Fuji Electric

Innovating Energy Technology

AR22·DR22/AR30·DR30
AH164·AH165·AH165-2
16mm/22mm/30mm Diameter
Command Switches

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.

Table of Contents

■ Command series

AR22/DR22

AF94-320

AF94-310

AF98-88

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

AH164, 165

SK-1103

SK-1138

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

AR30/DR30

AF95-4

AF95-6

AF98-195

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

AH165-2

AF87-211

AF87-208

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

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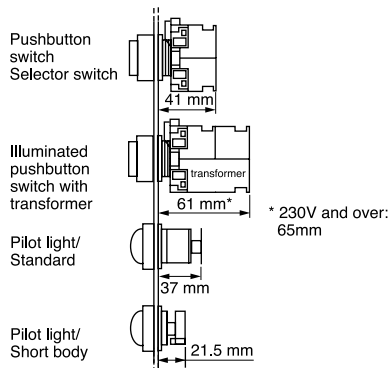
■ Features
Facilitated mounting
• No adjusting of panel thickness is necessary.
• The button and lens can be mounted on a panel while the operator is engaged.
• Mountable even on a panel cutout 25.5mm in diameter.

Panel thickness Min. 1 mm

Max. 6 mm

No adjusting

Panel cutting

ø22.3 mm

ø25.5 mm
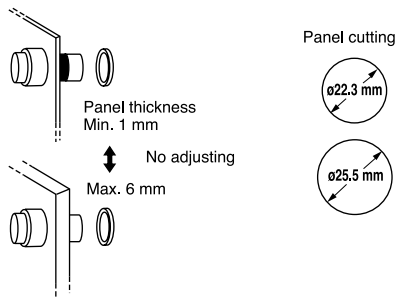
Miniaturization
• Pushbuttons and selector switches with 1NO+1NC: 41mm deep
  Pilot lights: 37mm deep
• The transformer now occupies far less space.

Pushbutton switch
Selector switch

41 mm

Illuminated pushbutton switch with transformer

transformer

61 mm*

* 230V and over: 65mm

Pilot light/ Standard

37 mm

Pilot light/ Short body

21.5 mm

Illuminated pushbuttons

AF94-318
AR22F0L

AF94-357
AR22E0M

Pushbuttons

AF94-319
AR22E0R

AF94-297
AR22E0Y

Pilot lights

AF94-333
DR22D0L

AF98-88
DR22D0L-□8, □9

Emergency stop pushbuttons

AF97-72
AR22V0L

KK03-037
AR22VGE

Selectors

AF94-310
AR22PR

### 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.
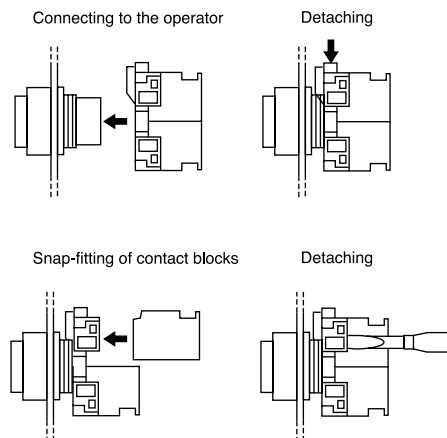
Connecting to the operator

Detaching

Snap-fitting of contact blocks

Detaching

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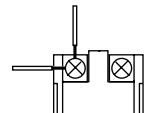
Safety
• A terminal cover is provided, assuring safety and security.
• FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.
• Reliability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

■ **Pushbutton switches**

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

Note: AR22M8R: Not approved standard

■ **Emergency stop pushbutton switches** (conform to EN418)

Operator	Type	Operator	Type	Operator	Type
Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	**AR22V0R** AF97-70	Push-lock, turn-reset (29mm dia.)	**AR22V4R** AF95-53	Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	**AR22VGE** KK03-037
Push-lock, turn-reset (40mm dia.) *See page 04/23, 04/44*	**AR22V2R** AF94-432	Key release push-lock, turn-reset (40mm dia.)	**AR22V7R** AF98-37		
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)	**AR22VSR** AF99-317	Push-lock, pull-reset (35mm dia.)	**AR22Q2R** AF95-52		

Notes: Provided with the ⊖ (Direct opening action)

■ **Emergency stop illuminated pushbutton switches** (conform to EN418)

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

Note: Provided with the ⊖→ (Direct opening action)

■ **Selector switches**

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

■ **Illuminated selector switches**

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

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■ Pilot lights

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

Note: With resistor unit type: Not approved standard

■ Joy stick selector switches

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

■ Buzzers

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

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

■ Numerical indicators

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

Illuminated pushbuttons

AR22 E0L – 10 E3 R □
  ①   ②   ③ ④ ⑤ ⑥

① Product category
AR22: 22mm-dia. illuminated pushbutton
      22mm-dia. emergency stop illuminated pushbutton

② Operator
• Illuminated pushbutton
F0L: Flush round head
F5L: Flush round head (Alternate)
E0L: Extended round head
E5L: Extended round head (Alternate)
M0L: Mushroom head (40mm dia.)
M5L: Mushroom head (40mm dia. alternate)
M4L: Mushroom head (29mm dia.)
M9L: Mushroom head (29mm dia. alternate)
G4L: Extended with transparent full guard (24mm dia.)
G9L: Extended with transparent full guard (24mm dia. alternate)
G2L: Extended with full guard (24mm dia. with openings)
G7L: Extended with full guard (24mm dia. with openings, alternate)
G1L: Extended with full guard (24mm dia.)
G6L: Extended with full guard (24mm dia. alternate)
V5L: Push-lock, turn-reset (40mm dia. with white arrow) *1
F0M: Flush square head
F5M: Flush square head (Alternate)
E0M: Extended square head
E5M: Extended square head (Alternate)
F0P: Flush round head with square bezel
F5P: Flush round head with square bezel (Alternate)
E0P: Extended round head with square bezel
E5P: Extended round head with square bezel (Alternate)
M4P: Mushroom head with square bezel (29mm dia.)
• Emergency stop illuminated pushbutton
V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
V2L: Push-lock, turn-reset (40mm dia.)
VDL: Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors with white arrow)
VAL: Push-lock, turn-reset (40mm dia. transparent in all colors)
VSL: Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)
VGF: Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

③ Contact arrangement

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

④ Lamp voltage
•Incandescent lamp
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 *2	A:	Orange
W:	White	S:	Blue

⑥ Special product
Z9: Resisting water-soluble cutting oils and heat
Z8: With a contact protection cover
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standards

Notes: *1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.
     *2 Button color of emergency stop illuminated switches are Red only.
     • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers
AR22 and DR22
Part number system

Pushbuttons

AR22 E0R – 10 R ☐ ☐
　①　　②　　　③ ④ ⑤ ⑥

① **Product category**
AR22: 22mm-dia. pushbutton
　　　22mm-dia. emergency stop pushbutton

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

③ **Contact arrangement**

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

④ **Color of button**

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

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

Symbol mark	◯		I		ⓣ		◯	I	ⓣ
Color of button	White	Black	White	Black	White	Black	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 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.

Pilot lights

<u>DR22</u> <u>D0L</u> – <u>E3</u> <u>W</u> □
  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	58: 5.5V AC/DC, short-body without transformer
C4: 15V AC/DC, without transformer	C8: 15V AC/DC, short-body without transformer
D4: 20V AC/DC, without transformer	D8: 20V AC/DC, short-body without transformer
E4: 24V AC/DC, without transformer	E8: 24V AC/DC, short-body without transformer
H4: 100-110V AC, with transformer	H8: 100-110V AC, short-body with transformer
L4: 115-127V AC, with transformer	L8: 115-127V AC, short-body with transformer
M4: 200-220V AC, with transformer	M8: 200-220V AC, short-body 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	A9: 6V AC, short-body without transformer
63: 6V DC, without transformer	69: 6V DC, short-body without transformer
B3: 12V AC/DC, without transformer	B9: 12V AC/DC, short-body without transformer
C3: 15V AC/DC, without transformer	C9: 15V AC/DC, short-body without transformer
E3: 24V AC/DC, without transformer	E9: 24V AC/DC, short-body without transformer
H3: 100-110V AC, with transformer	H9: 100-110V AC, short-body with transformer
L3: 115-127V AC, with transformer	L9: 115-127V AC, short-body with transformer
M3: 200-220V AC, with transformer	M9: 200-220V AC, short-body 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	

④ **Color of lens**

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

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

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

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)
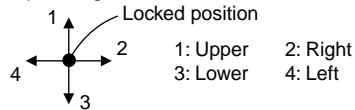7:   Rubber cap type (without lock, spring return)

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

1 ↑ Locked position   Ex. AR22A0N-A 0 A 0 B
                                          1 2 3 4
  2   1: Upper   2: Right
4   3: Lower   4: Left
  3

⑤ **Handle color**
B: Black

■ **Ordering information**
Specify the following:
1. Type number
   For the CCC approved product, add the suffix **(CCC)** to the
   type number

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

Buzzers

DR22B 5 – E B
  ①   ②   ③④

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

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

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

④ **Color of head**
B: Black

■ Standards approved

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

■ Specifications (Indoor use)

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

Notes: [*1] Illuminated type without transformer and AR22VG type: 250V AC/DC
　　　[*2] Pilot light with transformer: 600V AC
　　　[*3] Illuminated type without transformer: 2000V AC, 1 minute (except AR22VGF type)
　　　[*4] Pilot light with transformer: 2500V AC, 1 minute
　　　[*5] Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/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

■ Contact ratings
● UL/CSA standards
AC (COS ∅=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	P600	1.1A	0.55A	0.2A
Emergency stop illuminated pushbutton switch (Except the overlap contact types)	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 127V AC 220V AC	APX510-6□	6V AC	1.5VA	AHX135	6.3V AC/DC	2VA 2VA 2VA
	254V AC 380V AC 440V AC 480V AC 550V AC	APX510-6□	6V AC	2.5VA	AHX135	6.3V AC/DC	2.5VA 2.5VA 2.5VA 2.5VA 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 120V AC 220V AC 240V AC	AR9N001-HA AR9N001-KA AR9N001-MA AR9N001-PA	110V AC 120V AC 220V AC 240V AC	0.19VA 0.21VA 0.30VA 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
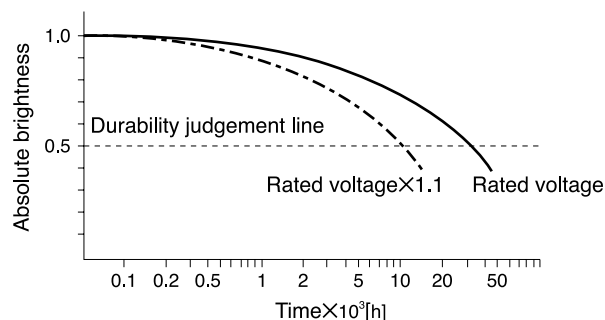
Notes: • Durability at Ta=25°C
　　　• Durability is affected by temperature, humidity, and voltage fluctuation.

Incandescent lamp voltage characteristics
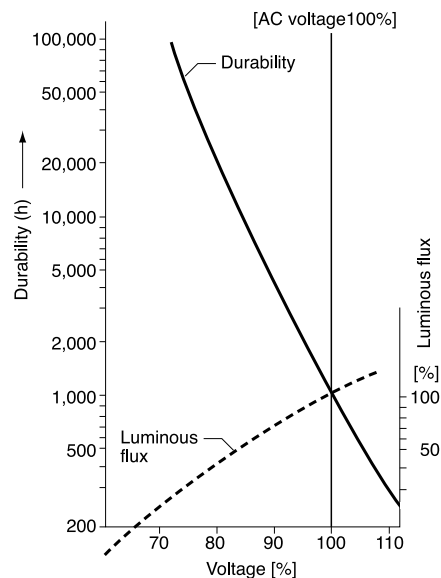
■ Combination of lens color and LED or neon lamp luminous color

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

Note: ■ ☐ *See page 19*

Illuminated Pushbuttons
AR22

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

Note: ■ □ *See page 19*

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

·**Lens color**
Replace the □ mark by the lens color code

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

Note: AR22V5L type: Red, yellow only

·**Contact arrangements**
Contact arrangements other than above are available

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

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

Available numbers of contact blocks

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

·**Voltage**
Replace the ■ mark by the lamp voltage code

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

■ **Pushbutton switches**

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

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

Note: ■ □ *See page 21*

Operator	Contact	Momentary action Type	Alternate action Type
Extended round head with square bezel	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☐**
AF94-297	2NO+2NC	**AR22E0Y-22☐**	**AR22E5Y-22☐**

Operator	Contact	Momentary action Type	Alternate action Type
Mushroom head with square bezel (29mm dia.)	1NO	**AR22M4Y-10☐**	—
	1NC	**AR22M4Y-01☐**	—
	1NO+1NC	**AR22M4Y-11☐**	—
	2NO	**AR22M4Y-20☐**	—
	2NC	**AR22M4Y-02☐**	—
AF94-298	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 Red Black White Yellow Orange Blue	**AR22S1R-22G** **AR22S1R-22R** **AR22S1R-22B** **AR22S1R-22W** **AR22S1R-22Y** **AR22S1R-22A** **AR22S1R-22S**	(1)	NC	—	—	●	—
				(2)	NC	—	—	●	—
				(3)	NO	—	●	—	●
				(4)	NO	—	●	—	●
	2NO	Green Red Black White Yellow Orange Blue	**AR22S2R-20G** **AR22S2R-20R** **AR22S2R-20B** **AR22S2R-20W** **AR22S2R-20Y** **AR22S2R-20A** **AR22S2R-20S**	(1)	NO	—	●	—	—
				(2)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR22S2R-22G** **AR22S2R-22R** **AR22S2R-22B** **AR22S2R-22W** **AR22S2R-22Y** **AR22S2R-22A** **AR22S2R-22S**	(1)	NC	●	—	████	████
				(2)	NC	████	████	●	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR22S3R-22G** **AR22S3R-22R** **AR22S3R-22B** **AR22S3R-22W** **AR22S3R-22Y** **AR22S3R-22A** **AR22S3R-22S**	(1)	NC	—	—	████	████
				(2)	NC	████	████	—	—
				(3)	NO	—	●	—	—
				(4)	NO	—	—	—	●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR22S6R-22G** **AR22S6R-22R** **AR22S6R-22B** **AR22S6R-22W** **AR22S6R-22Y** **AR22S6R-22A** **AR22S6R-22S**	(1)	NC	●	—	—	Locked
				(2)	NC	●	—	—	
				(3)	NO	—	●	●	
				(4)	NO	—	●	●	

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

● Contact closed
— Contact open

·**Position of contact block**

Contact block
Release arm
(3) (1)
(4) (2)
Operator
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. with white arrow) AF97-70	1NC 1NO+1NC 2NC 2NO+2NC	**AR22V0R-01R** **AR22V0R-11R** **AR22V0R-02R** **AR22V0R-22R**
Push-lock, turn-reset (40mm dia.) AF94-432	1NC 1NO+1NC 2NC 2NO+2NC	**AR22V2R-01R** **AR22V2R-11R** **AR22V2R-02R** **AR22V2R-22R**
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow) AF99-317	1NC 1NO+1NC 2NC 2NO+2NC	**AR22VSR-01R** **AR22VSR-11R** **AR22VSR-02R** **AR22VSR-22R**
Push-lock, turn-reset (29mm dia.) AF95-53	1NC 1NO+1NC 2NC 2NO+2NC	**AR22V4R-01R** **AR22V4R-11R** **AR22V4R-02R** **AR22V4R-22R**

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

Note: • Button color: Red only

•Contact arrangements

Contact arrangements other than above are available

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

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

■ Emergency stop illuminated pushbutton switches

⊖ (Direct opening action), conform to EN418

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

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

・Voltage
Replace the ■ mark by the lamp voltage code
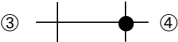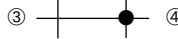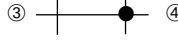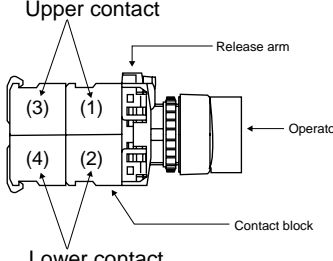
Transformer		Code LED	Incandescent	Neon
Without	6V DC	6	—	—
	6V AC	A	—	—
	5V AC/DC	—	5	—
	12V AC/DC	B	—	—
	15V AC/DC	C	C	—
	20V AC/DC	—	D	—
	24V AC/DC	E	E	—
	110V AC	—	—	H
	120V AC	—	—	K
	220V AC	—	—	M
	240V AC	—	—	P

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

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

■ **Selector switches**
2-position

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

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

● Contact closed

Upper contact — Release arm — (3) (1) — Operator — (4) (2) — Contact block — Lower contact

• **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	Switch with square bezel	Contact operation (Example)		
						Contact arrangement	Operation position	
							L C R ⊘ ① ⊘	L C R ⊘ ① ⊘
Knob	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 ③ ④	Lower contact ① ②
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-611B AR22PR-620B AR22PR-602B AR22PR-622B	AR22PY-611B AR22PY-620B AR22PY-602B AR22PY-622B			
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22PR-711B AR22PR-720B AR22PR-702B AR22PR-722B	AR22PY-711B AR22PY-720B AR22PY-702B AR22PY-722B	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact ① ②
	Spring return ↑ each 45°		2NO+2NC	AR22PR-122B	AR22PY-122B	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④
Lever	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 ③ ④	Lower contact ① ②
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-611B AR22WR-620B AR22WR-602B AR22WR-622B	AR22WY-611B AR22WY-620B AR22WY-602B AR22WY-622B			
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22WR-711B AR22WR-720B AR22WR-702B AR22WR-722B	AR22WY-711B AR22WY-720B AR22WY-702B AR22WY-722B	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact ① ②
	Spring return ↑ each 45°		2NO+2NC	AR22WR-122B	AR22WY-122B	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④
Cylindrical knob	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 ③ ④	Lower contact ① ②
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-611B AR22RR-620B AR22RR-602B AR22RR-622B	AR22RY-611B AR22RY-620B AR22RY-602B AR22RY-622B			
	Spring/manual return ↑ each 45°		1NO+1NC 2NO 2NC 2NO+2NC	AR22RR-711B AR22RR-720B AR22RR-702B AR22RR-722B	AR22RY-711B AR22RY-720B AR22RY-702B AR22RY-722B	1NO+1NC (1) (2)	Upper contact ③ ④	Lower contact ① ②
	Spring return ↑ each 45°		2NO+2NC	AR22RR-122B	AR22RY-122B	2NO+2NC (1) (2) (3) (4)	Upper contact ① ② ③ ④	Lower contact ① ② ③ ④

AF94-310

AF94-324

AF94-308

Operator	Operation	Key removable position	Contact	Type Switch with round bezel	Switch with square bezel	Contact operation (Example)			
						Contact arrange-ment	Operator position		
							L C R ⊘ ① ⊘	L C R ⊘ ① ⊘	
Key	Maintained each 45˚	■: Key removable position ( ): Key type	1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-3■11( )** **AR22J□R-3■20( )** **AR22J□R-3■02( )** **AR22J□R-3■22( )**	**AR22JY-3■11( )** **AR22JY-3■20( )** **AR22JY-3■02( )** **AR22JY-3■22( )**	1NO+1NC (1) (2)	Upper contact ③ ───●─┼─┼─── ④	Lower contact ① ───┼─┼─●─── ②	
	Spring/manual return ⟳ each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-6■11( )** **AR22J□R-6■20( )** **AR22J□R-6■02( )** **AR22J□R-6■22( )**	**AR22JY-6■11( )** **AR22JY-6■20( )** **AR22JY-6■02( )** **AR22JY-6■22( )**				
	Spring/manual return ⟳ each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR22J□R-7■11( )** **AR22J□R-7■20( )** **AR22J□R-7■02( )** **AR22J□R-7■22( )**	**AR22JY-7■11( )** **AR22JY-7■20( )** **AR22JY-7■02( )** **AR22JY-7■22( )**	1NO+1NC (1) (2)	Upper contact ③ ───┼─●─┼─── ④	Lower contact ① ───●─┼─┼─── ②	
	Spring return ⟳ each 45˚		2NO+2NC	**AR22J□R-1E22( )**	**AR22JY-1E22( )**	2NO+2NC (1) (2) (3) (4)	Upper contact ① ──━━━─┼─── ② ③ ───┼─●─┼─── ④	Lower contact ① ───━━━──── ② ③ ───●─┼─┼─── ④	

AF94-311

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	45°╲╱45° ⊗	45°╲╱45° ✳	45°╲╱45° ✦	45°╲╱45° ⊘	45°╲╱45° ⊘	45°╲╱45° ⊘	45°╲╱45° ⊘
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**

Upper contact
Release arm
(3) (1)
(4) (2)
Operator
Contact block
Lower contact

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

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

Selector Switches
AR22

■ Selector switches (control type)
3-position

Operator	Operation	Knob color or key removable position	Contact arrangement	Type Switch with round bezel	Switch with square bezel
Knob AF94-435	Maintained each 45°	Color code: B: Black (Standard) Color other than above are available (G: Green R: Red)	Replace the ■ mark by the contact arrangement code (shown on next page).	**AR22PCR-3■B**	**AR22PCY-3■B**
	Spring/manual return ⟳ 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			●	

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

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

(Labels: Release arm, Operator, Contact block; positions (3)(1)(4)(2))

· **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 arrangement	Contact arrangement 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**

Release arm

(3) | (1)

(4) | (2)

Operator

Contact block

Notes: Contact block color
NC: red
NO: blue

Operator position
4-position   **5-position**

40°

30°
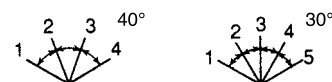
Illuminated Selector Switches
AR22

■ **Illuminated selector switches**
2-position

Operator	Operation	Contact	LED lamp		Incandescent lamp	
			Transformer	Type	Transformer	Type
Knob	Maintained	1NO 1NC 1NO+1NC 2NO+2NC	Without	AR22PL-210■3□ AR22PL-201■3□ AR22PL-211■3□ AR22PL-222■3□	Without	AR22PL-210■4□ AR22PL-201■4□ AR22PL-211■4□ AR22PL-222■4□
	each 90°	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□
	AF94-306					
Knob with square bezel	Maintained	1NO 1NC 1NO+1NC 2NO+2NC	Without	AR22PP-210■3□ AR22PP-201■3□ AR22PP-211■3□ AR22PP-222■3□	Without	AR22PP-210■4□ AR22PP-201■4□ AR22PP-211■4□ AR22PP-222■4□
	each 90°	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□
	AF94-360					

3-position

Operator	Operation		Contact	LED lamp		Incandescent lamp	
				Transformer	Type	Transformer	Type
Knob	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□
	AF94-306						
Knob with square bezel	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□
	AF94-360						

Note: □, ■ *See page 33*

• Replace the ■ mark by the following lamp voltage code

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

• Replace the □ mark by the following knob color code

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

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

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

● **Contact arrangement and operator position**

2-position

Transformer	Contact arrangement	Contact block Mounting position	Type	Operator position 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 Mounting position	Type	Operator position 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
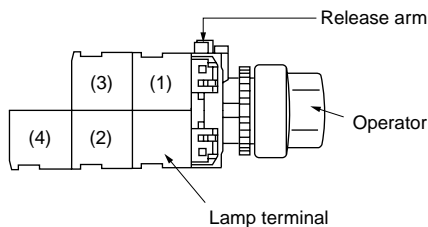
With transformer

■ **Pilot lights/standard**

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

Note: □ *See page 37*

■ Pilot lights/short-body without transformer

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

Note: ☐ *See page 37*

Pilot Lights
DR22

■ **Pilot lights/short-body with transformer**

Lens	LED lamp		Incandescent lamp	
	Lamp voltage	Type	Lamp voltage	Type
Dome AF97-137	100–110V AC 200–220V AC	**DR22D0L-H9□** **DR22D0L-M9□**	100–110V AC 200–220V AC	**DR22D0L-H8□** **DR22D0L-M8□**
Extended round AF97-138	100–110V AC 200–220V AC	**DR22E3L-H9□** **DR22E3L-M9□**	100–110V AC 200–220V AC	**DR22E3L-H8□** **DR22E3L-M8□**
Faceted KK02-130A	100–110V AC 200–220V AC	**DR22K0L-H9□** **DR22K0L-M9□**	100–110V AC 200–220V AC	**DR22K0L-H8□** **DR22K0L-M8□**
Flush square AF97-134	100–110V AC 200–220V AC	**DR22F3M-H9□** **DR22F3M-M9□**	100–110V AC 200–220V AC	**DR22F3M-H8□** **DR22F3M-M8□**
Flush square (Transparent lens) AF97-133	100–110V AC 200–220V AC	**DR22F4M-H9□** **DR22F4M-M9□**	100–110V AC 200–220V AC	**DR22F4M-H8□** **DR22F4M-M8□**
Flush square (12mm high frame) AF97-136	100–110V AC 200–220V AC	**DR22F5M-H9□** **DR22F5M-M9□**	100–110V AC 200–220V AC	**DR22F5M-H8□** **DR22F5M-M8□**
Extended square KK02-134A	100–110V AC 200–220V AC	**DR22E3M-H9□** **DR22E3M-M9□**	100–110V AC 200–220V AC	**DR22E3M-H8□** **DR22E3M-M8□**
Flush rectangular KK02-235B	100–110V AC 200–220V AC	**DR22E3N-H9□** **DR22E3N-M9□**	100–110V AC 200–220V AC	**DR22E3N-H8□** **DR22E3N-M8□**
Extended round with square bezel AF97-135	100–110V AC 200–220V AC	**DR22E3P-H9□** **DR22E3P-M9□**	100–110V AC 200–220V AC	**DR22E3P-H8□** **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
AR22

■ **Joy stick selector switches**

Handle	Terminal	Operating directions	Contact arrangement	Type — Manual return	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
AF97-49			2NO + 2NC × 4	AR22A0H-2222B	AR22A5H-2222B
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
AF97-45			2NO + 2NC × 4	AR22A1H-2222B	AR22A6H-2222B
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
AF97-56			2NO + 2NC × 4	AR22A2H-2222B	AR22A7H-2222B

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

① Upper
④ Left ← → ② Right
③ Lower

・**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**
			6V DC	**DR22B5-6B**
			12 to 24V AC/DC	**DR22B5-EB**
			35 to 48V AC/DC	**DR22B5-FB**
		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**
			6V DC	**DR22B8-6B**
			12 to 24V AC/DC	**DR22B8-EB**
			35 to 48V AC/DC	**DR22B8-FB**
		With	100 to 110V AC	**DR22B8-HB**
			200 to 220V AC	**DR22B8-MB**
		With resistor unit	100 to 110V DC	**DR22B8-1B**

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

■ Dimensions, mm
·Illuminated pushbutton switches

Flush/Extended
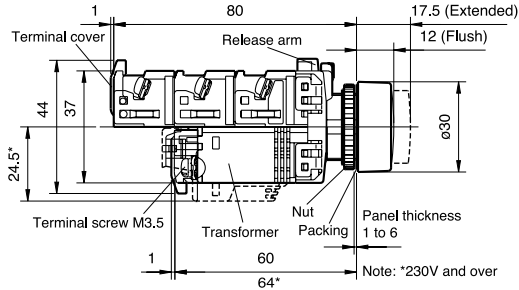
With transformer

AR22F0L, F5L
AR22E0L, E5L
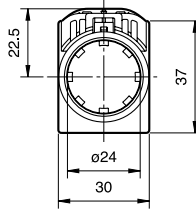
AR22F0M, F5M
AR22E0M, E5M
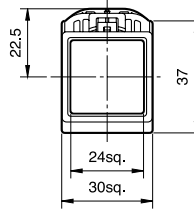
AR22F0P, F5P
AR22E0P, E5P

