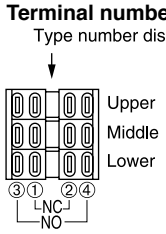
Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
Knob  AF02-111	Maintained	–	1NO+1NC	**AH165-2P2B11**	
			2NO+2NC	**AH165-2P2B22**	
			3NO+3NC	**AH165-2P2B33**	
	Spring return ↖	–	1NO+1NC	**AH165-2P0B11**	
			2NO+2NC	**AH165-2P0B22**	
			3NO+3NC	**AH165-2P0B33**	
Knob  AF02-112	Maintained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

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

A: ↖ B: ⊗ D: ↗

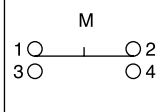
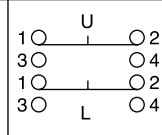
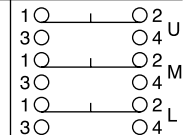
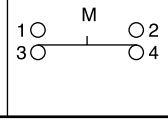
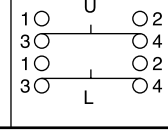
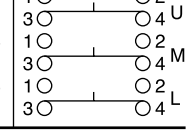
• For spring-return selector switches, the key can be removed at position A.
• There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
• With wire-wrap pin terminals have a depth of 47mm.

• **Terminal number and contact block position**



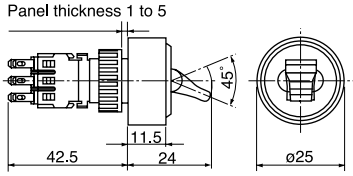
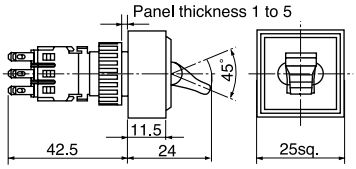
Contact arrangement (terminal No.: common)
1NO+1NC: Middle
2NO+2NC: Upper, lower
3NO+3NC: Upper, middle, lower

• **Contact arrangement and operator positions:**
2-position

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

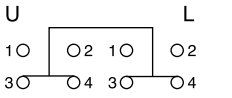
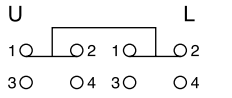
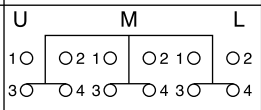
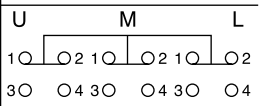
U: Upper contact block
M: Middle contact block
L: Lower contact block

■ Selector switches/2-position

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

• Contact arrangement and operator position

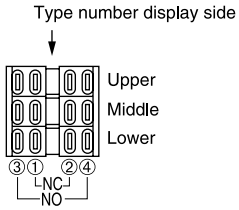
AH165-2H, 2SH

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

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

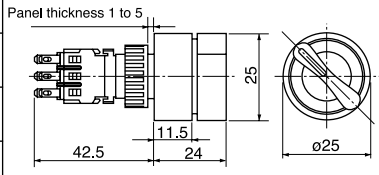
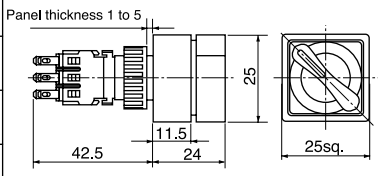
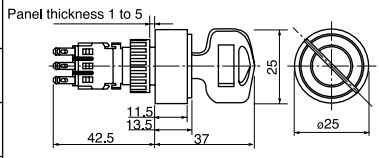
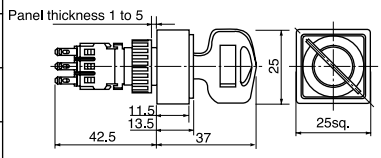
• With wire-wrap pin terminals have a depth of 47mm.

• Terminal number and contact block position



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

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

Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
Knob  AF87-208	Mainteined	–	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**	
Knob with square bezel  AF87-202	Mainteined	–	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**	
Key  AF87-223	Mainteined	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**	
Key with square bezel  AF87-222	Mainteined	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**	

• The Key can be removed at the following positions:

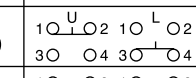
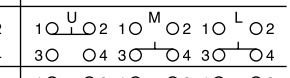
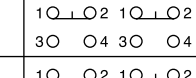
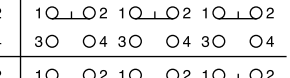
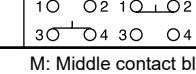
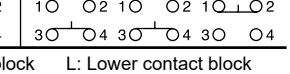
A: B: C: D: E: F: G:

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.

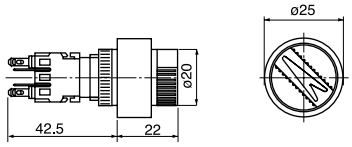
• **Contact arrangement and operator positions:**

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

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

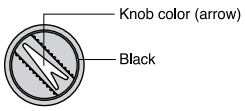
• Contact block positions: *See page 161*

■ Illuminated selector switches

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

• Knob color (arrow)
Replace the □ mark by the following color code

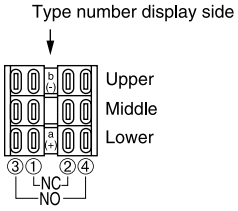
Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	O



• 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

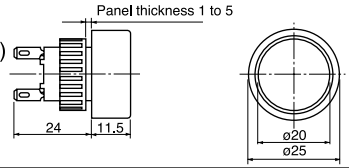
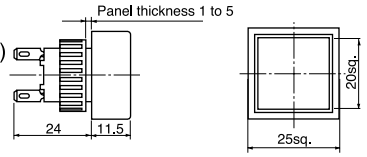
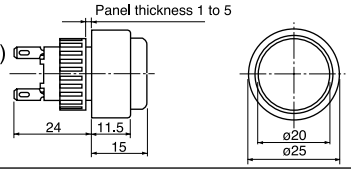
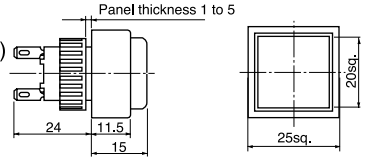
Contact arrangement		1NO+1NC	2NO+2NC
Operator position	Left ⊘	M 1○ ○2 3○ ○4	U 1○ ○2 3○ ○4 L 1○ ○2 3○ ○4
	Right ⊘	M 1○ ○2 3○ ○4	U 1○ ○2 3○ ○4 L 1○ ○2 3○ ○4

3-position

Contact arrangement		2NO+2NC
Operator position	Left ⊘	U 1○ ○2 3○ ○4 L 1○ ○2 3○ ○4
	Center ⓘ	U 1○ ○2 3○ ○4 L 1○ ○2 3○ ○4
	Right ⊘	U 1○ ○2 3○ ○4 L 1○ ○2 3○ ○4

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

■ Pilot lights

Lens	Lamp	Voltage	Type	Dimensions, mm
Flush round  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**	
Flush square  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**	
Extended round  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**	
Extended square  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

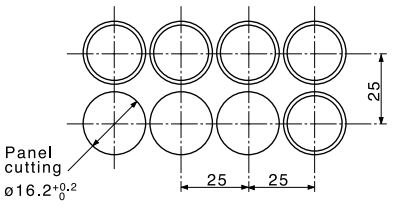
Code	LED	Incandescent	Neon
AA	5V DC	–	–
A	6V DC	5V AC/DC	–
B	12V DC	12V AC/DC	–
K	–	–	120V AC
P	–	–	240V AC

• 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.