Note: *230V and over
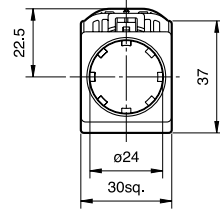
Without transformer
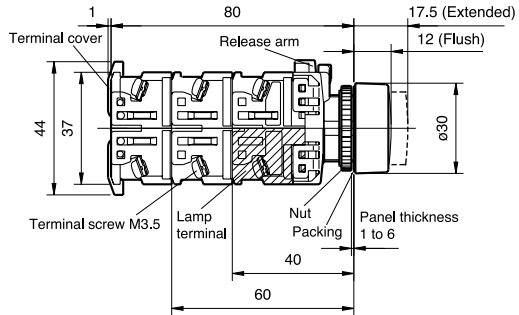
Mushroom (40mm dia.)
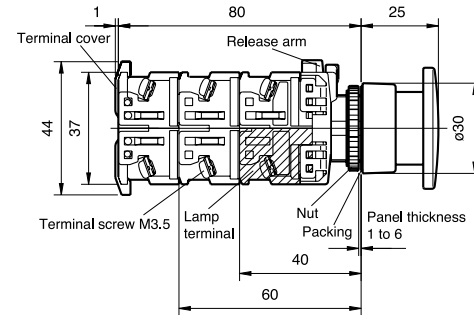
AR22M0L, M5L
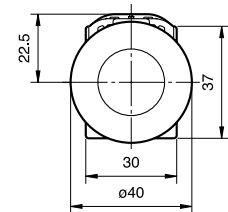
Mushroom (29mm dia.)
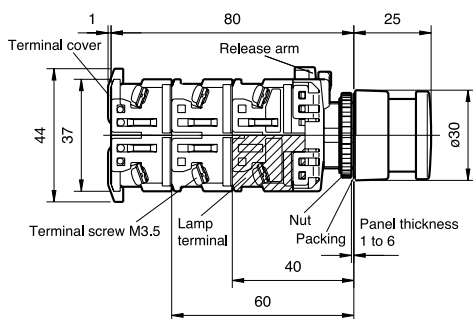
AR22M4L, M9L
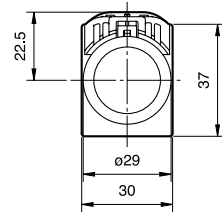
AR22M4P
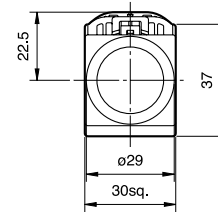
Extended with full guard
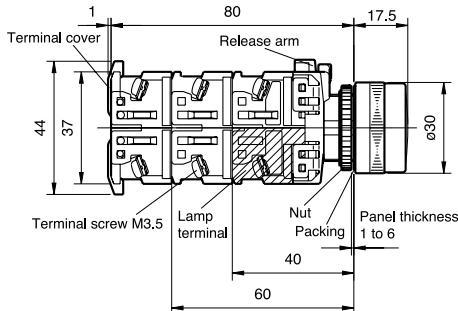
AR22G4L, G9L
AR22G1L, G6L
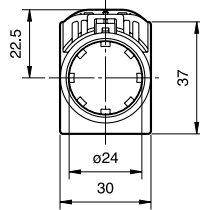
Extended with full guard (with openings)
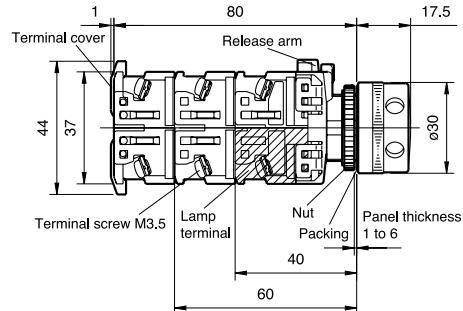
AR22G2L, G7L
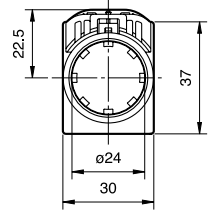
Push-lock, turn-reset
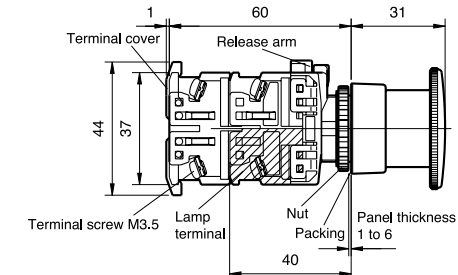
AR22V5L
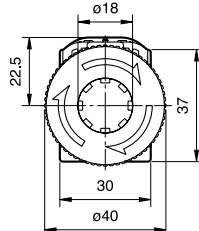
■ Dimensions, mm
•Pushbutton switches
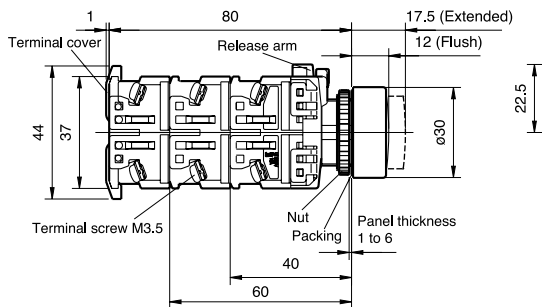
Flush/Extended

AR22F0R, F5R
AR22E0R, E5R
AR22FAR, FBR
AR22EAR, EBR
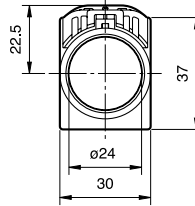
AR22F0S, F5S
AR22E0S, E5S
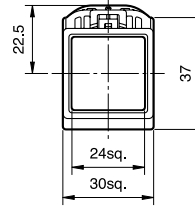
AR22F0Y, F5Y
AR22E0Y, E5Y
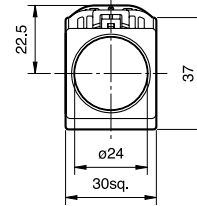
Mushroom (40mm dia.)
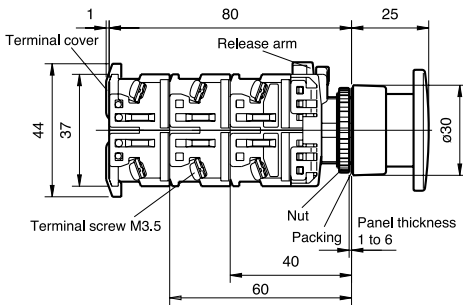
AR22M0R, M5R
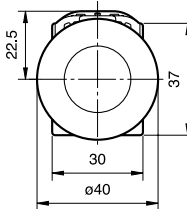
Flush/Extended with full guard
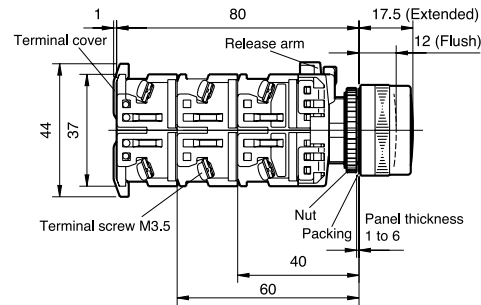
AR22G3R, G8R
AR22G2R, G7R
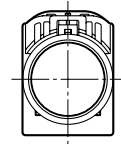
Mushroom (29mm dia.)
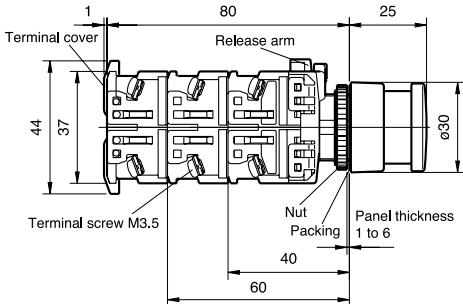
AR22M4R, M9R
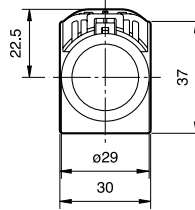
AR22M4Y
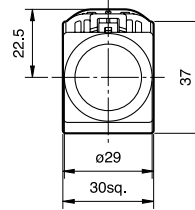
Extended with half guard
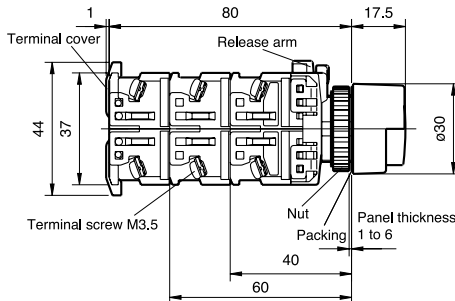
AR22G0R, G5R
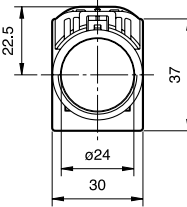
Mushroom with full guard (40mm dia.)
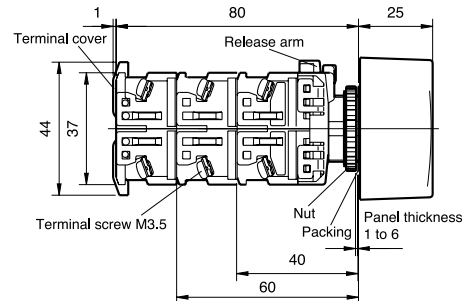
AR22M3R, M8R
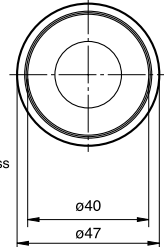
Pushbutton with selector ring
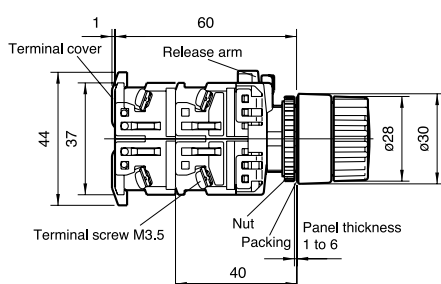
AR22S1R, S2R
AR22S3R, S6R
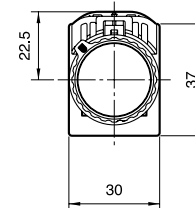
Push-lock, turn-reset
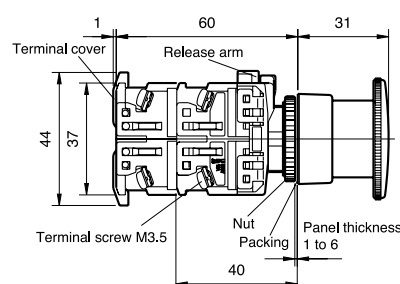
AR22V5R
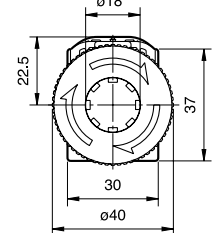
■ Dimensions, mm
·Emergency stop pushbutton switches

Push-lock, turn-reset (40mm dia.)
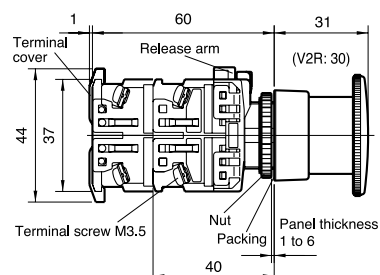
AR22V0R, V2R
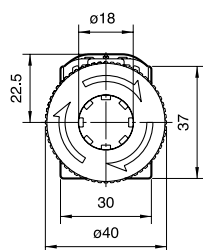
Push-lock, turn-reset (29mm dia.)
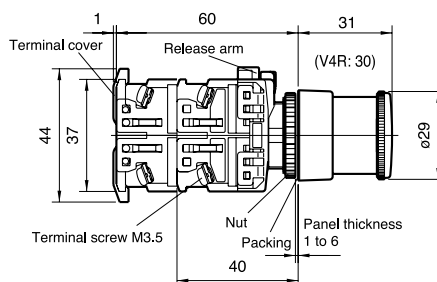
AR22VSR, V4R
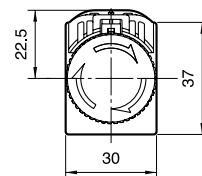
Key release push-lock, turn-reset (40mm dia.)
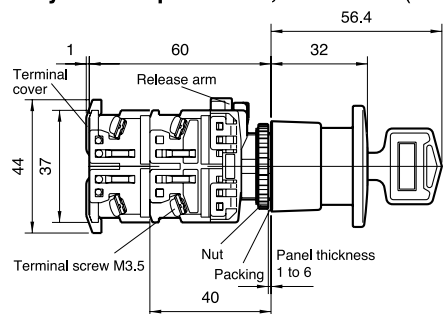
AR22V7R
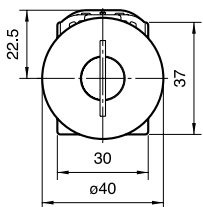
Push-lock, pull-reset (35mm dia.)
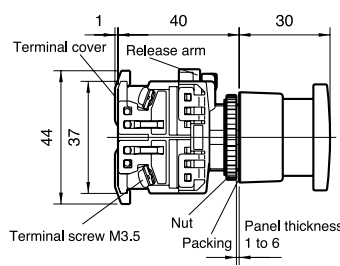
AR22Q2R
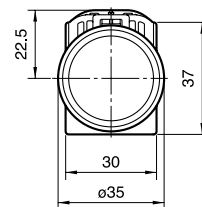
Unibody push-lock, turn-reset (40mm dia.)
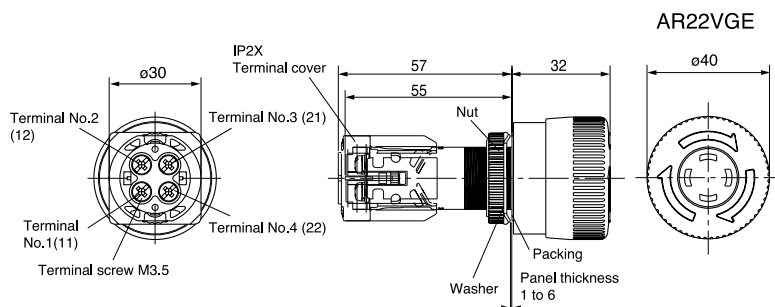
AR22VGE

Wiring diagrams
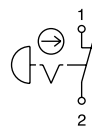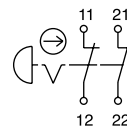
1NC   2NC   1NO+1NC
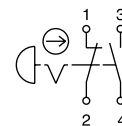
Note: Terminal No. shown in ( ) are for contact arrangement 2NC.

■ Dimensions, mm
·Emergency stop illuminated pushbutton switches

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

With transformer

AR22V0L, V2L
AR22VDL, VAL

Without transformer

Terminal cover

31
30*2

ø18

22.5

37

30

ø40

Terminal cover
Release arm

1   60   31
30*2

44
37
24.5*1

44
37

Terminal screw M3.5   Transformer   Nut   Packing   Panel thickness 1 to 6

1   60

64*1

Terminal screw M3.5   Lamp terminal   Nut   Packing   Panel thickness 1 to 6

40
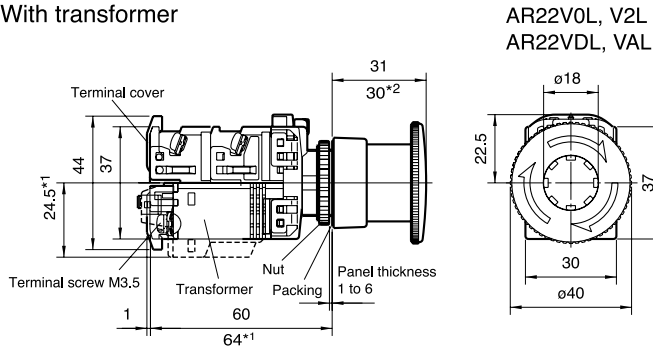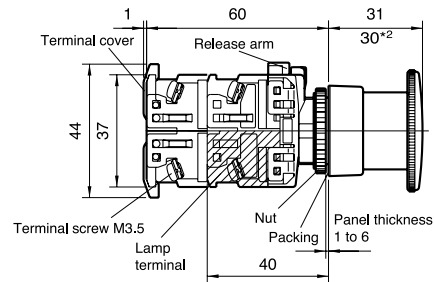
Note: *1 230V and over
     *2 AR22V2L and VAL types only

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

Without transformer

AR22VSL

1   60   31

Terminal cover   Release arm

ø18

22.5

37

30

44
37

ø29

Terminal screw M3.5   Lamp terminal   Nut   Packing   Panel thickness 1 to 6

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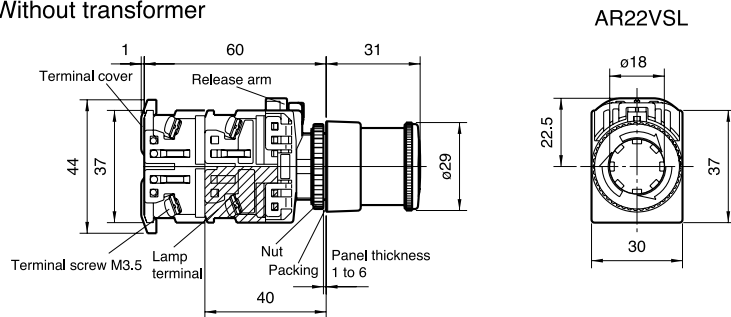
Unibody push-lock, turn-reset (40mm dia.)

Without transformer
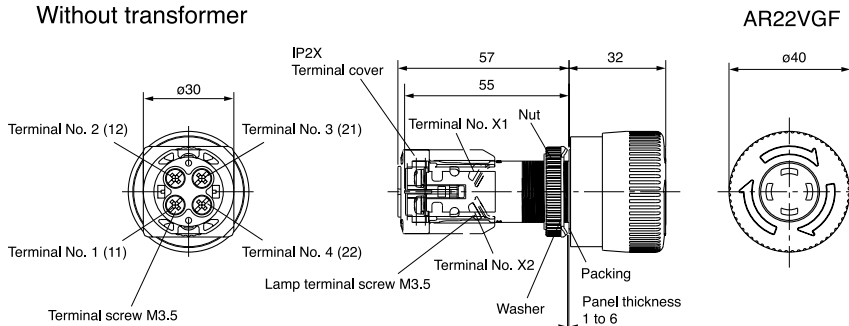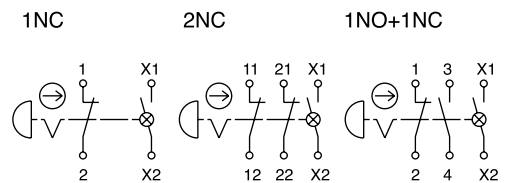
AR22VGF

Wiring diagrams

ø30

IP2X
Terminal cover

57   32

55

Terminal No. 2 (12)   Terminal No. 3 (21)

Terminal No. X1   Nut

Terminal No. 1 (11)   Terminal No. 4 (22)

Terminal No. X2

Lamp terminal screw M3.5

Terminal screw M3.5

Packing

Washer

Panel thickness 1 to 6

ø40

1NC   2NC   1NO+1NC

1   X1

2   X2

11   21   X1

12   22   X2

1   3   X1

2   4   X2

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

■ **Dimensions, mm**
•**Selector switches**
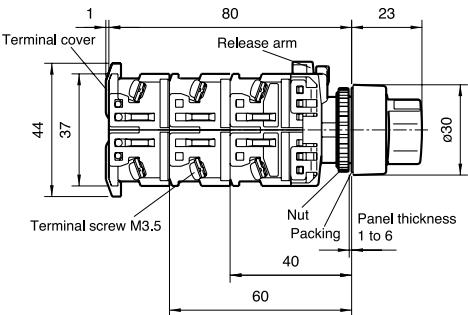
Knob

AR22PR, PCR
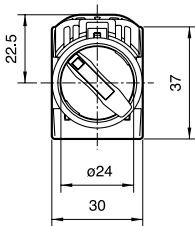
AR22PY, PCY
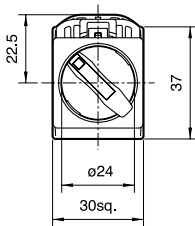
Lever
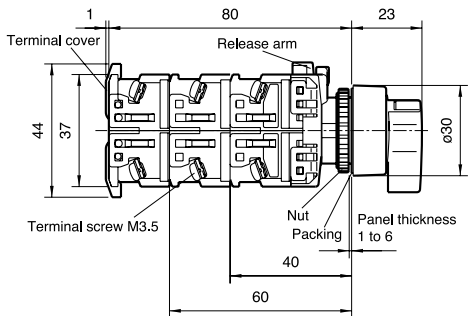
AR22WR, WCR
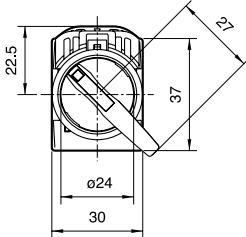
AR22WY, WCY
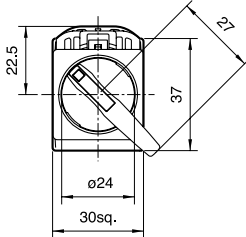
Cylindrical knob
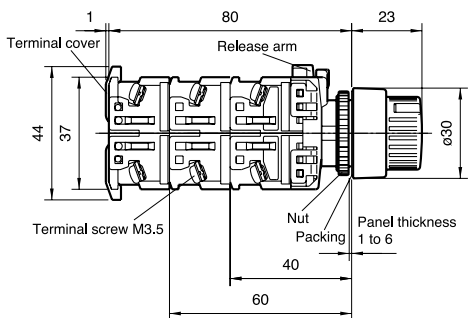
AR22RR, RCR
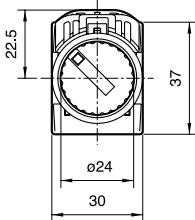
AR22RY, RCY
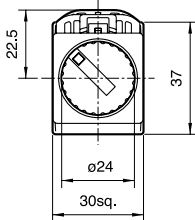
Key
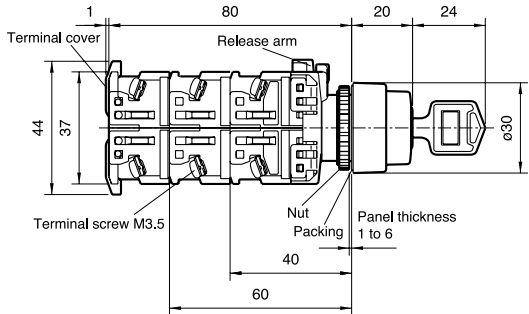
AR22JR, JCR
AR22JAR
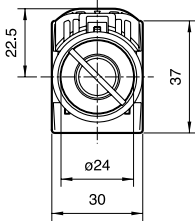
AR22JY, JCY
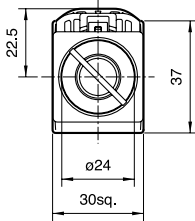
■ **Dimensions, mm**
·Illuminated selector switches

With transformer
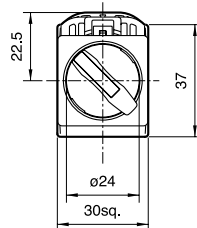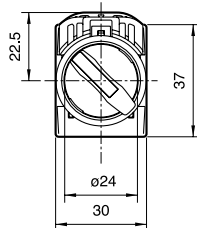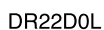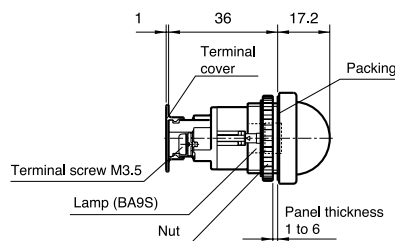
Terminal cover
Release arm
1 80 23
44
37
24.5*
ø30
Terminal screw M3.5
Transformer
Nut
Packing
Panel thickness 1 to 6
1 60
64*

Note: * 230V and over

AR22PL

22.5
37
ø24
30

AR22PP

22.5
37
ø24
30sq.

Without transformer

Terminal cover
Release arm
1 80 23
44
37
ø30
Terminal screw M3.5
Lamp terminal
Nut
Packing
Panel thickness 1 to 6
40
60

·Pilot lights

Dome

With transformer, with resistor unit

1 60 17.2
64*
Terminal cover
Packing
Terminal screw M3.5
Lamp (BA9S)
Nut
Panel thickness 1 to 6

DR22D0L

ø30
ø24

Without transformer

1 36 17.2
Terminal cover
Packing
Terminal screw M3.5
Lamp (BA9S)
Nut
Panel thickness 1 to 6

DR22D0L

ø30
ø24

Short body/with transformer

40 17.2
Terminal cover
Terminal screw M3.5
Packing
18.3
20.8
20
Lamp (BA9S)
Nut
Panel thickness 1 to 6

DR22D0L

ø30
ø24

Short body/without transformer

21.5 17.2
Packing
Lamp (BA9S)
Nut
Panel thickness 1 to 6
Terminal screw M3.5

DR22D0L

ø30
ø24
30
29

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

45
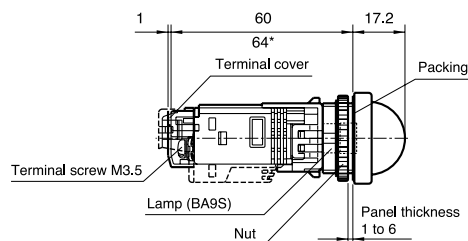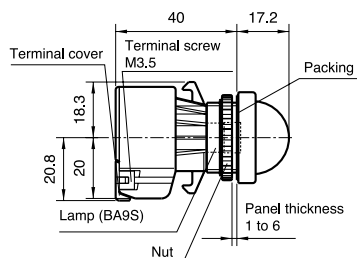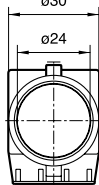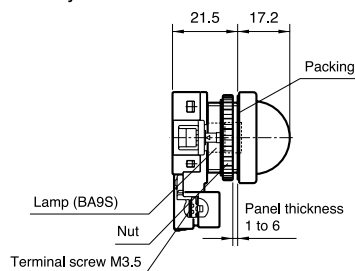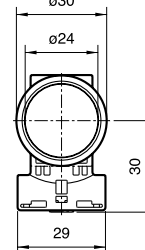
■ **Dimensions, mm**
・**Pilot lights**

Extended

With transformer, with resistor unit

Without transformer

DR22E3L	DR22E3M	DR22E3P
ø30	30sq.	30sq.
ø24	24sq.	ø24

Legend plate: E3L, E3P ø19.7
E3M 20sq.
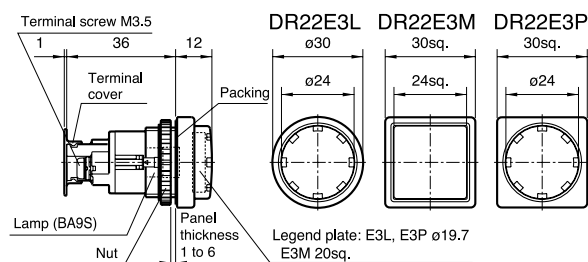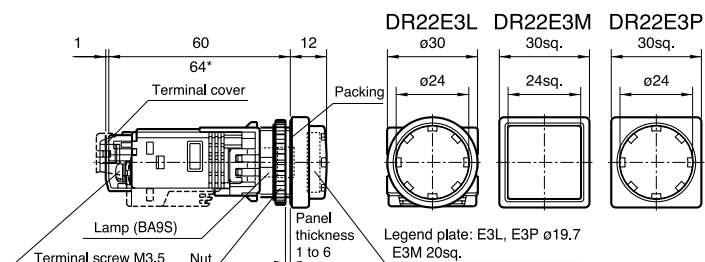
Short body/with transformer

Short body/without transformer
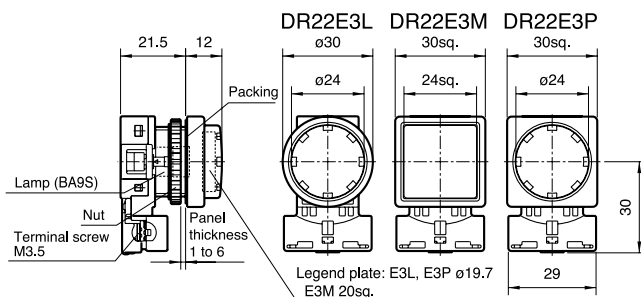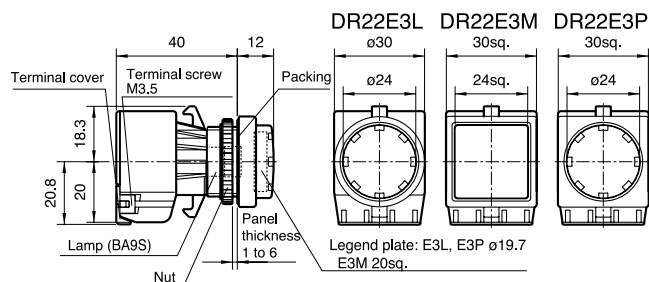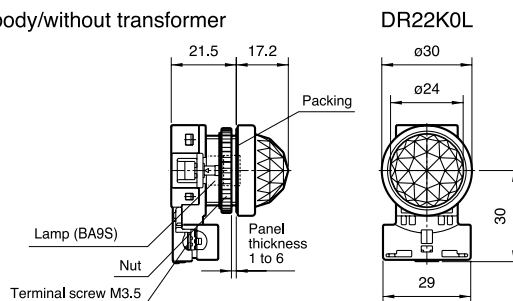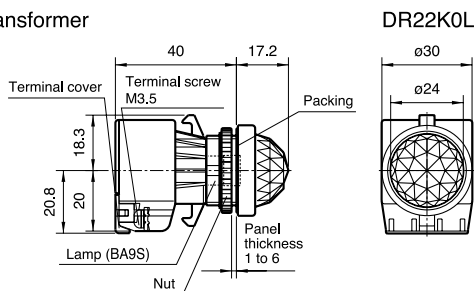
Note: * Except for the types 110V AC, 127V AC and 220V AC.

Faceted

With transformer, with resistor unit — DR22K0L

Without transformer — DR22K0L

Short body/with transformer — DR22K0L

Short body/without transformer — DR22K0L

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

■ Dimensions, mm
·Pilot lights

Flush

With transformer, with resistor unit   DR22F3M, F4M
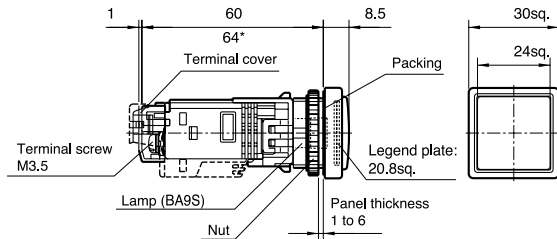
Without transformer   DR22F3M, F4M
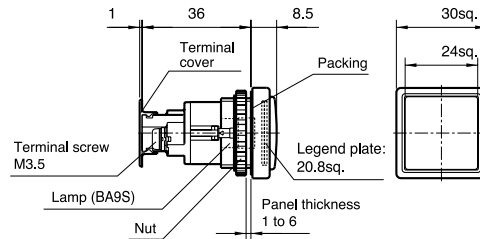
Short body/with transformer   DR22F3M, F4M
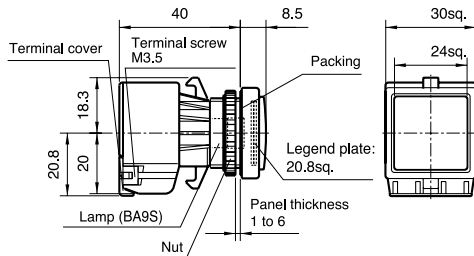
Short body/without transformer   DR22F3M, F4M
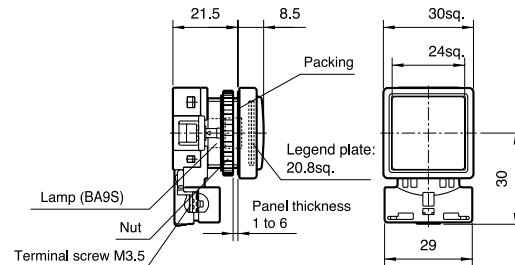
Note: * Except for the types 110V AC, 127V AC and 220V AC.