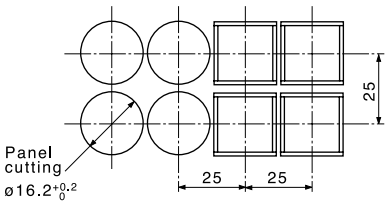
■ Mounting space, mm

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

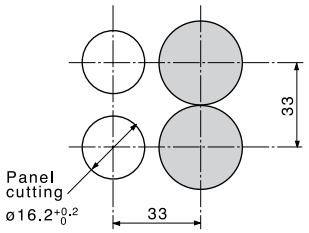
Round head



Square head



Mushroom head
Push-lock, turn-reset



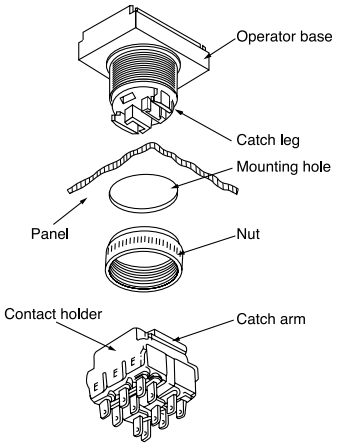
■ Terminal number

Type	Wiring	Terminal position
Illuminated pushbuttons, Illuminated selector switches	a (+) b (-) ① ② ③ ④	Type number display side ③ ① b (-) ② ④ ③ ① ② ④ ③ ① a (+) ② ④
Pushbuttons Selector swiches	① ② ③ ④	
Pilot lights (without transformer)	a (+) b (-)	Type number display side ⊕ a ⊖ b

Notes on use

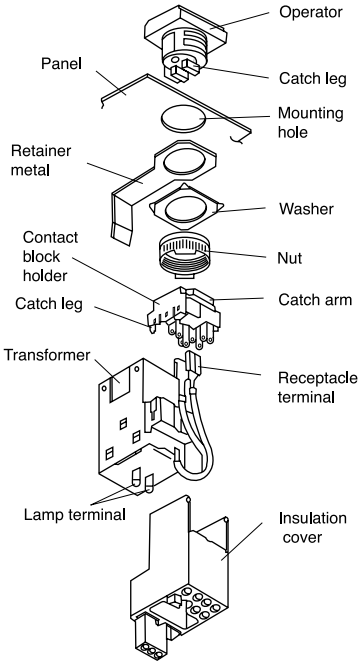
■ Installation on panel

• 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

①Pass the switch operator through the panel hole and secure with a nut by way of the retainer metal from the front of the panel.
②Align 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.
③Insert and secure the transformer unit while assembling the contact block holder with the retainer metal.
④Connect 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: –)
⑤Push 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

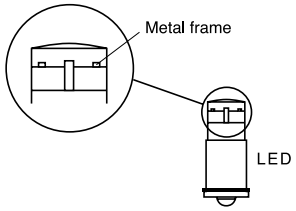
Rated voltage	Operating voltage
6V	4 to 5V
14V	10 to 12V
28V (Standard)	20 to 24V

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.

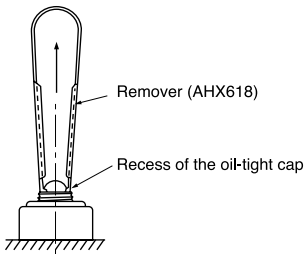
■ Method of replacing lamp

• 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.

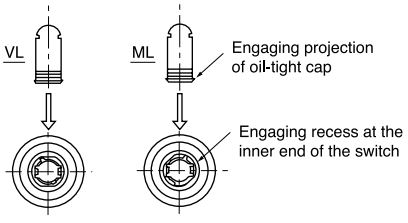
• Products with blue and green LEDs
The LED devices on products with high-brightness (blue and green) LEDs are very sensitive to static electricity. When replacing LED lamps do not allow static electricity to come into direct contact with the metal frame on the upper side of the LED lamp. The LED device 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.



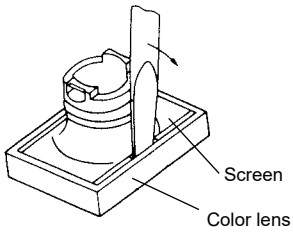
• Then, replace the lamp using a lamp changer (AHX672) and push the oil-tight cap into its original position with its engaging projection properly adjusted (see the figure below)

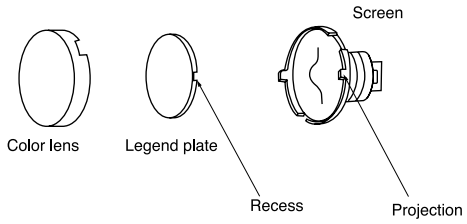


Note: Lamp of AH165-ZM type can not be replaced.

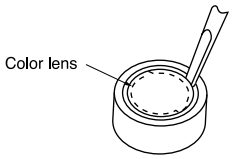
■ Method of replacing color lens

• 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 o 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 25μm thick. If preparing custom description sheets, make sure that the thickness is 0.1mm or less.

■ Contact block

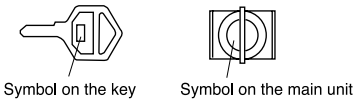
To replace a contact block, use removing tool AGX012. If excessive force is applied when attempting to open the support legs for the contact block holder, deformation or damage may occur.

■ 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. 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 whos 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 0.75mm^2 (solder)
Flat connection terminal
(2.8□-1.25-5) 0.5 to 1.25mm^2
(2.8□-0.5-5) 0.2 to 0.5mm^2
• 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.

AH164, AH165 and AH165-2
Notes on use

■ LEDs

• LED Lamp Malfunctioning

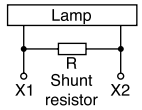
The LED lamp is lit by a very small level of current (approximately 0.01mA). Therefore, the it may be erroneously lit by a current leaking from the surge absorption circuit or semiconductor circuit or due to stray capacitance between cables. In that case, provide a countermeasure (e.g., connect a resistor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

• Countermeasure for Malfunctioning

Shunt Resistor R or CR elements connected in parallel

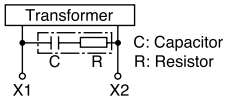
Lamp malfunctions can be prevented by connecting a shunt resistor (R) or CR elements (a capacitor and resistor) in parallel with the LED lamp terminal. The resistance and CR values vary depending on the model and the operating conditions.

Example 1



• 24V DC
R: 10kΩ (1W)

Example 2



• 110V AC
C: 0.33μF (250V AC)
R: 120Ω (0.25W)
• 220V AC
C: 0.33μF (250V AC)
R: 120Ω (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 i used with 48V DC circuit, connect an external resistor of 1,800Ω (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: 100kΩ (0.25W)
220V AC: 50kΩ (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

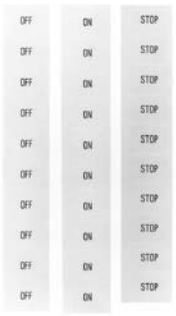
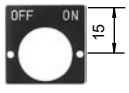
The buzzer does not have a drip-proof construction. Do not use the buzzer in places where oil or water is sprayed or where dust accumulates. If the buzzer is a splash-proof type, it will resist sprays of water.

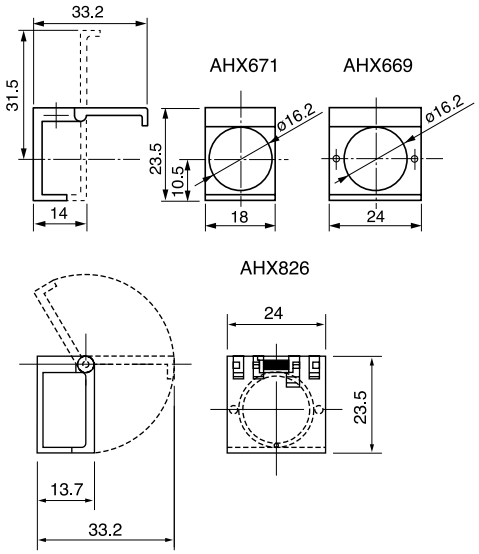
- Do not use the buzzer in places that are subject to an excessive amount of corronsive gas.
- Be careful that the buzzer is likely to sound erroneously due to leakage current or the like.

■ Accessories for AH164 and AH165

Description		Type	
Color chips (Round)		Color	Type
	L, L5, E E5, Z	Green	**AHX656-G**
		Red	**AHX656-R**
		White (For Neon)	**AHX656-W**
		Blue	**AHX656-S**
		Yellow	**AHX656-Y**
		Orange	**AHX656-O**
SF-682	For LED	Green	**AHX656-LGA**
	For Neon	Green	**AHX819-G**
		Red	**AHX819-R**
		White	**AHX819-W**
		Blue	**AHX819-S**
		Yellow	**AHX819-Y**
		Orange	**AHX819-O**
Color chips (Square)		Color	Type
	SL, SL5, SGL, SGL5, SF, SF5, SGF, SGF5, ZS	Green	**AHX657-G**
		Red	**AHX657-R**
		White (For Neon)	**AHX657-W**
		Blue	**AHX657-S**
		Yellow	**AHX657-Y**
		Orange	**AHX657-O**
SF-681	For LED	Green	**AHX657-LGA**
	For Neon	Green	**AHX820-G**
		Red	**AHX820-R**
		White	**AHX820-W**
		Blue	**AHX820-S**
		Yellow	**AHX820-Y**
		Orange	**AHX820-O**
Color chips (Rectangular)		Color	Type
	TL, TL5, TGL TGL5, TF, TF5 TGF, TGF5, ZT	Green	**AHX658-G**
		Red	**AHX658-R**
		White (For Neon)	**AHX658-W**
		Blue	**AHX658-S**
		Yellow	**AHX658-Y**
		Orange	**AHX658-O**
SF-680	For LED	Green	**AHX658-LGA**
	For Neon	Green	**AHX821-G**
		Red	**AHX821-R**
		White	**AHX821-W**
		Blue	**AHX821-S**
		Yellow	**AHX821-Y**
		Orange	**AHX821-O**

Note: All color chips will include legend plates. Color chip & legend plate, 5PCS/SET.

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, FORWARD, REVERSE When ordering, specify desired legend in the □ at the end of ordering code. Transparent blank sheets are also available. Use black 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 I: **AHX666-H** Rectangular: **AHX667-H** Square Ⓣ: **AHX666-T** Rectangular: **AHX667-T**
AF87-74	

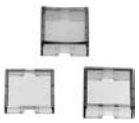
Description	Type
Protection cover  SM-378	For round and square head button Type: **AHX671** For rectangular head button Type: **AHX669** **AHX826** This cover protect against accidental operation. Note: Not used for illuminated pushbuttons with guard. Applicable panel thickness is 2.6mm max. Dimensions, 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: **AHX679** Dimensions, mm: ø30 x 18 These covers protect against dust. Note: Applicable panel thickness is 2.0mm max. Discontinued
Guard ring  SI-42	Type / Color / Dimensions, mm **AHX676-B** Black ø21 x 12 **AHX676-GY** Gray 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.
Transformer  AF90-949	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**

Mushroom head button	Color	Type
 SI-40	M, M5 Green Red White Blue Yellow Orange Black	 **AHX682-G** **AHX682-R** **AHX682-W** **AHX682-S** **AHX682-Y** **AHX682-O** **AHX682-B**
Convex square head button	Color	Type
 SI-43	SM, SM5 Green Red White Blue Yellow Orange Black	 **AHX683-G** **AHX683-R** **AHX683-W** **AHX683-S** **AHX683-Y** **AHX683-O** **AHX683-B**
Convex rectangular head button	Color	Type
 SI-44	TM, TM5 Green Red White Blue Yellow Orange Black	 **AHX684-G** **AHX684-R** **AHX684-W** **AHX684-S** **AHX684-Y** **AHX684-O** **AHX684-B**

Discontinued

Key	Type	Used with
	**AHX662-□**	**AH164-J,-SJ,-JK,-SJK** **AH165-J,-SJ,-JK,-SJK** **AH165-JM,-RJM**
	AH16P-J,-SJ (for PC board)	
	Note: Number of Key type is 6 (A to F)	
	Replace the □ mark by the key type code. Code: Key Code A to H, J	

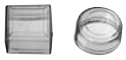
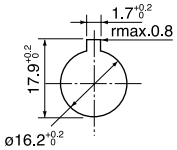
■ Accessories for AH165-2

Description	Type
Color lens (Round)  AF87-631	For flush head (Used with 2F, 2F5, 2FL, 2FL5, 2Z) 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 2F, 2E5, 2FL, 2FL5, 2ZE) Color — Type Green — **AHX2605-G** Red — **AHX2605-R** Yellow — **AHX2605-Y** Blue — **AHX2605-S** Orange — **AHX2605-O** Clear — **AHX2605-C**
Color lens (Square)  AF87-632	For flush head (Used with 2SF, 2SF5, 2SFL, 2SFL5, 2SZ) 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) 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) Color — Type Green — **AHX2608-G** Red — **AHX2608-R** Yellow — **AHX2608-Y** Blue — **AHX2608-S** Orange — **AHX2608-O** Clear — **AHX2608-C**

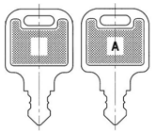
Description	Type
Legend plate  AF87-631 AF87-630	For flush head Color — Type — Used with White — **AHX2609-W** — Incandescent lamp, LED lamp, Pushbutton *1 Clear — **AHX2609-C** — Neon lamp *2 Black — **AHX2609-B** — Pushbutton *3 Dimensions, mm: ø18 *4 x 0.9 For extended head Color — Type — Used with White — **AHX2610-W** — Incandescent lamp, LED lamp, Pushbutton *1 Clear — **AHX2610-C** — Neon lamp *2 Black — **AHX2610-B** — Pushbutton *3 Dimensions, mm: ø18 *4 x 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  AF87-633	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**

Note: Legend plate not included with color lens.

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 

Discontinued

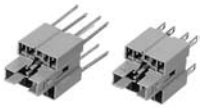
Key	Type	Used with
	**AR9C022-□**	AH165-2J, 2YJ
	Note: Replace the □mark by the key type code. Code: A, B, C, D , E, F Types	

■ Accessories for AH164, AH165 and AH165-2

Description	Type
Incandescent lamp  SD-924	Voltage — Type 6V, 0.6W — **AHX641** 14V, 0.7W — **AHX642** 28V, 0.7W — **AHX643**
LED lamp  AF02-116	Voltage — Type 5V DC — **AHX695-5 □** 6V DC — **AHX695-6 □** 12V DC — **AHX695-12 □** 24V DC — **AHX695-24 □** Replace the □ mark by the luminous color code Red (R), Green (G), Orange (O), Amber (A), Yellow (Y), Blue (S) Note: White LED switches uses Orange LED bulbs.
Neon lamp  SP-119	Voltage — Type — Luminous color 110V AC — **AHX655-H** — Green **AHX654-H** — Orange 120V AC — **AHX655-K** — Green **AHX654-K** — Orange 220V AC — **AHX655-M** — Green **AHX654-M** — Orange 240V AC — **AHX655-P** — Green **AHX654-P** — Orange
Panel plug  SI-186	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
Lamp changer  AF02-117	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.
Remover  SE-34	Type: **AHX618** This tool is used for replacing the color chips or screens.
Contact holder remover  SP-522	Type: **AHX699** This tool is used to remove a contact holder when switches are densely installed.

Description	Type
Wrench  SE-741	Type: **AHX601** When installing a command switch on a panel, this tool is useful for tightening the switch firmly and efficientl .
Terminal cover  AF87-637	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  SK-1140	Terminal — Type Solder/Tab — **AGX001** Wire-wrap — **AGX001–W**
Dummy unit  SK-1141	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  SM-334	Type: **AGX012** This tool is used for replacing the contact blocks or dummy units.