Flush (12mm high frame)

With transformer, with resistor unit   DR22F5M
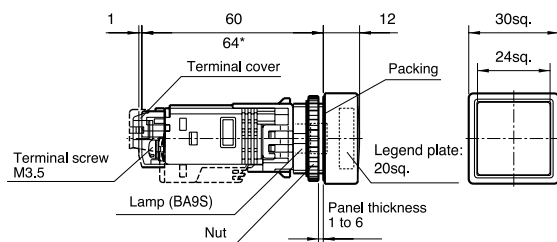
Without transformer   DR22F5M
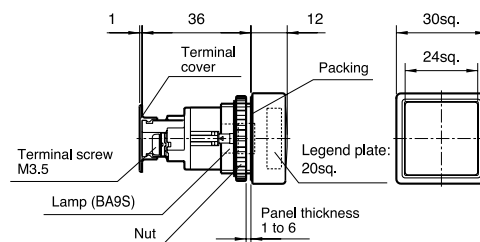
Short body/with transformer   DR22F5M
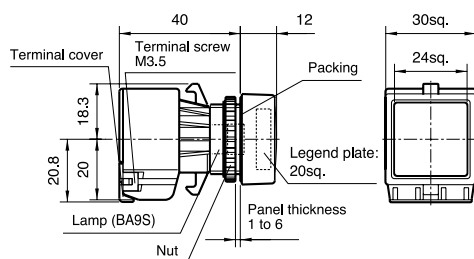
Short body/without transformer   DR22F5M
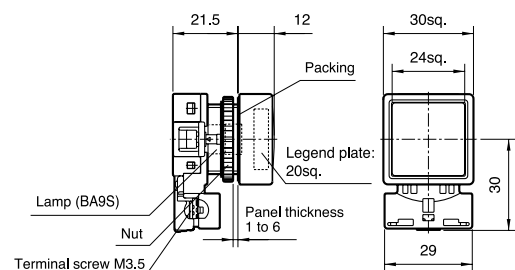
Note: * Except for the types 110V AC, 127V AC and 220V AC.

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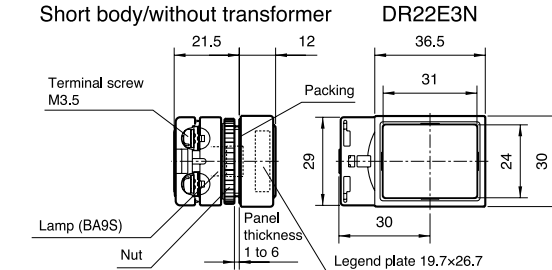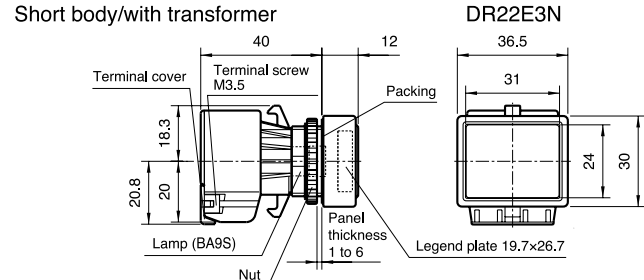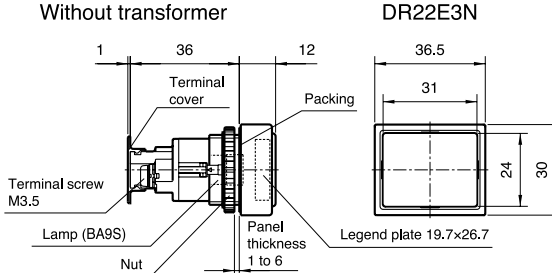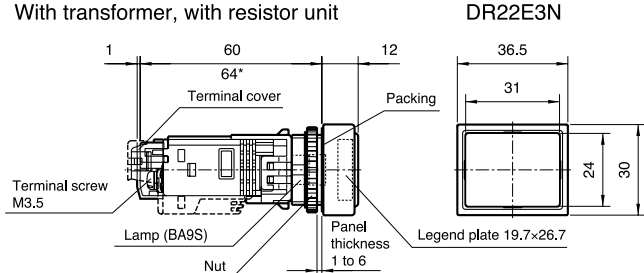
Note: * Except for the types 110V AC, 127V AC and 220V AC.

・**Joy stick selector switches**

Ball type without lock

Screw terminal AR22A0N, A5N
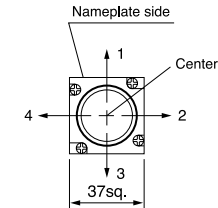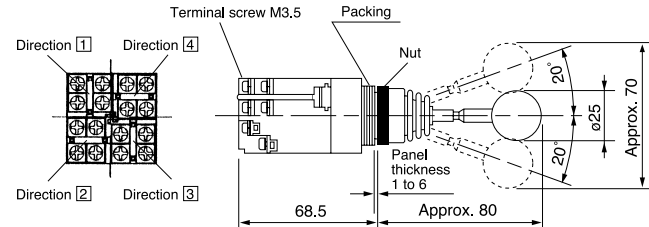
Solder/tab terminal AR22A0H, A5H

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
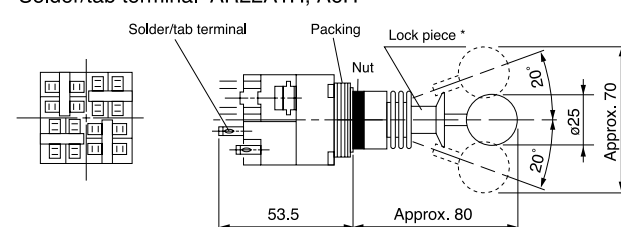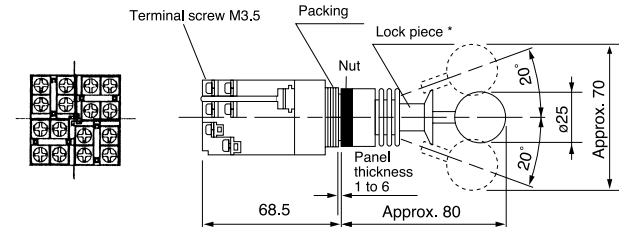
Solder/tab terminal AR22A1H, A6H

■ Dimensions, mm
·Joy stick selector switches

Rubber cap type without lock

Screw terminal AR22A2N, A7N
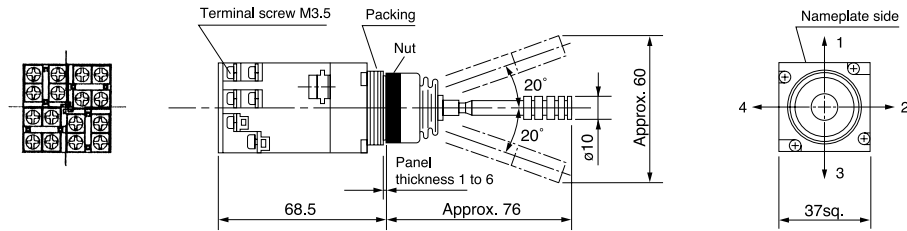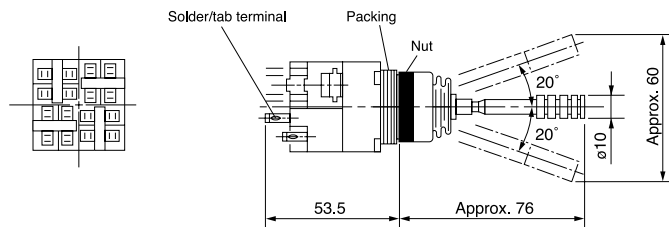
Terminal screw M3.5 — Packing — Nut — 20° — 20° — ø10 — Approx. 60 — Panel thickness 1 to 6 — 68.5 — Approx. 76 — Nameplate side — 1 — 4 — 2 — 3 — 37sq.

Solder/tab terminal AR22A2H, A7H

Solder/tab terminal — Packing — Nut — 20° — 20° — ø10 — Approx. 60 — 53.5 — Approx. 76

·Buzzers

Electronic sound

With transformer   DR22B5

Transformer — 63.5 — 13 — Nut — 24.5 — ø29.5 — Terminal screw M3.5 — Short-circuit terminal — Packing — Panel thickness 1 to 6 — ø20.5 — LED lamp (Red) — 37 — 30

Without transformer   DR22B5

Lamp terminal — 1.5 — 48.5 — 13 — Nut — 23.5 — ø29.5 — Terminal screw M3.5 — Short-circuit terminal — Packing — Panel thickness 1 to 6 — ø20.5 — LED lamp (Red) — 37 — 30
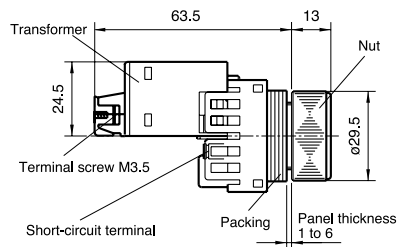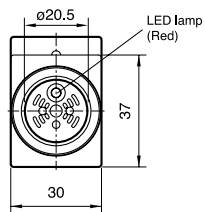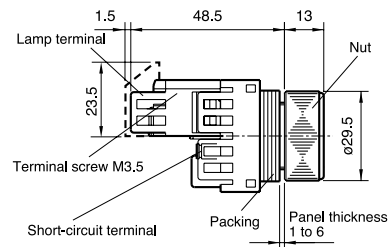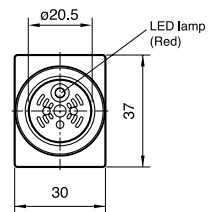
Magnetic sound

With transformer   DR22B3
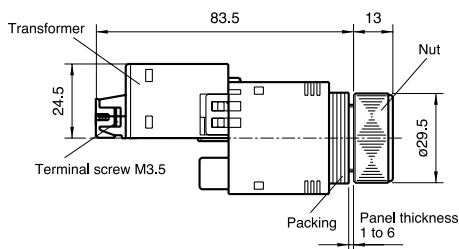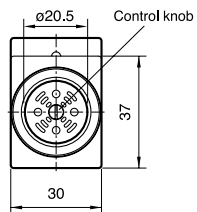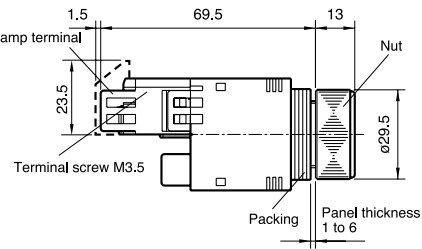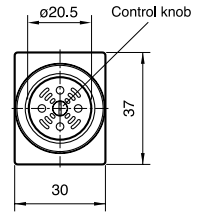
Transformer — 83.5 — 13 — Nut — 24.5 — ø29.5 — Terminal screw M3.5 — Packing — Panel thickness 1 to 6 — ø20.5 — Control knob — 37 — 30

Without transformer   DR22B3

Lamp terminal — 1.5 — 69.5 — 13 — Nut — 23.5 — ø29.5 — Terminal screw M3.5 — Packing — Panel thickness 1 to 6 — ø20.5 — Control knob — 37 — 30

Electronic sound (IP54)

With transformer   DR22B8

Transformer — 63.5 — 18.5 — Nut — 24.5 — ø24 — ø30 — Terminal screw M3.5 — Short-circuit terminal — Packing — Panel thickness 1 to 6 — 37 — 30

Without transformer   DR22B8

Lamp terminal — 1.5 — 48.5 — 18.5 — Nut — 23.5 — ø24 — ø30 — Terminal screw M3.5 — Short-circuit terminal — Packing — Panel thickness 1 to 6 — 37 — 30
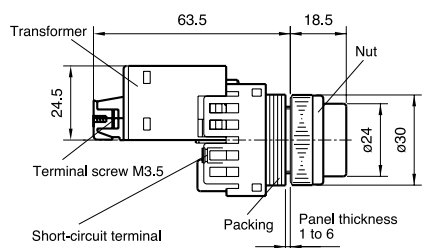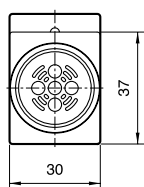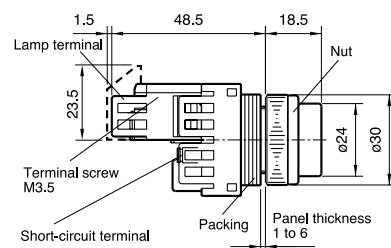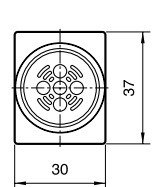
Notes on use

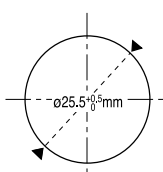### ■ Fit two sizes of panel cutout holes

* 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.

$* 3.2^{+0.2}_{0}$mm
rmax=0.8mm

$24.1^{+0.4}_{0}$mm $\phi22.3^{+0.5}_{0}$mm

$\phi25.5^{+0.5}_{0}$mm
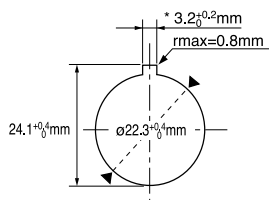
Note: * If key-washer or legend plate are not used, 3.2mm-wide location holes need not be cutout.

■ Detaching contact block from the operator

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

Fig. 2 Detaching contact block from the operator

Release arm   Pressed

Pull-out

Operator   Contact block
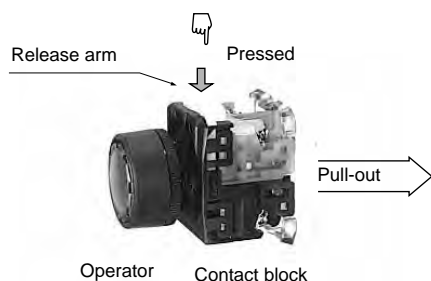
■ Mounting operator to panel

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

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

Panel

Wrench (AR9A004, Section A)

Operator

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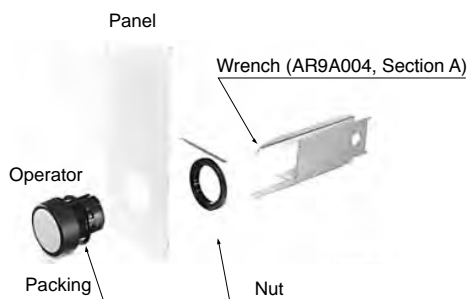
Note: Recommended tightening torque is from 1 to 1.5N•m

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

Panel

Wrench (AR9A004, Section A)

Operator

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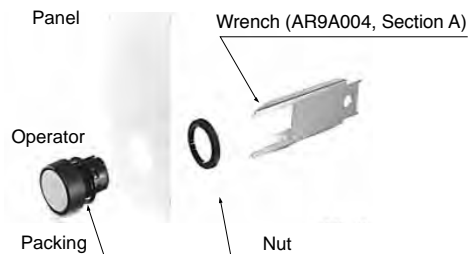
Note: 1. Recommended tightening torque is from 1 to 1.5N•m
2. Ensure that the step-out portion of the nut is correctly fitted in the cutout hole.

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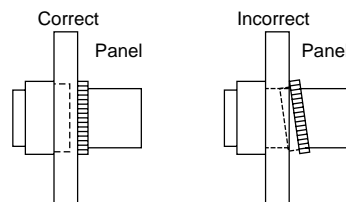
For easier mounting in the 25.5mm-dia. hole, the AR9Y718 adapter is also available separately.

**Fig. 5 Mounting with an adapter and locking nut**

Panel   Nut

Operator

Adapter for 25.5mm-dia.

Packing
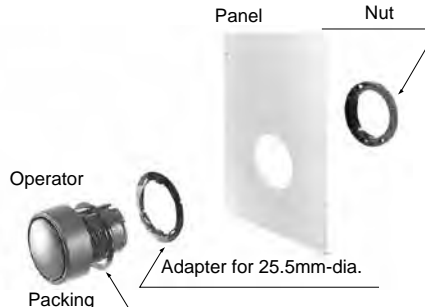
■ Mounting contact block to the operator

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

View from above

Groove with ▽ mark

Groove with ▽ mark   Release arm

Operator

Contact block
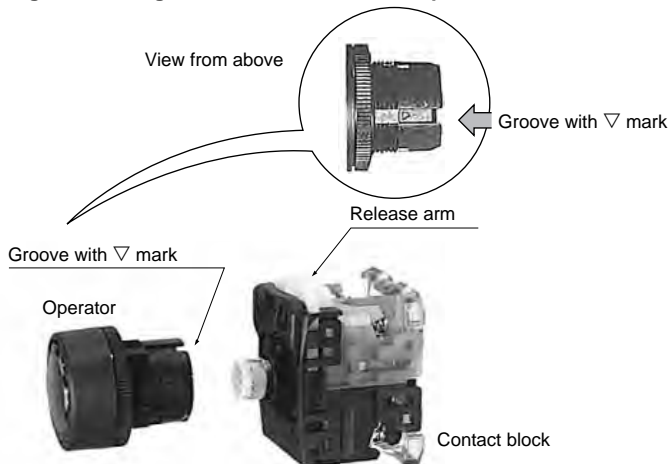
■ VG type panel mounting

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

Terminal cover
Nut
Washer
Panel
Packing
Switch main unit
AR22 type number
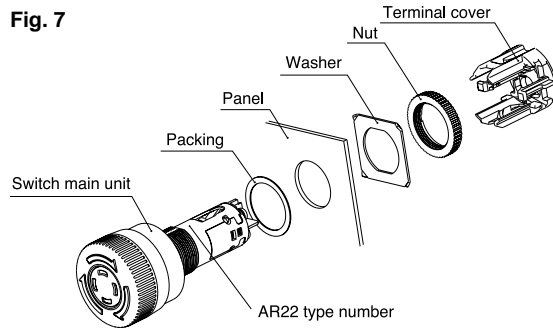
■ Joy stick selector switch mounting on panel

(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

Lever notch
Ring packing
Packing (A)
Nut
Ball
Packing
Panel
Lever groove
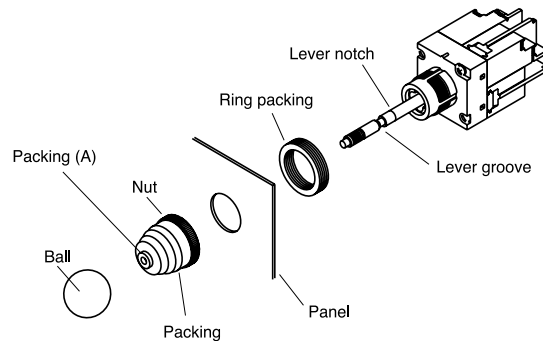
■ Buzzer mounting on panel

(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

Illuminated pushbuttons,
Pushbutton Selectors

30*2   42*1

50*7

42*1 *8

Pilot Light

30*4 *6

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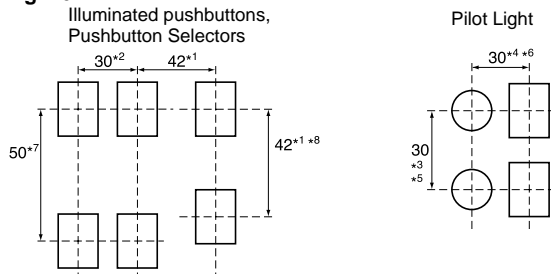
Notes: *1   AR22M0□, M5□, V5□, V0□, V2□, V7R, VG□: 42mm
            AR22M3R, M8R: 49mm
            AR22Q2R, WR, W0R, WY, WCY: 40mm
         *2   When mounting contact blocks at 30mm pitch, use it circuit of 380V
              or less.
         *3   Short body with transformer types: 50mm.
         *4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

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

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

Fig. 11

Release arm

Hole A on the
operator base

Pull-out

Operator   Contact block

6mm or less
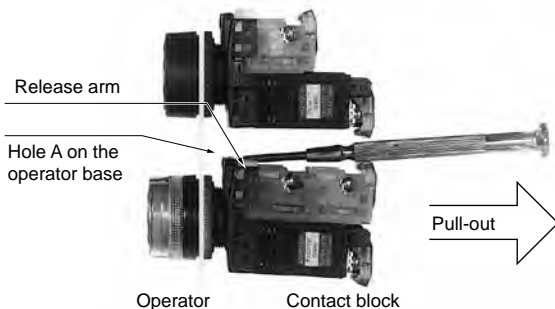
Note: Use a flat head screwdriver as shown
        at the right.
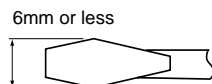
■ Products with blue and green LEDs

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

Fig. 12

Metal frame

LED lamp
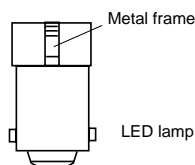
■ Wiring

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

Fig. 13

1.6mm dia. max.

8mm

8mm max.
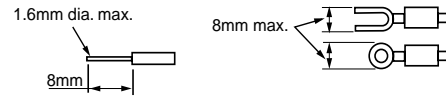
(2) Two crimp terminals can be used by putting one of them on
    top of the other. If fork-type crimp terminals are used in the
    horizontal direction, however, use ones as shown in the
    figure below. (i.e., Toei Tanshi's F2-3.5S or an equivalent).

Fig. 14

Width: 6.4mm max.

Flat plate width: 11.1mm max.
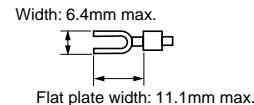
(3) The terminal washers are a self-lifting type.
(4) Tighten the terminal screws to a tightening torque of 0.8 to
    1N•m.
(5) Keep the terminals free of external force while wiring or after
    wiring, or operational failures may result.
(6) Do not use screws other than the provided terminal screws.
    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
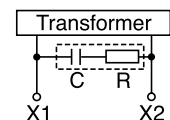conditions.

Fig. 15

Example 1

Lamp

R
X1   Shunt   X2
     resistor
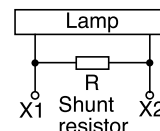
• 24V DC
  R: 10kΩ (0.5W)
• 24V AC
  R: 2kΩ (2W)

Example 2

Transformer

C   R
X1   X2

C: Capacitor
R: Resistor

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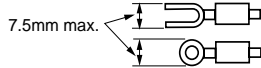 C: 0.1μF (250V AC)
  R: 120Ω (0.25W)

(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

7.5mm max.

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

· Solder (tab terminal) wiring
(1) Pay attention to the following items when soldering the
terminals.
Use a soldering iron with a power consumption of 30W.
Use resin-core solder.
If a 30W soldering iron is used, finish soldering the
terminals within five seconds. If a 20W soldering iron is
used, finish soldering the terminals within 10 seconds.
Make sure that the soldering iron tip length is at least
20mm long. Do not apply external force to the terminals.
Because lead-free solder's melting point is slightly high,
soldering work may be difficult. Use a soldering iron whose
tip is rather large or whose calorie is rather high.
(2) When using adjacent terminals, use insulation tubes
to prevent the terminals from short-circuiting. Utmost
attention must be paid to the solder terminals if especially
thick wires are used or if a large quantity of solder is used.
(3) Connectable wires
Solid wire: 2 wires, 0.8mm dia. max.
Stranded wire: 1 wire, 0.75mm^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

Central groove
Clamp wrench
(AHX8003)
(a)
Lamp
Lamp changer
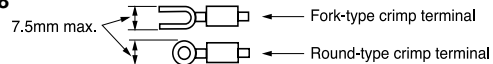(AHX790)
Dismounting/Mounting
(b)
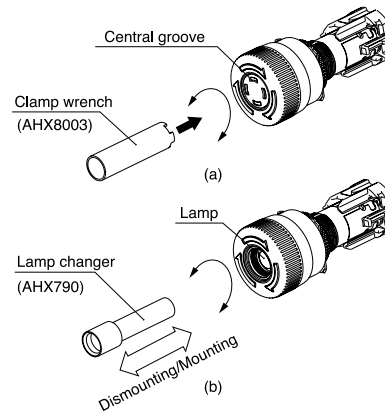
Note: The lamp and neon lamp are special models for the AR22VGF. Use only
these special lamps for replacement.

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

Fig. 18

7.5mm max.
Fork-type crimp terminal
Round-type crimp terminal

· 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

Terminal rib white marks
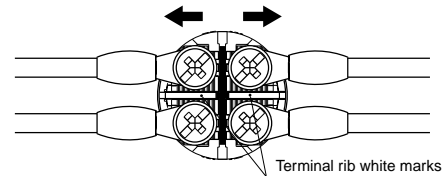
As shown in the illustration below, mount the live section
cover so that the mounting legs of the cover engage with the
concave parts of the main unit.
Fig. 20

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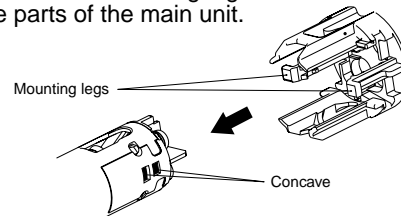
(2) If fork-type crimp terminals are used, wiring will be possible
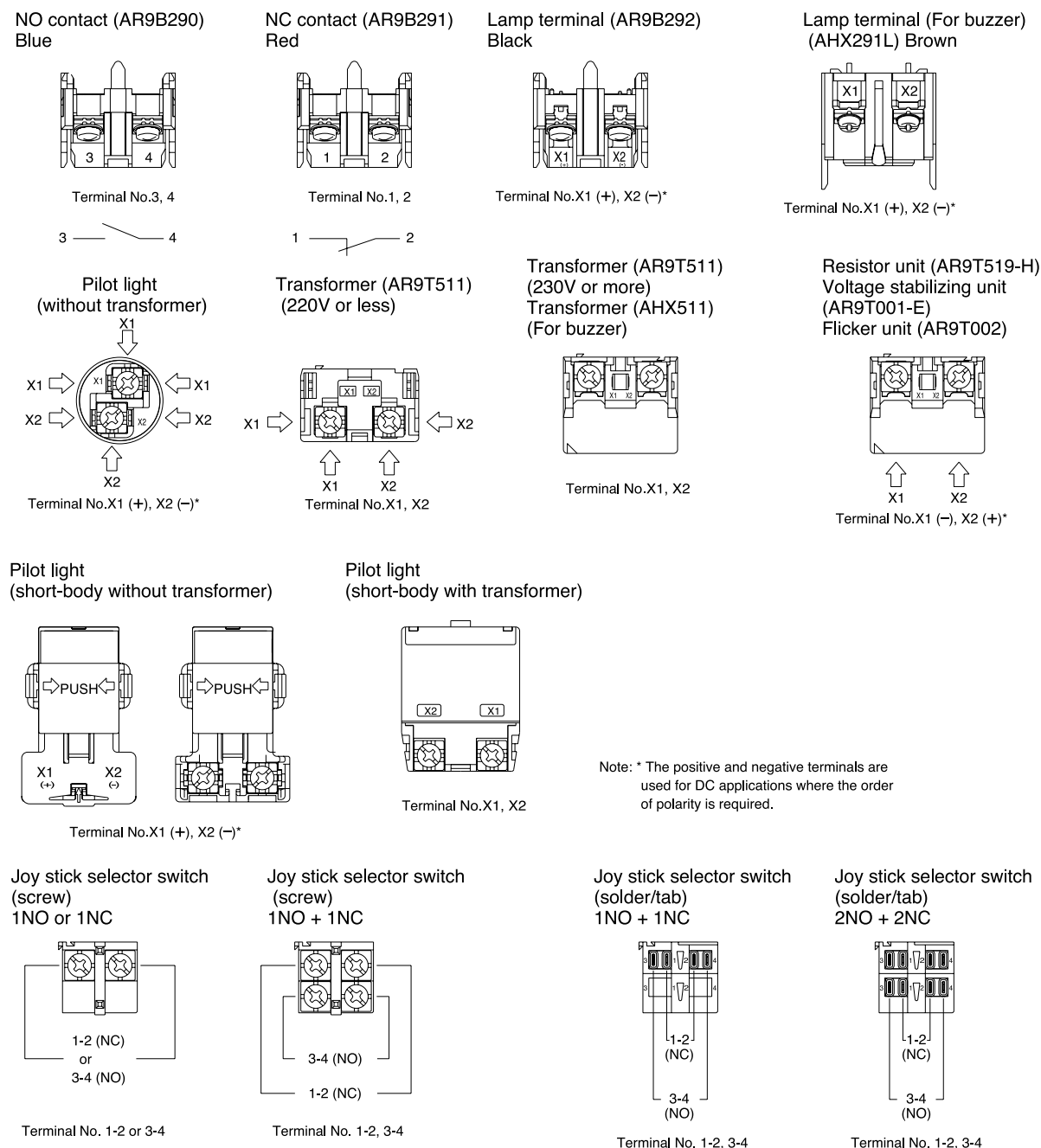without removing the live section cover.

■ 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

3 ——— 4

NC contact (AR9B291)
Red

Terminal No.1, 2

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)

PUSH

Pilot light
(short-body with transformer)

Terminal No.X1 (+), X2 (−)*

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

1-2 (NC)
or
3-4 (NO)

Terminal No. 1-2 or 3-4

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

3-4 (NO)
1-2 (NC)

Terminal No. 1-2, 3-4

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

1-2
(NC)
3-4
(NO)

Terminal No. 1-2, 3-4

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

1-2
(NC)
3-4
(NO)

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

Pushbuttons

AF95-10

AR30E0R

Pilot lights

AF95-18

DR30D0L

AF95-6

AR30G3L

AF95-12

AR30M0R

Selectors

AF95-13

AR30PR

Emergency stop pushbuttons

AF97-75

AR30V0L

AF97-69

AR30V0R

AF97-68

AR30V1R

Selector switch

41mm

Illuminated pushbutton switch with transformer

transformer

62.5mm*

Pilot light/ Standard

34mm

* 230V and over: 66.5mm
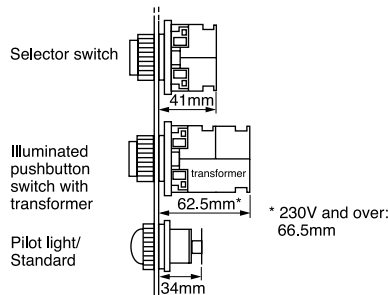
Self-cleaning contacts
All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).