AH164, AH165 and AH165-2 Accessories

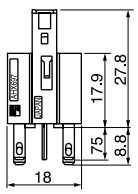
Description	Type
Sockets  SM-1097	Terminal / Type / Used with Solder/Tab **AHX697-S** Pushbuttons Wire-wrap **AHX697-W** PC board **AHX697-P** Solder/Tab **AHX697-SL** Illuminated pushbuttons Wire-wrap **AHX697-WL** PC board **AHX697-PL** Contact arrangement is 2NO+2NC only. Except for AH165-2PL types
Sockets for LED  SM-1098	Terminal / Type Solder/Tab **AHX697-SH3** Wire-wrap **AHX697-WH3** • 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.

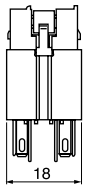
Discontinued

Discontinued

Dimensions, mm

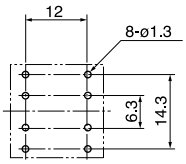
Solder/Tab



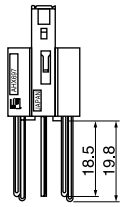


PC board mounting

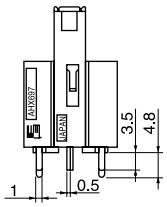
Pushbuttons



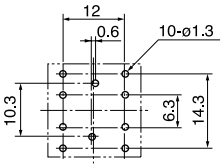
Wire-wrap

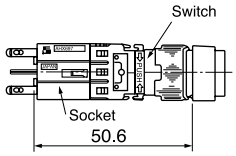


PC board



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.

■ **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

AH164, AH165 and AH165-2
Mass

■ Mass, gram
AH165-2 series

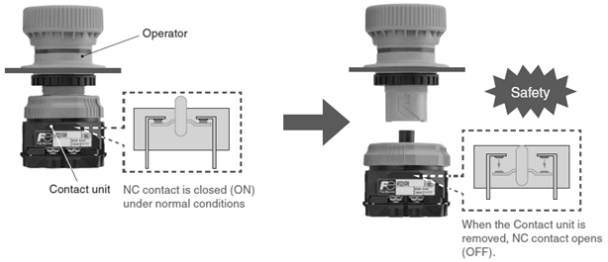
Type	1NO + 1NC	2NO + 2NC	3NO + 3NC
AH165-2FL,FL5	15.2	16.2	17.2
2EL,EL5	15.6	16.6	17.6
2ML	18.7	19.7	20.7
2YML	20.2	21.2	22.2
2SFL,SFL5	16.5	17.5	18.5
2SEL,SEL5	17.4	18.4	19.4
2SCL,SCL5	17.6	18.6	19.6
2VL	19.9	20.9	21.9
2YVL	21.4	22.4	23.4
AH165-2F,F5	14.4	15.4	16.4
2E,E5	14.8	15.8	16.8
2M	16.7	17.7	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

Features

New safety function: Synchro safety contact

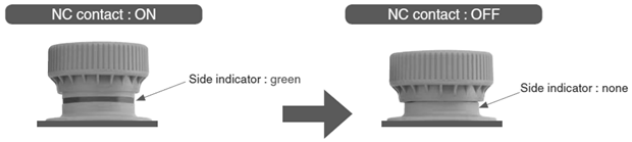
Just in case the Contact unit is removed from the operator, the switch is safe because the main NC contact opens (OFF).





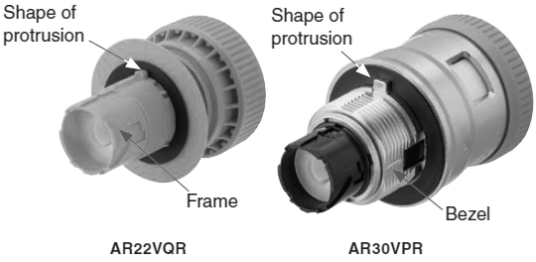
Side indicator is adopted by default (only for AR22V)

The operating condition can be confirmed with the side indicator, and this helps prevent any accident being caused by a misunderstanding.



Integrated frame (bezel) for the protrusion

There is no need to acquire it separately as an accessory.



Enhanced visibility by adopting larger flange on all models.

The flange (yellow) has become bigger, so it is easy to confirm background yellow without the nameplate. (only for AR22V).

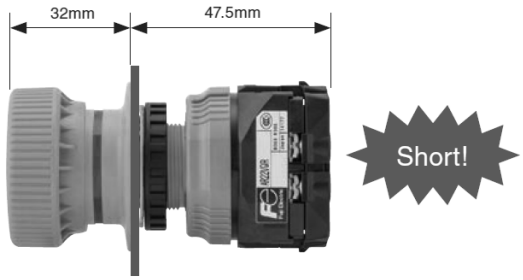


- Safety trigger-action mechanism locks the pushbutton only when the contact is activated. Accidental lock of the pushbutton is prevented. (compliant with EN60947-5-5)
- Direct opening mechanism for NC contacts to ensure that the contacts can be opened even in the unlikely event that they become fused. (compliant with EN-60947-5-1, Appendix K/EN60947-5-5)
- Support by default for the degree of protection of operator: IP65 and the degree of protection of terminal section: IP2X (compliant with EN60204-1).
- The arrows on the button have been standardized to the same color as the button itself in order to prevent erroneous operation.
- Certified with UL/CSA standard and TÜV EN standard, and acquired China Compulsory Certification (CCC). CE mark is attached.

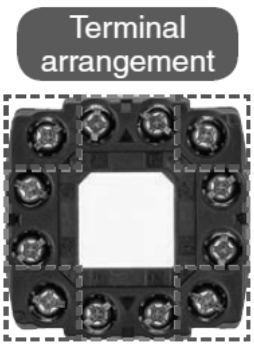
- Certified with UL category code NISD (EMERGENCY STOP DEVICE)

AR22VQR/VQL and AR30VPR/VPL
General information

Reduce panel-mounting depth, connectable to up to six contacts.
"2NO+4NC" contacts (an emergency stop) enables you to construct two kinds of mechanical safety circuits (2NC: redundancy).



Enhanced routing
Since the layout of each contact is fixed regardless of the number of contacts, any miswiring can be prevented.



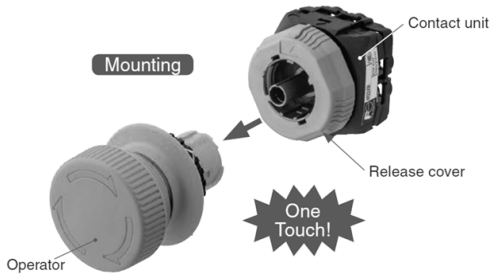
M3.5 is adopted for the terminal screw diameter. It is possible to unify it with other

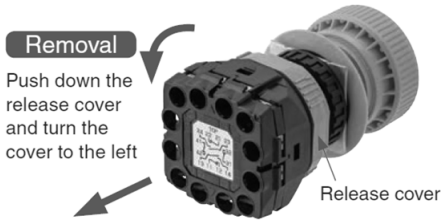
Contact arrangement	Non-illuminated type	Illuminated type	Illuminated type (interlocked with lamp circuit)
1NC to 4NC	NC NC / NC NC / NC NC / NC NC	LT NC NC LT / NC NC / NC NC / NC NC	LT NC NC LT / NC NC / NC NC / NC NC
1NO 1NC to 4NC	NC NC / NC NC / NC NC / NO NC NC NO	LT NC NC LT / NC NC / NC NC / NO NC NC NO	LT NC NC LT / NC NC / NC NC / NO NC NC NO
2NO 1NC to 4NC	NO NC NC NO / NC NC / NC NC / NO NC NC NO		

NC Normally Close Contact Terminal
NO Normally Open Contact Terminal
LT Lamp Terminal

- Pull-reset or turn-reset is available for the reset method (turn-reset only for AR30V type).
- The illumination can be interlocked with the lamp circuit.
- Adapter dedicated for ø30 mounting hole (only for AR22V).
- The layout of NC contacts can be arbitrarily designated (only contact specifications for 1NC to 3NC, special model). For details, refer to the terminal arrangement designation on the final page.