Movable contact

Return spring   Stationary contact
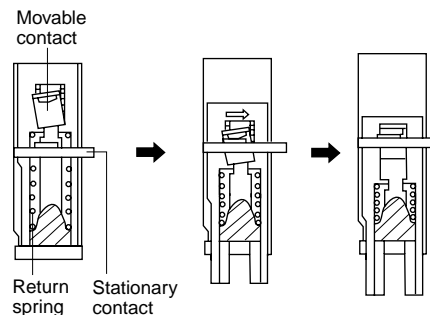
Metal nut
Safer model with metal nut is also available

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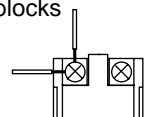
Safety
- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

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

■ Approvals

AR30 and DR30
Quick reference guide

■ 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. with white arrow)	**AR30V0R** AF97-69	Push-lock, turn-reset (65mm dia.with white arrow)	**AR30V1R** AF97-68	Push-lock, pull-reset (35mm dia.)	**AR30Q2R** AF95-3
Push-lock, turn-reset (40mm dia.) *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. with white arrow)	**AR30V0L** AF97-75	Push-lock, turn-reset (40mm dia.)	**AR30V2L** AF95-2

Note: Provided with the ⊖→ (Direct opening action)

■ **Selector switches**

Operator	Type	Operator	Type	Operator	Type
Knob	**AR30PR, PCR**	Key	**AR30JR, JCR**	Key (Long durability)	**AR30JAR**
	AF95-13		AF95-15		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**	Dome with dimmer control	**DR30D1L**	Flush square (40mm sq. transparent lens)	**DR30M4M** *
	AF95-18		AF02-63		AF97-63
Extended round	**DR30E3L**	Flush square (34mm sq. transparent lens)	**DR30F4M** *		
	AF95-20		AF97-65		
Faceted	**DR30K0L**	Flush rectangular (Transparent lens)	**DR30F4N** *		
	AF95-19		AF97-64		

Note: With resistor unit and resistor types: Not approved standard
     * LED 12V AC type: Not approved standard

■ Joy stick selector switches
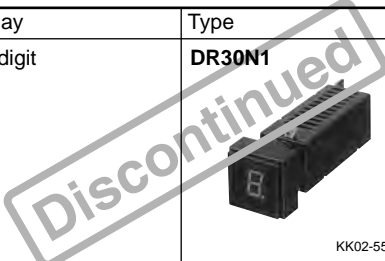
Handle	Type	Handle	Type	Handle	Type
Ball type	**AR30A0, A5**	Ball type with lock	**AR30A1, A6**	Rubber cap type	**AR30A2, A7**
🆄🆄Ⓒ⚠CE	AF97-48	🆄🆄Ⓒ⚠CE	AF97-44	🆄🆄Ⓒ⚠CE	AF97-57

■ Buzzers

Sound	Type	Sound	Type	Sound	Type
Electronic sound	**DR30B5***	Magnetic sound	**DR30B0**	Electronic sound (IP54)	**DR30B8 ***
ⓊⓁ Ⓒ	AF96-381			ⓊⓁ Ⓒ ⚠CE 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

Illuminated pushbuttons

<u>AR30</u> <u>E0L</u> – <u>10</u> <u>E3</u> <u>R</u> □
  ①   ②   ③   ④   ⑤ ⑥

① **Product category**
AR30: 30mm-dia. illuminated pushbutton
     30mm-dia. emergency stop illuminated pushbutton

② **Operator**
• Illuminated pushbutton
E0L: Extended round head
E5L: Extended round head (Alternate)
G4L: Extended with transparent full guard (24mm dia.)
G9L: Extended with transparent full guard (24mm dia. alternate)
G2L: Extended with full guard (24mm dia. with openings)
G7L: Extended with full guard (24mm dia. with openings, alternate)
G3L: Extended with full guard (24mm dia.)
G8L: Extended with full guard (24mm dia. alternate)
V5L: Push-lock, turn-reset (40mm dia. with white arrow) *1
Q7L: Push-pull
• Emergency stop illuminated pushbutton
V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
V2L: Push-lock, turn-reset (40mm dia.)

③ **Contact arrangement**

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

④ **Lamp voltage**
•Incandescent lamp
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 *2	A: Orange
W: White	S: Blue

⑥ **Special product**
Z9: Resisting water-soluble cutting oils and heat
Z8: With a contact protection cover
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standards
ZM: Metal nut

Notes: *1 Products with no trigger action mechanism. These products cannot be
       used as emergency stop switches that comply with EN standards.
    *2 Button color of emergency stop illuminated switches are Red only.
    • The manufacturing range varies depending on the model. For details,
      refer to the contents of this catalog.

Pushbuttons

AR30 E0R – 10 R ☐ ☐
 ①   ②   ③ ④ ⑤ ⑥

① Product category
AR30: 30mm-dia. pushbutton
     30mm-dia. emergency stop pushbutton

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

③ Contact arrangement

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

④ Color of button

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

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

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

⑥ Special product
Z9: Resisting water-soluble cutting oils and heat
Z8: With a contact protection cover
Z4: Resisting sulfuration gas
ZB: Meeting IP2X finger-protection standards
ZM: Metal nut

Notes: *1 Products with no trigger action mechanism. These products cannot be
      used as emergency stop switches that comply with EN standards.
    *2 Button color of emergency stop switches are Red only.
     • The manufacturing range varies depending on the model. For details,
      refer to the contents of this catalog.

Pushbuttons/Selectors/Pilot Lights/Buzzers
AR30 and DR30
Part number system

Selector and illuminated selector switches

AR30 PL – 2 ☐ 10 E3 G ☐ ☐
①　②　　③ ④　⑤　⑥⑦⑧　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   Y: Yellow
R: Red   A: Orange
W: White   S: Blue

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

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

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)
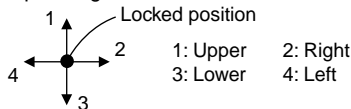7: Rubber cap type (without lock, spring return)

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

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)
0: Magnetic sound
8: Electronic sound (IP54)

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

④ **Color of head**
B: Black

■ **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

● **Mechanical durability**

Description		Operations
Pushbutton switch Illuminated pushbutton switch Emergency stop pusubutton switch Emergency stop illuminated pusubutton	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, 7, 8-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	DR30B5	DR30B6	DR30B0	DR30B8
Rated insulation voltage	Without transformer: 60V AC/DC With transformer: 250V AC *1			
Sound level	90dB (0.1m) 70dB (1m)			80dB (0.1m) 60dB (1.0m)
Durability	1000h		80h	1000h
Frequency	2.4 to 3.3kHz	1.9 to 2.5kHz		2.4 to 3.3kHz
Intermittent cycle	Approx. 170-cycle/min	–	–	Approx. 170-cycle/min
Current consumption	See the table below			
Dielectric strength	Without transformer: 1000V AC 1 minute With transformer: 2000V AC 1 minute *2			
Insulation resistance	100MΩ or more (500V DC megger)			
Pollution degree	3			
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1mm Constant: 16.7Hz, double amplitude 3.0mm			
Shock	Mechanical durability: 500m/s^2			
Ambient temperature	–20 to +60˚C (No condensation or no icing) (with resistor unit: –20 to +40˚C)			
Storage temperature	–30 to +70˚C			
Humidity	45 to 85%RH (within –5 to 40˚C)			
Degree of protection	IP00			IP54

Note: *1 DR30B0 (without transformer): 250V AC
　　　*2 DR30B0 (without transformer): 2000V AC 1 minute

·**Current consumption**

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

■ **Contact ratings**
· **UL/CSA standards**
AC (COS ∅=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) Rated operational current	DC13 (Ind. load) 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)	

AR30 and DR30
Ratings and specifications

■ Operating characteristic (1NO+1NC)

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

Notes: *1 AR30V2R type: 45N
　　　 *2 4-position, 5-position: 2NO+2NC

■ Lamp ratings
·Illuminated pushbuttons, illuminated selectors, pilot lights (round type)

Transformer	Lamp voltage	LED (lamp base: BA9S/13)			Incandescent (lamp base: BA9S/13)		
		Type	Rated voltage	Consumption	Type	Rated voltage	Consumption
Without transformer	5.5V AC/DC	—	—	—	AHX135	6.3V AC/DC	0.9W
	6V AC	APX510-6□	6V AC	Green, red, orange, amber: 7mA AC Yellow: 26mA AC Blue: 16mA AC	—	—	—
	6V DC	APX510-D6□	6V DC	Green, red, orange, amber: 11mA DC Yellow: 33mA DC Blue: 22mA DC	—	—	—
	12V AC/DC	APX510-12□	12V AC/DC	14mA AC, 11mA DC	—	—	—
	15V AC/DC	APX510-15□	15V AC/DC	13mA AC, 11mA DC	AHX279	18V AC/DC	0.8W
	20V AC/DC	—	—	—	AHX144	24V AC/DC	0.9W
	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 127V AC 220V AC	APX510-6□	6V AC	1.5VA	AHX135	6.3V AC/DC	2VA 2VA 2VA
	254V AC 380V AC 440V AC 480V AC 550V AC	APX510-6□	6V AC	2.5VA	AHX135	6.3V AC/DC	2.5VA 2.5VA 2.5VA 2.5VA 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*
　　　All crossed out items are discontinued.

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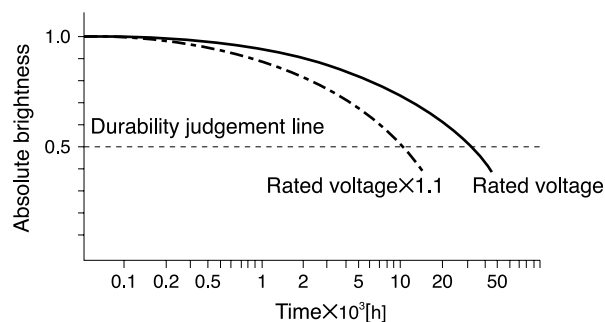
Notes: • Durability at Ta=25°C
       • Durability is affected by temperature, humidity, and voltage fluctuation.

Incandescent lamp voltage characteristics
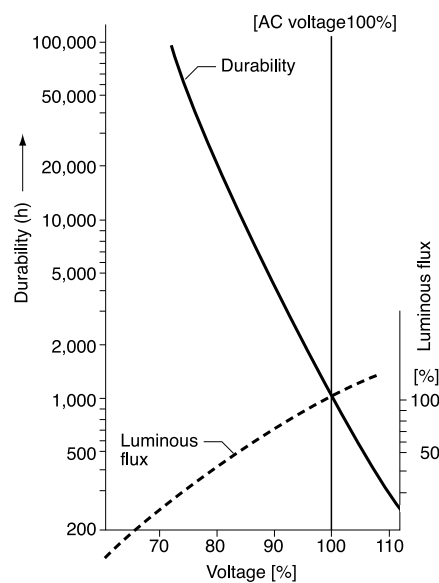
Combination of lens color and LED luminous color

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	–	–	–	–

Notes: *1 For pilot light with resistor
       *2 For DR30F4M type
       *3 For DR30F4N type
       *4 For DR30M4M type
       All crossed out items are discontinued.

       • Replace the ■ mark by the lamp voltage code, *see page 68, 69*

■ Illuminated pushbutton switches

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

Note: ■ □ *See page 72*

Illuminated Pushbuttons
AR30

·Lens color
Replace the □ mark by the lens color code

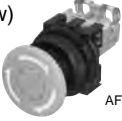| Color	Green	Red	White	Blue	Yellow	Orange
Code	G	R	W	S	Y	A

Note: AR30V5L type: Red, yellow only

·Contact arrangements
Contact arrangements other than above are available

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

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

Note: AR30Q7L type: 1NO + 1NC only

Available numbers of contact blocks

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

·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

·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)

Lamp terminal

Operator

Name plate side
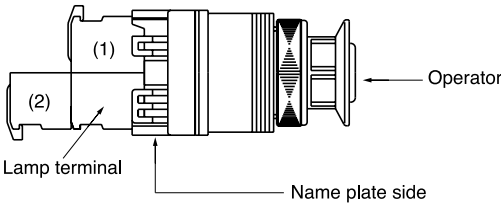
AR30Q7L (with transformer)

Transformer

Operator

Name plate side

■ Pushbutton switches

Operator	Contact	Momentary action Type	Alternate action Type	Operator	Contact	Momentary action Type	Alternate action Type
Flush round head AF95-11	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30F0R-10□** **AR30F0R-01□** **AR30F0R-11□** **AR30F0R-20□** **AR30F0R-02□** **AR30F0R-22□**	**AR30F5R-10□** **AR30F5R-01□** **AR30F5R-11□** **AR30F5R-20□** **AR30F5R-02□** **AR30F5R-22□**	Extended with half guard AF95-9	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30G0R-10□** **AR30G0R-01□** **AR30G0R-11□** **AR30G0R-20□** **AR30G0R-02□** **AR30G0R-22□**	**AR30G5R-10□** **AR30G5R-01□** **AR30G5R-11□** **AR30G5R-20□** **AR30G5R-02□** **AR30G5R-22□**
Extended round head AF95-10	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30E0R-10□** **AR30E0R-01□** **AR30E0R-11□** **AR30E0R-20□** **AR30E0R-02□** **AR30E0R-22□**	**AR30E5R-10□** **AR30E5R-01□** **AR30E5R-11□** **AR30E5R-20□** **AR30E5R-02□** **AR30E5R-22□**	Pin lock AF96-240	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30GPR-10□** **AR30GPR-01□** **AR30GPR-11□** **AR30GPR-20□** **AR30GPR-02□** **AR30GPR-22□**	— — — — — —
Flush round head symbol mark type AF98-195	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30FAR-10C■** **AR30FAR-01C■** **AR30FAR-11C■** **AR30FAR-20C■** **AR30FAR-02C■** **AR30FAR-22C■**	**AR30FBR-10C■** **AR30FBR-01C■** **AR30FBR-11C■** **AR30FBR-20C■** **AR30FBR-02C■** **AR30FBR-22C■**	Mushroom head with full guard (40mm dia.) AF95-17	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30M3R-10□** **AR30M3R-01□** **AR30M3R-11□** **AR30M3R-20□** **AR30M3R-02□** **AR30M3R-22□**	**AR30M8R-10□** **AR30M8R-01□** **AR30M8R-11□** **AR30M8R-20□** **AR30M8R-02□** **AR30M8R-22□**
Extended round head symbol mark type AF98-194	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30EAR-10C■** **AR30EAR-01C■** **AR30EAR-11C■** **AR30EAR-20C■** **AR30EAR-02C■** **AR30EAR-22C■**	**AR30EBR-10C■** **AR30EBR-01C■** **AR30EBR-11C■** **AR30EBR-20C■** **AR30EBR-02C■** **AR30EBR-22C■**	Mushroom head with full guard (35mm dia. metal nut) AF96-239	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30GSR-10□** **AR30GSR-01□** **AR30GSR-11□** **AR30GSR-20□** **AR30GSR-02□** **AR30GSR-22□**	— — — — — —
Mushroom head (40mm dia.) AF95-12	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30M0R-10□** **AR30M0R-01□** **AR30M0R-11□** **AR30M0R-20□** **AR30M0R-02□** **AR30M0R-22□**	**AR30M5R-10□** **AR30M5R-01□** **AR30M5R-11□** **AR30M5R-20□** **AR30M5R-02□** **AR30M5R-22□**	Giant head AF95-579	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30B0R-10□** **AR30B0R-01□** **AR30B0R-11□** **AR30B0R-20□** **AR30B0R-02□** **AR30B0R-22□**	— — — — — —
Mushroom head (29mm dia.) AF95-8	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30M4R-10□** **AR30M4R-01□** **AR30M4R-11□** **AR30M4R-20□** **AR30M4R-02□** **AR30M4R-22□**	— — — — — —	Giant head with guard AF95-582	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30B1R-10□** **AR30B1R-01□** **AR30B1R-11□** **AR30B1R-20□** **AR30B1R-02□** **AR30B1R-22□**	— — — — — —
Extended with full guard (24mm dia.) AF95-16	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30G1R-10□** **AR30G1R-01□** **AR30G1R-11□** **AR30G1R-20□** **AR30G1R-02□** **AR30G1R-22□**	**AR30G6R-10□** **AR30G6R-01□** **AR30G6R-11□** **AR30G6R-20□** **AR30G6R-02□** **AR30G8R-22□**	Giant head with full guard AF95-580	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30B2R-10□** **AR30B2R-01□** **AR30B2R-11□** **AR30B2R-20□** **AR30B2R-02□** **AR30B2R-22□**	— — — — — —

Note: ■ □ *See page 74*

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

Operator	Contact	Momentary action Type	Alternate action Type
Push-lock, turn-reset (40mm dia. with white arrow) AF97-69	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	— — — — — —	**AR30V5R-10**☐ **AR30V5R-01**☐ **AR30V5R-11**☐ **AR30V5R-20**☐ **AR30V5R-02**☐ **AR30V5R-22**☐
Pushbutton with emergency operating cap AF96-187	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30FVR-10**☐ **AR30FVR-01**☐ **AR30FVR-11**☐ **AR30FVR-20**☐ **AR30FVR-02**☐ **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 Red Black White Yellow Orange Blue	**AR30S1R-22G** **AR30S1R-22R** **AR30S1R-22B** **AR30S1R-22W** **AR30S1R-22Y** **AR30S1R-22A** **AR30S1R-22S**	(1) (2) (3) (4)	NC NC NO NO	— — — —	— — ● ●	● ● — —	— — ● ●
	2NO	Green Red Black White Yellow Orange Blue	**AR30S2R-20G** **AR30S2R-20R** **AR30S2R-20B** **AR30S2R-20W** **AR30S2R-20Y** **AR30S2R-20A** **AR30S2R-20S**	(1) (2)	NO NO	— —	● —	— —	— ●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR30S2R-22G** **AR30S2R-22R** **AR30S2R-22B** **AR30S2R-22W** **AR30S2R-22Y** **AR30S2R-22A** **AR30S2R-22S**	(1) (2) (3) (4)	NC NC NO NO	● ▬▬ — —	— ▬▬ ● —	▬▬ ● — —	▬▬ — — ●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR30S3R-22G** **AR30S3R-22R** **AR30S3R-22B** **AR30S3R-22W** **AR30S3R-22Y** **AR30S3R-22A** **AR30S3R-22S**	(1) (2) (3) (4)	NC NC NO NO	— ▬▬ — —	— ▬▬ ● —	▬▬ — — —	▬▬ — — ●
	2NO+2NC	Green Red Black White Yellow Orange Blue	**AR30S6R-22G** **AR30S6R-22R** **AR30S6R-22B** **AR30S6R-22W** **AR30S6R-22Y** **AR30S6R-22A** **AR30S6R-22S**	(1) (2) (3) (4)	NC NC NO NO	● ● — —	— — ● ●	— — ● ●	Locked

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

● Contact closed
— Contact open

·**Position of contact block**

(3)	(1)
(4)	(2)

← Operator

Name plate side

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

Note: Button color: Red only

·Contact arrangements

Contact arrangements other than above are available

| Contact arrangement	1NO	1NO+1NC	2NC	3NC	2NO+2NC	4NC	1NO+3NC
Code	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. with white arrow) AF97-75	Without	1NC 1NO+1NC 2NC 1NO+2NC 3NC	**AR30V0L-01■3R** **AR30V0L-11■3R** **AR30V0L-02■3R** **AR30V0L-12■3R** **AR30V0L-03■3R**	**AR30V0L-01■4R** **AR30V0L-11■4R** **AR30V0L-02■4R** **AR30V0L-12■4R** **AR30V0L-03■4R**
	With	1NC 1NO+1NC 2NC	**AR30V0L-01■3R** **AR30V0L-11■3R** **AR30V0L-02■3R**	**AR30V0L-01■4R** **AR30V0L-11■4R** **AR30V0L-02■4R**
Push-lock, turn-reset (40mm dia.) AF95-2	Without	1NC 1NO+1NC 2NC 3NC	**AR30V2L-01■3R** **AR30V2L-11■3R** **AR30V2L-02■3R** **AR30V2L-03■3R**	**AR30V2L-01■4R** **AR30V2L-11■4R** **AR30V2L-02■4R** **AR30V2L-03■4R**
	With	1NC 1NO+1NC 2NC	**AR30V2L-01■3R** **AR30V2L-11■3R** **AR30V2L-02■3R**	**AR30V2L-01■4R** **AR30V2L-11■4R** **AR30V2L-02■4R**

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

·Voltage
Replace the ■ mark by the lamp voltage code

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

Transformer		Code LED	Incandescent
With	100-110V AC 115-127V AC 200-220V AC 230-254V AC 350-380V AC 400-440V AC 480V AC 500-550V AC	H L M Q S T V W	H L M Q S T V 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 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30PR-210B AR30PR-201B AR30PR-211B AR30PR-220B AR30PR-202B AR30PR-222B**	1NO (1)	Upper contact ③ ━━━●━ ④
	Spring return 60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30PR-010B AR30PR-001B AR30PR-011B AR30PR-020B AR30PR-002B AR30PR-022B**	1NC (1)	Upper contact ① ━●━━━ ②
Lever AF95-14	Maintained each 90°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30WR-210B AR30WR-201B AR30WR-211B AR30WR-220B AR30WR-202B AR30WR-222B**	1NO+1NC (1) (2)	Upper contact ③ ━━━●━ ④ Lower contact ① ━●━━━ ②
	Spring return 60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30WR-010B AR30WR-001B AR30WR-011B AR30WR-020B AR30WR-002B AR30WR-022B**	2NO+2NC (1) (3)	Upper contact ③ ━━━●━ ④ ③ ━━━●━ ④
Key AF95-15	Maintained each 90°	■: Key removable position ( ): Key type *See page 04/83*	1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30J☐R-2■10( ) AR30J☐R-2■01( ) AR30J☐R-2■11( ) AR30J☐R-2■20( ) AR30J☐R-2■02( ) AR30J☐R-2■22( )**	(2)	Lower contact ① ━●━━━ ②
	Spring return 60°		1NO 1NC 1NO+1NC 2NO 2NC 2NO+2NC	**AR30J☐R-0A10( ) AR30J☐R-0A01( ) AR30J☐R-0A11( ) AR30J☐R-0A20( ) AR30J☐R-0A02( ) AR30J☐R-0A22( )**	(4)	① ━●━━━ ②

Upper contact
(3) (1) ← Operator
(4) (2) ← Name plate side
Lower contact

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

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

• Contact arrangements: *See page 80*

● Contact closed

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

3-position

Operator	Operation	Knob color	Contact	Type Switch with round bezel	Contact arrangement	Operation position L C R	Operation position L C R
Knob	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	Lower contact
	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	Lower contact
	Spring return each 45˚		2NO+2NC	**AR30PR-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact	Lower contact
Lever	Maintained each 45˚		1NO+1NC 2NO 2NC 2NO+2NC	**AR30WR-311B** **AR30WR-320B** **AR30WR-302B** **AR30WR-322B**	1NO+1NC (1) (2)	Upper contact	Lower contact
	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	Lower contact
	Spring return each 45˚		2NO+2NC	**AR30WR-122B**	2NO+2NC (1) (2) (3) (4)	Upper contact	Lower contact

AF95-13

AF95-14

Note: • Contact arrangements: *See page 80*   ● Contact closed

Selector Switches
AR30

Operator	Operation	Key removable position	Contact	Type Switch with round bezel	Contact operation (Example)		
					Contact arrange-ment	Operator position	
						L C R ⊘ ① ⊘	L C R ⊘ ① ⊘
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
	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
AF95-15	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

Upper contact
(3) (1)
(4) (2)
← Operator
Lower contact
Name plate side

· 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
AR30

■ **Selector switches (control type)**

3-position

Operator	Operation	Knob color or key removable position	Contact arrangement	Type Switch with round bezel
Knob	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**
AF95-475	Spring return ↻ each 45°			**AR30PCR-1■B**
Lever	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**
KK02-140A	Spring return ↻ each 45°			**AR30WCR-1■B**
Key	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□■( )**
AF95-474	Spring return ↻ each 45°			**AR30JCR-1E■( )**

· **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°
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.

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· **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			●

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

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

· **Position of contact block**

Name plate side

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

Contact arrange-ment	Contact arrange-ment 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 arrange-ment	Contact arrange-ment 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 arrangement	Contact arrangement 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**

(3)	(1)
(4)	(2)

← Operator

Name plate side

Operator position

4-position   **5-position**

2 3 40°   2 3 4 30°
1   4   1   5

■ **Illuminated selector switches**
2-position

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

AF95-5

3-position

Operator	Operation		Contact	LED lamp		Incandescent lamp	
				Transformer	Type	Transformer	Type
Knob	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		1NO+1NC 1NO+1NC	Without With	**AR30PL-611■3□** **AR30PL-611■3□**	Without With	**AR30PL-611■4□** **AR30PL-611■4□**
	each 45˚		1NO+1NC 1NO+1NC	Without With	**AR30PL-711■3□** **AR30PL-711■3□**	Without With	**AR30PL-711■4□** **AR30PL-711■4□**

AF95-5

Note: □, ■ *See page 86*

Illuminated Selector Switches
AR30

· Replace the ■ mark by the following lamp voltage code

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

· Replace the □ mark by the following knob color code

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

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

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

● **Contact arrangement and operator position**

2-position

Transformer	Contact arrangement	Contact block Mounting position	Type	Operator position 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 Mounting position	Type	Operator position 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

Lamp terminal   Name plate side

With transformer

Transformer   Name plate side

■ **Pilot lights/standard**

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

Note: □ *See page 88*

Pilot Lights
DR30

■ Pilot lights/short-body with transformer

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

• 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	–	–

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

・ **Color plate**

Replace the □ mark by the following color plate color code

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

Note: * Incandescent lamp only

・ **Lamp voltage**

Available lamp voltage are as follow.

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

■ Joy stick selector switches

Handle	Terminal	Operating directions	Contact arrangement	Type Manual return	Type 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.

① Upper
④ Left ← ● → ② Right
③ Lower

・**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**
			6V DC	**DR30B5-6B**
			12 to 24V AC/DC	**DR30B5-EB**
			35 to 48V AC/DC	**DR30B5-FB**
		With	100 to 110V AC	**DR30B5-HB**
			200 to 220V AC	**DR30B5-MB**
		With resistor unit	100 to 110V DC	**DR30B5-1B**
Electronic sound (economy) KK02-145A	• Sound level: 90dB (0.1m) 70dB (1m)	Without	6V DC	**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**
			6V DC	**DR30B8-6B**
			12 to 24V AC/DC	**DR30B8-EB**
			35 to 48V AC/DC	**DR30B8-FB**
		With	100 to 110V AC	**DR30B8-HB**
			200 to 220V AC	**DR30B8-MB**
		With resistor unit	100 to 110V DC	**DR30B8-1B**

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

■ **Dimensions, mm**

● **Illuminated pushbuttons**

Extended

With transformer
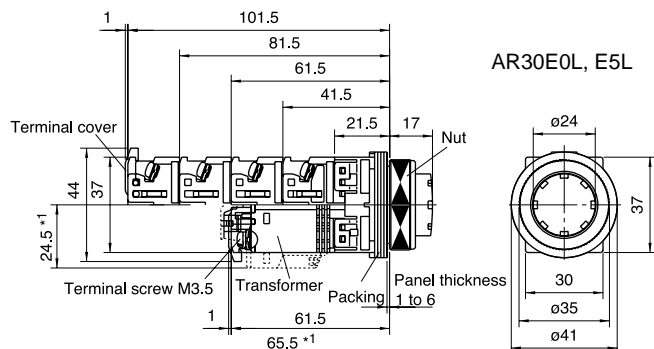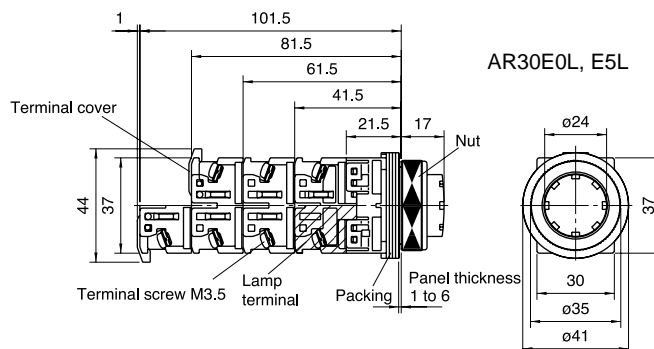
Without transformer

AR30E0L, E5L

AR30E0L, E5L

Extended with transparent full guard (24mm dia.)

AR30G4L, G9L

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

AR30G2L, G7L

Extended with full guard (24mm dia.)

AR30G3L, G8L

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

93
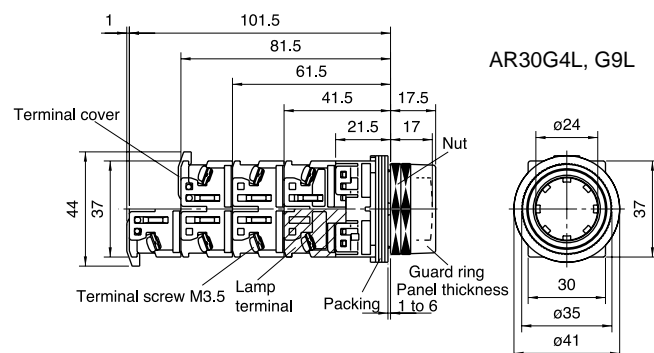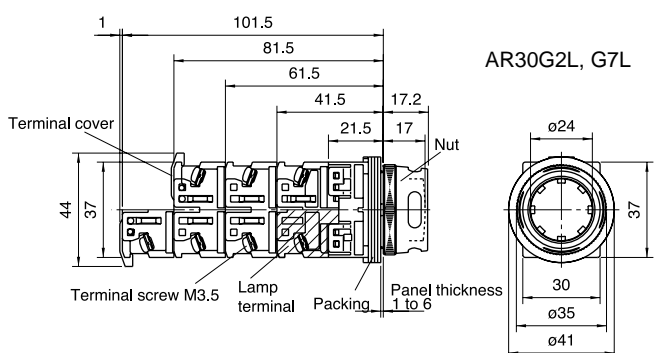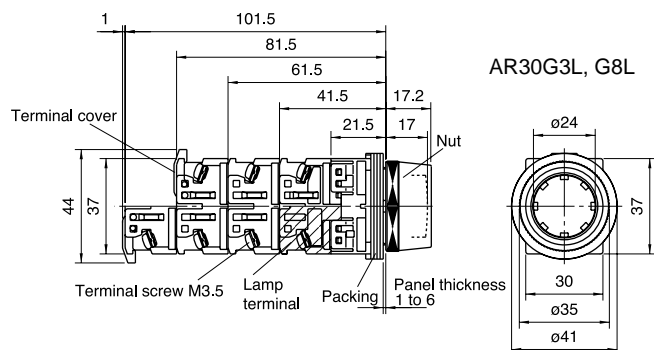
■ **Dimensions, mm**

● **Illuminated pushbuttons**

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

Without transformer

AR30V5L

AR30V5L
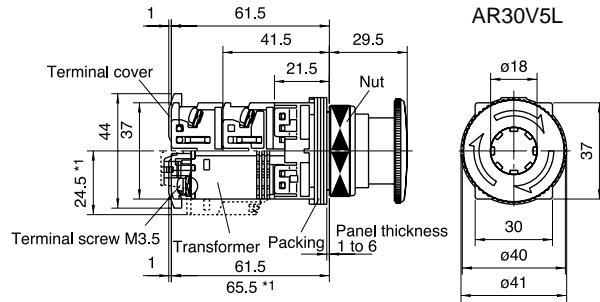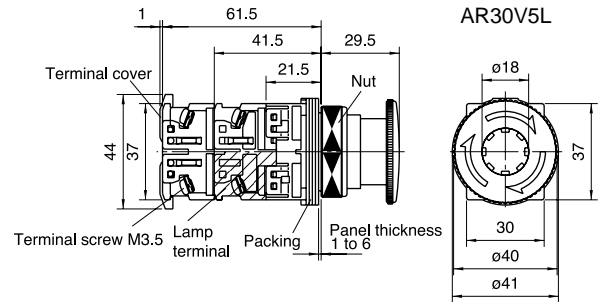
Push-pull
With transformer
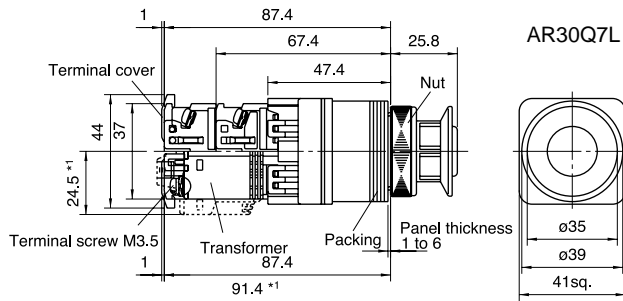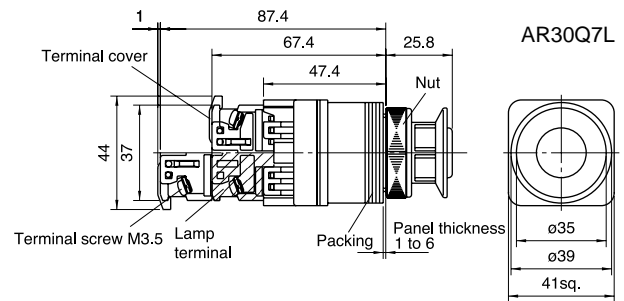
Without transformer

AR30Q7L

AR30Q7L

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

■ **Dimensions, mm**

● **Pushbuttons**

Flush/Extended
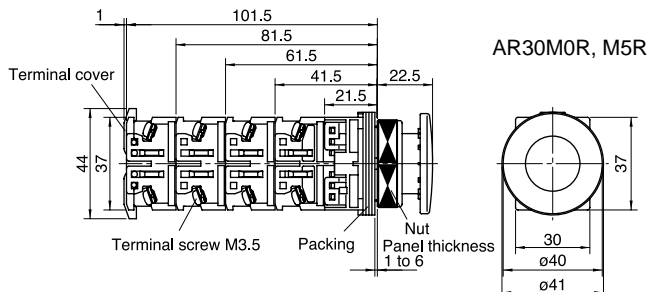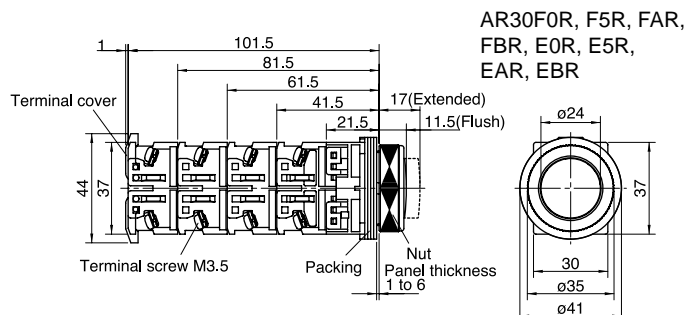
AR30F0R, F5R, FAR,
FBR, E0R, E5R,
EAR, EBR

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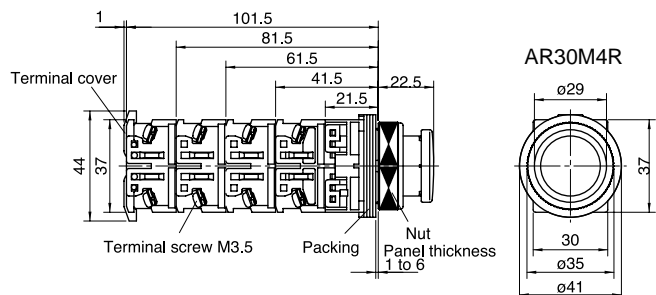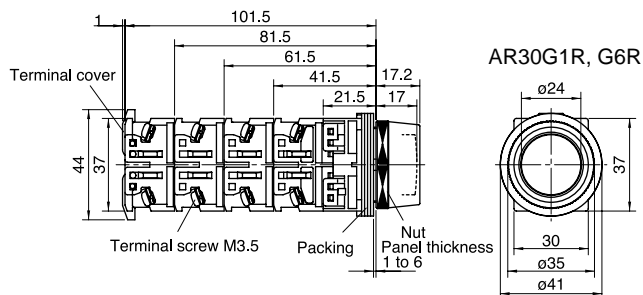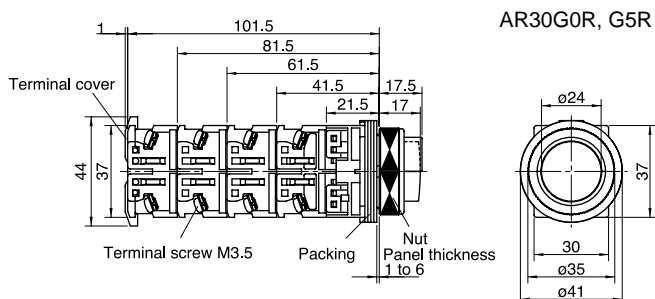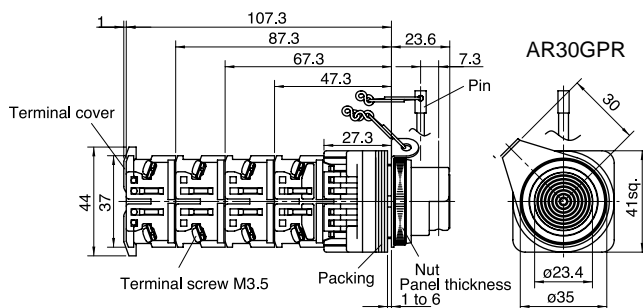
Note:
The enclosed pin can be inserted to lock the pushbutton in a pushed
or not pushed state.

Mushroom with full guard (40mm dia.)

AR30M3R, M8R

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

AR30GSR

■ Dimensions, mm
● Pushbuttons
Giant

AR30B0R

Terminal cover
1 · 107.3 · 87.3 · 67.3 · 47.3 · 27.3 · 27.6
44 · 37
Terminal screw M3.5 · Packing
Nut
Panel thickness 1 to 6
41sq.
ø65

Giant with guard

AR30B1R

Terminal cover
1 · 107.3 · 87.3 · 67.3 · 47.3 · 27.3 · 27.6 · 18
44 · 37
Terminal screw M3.5 · Packing
Guard ring
Panel thickness 1 to 6
41sq.
ø65
ø75

Giant with full guard

AR30B2R

Terminal cover
1 · 107.3 · 87.3 · 67.3 · 47.3 · 27.3 · 33 · 27.6
44 · 37
Terminal screw M3.5 · Packing
Guard ring
Panel thickness 1 to 6
41sq.
ø65
ø75

Giant with full guard

AR30B3R

Terminal cover
1 · 107.3 · 87.3 · 67.3 · 47.3 · 27.3 · 29 · 27.6
44 · 37
Terminal screw M3.5 · Packing
Guard ring
Panel thickness 1 to 6
41sq.
ø65
ø75

Pushbutton with selector ring (2-position)

AR30S1R, S2R, S3R, S6R

Terminal cover
1 · 60 · 40 · 20 · 23
44 · 37
Terminal screw M3.5 · Packing
Nut
Panel thickness 1 to 6
ø32
ø35
37
ø24
30
ø41

Push, turn-lock

AR30N0R

Terminal cover
1 · 107.3 · 87.3 · 67.3 · 47.3 · 27.3 · 28.4
44 · 37
Terminal screw M3.5 · Packing
Nut
Panel thickness 1 to 6
41sq.
ø40

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

Terminal cover
1 · 61.5 · 41.5 · 21.5 · 29.5
44 · 37
Terminal screw M3.5 · Packing
Nut
Panel thickness 1 to 6
ø18
ø40
30
ø35
ø41

Emergency operating cap

AR30FVR

Terminal cover
1 · 101.5 · 81.5 · 61.5 · 41.5 · 21.5 · 15.5
44 · 37
Cap
(AHX539-1) [1]
Terminal screw M3.5 · Packing
Nut
Panel thickness 1 to 6
ø24.5
37
30
ø35
ø41
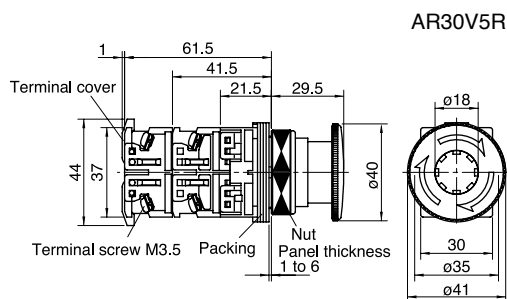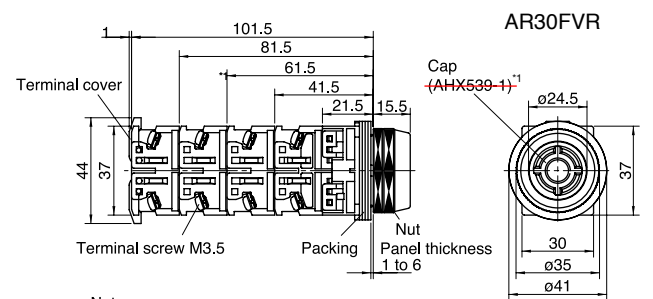
Note:
This is pushbutton switch is operated while holding the cap with the fingertips.
[1] AHX539-1 has been discontinued.

■ **Dimensions, mm**

● **Emergency stop pushbuttons**

Push-lock, turn-reset (40mm dia.)   **Push-lock, turn-reset** (65mm dia. with white allow)

AR30V0R, V2R

Terminal cover

44 37 1 61.5 41.5 21.5 29.5 28.5*

ø18 ø40 37 30 ø41

Terminal screw M3.5 Packing Nut Panel thickness 1 to 6

Note: * AR30V2R type

AR30V1R

Terminal cover

44 37 1 61.5 41.5 21.5 29.5

Terminal screw M3.5 Packing Nut Panel thickness 1 to 6

37 30 ø41 ø65

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

AR30Q2R

Terminal cover

44 37 1 41.5 21.5 28.5

ø35 37 30 ø41

Terminal screw M3.5 Packing Nut Panel thickness 1 to 6

● **Emergency stop illuminated pushbuttons**

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

With transformer   Without transformer

AR30V0L, V2L

Terminal cover Nut

44 37 24.5 *1 1 61.5 41.5 21.5 29.5 28.5 *2

ø18 37 30 ø40 ø41

Terminal screw M3.5 Transformer Packing Panel thickness 1 to 6

1 61.5 65.5 *1

AR30V0L, V2L

Terminal cover Nut

44 37 1 61.5 41.5 21.5 29.5 28.5*2

ø18 37 30 ø40 ø41

Terminal screw M3.5 Lamp terminal Packing Panel thickness 1 to 6

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

■ **Dimensions, mm**

● **Selector switches**

Knob   **Lever**
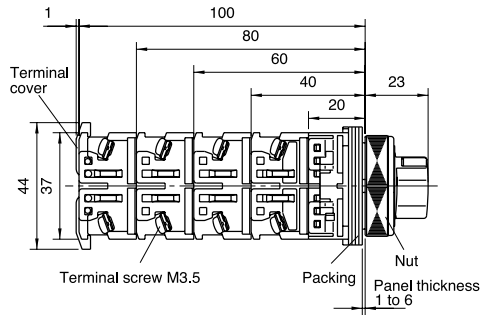
AR30PR, PCR
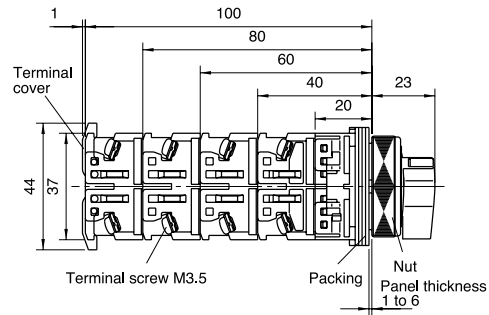
AR30WR, WCR

Key
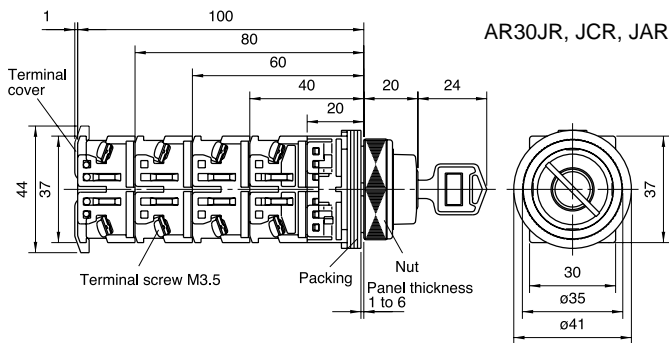
AR30JR, JCR, JAR

● **Illuminated selector switches**

Knob
With transformer
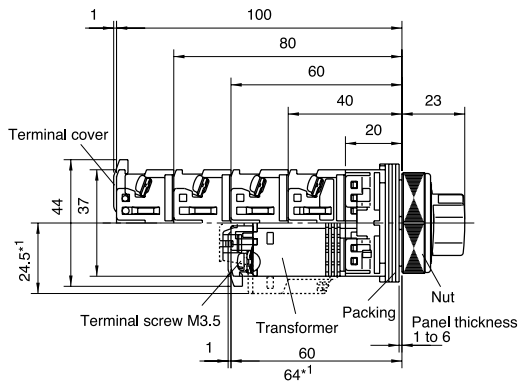
Without transformer

AR30PL
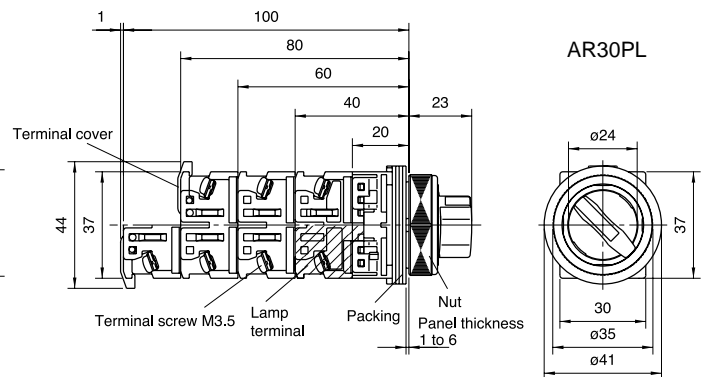
AR30PL

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

■ **Dimensions, mm**

● **Pilot lights**

Dome

With transformer, with resistor unit

Without transformer

| 1 | 57.5 | 20 |
61.5 *1
Terminal cover
Nut
Terminal screw M3.5   Transformer
Packing
Panel thickness 1 to 6

| 1 | 33 | 20 |
Terminal cover
Nut
Terminal screw M3.5
Packing
Panel thickness 1 to 6

DR30D0L

ø24
ø35
ø41

With resistor   LED, incandecent (50V DC)

| 100.5 | 25 |
115.5 *2
Nut
Terminal screw M4   Packing
Panel thickness 1 to 6
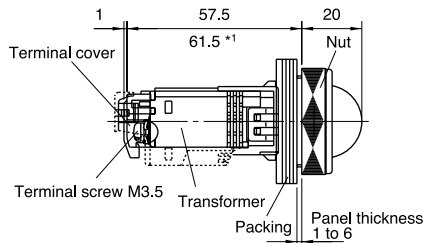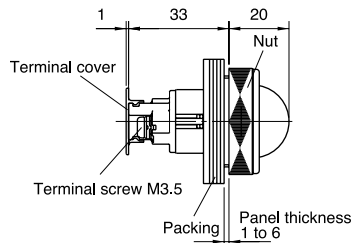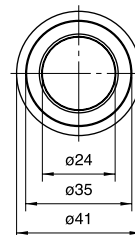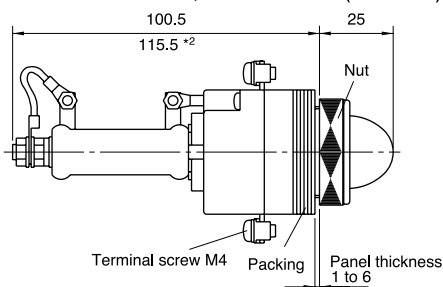
With resistor   Incandescent (110, 220V DC)
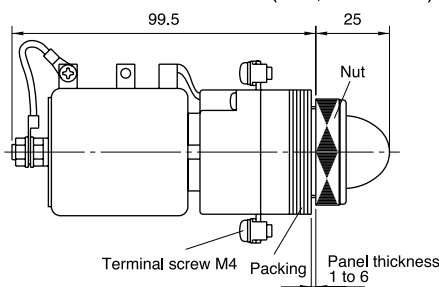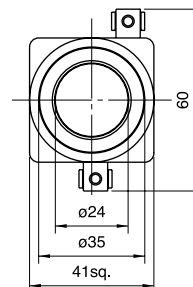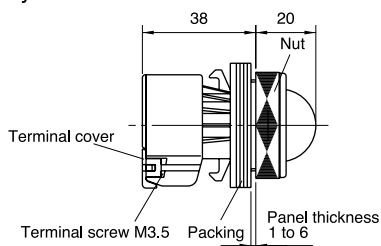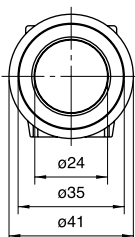
| 99.5 | 25 |
Nut
Terminal screw M4   Packing
Panel thickness 1 to 6

DR30D0L

60
ø24
ø35
41sq.

Short-body / with transformer

| 38 | 20 |
Nut
Terminal cover
Terminal screw M3.5   Packing
Panel thickness 1 to 6

DR30D0L

ø24
ø35
ø41

Extended

With transformer, with resistor unit

| 1 | 57.5 | 15 |
61.5 *1
Terminal cover
Nut
Terminal screw M3.5   Transformer
Packing
Legend plate ø19.7
Panel thickness 1 to 6

Without transformer

| 1 | 33 | 15 |
Terminal cover
Nut
Terminal screw M3.5
Packing
Legend plate ø19.7
Panel thickness 1 to 6

DR30E3L

ø24
ø35
ø41

Short-body / with transformer

| 38 | 15 |
Nut
Terminal cover
Terminal screw M3.5   Packing
Legend plate ø19.7
Panel thickness 1 to 6

DR30E3L

ø24
ø35
ø41
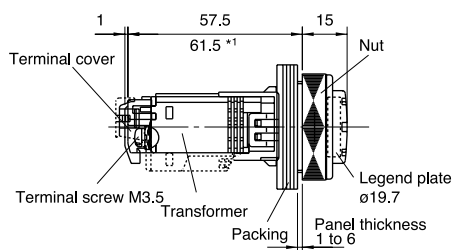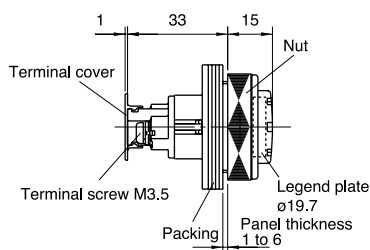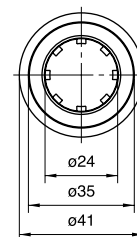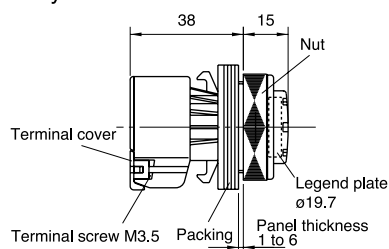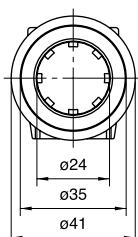
Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.
*2 Incandecent (50V DC) type only

■ **Dimensions, mm**

● **Pilot lights**

Faceted

With transformer, with resistor unit
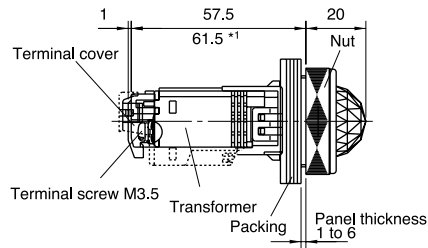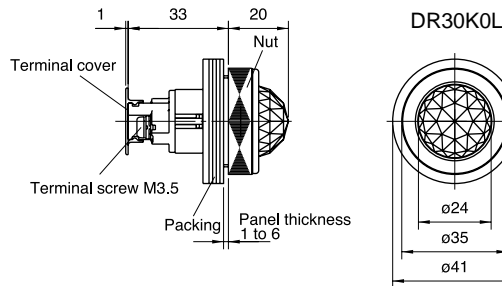
1   57.5   20
61.5 *1
Nut
Terminal cover
Terminal screw M3.5   Transformer
Packing   Panel thickness
1 to 6

Without transformer

1   33   20
Nut
Terminal cover
Terminal screw M3.5
Packing   Panel thickness
1 to 6

DR30K0L

ø24
ø35
ø41

With resistor   LED, incandescent (50V DC)

100.5   25
115.5 *2
Nut
Terminal screw M4   Packing   Panel thickness
1 to 6

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

99.5   25
Nut
Terminal screw M4   Packing   Panel thickness
1 to 6

DR30K0L

60
ø24
ø35
41sq.

Short-body / with transformer

38   20
Nut
Terminal cover
Terminal screw M3.5   Packing   Panel thickness
1 to 6

DR30K0L

ø24
ø35
ø41

Dome with dimmer control

68 *3
33 *4   32
Nut
Terminal cover
Terminal screw M3.5   Transformer
Packing   Rotating ring
Panel thickness
1 to 6

DR30D1L

ø24
ø41
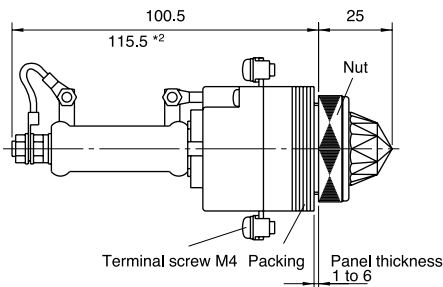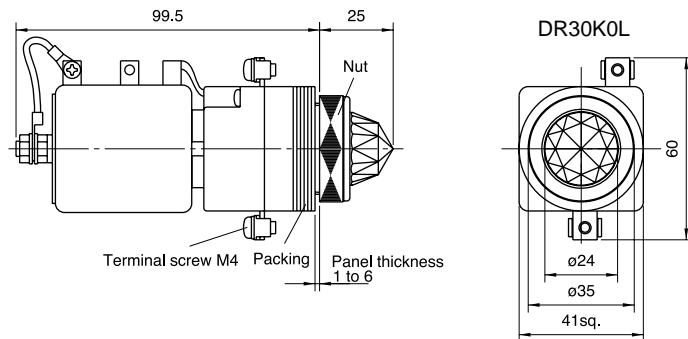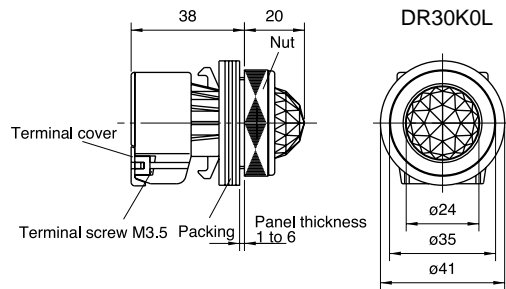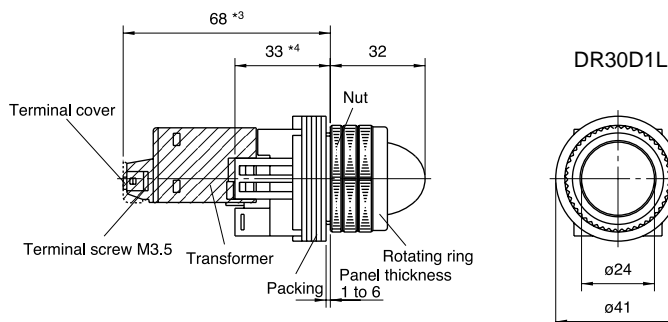
Notes: *1 Except for the types 110V AC, 127V AC and 220V AC.
*2 Incandecent (50V DC) type only
*3 With transformer, with resistor unit type only
*4 For without transformer types, add 1 mm when mounting
the terminal cover.

■ **Dimensions, mm**

● **Pilot lights**

Flush square (34mm sq. transparent lens)
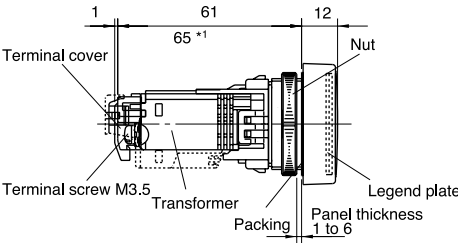
With transformer, with resistor unit

Without transformer

DR30F4M
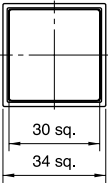
Terminal cover
Nut
Terminal screw M3.5
Transformer
Packing
Legend plate
Panel thickness 1 to 6

Terminal cover
Nut
Terminal screw M3.5
Packing
Legend plate
Panel thickness 1 to 6

30 sq.
34 sq.

Flush rectangular (Transparent lens)

With transformer, with resistor unit

Without transformer

DR30F4N

Terminal cover
Nut
Terminal screw M3.5
Transformer
Packing
Legend plate
Panel thickness 1 to 6

Terminal cover
Nut
Terminal screw M3.5
Packing
Legend plate
Panel thickness 1 to 6

36
40
30
34

Flush square (40mm sq. transparent lens)

With transformer, with resistor unit

Without transformer

DR30M4M

Terminal cover
Nut
Terminal screw M3.5
Transformer
Packing
Legend plate
Panel thickness 1 to 6

Terminal cover
Nut
Terminal screw M3.5
Packing
Legend plate
Panel thickness 1 to 6

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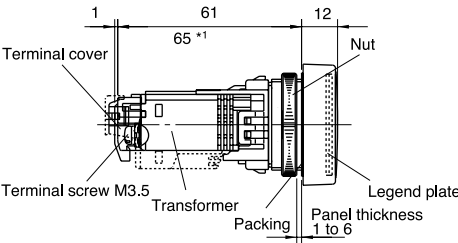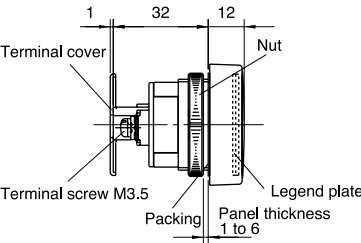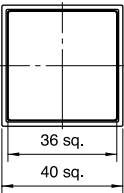
Note: *1 Except for the types 110V AC, 127V AC and 220V AC.