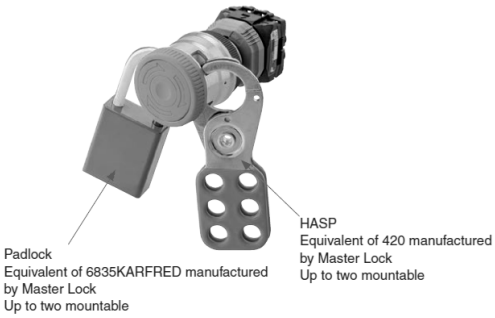
Enhanced release performance of contact unit
One Touch mounting. The wire is not twisted at the time of attaching and detaching the unit.





Only the release cover is turned around, and the contact is not turned around.

Support for Padlock
To avoid a restart due to careless reset of a pushbutton switch in case of emergency stop, make use of Padlock or HASP.





The total mass should be 1500 g or less. For information on applicable Padlock and HASP, refer to the final page.

Types

ø22 command switches

• Emergency stop pushbutton switches

Operator	Appearance	Contact arrangement*1	Type	Button color
Push-lock, turn reset or pull reset Mushroom head (ø40)	AR22VQR 	1NC	AR22VQR-01R	Red [R]
		1NO+1NC	AR22VQR-11R	
		2NC	AR22VQR-02R	
		1NO+2NC	AR22VQR-12R	
		1NO+3NC	AR22VQR-13R	
		4NC	AR22VQR-04R	
		2NO+4NC	AR22VQR-24R	
Push-lock, turn-reset Giant Mushroom head (ø65)	AR22VPR 	1NC	AR22VPR-01R	
		1NO+1NC	AR22VPR-11R	
		2NC	AR22VPR-02R	
		1NO+2NC	AR22VPR-12R	
		1NO+3NC	AR22VPR-13R	
		4NC	AR22VPR-04R	
		2NO+4NC	AR22VPR-24R	

*1: Contacts other than those in the table above are also available. 3NC [03], 2NO+1NC [21], 1NO+4NC [14], 2NO+2NC [22], 2NO+3NC [23]

• Emergency stop illuminated pushbutton switches

Operator	Appearance	Operational lamp voltage/ lamp type	Contact arrangement*2	Type	Button color
Push-lock, turn reset or pull reset Mushroom head (ø40)	AR22VQL 	24 V AC/DC LED lamp	1NC	AR22VQL-01E3R	Red [R]
			1NO+1NC	AR22VQL-11E3R	
			2NC	AR22VQL-02E3R	
			1NO+2NC	AR22VQL-12E3R	
			1NO+3NC	AR22VQL-13E3R	
			4NC	AR22VQL-04E3R	
			1NO+4NC	AR22VQL-14E3R	
		24 V AC/DC LED lamp Interlocked with lamp circuit	1NC	AR22VQL-01EAR	
			1NO+1NC	AR22VQL-11EAR	
			2NC	AR22VQL-02EAR	
			1NO+2NC	AR22VQL-12EAR	
			1NO+3NC	AR22VQL-13EAR	
			4NC	AR22VQL-04EAR	
			1NO+4NC	AR22VQL-14EAR	

*2: Contacts other than those in the table above are also available. 3NC [03]

Emergency Stop Pushbutton Switches With Synchro Safe Contact
AR22VQR/VQL and AR30VPR/VPL
Quick Reference Guide

ø30 command switches

• Emergency stop pushbutton switches

Operator	Appearance	Contact arrangement*1	Type	Button color
Push-lock, turn-reset Mushroom head (ø44) Support for Padlock	AR30VPR 	1NC	AR30VPR-01R	Red [R]
		1NO+1NC	AR30VPR-11R	
		2NC	AR30VPR-02R	
		1NO+2NC	AR30VPR-12R	
		1NO+3NC	AR30VPR-13R	
		4NC	AR30VPR-04R	
		2NO+4NC	AR30VPR-24R	

*1: Contacts other than those in the table above are also available. 3NC [03], 2NO+1NC [21], 1NO+4NC [14], 2NO+2NC [22], 2NO+3NC [23]

• Emergency stop illuminated pushbutton switches

Operator	Appearance	Operational lamp voltage/ lamp type	Contact arrangement*2	Type	Button color
Push-lock, turn-reset Mushroom head (ø44) Support for Padlock	AR30VPL 	24 V AC/DC LED lamp	1NC	AR30VPL-01E3R	Red [R]
			1NO+1NC	AR30VPL-11E3R	
			2NC	AR30VPL-02E3R	
			1NO+2NC	AR30VPL-12E3R	
			1NO+3NC	AR30VPL-13E3R	
			4NC	AR30VPL-04E3R	
			1NO+4NC	AR30VPL-14E3R	
		24 V AC/DC LED lamp Interlocked with lamp circuit	1NC	AR30VPL-01EAR	
			1NO+1NC	AR30VPL-11EAR	
			2NC	AR30VPL-02EAR	
			1NO+2NC	AR30VPL-12EAR	
			1NO+3NC	AR30VPL-13EAR	
			4NC	AR30VPL-04EAR	
			1NO+4NC	AR30VPL-14EAR	

*2: Contacts other than those in the table above are also available. 3NC [03]

Specifications (indoor use)

Item		Performance
Rated insulation voltage Ui		250 V AC/DC
Durability	Mechanical	250,000 operations
	Electrical	100,000 operations (AC-12, DC-13, DC-12)
Operating cycles per hour		900 operations/hour (On-load factor: 40%)
Withstand voltage		Between live section and grounding: 2,000V AC, 1 minute
		Between opposite polarity live sections: 2,000V AC, 1 minute
Insulation resistance		Between live section and grounding: 100MΩ or more (500V DC megger)
		Between opposite polarity live sections: 100MΩ or more (500V DC megger)
Rated impulse withstand voltage Uimp		2.5 kV
Conditional short-circuit current		1000 A
Short-circuit protective device		gG10A (IEC60269 fuse)
Pollution degree		3 (panel inside: 2)
Vibration		Malfunction: maximum double amplitude: 0.7 mm (maximum: 50 m/s^2), frequency: 10 to 500 Hz
		Durability: maximum double amplitude: 0.7 mm (maximum: 50 m/s^2), frequency: 10 to 500 Hz *1
Shock		Malfunction: 150 m/s^2
		Durability: 1000 m/s^2 *2
Operational ambient temperature		Non illuminated type: -20 to +60°C, illuminated type: -20 to +50°C (no icing or no condensation)
Storage temperature		-40 to +80°C (no icing or no condensation)
Relative humidity		45 to 85%RH (-5 to +40°C) (no icing or no condensation)
Degree of protection of operator (displaying) section		IP65 (dust-proof, water jet proof): IEC 60529
Degree of protection of terminal section		IP2X (when wired)
Connectable wire		Stranded wire: up to 1.25 mm^2, 24 to 16 AWG-CU
		Solid wire: up to ø1.2 mm, 24 to 16 AWG-CU

*1: The feature is decided based on the test condition for EN60947-5-5 (1998).
*2: Except when the switch is mounted upside down.

Contact ratings

TÜV (EN60947-5-1), CCC (GB14048.5), and JIS C 8201-5-1

Conventional free air thermal current (rated thermal current) Ith	Rated operational voltage Ue	Rated operational current Ie			
		AC		DC	
		AC-15 (Inductive load)	AC-12 (Resistive load)	DC-13 (Inductive load)	DC-12 (Resistive load)
5 A	24 V	–	–	1.0 A	2.0 A
	120 V	3.0 A	5.0 A	–	–
	125 V	–	–	0.22 A	0.4 A
	240 V	1.5 A	3.0 A	0.1 A	0.2 A

UL/CSA standards

AC (cosø = 0.35)

Contact rating	Conventional free air thermal current	120 V		240 V	
Code	(rated thermal current)	Making current	Breaking current	Making current	Breaking current
B300	5 A	30 A	3 A	15 A	1.5 A

• DC ($T_{0.95}$ = 6P, maximum: 300 ms)

Contact rating	Conventional free air thermal current	Making current & breaking current	
Code	(rated thermal current)	125 V	250 V
R300	1 A	0.22 A	0.11 A

NECA C 4521

Conventional free air thermal current (rated thermal current) Ith	Rated operational voltage Ue	Rated operational current Ie			
		AC		DC	
		AC-15 (Inductive load)	AC-12 (Resistive load)	DC-13 (Inductive load)	DC-12 (Resistive load)
5 A	24 V	–	–	1.0 A	2.0 A
	110 V	3.0 A	5.0 A	0.22 A	0.4 A
	220 V	1.5 A	3.0 A	0.1 A	0.2 A

Contact reliability

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

Lamp rating and current consumption

Type of lamp	Luminous color	Operational lamp voltage	Current consumption
LED lamp	Red	24 V AC/DC	7.5 mA AC, 7.5 mA DC

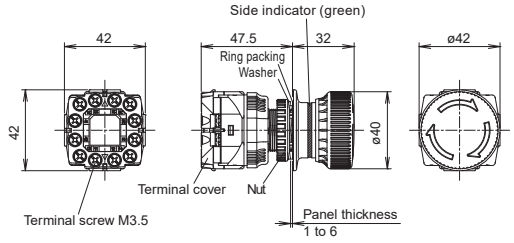
Note: The LED lamp of these products cannot be replaced.

Emergency Stop Pushbutton Switches With Synchro Safe Contact

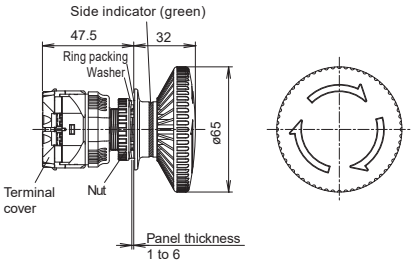
AR22VQR/VQL and AR30VPR/VPL
Dimensions and Panel Mounting Instruction

Dimensions, mm

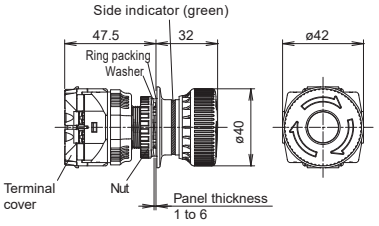
▪ AR22VQR



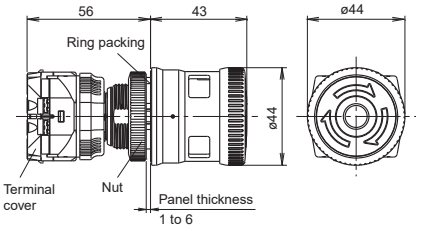
• AR22VPR



• AR22VQL

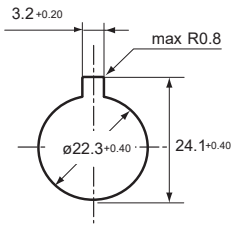


• AR30VPR / VPL

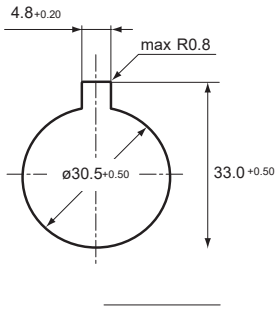


Panel cutout [mm]

• AR22



• AR30



Applicable panel thickness

The applicable panel thickness is 1 to 6mm. However, the thickness of the applicable panel to which ø30 switches having their mounting adapters are mounted should be 1 to 4.5mm.

If a legend plate is used, the panel should be made thinner by subtracting the thickness of that component.

Note: If a legend plate or such kind of one is used for between the switch and the fitting surface of the panel, the thickness of the legend panel should be 1.6mm or less. If the thickness exceeds the value of 1.6mm, it may prevent the fixing function of the switch.

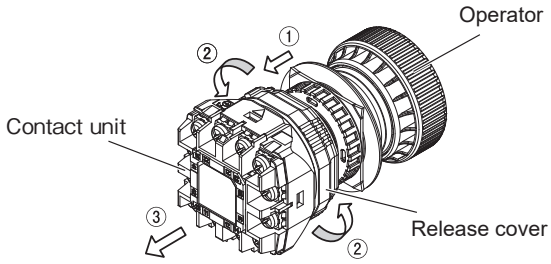
Mounting the switch

▪ Removing the operator from the contact unit

① Pull down the release cover of the contact unit.

② Turn it counter clock wise in 15 degrees

③ At the position, pull the contact unit. After that, the contact unit can be removed from the operator.



- Caution at the removing process of the contact unit from the operator

(1) When the contact unit is removed from the operator, at the process, “NO” contact of the unit is turned into “ON” position.

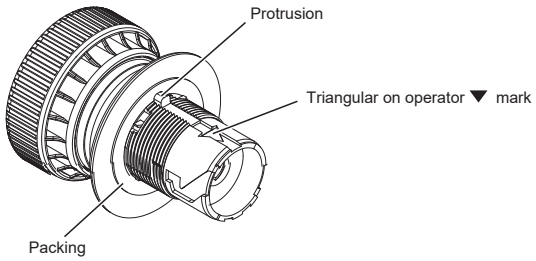
(2) At the process when the contact unit is removed from the operator, don’t give excessive force to the unit. It may cause the switch to break or to go into maloperation.

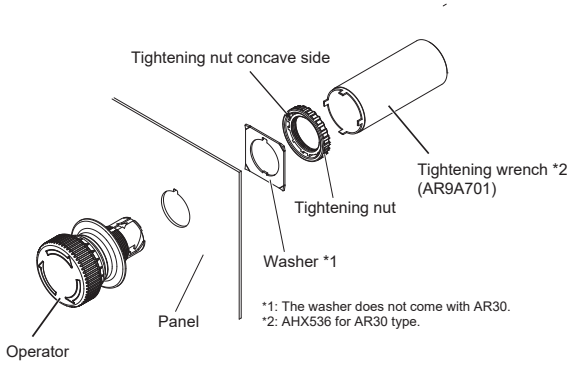
AR22VQR/VQL and AR30VPR/VPL Panel Mounting Instruction

▪ Mounting the operator on the panel

Remove the tightening nut and washer from the packaged state of the operator, checking the packing whether it is placed properly on to the fitting surface of the front side of the panel, insert the operator keeping whose ▼mark at the top position into the installation hole of the panel. The operator penetrates the panel through the installation hole to the rear side of the panel. It is fixed at the rear side of the panel with the tightening nut turned by the tightening wrench.

Note 1 : The proper tightening torque is 1.0 to 1.5N·m for AR22, and 1.5 to 2.5N·m for AR30.
Note 2 : The tightening nut has two faces, convex and concave. Face the concave side of it to the panel when it tightens up the operator at the rear side of the panel. If it is used in the opposite face, the operator will not be fixed properly there.
Note 3 : Check the tightening nut regularly whether it tightens the operator properly. If it seems that tightening is not sufficient, do not forget to tighten the screw increasingly.
Note 4 : Do not use pliers or other improper tools to tighten the nut, and do not tighten it excessively, or the nut may be damaged or the switch may malfunction.



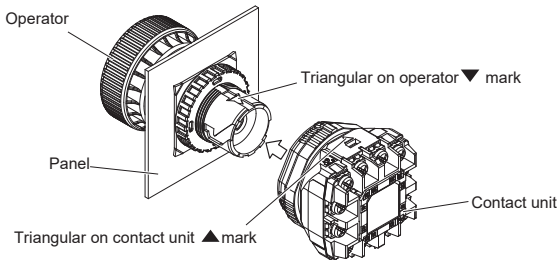


• Mounting the contact unit

Meet the mark▲on the contact unit to the same mark ▼ on the operator, insert the contact unit completely into the operator until it makes a click sound. (The click sound tells that the contact unit is completely connected to the operator.)
Please consider it when you do it.
After the contact unit is set, could you check the sequence and confirm the unit whether it operates well?