■ **Dimensions, mm**

● **Joy stick selector switches**

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

Direction [1] Direction [4]

Direction [2] Direction [3]

Terminal screw M3.5

Nameplate side

[1]
[4]   [2]
[3]
37sq.
ø41

20°
20°
ø25
Approx. 70

Panel thickness 1 to 6
68.5   Approx. 80
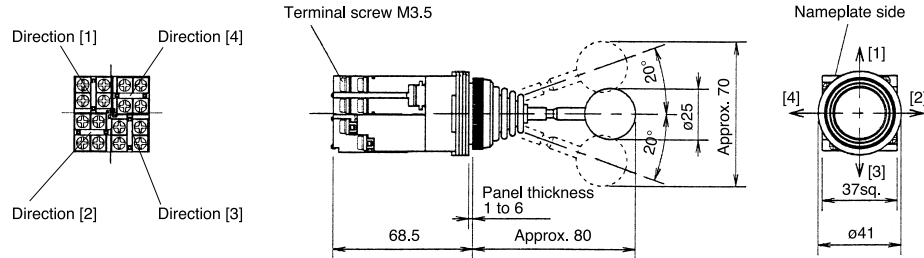
Ball type with lock
AR30A1N, A6N: Screw terminal
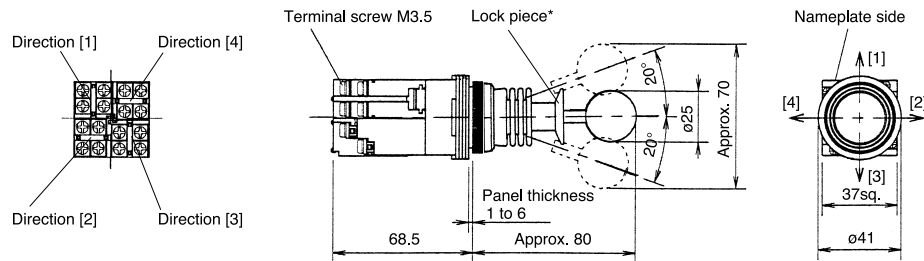
Direction [1] Direction [4]

Direction [2] Direction [3]

Terminal screw M3.5   Lock piece*

Nameplate side

[1]
[4]   [2]
[3]
37sq.
ø41

20°
20°
ø25
Approx. 70

Panel thickness 1 to 6
68.5   Approx. 80

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

Direction [1] Direction [4]

Direction [2] Direction [3]

Terminal screw M3.5

Nameplate side

[1]
[4]   [2]
[3]
37sq.
ø41

20°
20°
ø10
Approx. 60

Panel thickness 1 to 6
68.5   Approx. 76
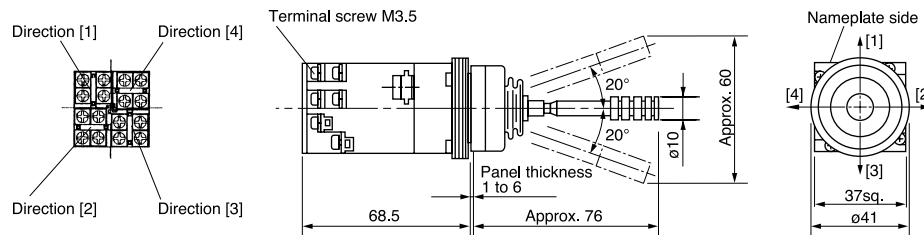
Solder/tab terminal: **AR30A□H**

Solder/tab terminal

53.5
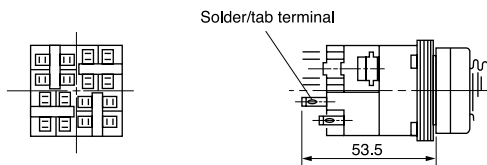
■ **Dimensions, mm**

● **Buzzers**

Electronic sound
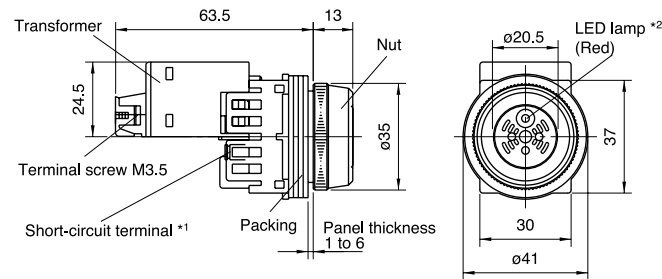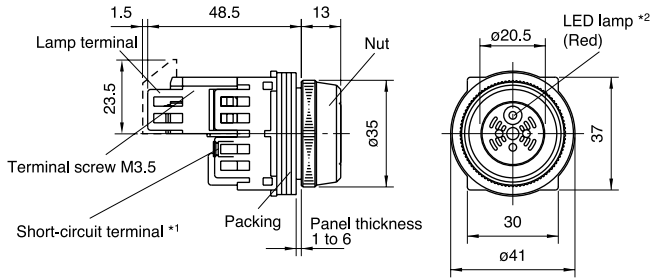
With transformer   DR30B5, B6   Without transformer   DR30B5, B6

Magnetic sound

DR30B0
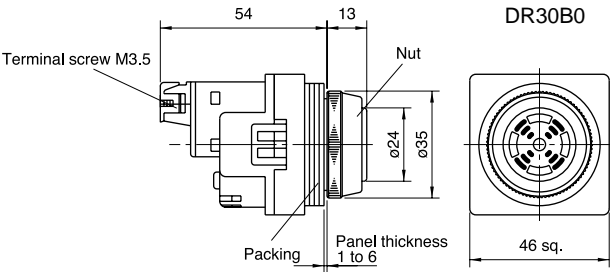
Electronic sound (IP54)

With transformer   DR30B8   Without transformer   DR30B8
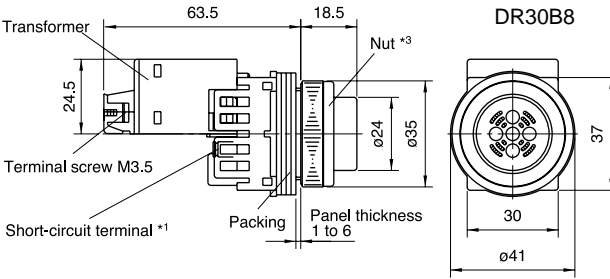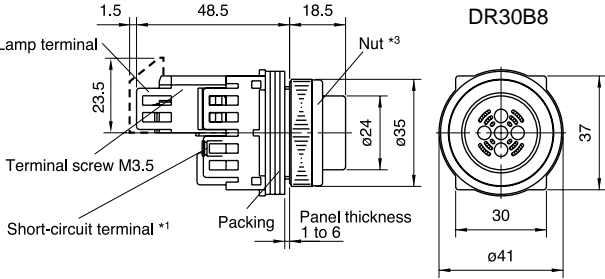
Notes: *1 There are no short-circuit terminals with DR30B6. (Continuous sound only)
　　　　*2 There are no LED lamps with DR30B6.
　　　　*3 The nut and cap are united with DR30B8.

Notes on use

■ Panel cutout hole

Fig. 1 Panel cutout hole dimensions, mm

$4.8^{+0.5}_{0}$mm

rmax=0.8mm

$33^{+0.5}_{0}$mm   ø$30.5^{+0.5}_{0}$mm
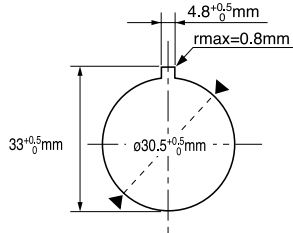
Note : If key-washer or legend plate are not used, 4.8mm-wide. location holes
shown in Fig. 1 need not be cutout.

■ 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

Operator

Panel

Nut

Wrench (AHX001)

AF95-465
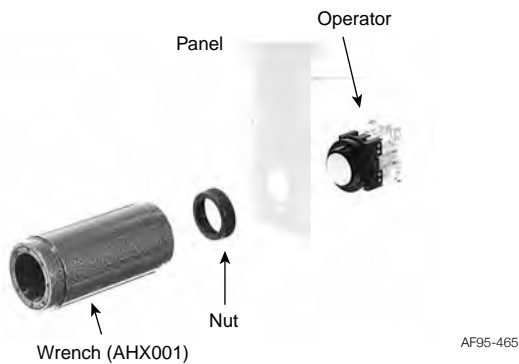
Note : Recommended tightening torque is from 1.5 to 2N·m.

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

Wrench
(AR9A005)

Wrench
(AR9A002)   Loosen

Tighten

Holes in center button

Button

C

Wrench
(AR9A004)

The center button can be attached or
removed using the C portion of the
AR9A004 tightening wrench as well.
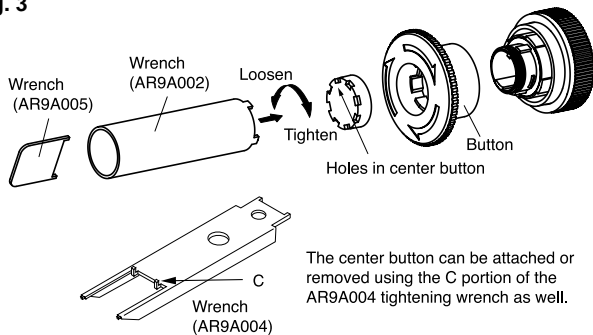
Insert the operator into the cutout hole from the back of the
panel, and as shown in Fig.4, insert the pushbutton into
the operator cylinder while aligning the grooves inside the
pushbutton with the protrusions on the operator.

Fig. 4 Setting pushbutton to operator cylinder

Pushbutton inside groove   Setting   Cylinder inside protrusion
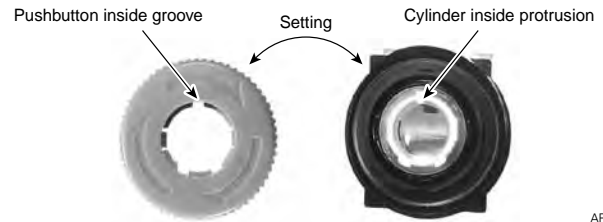
AF95-414

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   Small flathead screwdriver
(I-shaped, 4mm wide)

Selector tip groove
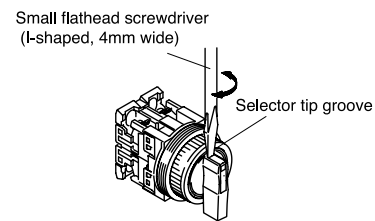
4. AR30M0R, M4R, M5R, B0R, Q7L
(1) Loosen the button by hand.
(2) Attach the operator in the same manner
as described in step 1.
(3) Screw in the button by hand, making
sure that the button is screwed in all the
way. (Recommended tightening torque:
0.3 to 0.5 N•m)

Fig. 6
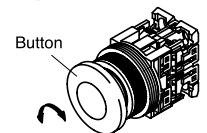
Button

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

Nut

Guard ring   Button
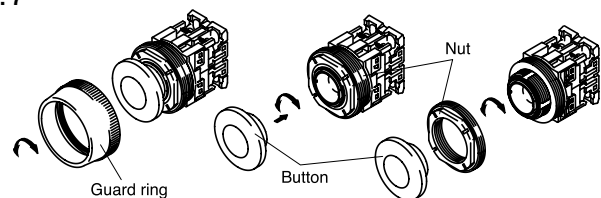
6. AR30N0R, V1R, Q2R

(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

Philips head screwdriver
(No. 2, 6-mm dia.)
Screw hole
Screw (M3.5)
Button
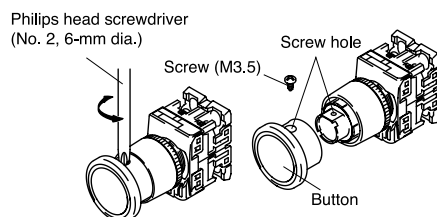
7. AR30GSR

(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

Guard ring
Button
Wrench
(AR9A001)
Packing
Panel
Indentations around
button center
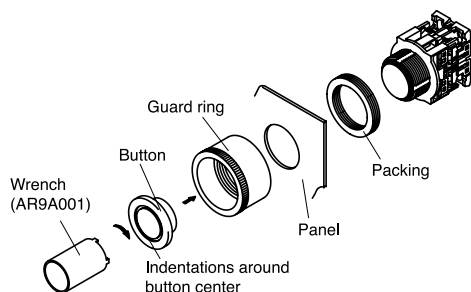
8. DR30F4M, F4N, M4M

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

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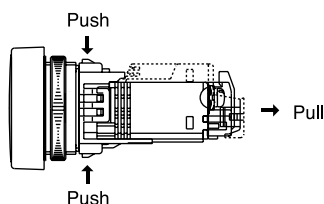
9. Mounting a 22mm-dia. command switch with a square button and a square bezel, or with a round button and a square bezel, to a panel cutout hole for a 30mm-dia. command switch using an adapter

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

Panel
Wrench
(AR9A004, section A)
22mm-dia. command switch
(with a square or round
pushbutton and a square bezel)
Adapter
Packing
Nut
Square adapter
(AR9Y003)
AF94-405
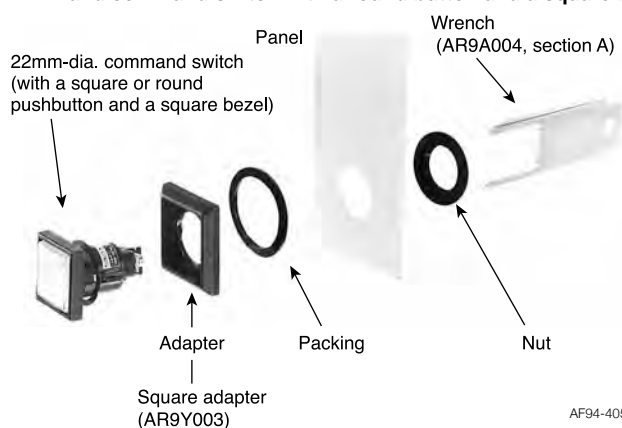
Note : • Recommended tightening torque is from 1 to 1.5N·m.
           • Panel thickness: 2.5 to 5mm

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

45°
Rosette
Selector tip
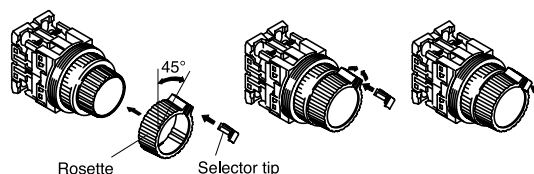
11. AR30A (joy stick selector)
(1) Remove the clamp ring as shown in the following figure.
(2) Attach the operator in the same manner as described in step 1.
Note: Even if a lock type is used, remove the clamp ring in the same manner.

Fig. 13
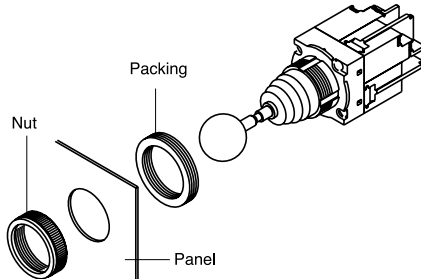
■ Water-proof and dust-proof cap
Applicable type: Water-proof cap   AHX052
                 Dust-proof cap   AHX032, 033, 034
                                      AHX113
                                      AHX157

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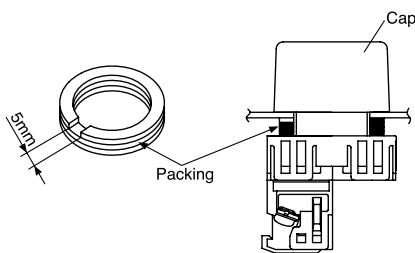
Degree of protection
The water-proof cap or dust-proof cap seals the panel surface to provide IP65 protection.

■ 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
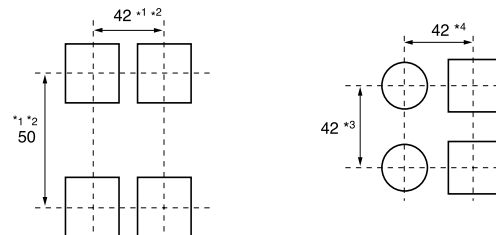
- Pilot light

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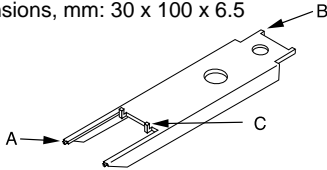
Other items are the same as for the AR22 and DR22 series, *see page 50 to 54.*

■ **Accessories**
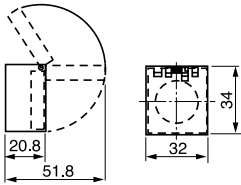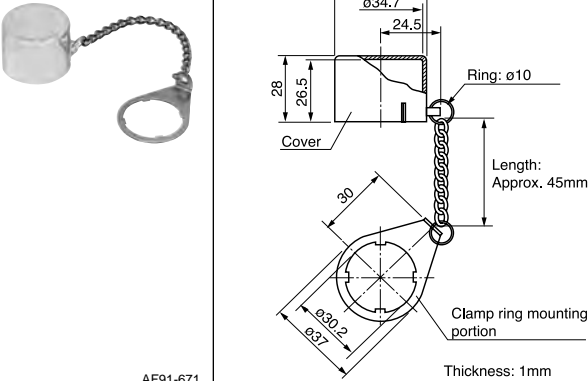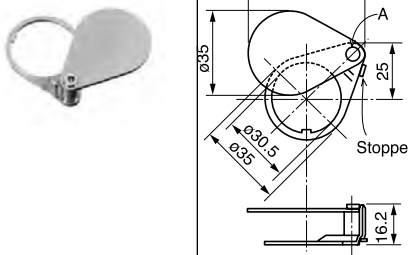
Description	Type
Wrench	**AR9A004** Dimensions, mm: 30 x 100 x 6.5 Remarks Section "A" Use this section to tighten the nut for mounting the operator on a panel. Section "B" Use this section to tighten or remove the lens. Applicable type: AR22F0L, F5L, E0L, E5L, F0P, F5P, E0P, E5P AR22G1L, G2L, G4L, G6L, 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) KK02-261
Wrench for AR22, DR22	**AR9A701** Dimensions, mm: ø28 x 70 Application: AR22, DR22 nut tightening
Wrench	**AHX536** Dimensions, mm: ø32 x 76 Application: DR30F4M, F4N, M4M, N1, N2 nut tightening KK02-097A
Wrench	**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 KK02-098A
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	**AHX701** Dimensions, mm: ø25 x 72.5 Application: DR22N, AR22VG nut tightening AF03-5
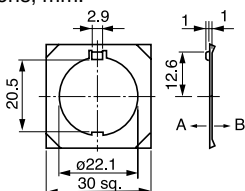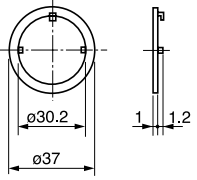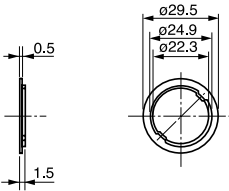
Description	Type
Wrench (for center button)	**AHX8003** Dimensions, mm: ø14 x 50 Attaching and removing the center button of the AR22VGF type. AF93-6
Wrench for AR22,30 and DR22, 30	**AR9A006** Dimensions, mm: ø40 x 100 For ø30 To mount an AR22, 30 or DR22, 30 command switch to a panel, use this wrench 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. For ø22 AF96-241
Wrench for AR30, DR30	**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. AF95-467
Special tool AHX321 DR9A321-T	**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. SG-873 AF95-21
Wrench/Lamp changer	**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 SI-1030
Lamp changer	**AHX790** Dimensions, mm: ø14 x 55 For BA9S/13 lamp • 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. For E12/15 lamp AF95-22
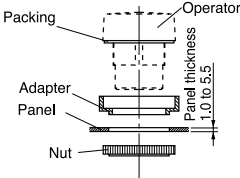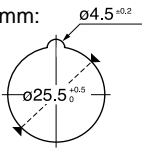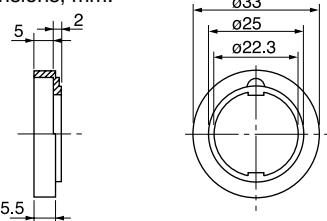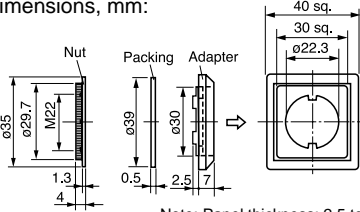
Description	Type
Protection cover	**AR9E760** This cover protects against accidental operation. The cover lid is returned home with a spring force. (Packing is provided) Used with: AR22F0L, F5L, E0L, E5L, F0M, F5M, E0M, E5M, F0P, F5P, E0P, E5P AR22F0R, F5R, E0R, E5R, F0S, F5S, E0S, E5S, E0Y, E5Y, F0Y, F5Y, FAR, FBR, EAR, EBR Dimensions, mm: AF95-29
Cover for preventing operating errors with 30mm dia. types	**AR9E538** Inadvertent operation can be prevented by fitting a transparent cover with chain in the clamp ring. Used with: AR30F0R, F5R, E0R, E5R, E0L, E5L Dimensions, mm: AF91-671
Cover for preventing operating errors with 30mm dia. types	**AHX408** This is a metallic cover for preventing inadvertent operation. Used with: AR30F0R, F5R Dimensions, mm: When attaching the cover to a vertical panel, if you attach it so that the portion indicated by an "A" is at the upper right, the stopper causes the cover to stop above the push button to halt further rotation. .AF93-420 The material is steel (zinc plated).

Description	Type
Key washer for AR22, DR22	**AR9Y715** Use this metal washer when securing a operator in a 22.3mm dia. panel cutout hole. Dimensions, mm: • When the periphery of the panel cutout has a hole to stop rotation, use with side A contacting the panel (except for Joy stick selector types). • Even when the periphery of the panel cutout does not have a hole to stop rotation, if used with side B contacting the panel it can serve as a washer for eliminating play (except for Joy stick selector types). AF95-25
Key washer for ø30	**AHX082** Use this metal washer when securing an operator in a 30.5mm dia. panel cutout hole. Dimension, mm: SC-1016
Operator base cover	**AR9Y002** Attach this cover to the operator base of a pushbutton switch with only one contact block (1NO or 1NC) to protect against dust. AF95-26
Adapter for AR22, DR22	**AR9Y718** Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel. Dimensions, mm: .AF95-28
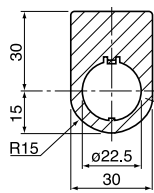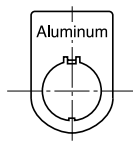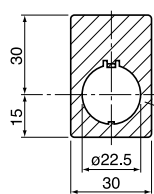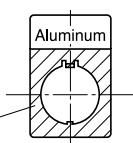
Description	Type
Adapter for AR22 and DR22	**AR9Y008** Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel. Mounting, mm:

Panel thickness 1.0 to 5.5

Operator
Packing
Adapter
Panel
Nut

Panel cutout, mm:

ø4.5 $^{+0.2}$

ø25.5 $^{+0.5}_{0}$

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:

ø33
ø25
ø22.3
5
2
5.5

AF98-198

Description	Type
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:

Nut   Packing   Adapter

40 sq.
30 sq.
ø22.3

ø35
ø29.7
M22
ø39
ø30

1.3
4
0.5
2.5
7

AF95-416

Note: Panel thickness: 2.5 to 5mm
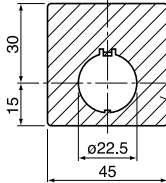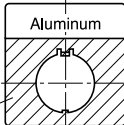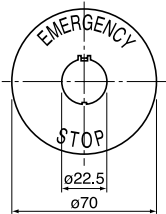
Description	Type
Round-frame adapter for 30mm dia. types	**AR9Y004** By using this adapter in combination with the round type 22mm dia. command switch, the 22mm dia. command switch can be used as a 30mm dia. command switch/round frame type. Used with: AR22, DR22 round types (except for M3R, M8R,VG□, Joy stick selectors, buzzers) Dimensions, mm

Nut   Packing   Adapter

ø35
ø29.7
M22
ø34
ø30.5
ø30
20.5
ø30
ø35
ø22.3

1.3
4
0.5
2.5
11.9

KK02-100A

Note: Panel thickness: 2.5 to 5mm

Description	Type
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.

Terminal cover
Nut for 30mm dia. [1]
Panel
Packing for 30mm dia. [1]
Adapter for 30mm dia. [1]
Packing for 22mm dia.
Operator
AR22 type number

[1] Adapter for 30mm dia. (AHX958)

Panel cutout, mm:

ø30.5 $^{+0.5}_{0}$

Dimensions, mm:

Adapter for 30mm dia.   Nut for 30mm dia.   Packing for 30mm dia.

ø41
ø20.5
ø35
ø41
ø30

ø30
1
6
8
1.6

AF93-4

Note: Panel thickness: 1 to 6mm
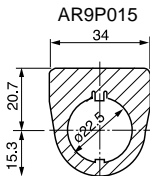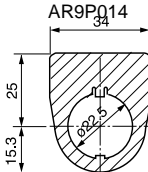
Description	Type	

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)

Legend plate for AR22 drawings

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

Dimensions, mm:

AR9P711-B   AR9P711-A

Aluminum

30
15
R15
Black
ø22.5
30

Thickness: 0.8mm

SI-1033

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)

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

Dimensions, mm:

AR9P712-B   AR9P712-A

Aluminum

30
15
Black
ø22.5
30

Thickness: 0.8mm

SI-1032

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)

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

Dimensions, mm:

AR9P713-B   AR9P713-A

Aluminum

30
15
Black
ø22.5
45

Thickness: 0.8mm

AF95-114

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)

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

Dimensions, mm:

AR9P719

EMERGENCY
STOP
ø22.5
ø70

Thickness: 0.8mm

KK02-265A

Note: Engraving for making letters is not available.

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

Optimal for use in combination with a 3-position selector switch.
Legend plates are available in two types: short, 36 mm; and long, 40.3mm.