- Caution when the contact unit is set in

(1) The “position” of the release cover of the contact unit which is being connected to the operator is different from the “position” of it of the contact unit which is removed from the operator. However, it is normal.
(2) When the contact unit is connected to the operator, it should be connected in the specified correct way. When two units are connected, meet the apex of the triangle mark on the contact unit to the apex of the triangle mark on the operator. Connecting the units without meeting each apex of their triangle marks may cause the switch to break. If there is a switch recognized broken is remained there, it should not be used for any purpose.



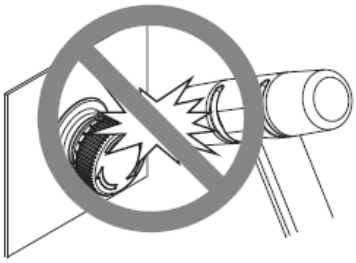
AR22VQR/VQL and AR30VPR/VPL Note on Use

Others

- Operation

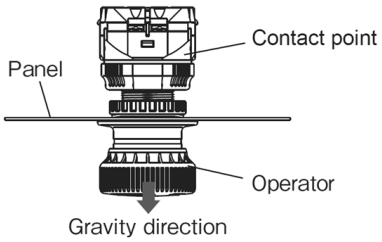
Do not hit or flip the button, or the button may be damaged. Be sure to operate the button by hand. Operate the switch manually. Don't use any tools such as a hummer or other tool to hit the switch for operation. It may break the switch.

To unlock the switch, turn the button approximately 45° clockwise (in the direction of the arrow) or pull out the button. Do not operate or handle the button with excessive force.



- Effect of receiving shock for the switch

Effect of receiving shock for the switch ranges in the installation directions of it therefore, the installation direction should be considered for the switch to avoid effect of receiving excessive shock On the right bottom of this instruction paper, below is a figure which shows a switch installed on to the panel. When a certain value of shock is given to the switch in the direction of the arrow mark which shows the direction of gravity, the switch receives the gravitational mass effect of the button. Therefore, at the situation, the switch is easy to go into maloperation compared with other installation directions that don't give the gravitational mass effect of the button to the switch. Could you avoid any excess shock given to the emergency stop switch? If an excess shock is given to the switch, contact bounce may occur in the switch, it may cause a trouble in the circuit.



- Contact unit

The contact unit is not provided with dust proof, water proof or oil-tight construction. Therefore, don't allow liquid or cutting chips to pass through inside or the unprotected contact unit.

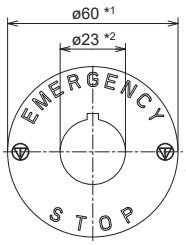
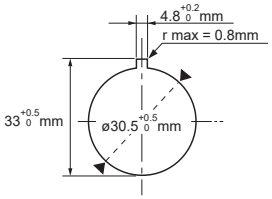
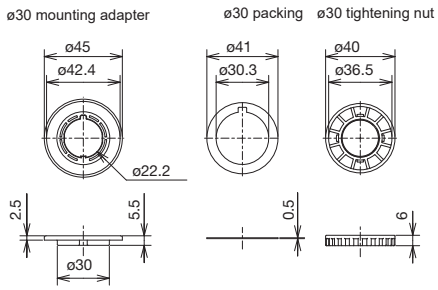
Don't give any excessive physical load or shock to the contact unit. It may break the switch or make it in trouble to lose its ON and OFF function.

If the release cover of the individual contact unit is turned or twisted, the contacts are switched. Please consider it when you handle it.

Storage and Usage Locations

- Be sure to use and store the product within the rated ambient temperature and humidity ranges.
- Although the product resists ordinary cutting oils and coolant oils, do not use the unit in places where special oils may be sprayed onto the product. If you are in such case, could you call us at the phone described below? We will give you a solution.
- If dusts or filings accumulate in the gap between the button and the frame, the switch may fail to operate normally.
- This switch are for indoor use. Don't use the switch for outdoor use and make sure that the product is not exposed to direct sunlight.
- Do not use the product in the places that are subject to the adverse effects of ozone or corrosive gases.

Accessories

Description	Type	Dimensions
Wrench 	Type / Used with AR9A701 / AR22VQR, VQL, VPR AHX536 / AR30VPR, VPL Application: This allows you to tighten the tightening ring when mounting the command switch on a panel.	AR9A701: ø28 mm × 60 mm AHX536 : ø32 mm × 76 mm
Legend plate 	Type / Used with AR9P722-(1)(2) / AR22VQR, VQL AR9P723-(1)(2) / AR22VPR AR9P724-(1)(2) / AR30VPR, VPL Note 1: The values of code (1) and (2) above represent the Legend below to be printed on the Legend plate Type / Code (1), (2) / Letter height Blank / 00 / EMERGENCY STOP / 5A / 5 mm Note 2: These Legend plate are pasted on the product. Note 3: The color of the Legend plate is yellow and the Legend color is black.	[Unit: mm]  Thickness: 0.35 ·: AR9P723: ø80 ·: AR9P724: ø31
AR22VQ□, VPR ø30 mounting adapter 	Type AR9Y958 Application: • This adapter allows you to mount the switch on a panel of ø30.5mm cutout in combination with the operator of AR22VQ□ and VPR (made of plastics, with ring packing and tightening nut). • The applicable panel thickness is 1 to 4.5 mm. Applicable panel cutout size 	[Unit: mm] 

Control box dedicated for emergency stop pushbutton switch

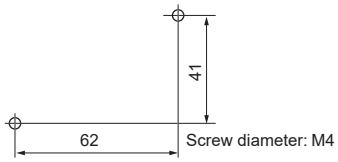
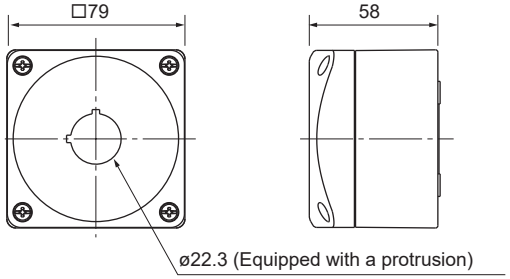


Features

- Control box for mounting the emergency stop pushbutton switch AR22VQR/VQL, VPR.
- It is easy to mount or add this box to the desired places away from the operating panel.
- Degree of protection : IP65 (when using applicable connector)
- Double-insulation structure without the need for an earth wire. (compliant with IEC536 class II)
- The knockout holes open at the top, bottom, and back.
- The emergency stop Legend plate (AR9P722) can be mounted.

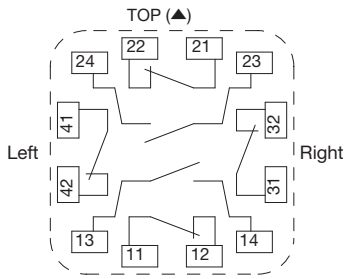
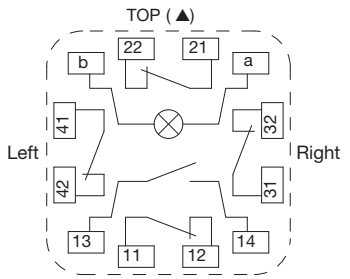
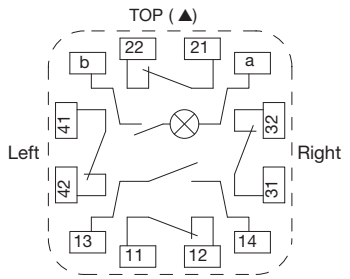
Applicable connector

- Knockout holes at the top and bottom: M20, Pg13.5, or G1/2
- Knockout holes at the back: M14 or G1/4

Description	Type	Outline dimensions
Control box 	Type AR9Y920 Application: • Plastic control box for mounting the emergency stop pushbut-ton switch separately. • Mounting pitch  * Tightening torque for mounting screws : 1.6 to 2.0 N•m	[Unit: mm] 