Dimensions, mm:

AR9P015 AR9P014

34 34

20.7 25

ø22.5 15.3 ø22.5 15.3

.AF96-190 Thickness: 0.6mm

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
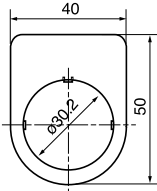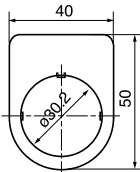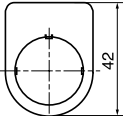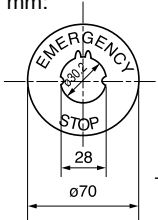
Dimensions, mm:

AR9P009 AR9P011

37 37
34 34
(Name plate) AR9P010 (Name plate) AR9P012
8 13
45 50
ø22.3 ø22.3
3 3.6

AR9P007

30 27 (Name plate) AR9P008
16 3
50
ø22.3
0.8 3.6
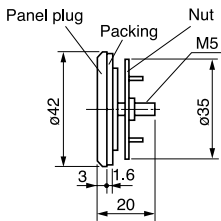
.AF96-190

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

Code	Material	Color
S	Brass	Silver
B	Aluminum	Black
A		Aluminum

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

Y-1545

AF89-466

AF87-49

Dimensions, mm:

AHX177

40
ø30.2 50

Thickness: 0.6mm

AHX177B AHX177-BS
AHX177A AHX177-AS

40
ø30.2 50 42

Thickness: 0.6mm

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

Dimensions, mm:

EMERGENCY
ø30.2
STOP
28
ø70 Thickness: 0.8mm

SK-598

Note: Engraving for making letters is not available.
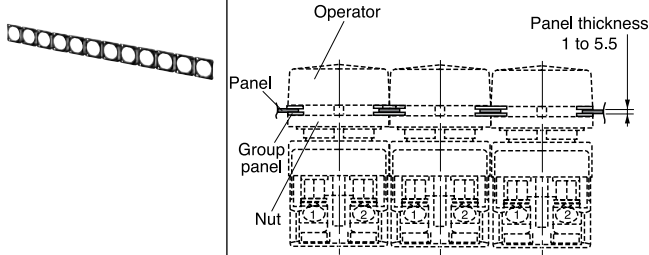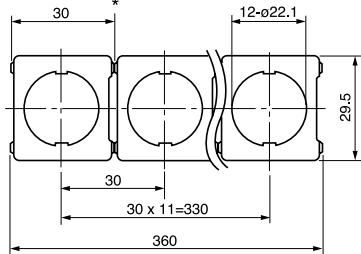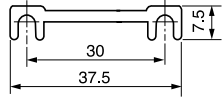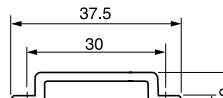
Description	Type
Panel plug for AR22 and DR22	Round: **AHX725-B**　　　Black **AHX725-H**　　　Gray Square: **AHX726-B**　　　Black **AHX726-H**　　　Gray Dimensions, mm: ø29.5 x 17 (AHX725) 　　　　　　　29.5 sq. x 17 (AHX726) Use this plug to cover up unused panel cutout holes. For oil proof usage, use together with packing (AR9Y730) and a nut (AR9R744).
SI-1027	
Panel plug for AR30 and DR30	**AHX004** Color: Silver (metal) This plug is used to cover up unused panel cutout hole. Dimensions, mm: Panel plug　Nut Packing　M5 ø42　ø35 3　1.6 20
T-1993	

Description	Type
Group panel for 22mm dia. type	**DR9Y004** These new 22mm dia. command switch/square types can be neatly aligned side by side on this group panel at a 30mm pitch to form a uniform panel face with no misalignment between mounted switches. Depending on the number of switches to be grouped (maximum 12), the panel can be divided (by cutting at the portion indicated by an asterisk (*)). Mounting, mm: (example showing a group of three) Operator　Panel thickness 1 to 5.5 Panel Group panel Nut Dimensions, mm: 30　*　12-ø22.1 29.5 30 30 x 11=330 360
AF97-233	Thickness: 0.8mm
Jumper	**APCX029** (For pilot light without transformer) **DR9Y001** (For pilot light with transformer) Use this jumper to connect terminals allocated in a 30mm pich. Rated current is 3A Dimensions, mm
AF95-153	APCX029 7.5 30 37.5 37.5 30 DR9Y001　9 7.5 Thickness: 0.5mm
AF95-27	

111

Description	Type		
Lens for illuminated pushbutton switch and pilot lights	**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

AF94-458

Description	Type		
Button for pushbutton switch	**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		
	~~AHX539-1~~* Cap for AR30FVR		

AF94-461

KK02-101A

KK02-102A

KK02-103A

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

Description	Type		
Center button (For V type)	**Type** Used with		
	AR9C020-R AR22V0R, V2R, VSR		
	AR30V0R, V2R		
	AR9C020-☐ AR22V5R, AR30V5R		
	AR9C018-R AR22V0L, V2L, VDL, VAL, VSL		
	AR30V0L, V2L		
	AR9C018-☐ AR22V5L*, AR30V5L*		

AF95-32

Replace the ☐ mark by the button color code

Color	Red	Black	Yellow
Code	R	B	Y

Note: * V5L: Red and yellow only

Description	Type		
Push-lock, turn-reset button (V and Q types)	**Type** Used with		
	AR9C008-R AR22V4R		
	AR9C010-R AR22Q2R, AR30Q2R		
	AR9C017-R AR22V2R, V2L, AR30V2R, V2L		
	AR9C019-R AR22VAL		
	AR9C021-R AR22V0R, V0L, AR30V0R, V0L		
	AR9C021-☐ AR22V5R, V5L*, AR30V5R, V5L*		
	AR9C026-R AR22VDL		
	AR9C029-R AR30V1R		
	AR9C040-R AR22VSR, VSL		

AF95-31

KK02-104A

Replace the ☐ mark by the button color code

Color	Red	Black	Yellow
Code	R	B	Y

Note: * V5L: Red and yellow only

Description	Type		
Knob	**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

AF95-43

Description	Type		
Lever	**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

AF95-42

Description	Type		
Cylindrical knob	**Type** Used with		
	AR9M008-☐ AR22RR, RCR, RY, RCY		

Replace the ☐ mark by the knob color code

Color	Black	Green	Red
Code	B	G	R

AF95-44

Note: *Product discontinued
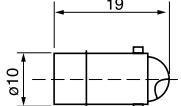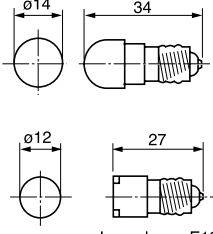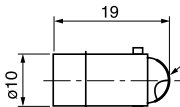
Description	Type		
Knob (for illuminated selector switch)	**Type** Used with		
	AR9M005-□ AR22PL, PP		
	AR30PL		
	Replace the □ mark by the knob color code		
	Color	Green	Red	White
	Code	G	R	W
	Color	Yellow	Orange	Blue
	Code	Y	A	S
AF94-465			

Key	**Type** Used with		
	AR9C022-□ AR22JR, JCR, AR30JR, JCR,		
	AR9C025-□ AR22JAR, AR30JAR		
	Replace the □ mark by the key type code. Code: A, B, C, D, E or F, 6 types.		
AF94-464			

Legend plate (for F type with round bezel)	**AR9P001-W**
	This part is made of acrylic resin. Use paint or thinner compatible with resin.
	Dimensions, mm: ø17.8 x 0.9
AF94-459	

Legend plate (for E type with round bezel)	**AR9P002-W**
	This part is made of acrylic resin. Use paint or thinner compatible with resin.
	Dimensions, mm: ø19.7 x 4.2
AF94-459	

Symbol mark plate	Type	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

AF98-197
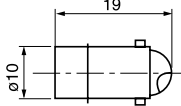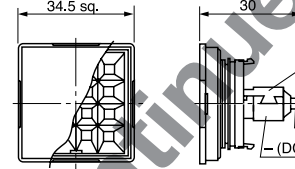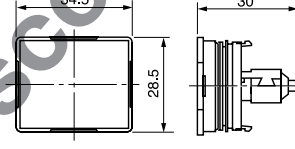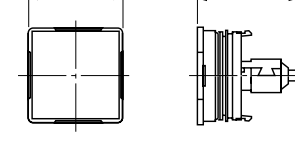
Description	Type		
Legend plate and color plate (for F type with square bezel)	• Legend plate		
	Type	Used with	
	DR9P241-W	AR22F0M, F5M	
		DR22F3M, F4M	
	DR9P242-WP	DR30M4M	
	DR9P242-W	DR30M4M, LED(W)	
	DR9P243-WP	DR30F4N	
AF94-460	**DR9P243-W**	DR30F4N, LED(W)	
	DR9P244-WP	DR30F4M	
	DR9P244-W	DR30F4M, LED(W)	

Types DR9P242, 243 and 244-W are LED illuminated, and used exclusively with operators having a "W" in the type number.

KK02-105A

• color plate		
Type	Used with	
DR9P241-□	DR22F3M, F4M	
DR9P242-□	DR30M4M	
DR9P243-□	DR30F4N	
DR9P244-□	DR30F4M	

KK02-106A

Replace the □ mark by the color code

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

KK02-107A

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)	Type	Used with
	AR9P003-W	AR22E0M, E5M
		DR22F5M, E3M
	DR9P001-W	DR22E3N
AF94-460		

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

AF94-460

Legend sheet	**AHX727**
	Affix this seal to the DR9P241-□/AR9P003 legend plate for marking or labeling.
	Dimensions, mm: 20 sq. x 0.025
AF95-34	
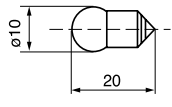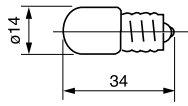
Description	Type
LED lamp	

Type	Lamp voltage
APX510-6 □	6V AC
APX510-D6 □	6V DC
APX510-12 □	12V AC/DC
APX510-15 □	15V AC/DC
APX510-24 □	24V AC/DC

Replace the □ mark by the luminous color code

Luminous color	Yellow	Red	Green
Code	Y	R	G
Lens color	Y	R	G

Luminous color	Amber	Orange	Blue
Code	A	O	S
Lens color	A	W, A*	S

* Orange is available only for the DR22F4M pilot light.

Dimensions, mm:

Lamp base: BA9s/13

KK02-109A

Description	Type
LED lamp (for DR30 with resistor)	

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

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)
*APX507-24S is discontinued.

Dimensions, mm:

APX507

APX509

Lamp base: E12/15

KK02-110A
KK02-111A

Description	Type
LED lamp (for AR22VGF type)	

Type	Lamp voltage
AR9L002-ER	24V AC/DC

Luminous color: Red

Dimensions, mm:

Seat (gold plated)
Lamp base: BA9s/13

Do not use the LED lamp for other types.

KK02-109A
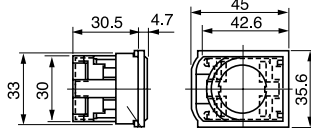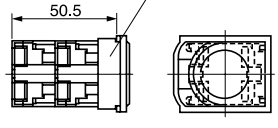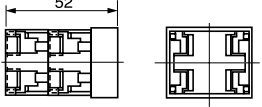
Description	Type
Neon lamp (for AR22VGF type)	

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

Luminous color: Orange

Dimensions, mm:

Lamp base: BA9s/13

Do not use the LED lamp for other types.

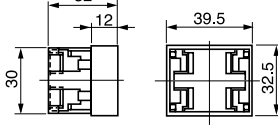KK03-038

Description	Type
LED unit for DR30 (square type)	

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

Replace the □ mark by the luminous color code

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

Dimensions, mm:

DR9Q001-□□
34.5 sq.
30
Base lamp: BA9s/13
+ (DC type)
− (DC type)

DR9Q002-□□
34.5
30
28.5

DR9Q003-□□
28.5 sq.
30

KK02-112A
.KK02-113A

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:

ø10   20

Lamp base: BA9s/13

AF89-427

Description	Type		
Incandescent lamp (for DR30 with resistor)	Type	Lamp voltage	Rated voltage, consumption
	AHX130	15V AC/DC	18V AC/DC, 2W

Dimensions, mm:

ø14   34

Lamp base: E12/15

KK02-115A

Description	Type	
Contact block (1NO)	**AR9B290**	Standard
	AR9B290-S	Overlap

Color: Blue
Dimensions, mm: 19.3 x 29 x 27

Note: Terminal cover is not supplied with this.

AF94-455

Contact block (1NC)	**AR9B291**	Standard
	AR9B291-S	Overlap

Color: Red
Dimensions, mm: 19.3 x 29 x 27

Note: Terminal cover is not supplied with this.

AF94-455

Lamp terminal	**AR9B292**

Color: Black
Dimensions, mm: 19.3 x 29 x 27

Note: Terminal cover is not supplied with this.

AF94-456

Description	Type	
Contact protection cover	Type	Used with *
	AR9D001-1	AR22, 1-step contact
	AR9D001-2	AR22, 2-step contact
	AR9D002-1	AR30, 1-step contact
	AR9D002-2	AR30, 2-step contact

• The contact is covered with a silicon rubber cover to keep out foreign matter such as dust, etc.
• Section A of the AR9D001 is separate.
* *See page 119*, "AR22 □ Z8, AR30 □ Z8"

Dimensions, mm:

AR9D001-1

45
30.5 4.7 42.6
33 30 35.6

KK02-117A

AR9D001-2   Part A

50.5

AR9D002-1

32
12 39.5
30 32.5

KK02-118A

AR9D002-2

52

Transformer unit	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	

AF94-457

Dimensions, mm:
Up to 220 V   22.4 x 30 x 45
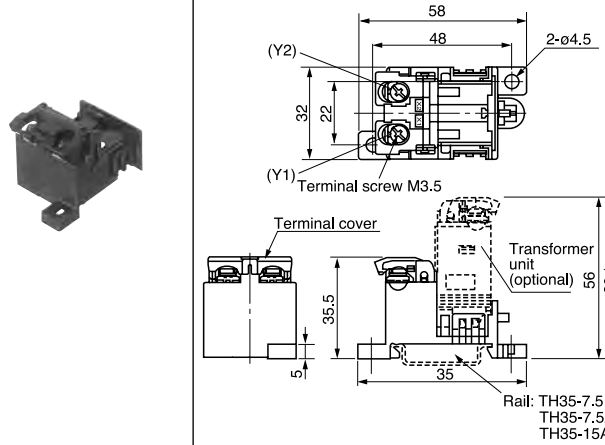Over 220 V   25.3 x 29 x 48

Note: With terminal cover

AF95-33

Note:
* AR9T557-W is discontinued
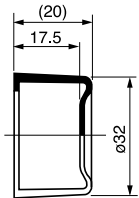
Description	Type
Base unit for transformer separate mounting	**AR9T003** Use this base in combination with a transformer unit. This base unit can be mounted using screws or rails. Dimensions, mm KK02-118A * Except for the types 110V AC, 127V AC and 220V AC.
Resistor Voltage stabilizer Device for LED lamp flickering 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 ø33.8 x 5 DR30F4N DR30M4M * 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 **AR9R003**: Silver metallic and transparent resin Used with: AR30G4L **AHX-054**: Metallic, silver Used with: AR30G1R, G6R, G3L, G8L **AHX-055**: Metallic, silver Used with: AR30G2L, G7L
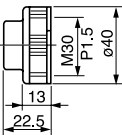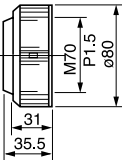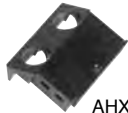
Description	Type
Water-tight cap for 22mm dia. types	**AR9D797-☐** This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. Used with: AR22E0L,E5L AR22E0R, E5R Replace the ☐ mark by the luminous color code.

Code	Color
G	Green
R	Red
B	Black
Y	Yellow
Blank	Clear (standard)

Dimensions, mm:

KK2-124A

Description	Type
Water-tight cap for 30mm dia. types	**AHX052** This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. The only color available is transparent. Used with: AR30E☐R, E☐L Dimensions, mm: ø36 x 22.5

Y-1559

Key	Type	Used with
	AR9C022-☐	AR22JR, AR30JR, AR22JCR, AR30JCR
	AR9C025-☐	AR22JAR, AR30JAR
	Note: Replace the ☐ mark by the key type code.	
AF94-464	Code: A, B, C, D , E, F Types	

Description	Type			
Dust-proof cap for 30mm dia. types	Type	Color	Used with	Spec.
	AHX032	Red	AR30E0R	Oil-proof
	AHX033	Green		
	AHX034	Black		
	AHX041	Red	AR30F0R	Oil-proof
	AHX042	Green		
	AHX043	Black		
	AHX157-R	Red	AR30B2R,	Oil-proof
	AHX157-G	Green	B3R	
	AHX157-B	Black		
	AHX113-R	Red	AR30E0R	Weather resistance
	AHX113-G	Green		
	AHX113-B	Black		
	AHX111-R	Red	AR30F0R	Weather resistance
	AHX111-G	Green		
	AHX111-B	Black		

SC-993

Dimensions, mm:

AHX032 to 034, 041 to 043
AHX111, 113

M30 P1.5 ø40
13
22.5

AHX157

M70 P1.5 ø80
31
35.5

AF89-772

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.

Description	Type
Packing	**AR9Y730:** AR22 and DR22 (Rubber)

AF94-462

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

KK2-125A

Description	Type		
Terminal cover	Type	Used with	Dimensions, mm
	AR9Y305	Contact unit Lamp terminal Transformer unit *1	18.4 x 29 x 8.4
	DR9Y320	Pilot lights *2 (without transformer)	ø22 x 5.8
	DR9Y321	DR30F4M, F4N, M4M (without transformer)	34 sq. x 8.7

AF94-466

KK2-126A

*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)

Description	Type		
Terminal cover	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

AHX305
SG-842

AHX426
AF92-339

* 230V and over

The terminal cover is provided as standard with the applicable types listed above.

AHX376
SG-5

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 finger used in testing did not come into contact with charged parts). The contact block and lamp terminal can be easily mounted or removed with the terminal cover mounted.

■ Type
AR22 □ ZB, DR22 □ ZB
AR30 □ ZB, DR30 □ ZB
Specify "ZB" at the end of the type number of the standard type.

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

■ Ratings and specifications
• Protection degree: IP2X
• Terminal screw: M3.5
  Wiring can be done with a solid wire or fork shaped crimp terminal.

  Note: Ring-type crimp terminals cannot be used.

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

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

• AR30, DR30 series
AR30 (except for joy stick selectors)
DR30: Without transformer, with transformer (except for D1L, short-body types, F4M, F4N, M4M types, buzzers and numerical indicators)
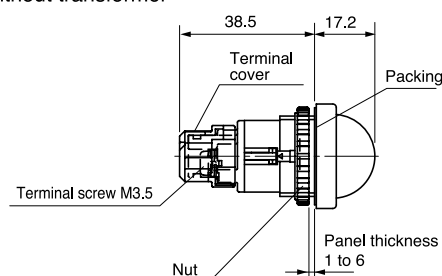
Note: The terminal of the standard type VG has IP2X protection.
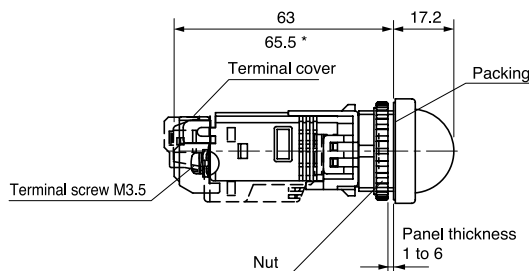
■ Dimensions, mm

AR22/Pushbutton switches
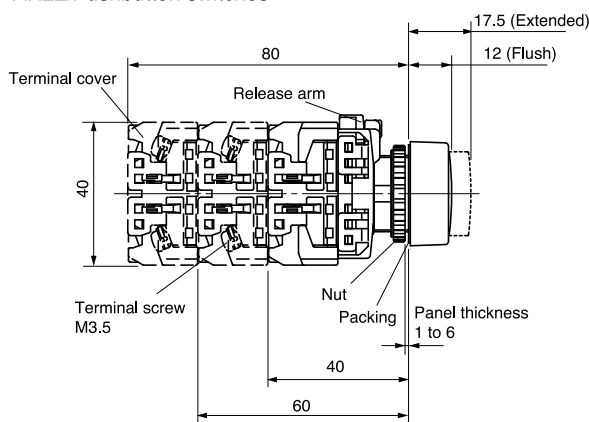
DR22/Without transformer

DR22/With transformer

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

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

KK02-148A

KK02-149A

AR30E0R □ ZM　　**AR30PR □ ZM**　　**DR30D0L □ ZM**
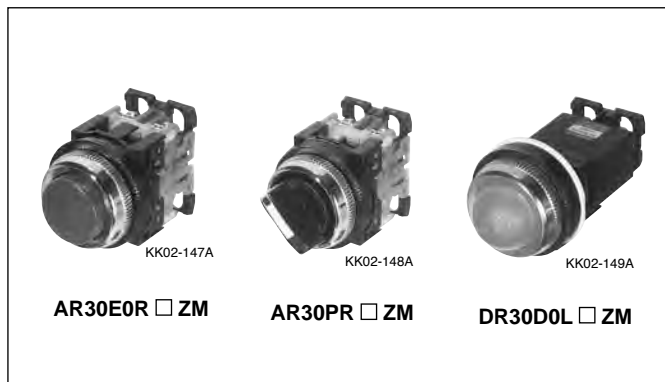
Resisting sulfuration gas

■ 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
B3	66	121	–

● **Numerical indicators**

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

AR30 and DR30
Mass

■ Mass, gram
● Illuminated pushbuttons

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

Note: * 230V and over : +17grams

● Pushbuttons

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

● Emergency stop pushbuttons

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

● Emergency stop illuminated pushbuttons

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

Note: * 230V and over : +17grams

■ Mass, gram

● Pilot lights

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

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

Notes: *1 230V and over : +17grams
*2 ( ): Incandescent lamp

• With resistor type

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

● Selector switches

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

● Illuminated selector switches

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

Note: * 230V and over : +17grams

● Joy stick selector switches

• Screw terminal type

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

• Solder/tab terminal type

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

● Buzzers

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

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

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

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

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

Pushbuttons
SK-1103
AH164-E

Illuminated pushbuttons
SK-1100
AH164-TL

Pilot lights
SK-1139
AH164-Z

Emergency stop pushbuttons
AF97-231
AH165-V6

AF87-221
AH165-2ML

Selectors
AF87-208
AH165-2P
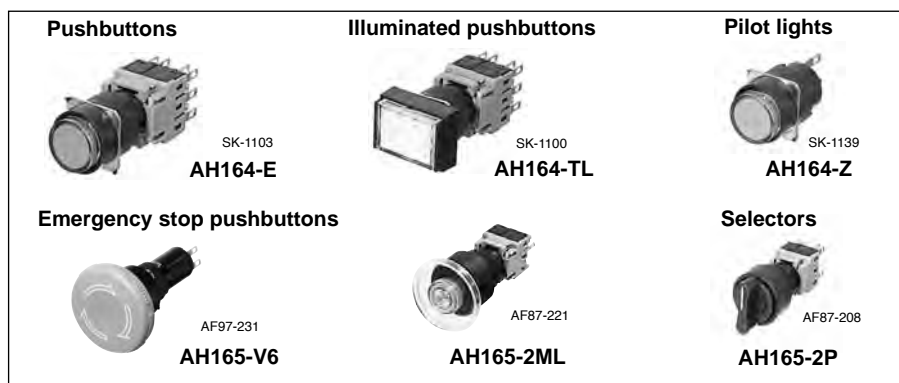
Easy color change
Color lenses fit over the inner button. The lens can easily be removed using a small screwdriver


Color lens

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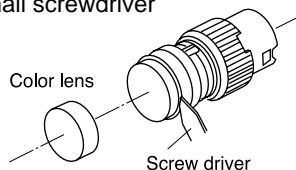
Note: The luminous color of LEDs and neon illumination types varies with the body color of the product.

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.

Legend plate

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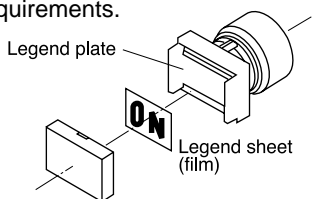
Excellent switch reliability
The switch uses a snap-action mechanism. The pushbuttons are available with either momentary or alternative actions. The snap-action switch has a double break movement which operates independently of the speed of switching. The contacts are made from gold-flashed silver.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

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


Lamp terminal

Contact terminal
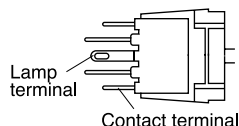
Safety
FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.
• Provided with a trigger action mechanism conforming to EN418.
• Provided 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.

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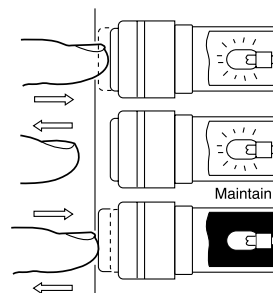
Pushbutton with finger guards
Finger guards are provided for square or rectangular type pushbuttons (SF, TF, SL and TL types) in order to prevent operational error of adjacent buttons.

Approvals

AH164, AH165 and AH165-2
Quick reference guide

AH164 (standard) / AH165 (oil-tight)

■ Illuminated pushbutton switches

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

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

■ Pushbutton switches

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

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

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

■ 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				

■ Numerical indicators

Display	Type	Display	Type	Display	Type
Without decimal decoder	**AH164-TS** **AH165-TS**	With decimal decoder (5, 12, 15V)	**AH164-TC** **AH165-TC**	With decimal decoder (24V)	**AH164-TC4□E** **AH165-TC4□E**
	SP-165		AF87-315		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**	Extended round head	**AH165-2EL, 2EL5**	Mushroom head	**AH165-2ML**
	AF87-211		AF87-210		AF87-221
Mushroom head with square bezel	**AH165-2YML**	Flush square head	**AH165-2SFL, 2SFL5**	Extended square head	**AH165-2SEL, 2SEL5**
	AF87-220		AF87-201		AF87-200
Concave square head	**AH165-2SCL, 2SCL5**	Push-lock, turn-reset	**AH165-2VL**	Push-lock, turn-reset with square bezel	**AH165-2YVL**
	AF87-199		AF87-219		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

130

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

Notes: *1 Available for AH165-V, V1, V5, V6
       *2 Not available for with transformer types

⑤ Lamp voltage

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

Notes: *1 With transformer (LED: 24V, Incandescent: 28V)
       *2 Not available AH165-ZM
      • ZM type: LED lamp only (12, 24V DC)

⑥ Type of lamp
Blank: Incandescent
1:      Neon
2:      Spot LED, LED (ZM types)
3:      Flat LED

⑦ Terminal
Blank: Solder/tab
W: Wire-wrap
S: Soder (AH165-V, V1, V5, V6 types only)

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

AH164 and AH165
Part number system

■ Part number system

Selector switches

<u>AH165</u> - <u>J</u> <u>2</u> <u>B</u> <u>11</u> <u>A</u> – <u>W</u>
  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

<u>AH164</u> - <u>T</u> <u>X</u> <u>B</u> <u>E</u>
  ①   ②   ③ ④

① Product category
AH164: Standard (IP00)
AH165: Splash-proof (IP54)

② Sound
TX: Standard (AH164)
TX1:   Loud sound (AH164)
TX2:   Loud sound with volume control (AH164)
X: Standard sound with volume control (AH165)

③ Color of head
B: Black

④ Operating voltage
AAC: 6V AC*²
ADC: 6V DC*²
A: 6V AC/DC*¹
E: 12 to 24V AC/DC
F: 35 to 48V AC/DC
Notes: *¹ Except for TX and TX1 types
       *² Except for TX2 and X types

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

■ Illuminated pushbutton switches/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**
	Incandescent	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**
	Incandescent	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**
	Incandescent	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 2NO+2NC 3NO+3NC	**AH164-TGL☐11E3 AH164-TGL☐22E3 AH164-TGL☐33E3**	**AH165-TGL☐11E3 AH165-TGL☐22E3 AH165-TGL☐33E3**	**AH164-TGL5☐11E3 AH164-TGL5☐22E3 AH164-TGL5☐33E3**	**AH165-TGL5☐11E3 AH165-TGL5☐22E3 AH165-TGL5☐33E3**
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-TGL☐11E AH164-TGL☐22E AH164-TGL☐33E**	**AH165-TGL☐11E AH165-TGL☐22E AH165-TGL☐33E**	**AH164-TGL5☐11E AH164-TGL5☐22E AH164-TGL5☐33E**	**AH165-TGL5☐11E AH165-TGL5☐22E AH165-TGL5☐33E**
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-TGL☐11H1 AH164-TGL☐22H1 AH164-TGL☐33H1**	**AH165-TGL☐11H1 AH165-TGL☐22H1 AH165-TGL☐33H1**	**AH164-TGL5☐11H1 AH164-TGL5☐22H1 AH164-TGL5☐33H1**	**AH165-TGL5☐11H1 AH165-TGL5☐22H1 AH165-TGL5☐33H1**
SK-1101		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-TGL☐11M1 AH164-TGL☐22M1 AH164-TGL☐33M1**	**AH165-TGL☐11M1 AH165-TGL☐22M1 AH165-TGL☐33M1**	**AH164-TGL5☐11M1 AH164-TGL5☐22M1 AH164-TGL5☐33M1**	**AH165-TGL5☐11M1 AH165-TGL5☐22M1 AH165-TGL5☐33M1**
Flush square head with guard	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-SGL☐11E3 AH164-SGL☐22E3 AH164-SGL☐33E3**	**AH165-SGL☐11E3 AH165-SGL☐22E3 AH165-SGL☐33E3**	**AH164-SGL5☐11E3 AH164-SGL5☐22E3 AH164-SGL5☐33E3**	**AH165-SGL5☐11E3 AH165-SGL5☐22E3 AH165-SGL5☐33E3**
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-SGL☐11E AH164-SGL☐22E AH164-SGL☐33E**	**AH165-SGL☐11E AH165-SGL☐22E AH165-SGL☐33E**	**AH164-SGL5☐11E AH164-SGL5☐22E AH164-SGL5☐33E**	**AH165-SGL5☐11E AH165-SGL5☐22E AH165-SGL5☐33E**
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-SGL☐11H1 AH164-SGL☐22H1 AH164-SGL☐33H1**	**AH165-SGL☐11H1 AH165-SGL☐22H1 AH165-SGL☐33H1**	**AH164-SGL5☐11H1 AH164-SGL5☐22H1 AH164-SGL5☐33H1**	**AH165-SGL5☐11H1 AH165-SGL5☐22H1 AH165-SGL5☐33H1**
AF90-301		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH164-SGL☐11M1 AH164-SGL☐22M1 AH164-SGL☐33M1**	**AH165-SGL☐11M1 AH165-SGL☐22M1 AH165-SGL☐33M1**	**AH164-SGL5☐11M1 AH164-SGL5☐22M1 AH164-SGL5☐33M1**	**AH165-SGL5☐11M1 AH165-SGL5☐22M1 AH165-SGL5☐33M1**
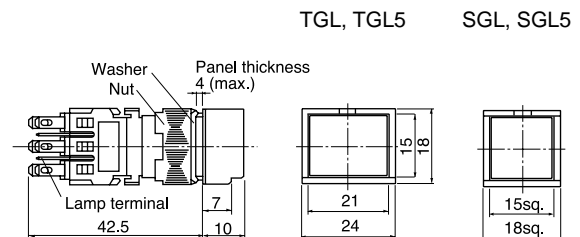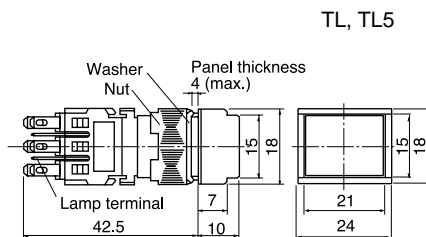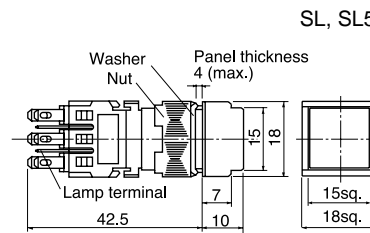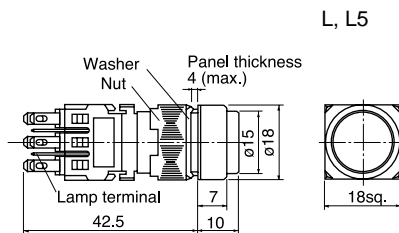
■ **Dimensions, mm**

L, L5

SL, SL5

TL, TL5

TGL, TGL5   SGL, SGL5

•**Button color**

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

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

• **Lamp voltage**
Voltages other than above are available

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

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

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

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

■ **Illuminated pushbutton switches/with transformer**

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

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

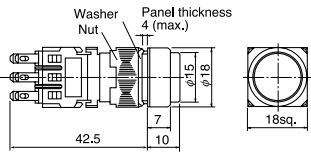# Illuminated Pushbuttons
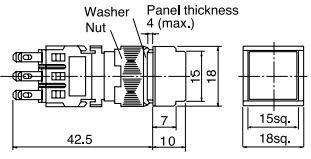## AH164 and AH165