AR22VQR/VQL and AR30VPR/VPL
Terminal Arrangement and Padlock

Terminal arrangement

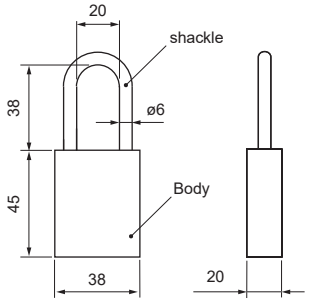
Emergency stop pushbutton switches	Emergency stop illuminated pushbutton switches	Emergency stop illuminated pushbutton switches (interlocked with a lamp circuit)
		

- Positions of contact terminals "NC"

Contact arrangement			
1NC	2NC	3NC	4NC
11-12	11-12	11-12	11-12
	21-22	21-22	21-22
		31-32	31-32
			41-42

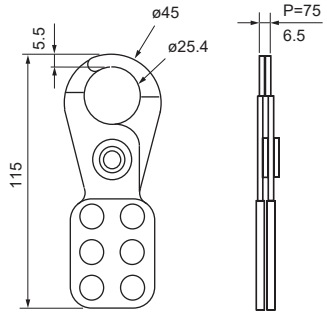
Recommended Padlock and HASP [unit: mm]

- Padlock



Manufacturer	Type
Master Lock	6835KARFRED

- HASP



Manufacturer	Type
Master Lock	420, 421

* This figure shows the dimensions of a type-420 HASP.

- The total mass of the Padlock and HASP should be 1500 g or less.

Others

Before mounting this product, wiring cables, operating this product, or maintaining and inspecting this product, make sure you read this "Instruction Manual" and use this product properly.

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
-	AR22A5H-@@@@B		AH30-SAA@……@-S	AR30A5H-@@@@B	selector switch
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
-	-		AH30-B2#@@	AR30B1R-@@#	head
-	-		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-@@#	
-	-		AH30-G3#@@	AR30GPR-@@#	Pin-lock
AH25-G5#@@	-		AH30-G5#@@	-	w/guard
AH22/25-G6#@@	AR22G8R-@@#		AH30-G6#@@	AR30G6R-@@#	
AH22-GL1#@@*&	AR22G4L-@@*&#		-	-	w/guard
AH22-GL6#@@*&	AR22G9L-@@*&#		-	-	
-	-		AH30-H2@@	AR30WR-2@@#	Selector
-	-		AH30-H3@@	AR30WR-3@@#	switch
AH22/25-J0A@@%	AR22JR-0A@@%		AH30-J0A@@%	AR30JR-0A@@%	Key
AH22/25-J1E@@%	AR22JR-1E@@%		AH30-J1E@@%	AR30JR-1E@@%	selector
AH22/25-J2$@@%	AR22JR-2$@@%		AH30-J2$@@%	AR30JR-2$@@%	switch
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 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
AH25-L#@@*&	AR22E0L-@@*&#		AH30-L#@@*&	AR30E0L-@@*&#	Extended
AH25-L2#@@*&	AR22G4L-@@*&#		AH30-L2#@@*&	AR30G4L-@@*&#	w/guard
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
AH25-M#@@	AR22M4R-@@#		-	-	head
-	-		AH30-M2#@@	AR30M3R-@@#	
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
AH22/25-P1#@@	AR22PR-1@@#		AH30-P1#@@	AR30PR-1@@#	switch
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

Discontinued	Replacement		Discontinued	Replacement	
PART #	PART #		PART #	PART #	TYPE
AH22-PR0#@@	AR22RR-0@@#		-	-	Selector
AH22-PR1#@@	AR22RR-1@@#		-	-	switch
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-@@#	
AH22-S1C4#*(-N)	-		AH30-S1C4#*(-N)	-	Numerical
AH22-S2C4#*(-N)	-		AH30-S2C4#*(-N)	-	indicator
AH22/25-S1#@@	AR22S1R-22#		AH30-S1#@@	AR30S1R-22#	w/selector
AH22/25-S2#@@	AR22S2R-@@#		AH30-S2#@@	AR30S2R-@@#	ring
AH22/25-S3#@@	AR22S3R-@@#		AH30-S3#@@	AR30S3R-@@#	
AH22/25-S4#@@	-		AH30-S4#@@	-	
AH22/25-S5#@@	-		AH30-S5#@@	-	
AH22/25-S6#@@	AR22S6R-@@#		AH30-S6#@@	AR30S6R-@@#	
AH22/25-SE#@@	AR22E0S-@@#		AH30-SE#@@	(AR22 series+AR9Y003)	Extended
AH22/25-SE5#@@	AR22E5S-@@#		AH30-SE5#@@	(AR22 series+AR9Y003)	head
AH22-SEL#@@*&	AR22E0M-@@*&#		-	-	
AH22-SEL5#@@*&	AR22E5M-@@*&#		-	-	
AH22/25-SF#@@	AR22F0S-@@#		AH30-SF#@@	(AR22 series+AR9Y003)	Flush
AH22/25-SF5#@@	AR22F5S-@@#		AH30-SF5#@@	(AR22 series+AR9Y003)	head
AH22-SFL#@@*&	AR22F0M-@@*&#		-	-	
AH22-SFL5#@@*&	AR22F5M-@@*&#		-	-	
AH25-SJ2#@@	AR22JY-2$@@%		AH30-SJ2#@@	(AR22 series+AR9Y003)	Selector
AH25-SJ3#@@	AR22JY-3$@@%		AH30-SJ3#@@	(AR22 series+AR9Y003)	switch
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
AH25-SP3#@@	AR22PY-3@@#		AH30-SP3#@@	(AR22 series+AR9Y003)	switch

@: 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-SZ#*&	DR22F3M-*&#		AH30-SZ#*&		Pilot light
AH22-TZ#*&	DR22E3N-*&#		-	-	
-	-		AH30-T#11*&	AR30Q7L-11*&#	Push-pull
AH22-UH@@	-		-	-	Wabble
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		-	-	
AH22/25-VR@@	AR22V2R-@@R		AH30-VR@@*	AR30V2R-@@R	
AH22-VSJR@@	AR22V7R-@@R		-	-	
AH22-VSLR@@*&	AR22V2L-@@*&R		-	-	
AH22-VSR@@	AR22V4R-@@R		-	-	
-	-		AH30-W1#@@	-	Lever
-	-		AH30-W3#@@	-	select
-	-		AH30-X1B*	DR30B6-*B	Buzzer
AH22-X2B*	-		AH30-X2B*	DR30B0-*B	
AH22-XB*	DR22B5-*B		AH30-XB*	DR30B5-*B	
AH22-YE#@@	AR22E0Y-@@#		-	-	Extended
AH22-YE5#@@	AR22E5Y-@@#		-	-	head
AH22-YEL#@@*&	AR22E0P-@@*&#		-	-	
AH22-YEL5#@@*&	AR22E5P-@@*&#		-	-	
AH22-YF#@@	AR22F0Y-@@#		-	-	Flush
AH22-YF5#@@	AR22F5Y-@@#		-	-	head
AH22-YJ0A@@%	AR22JY-0A@@%		-	-	Selector
AH22-YJ1E@@%	AR22JY-1E@@%		-	-	switch
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$@@@%		-	-	
AH22-YMS#@@	AR22M4Y-@@#		-	-	Mushroom
AH22-YMS5#@@	-		-	-	head

@: contacts arrangement
&: lamp type
#: color of button or grove
$: draw-out position of key
*: lamp voltage
%: type of key

Discontinued	Replacement		Discontinued	Replacement	
PART #	PART #		PART #	PART #	TYPE
AH22-YP0#@@	AR22PY-0@@#		-	-	Selector
AH22-YP1#@@	AR22PY-1@@#		-	-	switch
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
AH22-Z#*&	DR22E3L-*&#		-	-	light
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 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
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	-	-		-	-

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

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)*	-	

@: contacts arrangement
#: color of button or grove
*: lamp voltage
&: lamp type
$: draw-out position of key
%: type of key

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