■ **Dimensions, mm**
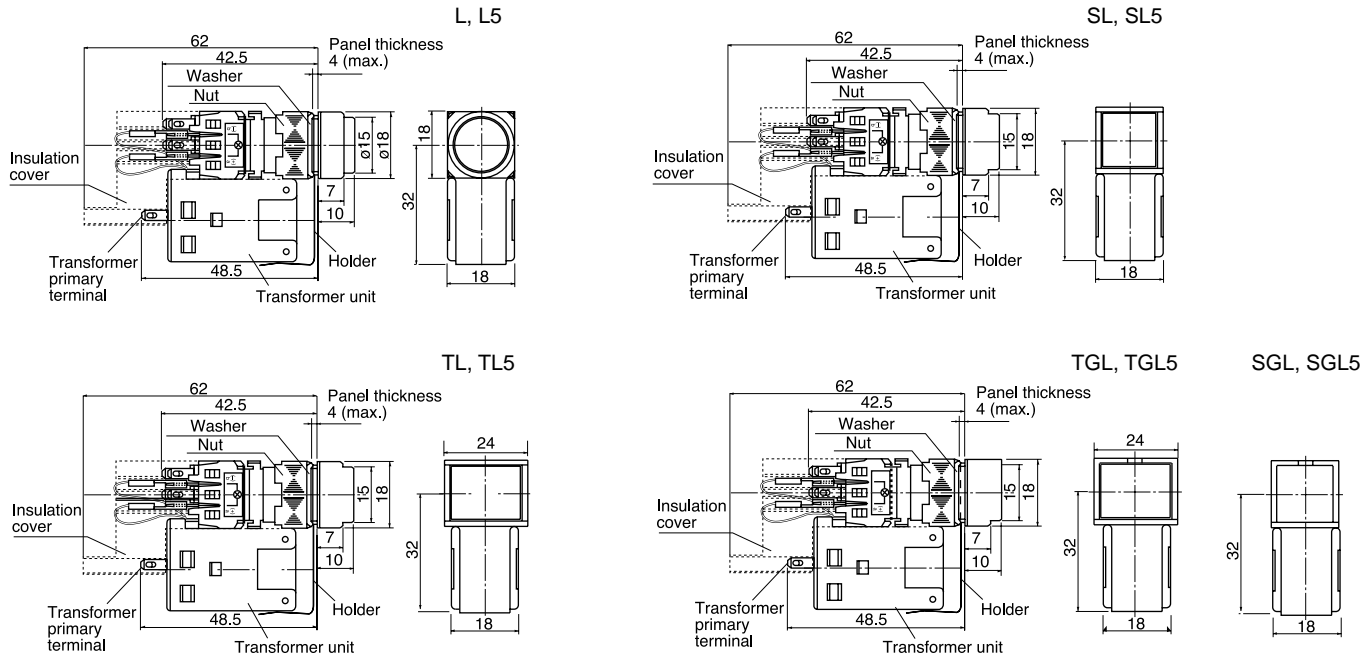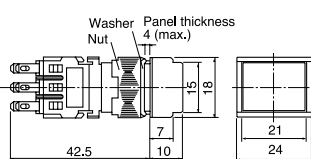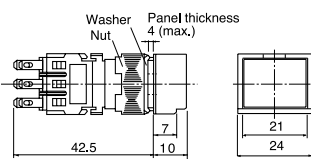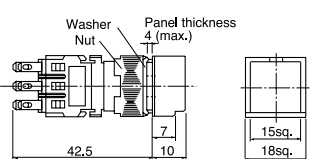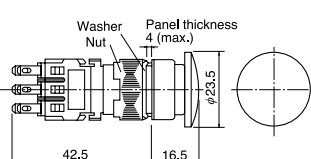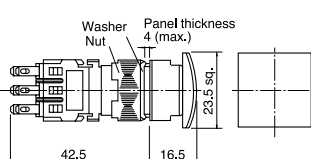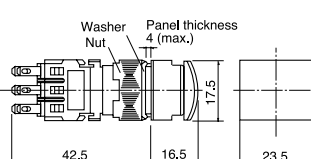
L, L5

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**	Washer Panel thickness Nut 4 (max.) φ15 φ18 7 42.5 10 18sq.
	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**	Washer Panel thickness Nut 4 (max.) 15 18 7 42.5 10 15sq. 18sq.
	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**	Washer Panel thickness Nut 4 (max.) 15 18 7 42.5 10 21 24
	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**	Washer Panel thickness Nut 4 (max.) 15 18 7 42.5 10 21 24
	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**	Washer Panel thickness Nut 4 (max.) 7 42.5 10 15sq. 18sq.
	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**	Washer Panel thickness Nut 4 (max.) φ23.5 42.5 16.5
	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**	Washer Panel thickness Nut 4 (max.) 23.5 sq. 42.5 16.5
	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**	Washer Panel thickness Nut 4 (max.) 17.5 42.5 16.5 23.5
	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

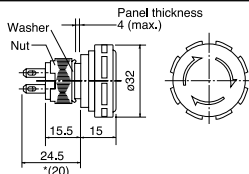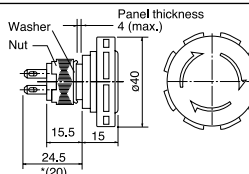| Color	Green	Red	Black	White	Blue	Yellow	Orange
Code	G	R	B	W	S	Y	O

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

■ **Pushbutton switches**
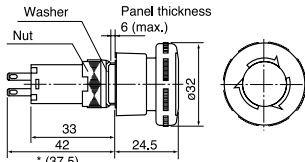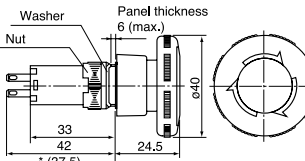⊖ (Direct opening action)

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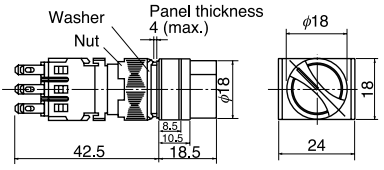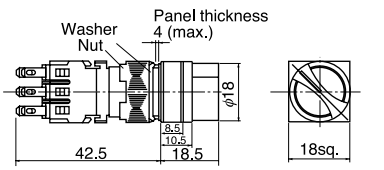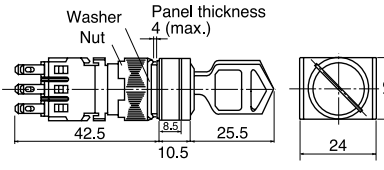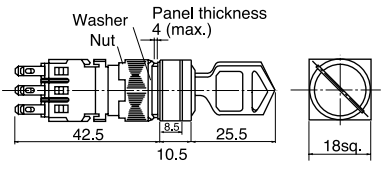
■ **Emergency stop pushbutton switches**
⊖ (Direct opening action), conform to EN418

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

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

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

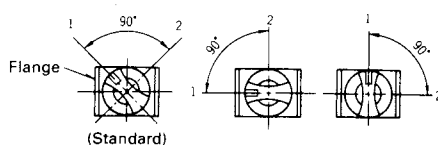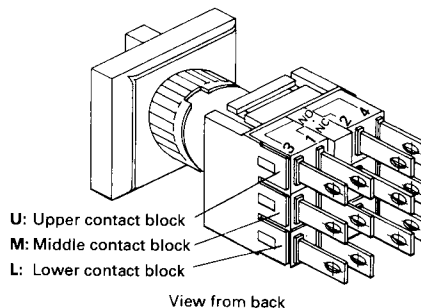| Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel AF89-564	Maintained	—	1NO+1NC	**AH164-P2B11**	**AH165-P2B11**	Washer Nut / Panel thickness 4 (max.) / φ18 / φ18 / 42.5 / 8.5 10.5 / 18.5 / 24 / 18
			2NO+2NC	**AH164-P2B22**	**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**	Washer Nut / Panel thickness 4 (max.) / φ18 / 42.5 / 8.5 10.5 / 18.5 / 18sq.
			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**	Washer Nut / Panel thickness 4 (max.) / 42.5 / 8.5 / 10.5 / 25.5 / 18 / 24
			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**	Washer Nut / Panel thickness 4 (max.) / 42.5 / 8.5 / 10.5 / 25.5 / 18sq.
			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.

Flange (Standard) 90°

• 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**

View from back

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

• **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

3-position selector switch
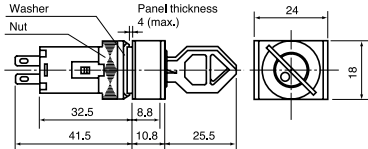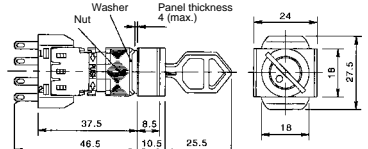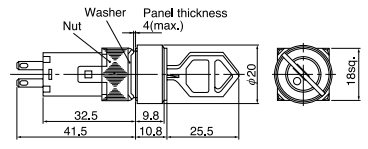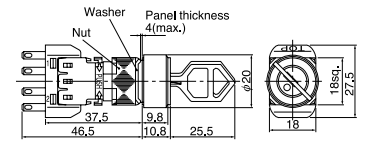
Contact arrangement		2NO+2NC	3NO+3NC
Operator position	Left ⊖	U L	U M L
	Center ①		
	Right ⊖		

■ 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 AF97-334	Maintained	A ⊘ B ⊗ D ⊘	1NO+1NC	**AH165-JM2A11A** **AH165-JM2B11A** **AH165-JM2D11A**	Washer Nut · Panel thickness 4 (max.) · 24 18 32.5 8.8 41.5 10.8 25.5
		A ⊘ B ⊗ D ⊘	2NO+2NC	**AH165-JM2A22A** **AH165-JM2B22A** **AH165-JM2D22A**	Washer Nut · Panel thickness 4 (max.) · 24 18 27.5 37.5 8.5 46.5 10.5 25.5 18
Key with round bezel AF99-320	Maintained	A ⊘ B ⊗ D ⊘	1NO+1NC	**AH165-RJM2A11A** **AH165-RJM2B11A** **AH165-RJM2D11A**	Washer Panel thickness 4(max.) Nut φ20 18sq. 32.5 9.8 41.5 10.8 25.5
		A ⊘ B ⊗ D ⊘	2NO+2NC	**AH165-RJM2A22A** **AH165-RJM2B22A** **AH165-RJM2D22A**	Washer Panel thickness 4(max.) Nut φ20 18sq. 27.5 37.5 9.8 46.5 10.8 25.5 18

- 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 ⊘ 11 12 21 22
	Right ⊘ 11 12 21 22
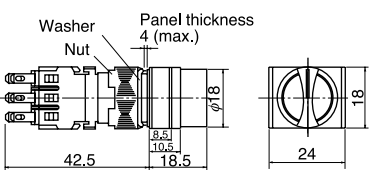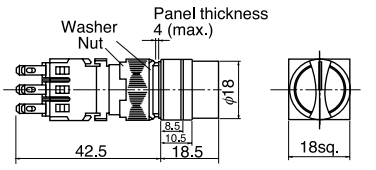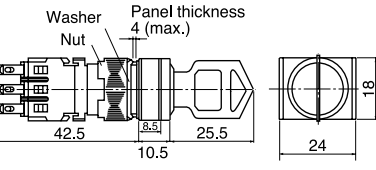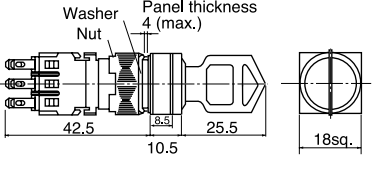
Contact arrangement	2NO+2NC
Operator position	Left ⊘ U 11 12 — L 11 12 21 22 — 21 22
	Right ⊘ 11 12 — 11 12 21 22 — 21 22

- **Terminal number**

1NO+1NC   2NO+2NC

U: Upper contact block

11   12

21   22

L: Lower contact block

■ Selector switches/3-position (90-degree)
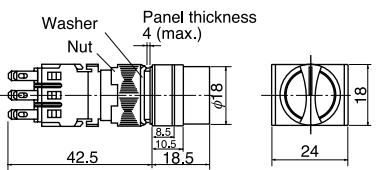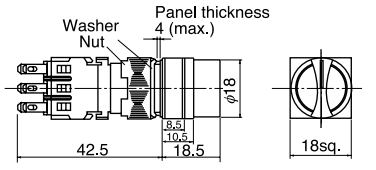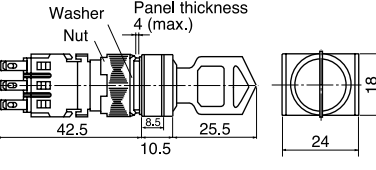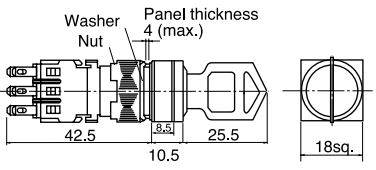
Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel	Maintained	—	2NO+2NC	**AH164-P3B22**	**AH165-P3B22**	
			3NO+3NC	**AH164-P3B33**	**AH165-P3B33**	
	Spring/ manual return ⟳	—	2NO+2NC	**AH164-P6B22**	**AH165-P6B22**	
			3NO+3NC	**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**	
			3NO+3NC	**AH164-P1B33**	**AH165-P1B33**	
SK-1099						
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**	
			3NO+3NC	**AH164-SP1B33**	**AH165-SP1B33**	
SK-1133						
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**	
	Spring return ⟳	⟳ E	2NO+2NC	**AH164-J1E22A**	**AH165-J1E22A**	
SK-1098			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**	
	Spring return ⟳	⟳ E	2NO+2NC	**AH164-SJ1E22A**	**AH165-SJ1E22A**	
SK-1132			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)**

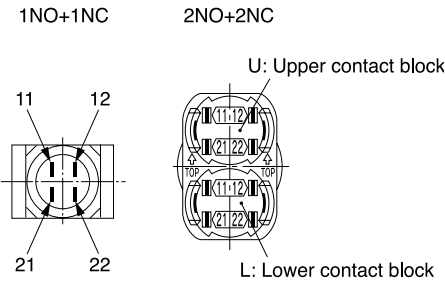| Operator	Operation	Key removable position	Contact	AH164 type	AH165 (oil-tight) type	Dimensions, mm
Knob with rectangular bezel	Maintained	—	2NO+2NC	**AH164-PK3B22**	**AH165-PK3B22**	
			3NO+3NC	**AH164-PK3B33**	**AH165-PK3B33**	
	Spring/ manual return ↺	—	2NO+2NC	**AH164-PK6B22**	**AH165-PK6B22**	
			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**	
		① 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 ↺	① 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**	
		① E	2NO+2NC	**AH164-JK7E22A**	**AH165-JK7E22A**	
			3NO+3NC	**AH164-JK7E33A**	**AH165-JK7E33A**	
	Spring return ↺	① 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**	
		① 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 ↺	① 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**	
		① E	2NO+2NC	**AH164-SJK7E22A**	**AH165-SJK7E22A**	
			3NO+3NC	**AH164-SJK7E33A**	**AH165-SJK7E33A**	
	Spring return ↺	① 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
3	A, B, C, D, E, F, G
6	D, E, F
7	A, E, G
1	E

•Key code No.
  There are 6 available key types; A, B, C, D, E and F.
Standard key code is A.

• **Contact block position**

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

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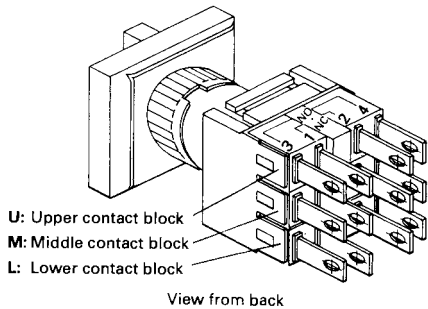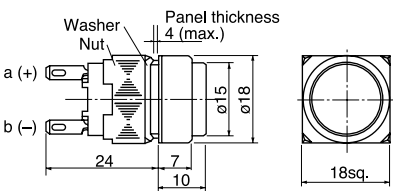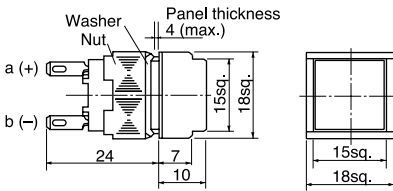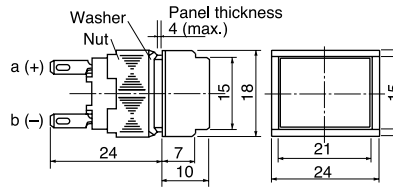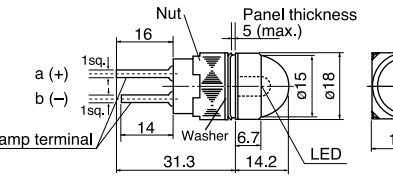
• **Contact arrangement and operator position:**
3-position selector switch

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

Pilot Lights
AH164 and AH165

■ 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
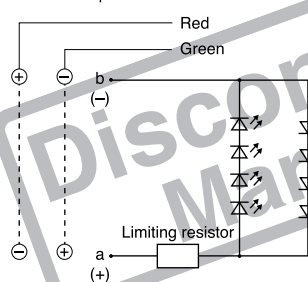
• **Lamp voltage**
Voltages other than above are available

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

Note: Except for ZM types and red/green LED types
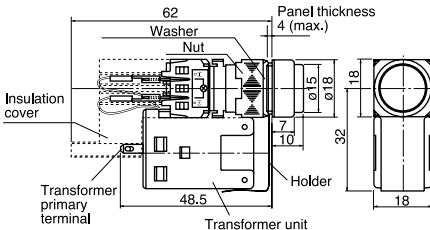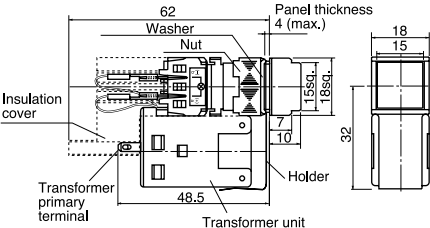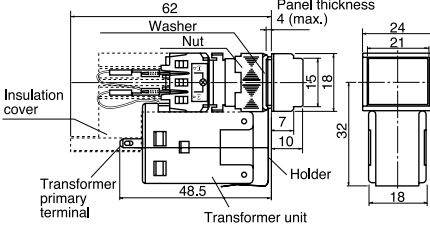
• **Lens color**
Replace the □ mark by the following lens color code

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

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

■ **Pilot lights/with transformer**

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

•**Lens color**
Replace the ☐ mark by the following lens color code
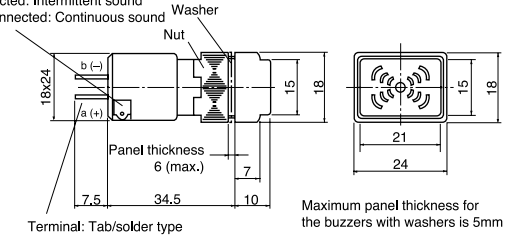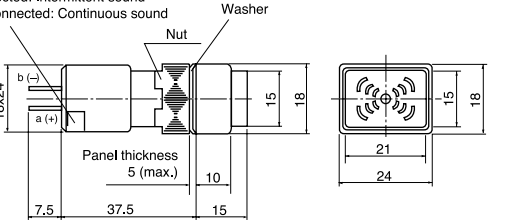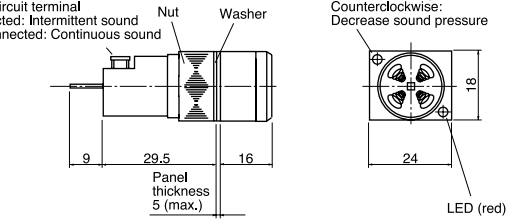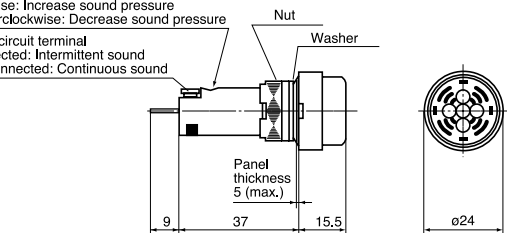
Color	Green	Red	White	Yellow	Blue	Orange
Code	G	R	W	Y	S	O

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

Buzzers
AH164 and AH165

■ **Buzzers**

Sound	Operating voltage	Type	Dimensions, mm
Standard AF87-317	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	**AH164-TXBAAC** **AH164-TXBADC** **AH164-TXBE** **AH164-TXBF**	Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound Washer Nut 18x24 b (−) a (+) 15 18 15 18 Panel thickness 6 (max.) 7 21 24 7.5 34.5 10 Terminal: Tab/solder type Maximum panel thickness for the buzzers with washers is 5mm
Loud sound AF87-44	6V AC 6V DC 12 to 24V AC/DC 35 to 48V AC/DC	**AH164-TX1BAAC** **AH164-TX1BADC** **AH164-TX1BE** **AH164-TX1BF**	Short-circuit terminal Connected: Intermittent sound Not connected: Continuous sound Washer Nut 18x24 b (−) a (+) 15 18 15 18 Panel thickness 5 (max.) 10 21 24 7.5 37.5 15
Loud sound with volume control AF93-297	6V AC/DC 12 to 24V AC/DC 35 to 48V AC/DC	**AH164-TX2BA** **AH164-TX2BE** **AH164-TX2BF**	Volume Clockwise: Increase sound pressure Counterclockwise: Decrease sound pressure Short-circuit terminal Nut Washer Connected: Intermittent sound Not connected: Continuous sound 18 9 29.5 16 24 Panel thickness 5 (max.) LED (red)
Standard sound with volume control (IP54) AF96-243	6V AC/DC 12 to 24V AC/DC 35 to 48V AC/DC	**AH165-XBA** **AH165-XBE** **AH165-XBF**	Volume Clockwise: Increase sound pressure Counterclockwise: Decrease sound pressure Nut Short-circuit terminal Washer Connected: Intermittent sound Not connected: Continuous sound Panel thickness 5 (max.) 9 37 15.5 ø24

■ Mounting space, mm
· Pushbuttons and pilot lights

Extended round head or lens

Panel cutting ø16.2 $^{+0.2}_{0}$

18 18

20
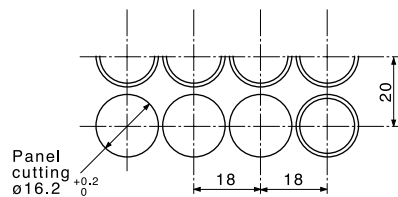
Flush square head or lens

Panel cutting ø16.2 $^{+0.2}_{0}$

18 18

20
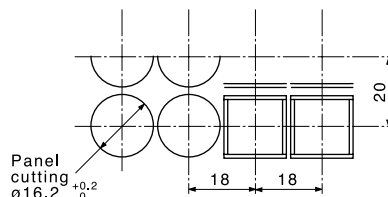
Flush rectangular head or lens

Panel cutting ø16.2 $^{+0.2}_{0}$

24 24

20

Mushroom head

Panel cutting ø16.2 $^{+0.2}_{0}$

24

24

Convex square head

Panel cutting ø16.2 $^{+0.2}_{0}$

24

24

Convex rectangular head

Panel cutting ø16.2 $^{+0.2}_{0}$

24

20
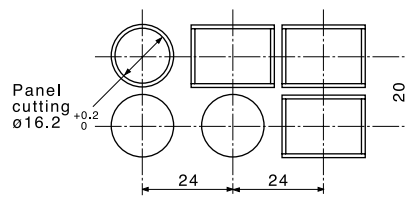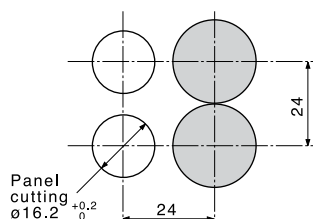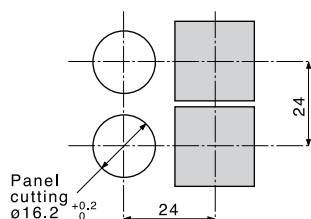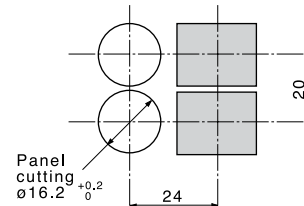
· Selector switches
·When mounting the selector switches near the pilot light

Panel cutting ø16.2 $^{+0.2}_{0}$

24 24

20

· When mounting the selector switches near each other

Panel cutting ø16.2 $^{+0.2}_{0}$

24

24

· With transformer

21.5
(24)*

42
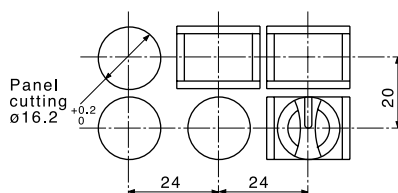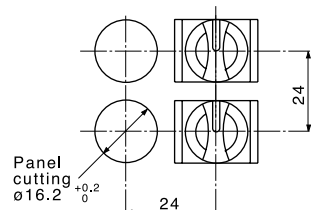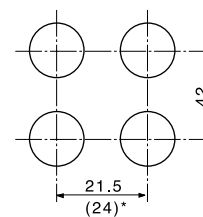
Note: *( ) For switch with flush rectangular head

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

24

30
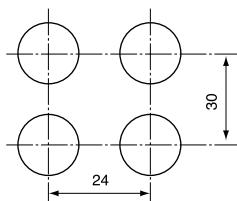
· When mounting the JM or RJM selector switches near the other selector switch, pushbutton switch and pilot lights

24

25*
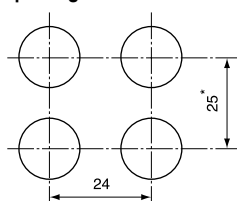
Note: * Mushroom, convex square, convex rectangular: 27

· AH165-V, V1, V5, V6

ø16.2 $^{+0.2}_{0}$

ø2 $^{+0.1}_{0}$

7.7±0.1

· AH165-JM, RJM

ø16.2 $^{+0.2}_{0}$

15 $^{+0.2}_{0}$
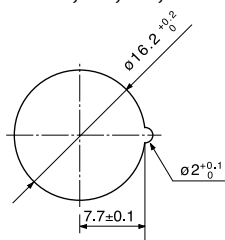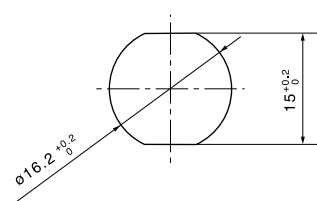
■ Terminal number
· AH164, 165

Type	Wiring	Terminal position
Illuminated pushbuttons	a (+) b (-) ① ② ③ ④	Type number display side
Pushbuttons Selector switches (except for JM, RJM types)	① ② ③ ④	
Pilot lights (without transformer)	a (+) b (-)	Type number display side

151

■ **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

AH165-2
Part number system

■ Part number system

Selector switches

<u>AH165-2</u> <u>J</u> <u>2</u> <u>B</u> <u>11</u> <u>A</u> – <u>W</u>
  ①   ② ③ ④ ⑤ ⑥ ⑦

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

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

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

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

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

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

• Key removable position

Code	2-position		3-position			
	2	0	1	3	6	7
A	⊘	⊘	–	⊘	–	⊘
B	⊗	–	–	⊗	–	–
C	–	–	–	⊛	–	–
D	⊘	–	–	⊘	–	–
E	–	–	①			
F	–	–	–	⊘		–
G	–	–	–	⊘	–	⊘

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

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

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

Illuminated selector switches

<u>AH165-2</u> <u>PL</u> <u>2</u> <u>G</u> <u>11</u> <u>E</u> <u>3</u>
  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

■ **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
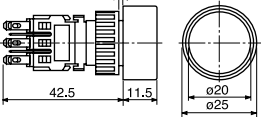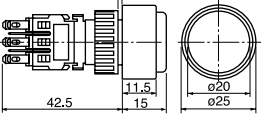 rated voltage of the lamps.

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

■ Illuminated pushbutton switches
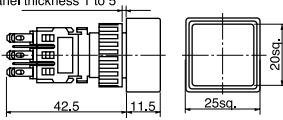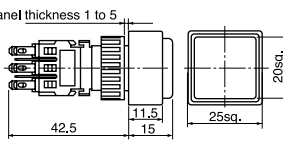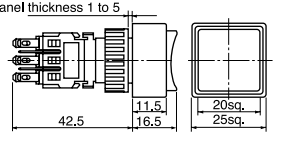
Operator	Lamp	Voltage	Contact	Momentary action Type	Alternate action Type	Dimensions, mm
Flush round head	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2FL□11E3** **AH165-2FL□22E3** **AH165-2FL□33E3**	**AH165-2FL5□11E3** **AH165-2FL5□22E3** **AH165-2FL5□33E3**	Panel thickness 1 to 5 42.5 11.5 ø20 ø25
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2FL□11E** **AH165-2FL□22E** **AH165-2FL□33E**	**AH165-2FL5□11E** **AH165-2FL5□22E** **AH165-2FL5□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2FL□11H1** **AH165-2FL□22H1** **AH165-2FL□33H1**	**AH165-2FL5□11H1** **AH165-2FL5□22H1** **AH165-2FL5□33H1**	
AF87-211		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2FL□11M1** **AH165-2FL□22M1** **AH165-2FL□33M1**	**AH165-2FL5□11M1** **AH165-2FL5□22M1** **AH165-2FL5□33M1**	
Extended round head	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2EL□11E3** **AH165-2EL□22E3** **AH165-2EL□33E3**	**AH165-2EL5□11E3** **AH165-2EL5□22E3** **AH165-2EL5□33E3**	Panel thickness 1 to 5 42.5 11.5 15 ø20 ø25
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2EL□11E** **AH165-2EL□22E** **AH165-2EL□33E**	**AH165-2EL5□11E** **AH165-2EL5□22E** **AH165-2EL5□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2EL□11H1** **AH165-2EL□22H1** **AH165-2EL□33H1**	**AH165-2EL5□11H1** **AH165-2EL5□22H1** **AH165-2EL5□33H1**	
AF87-210		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2EL□11M1** **AH165-2EL□22M1** **AH165-2EL□33M1**	**AH165-2EL5□11M1** **AH165-2EL5□22M1** **AH165-2EL5□33M1**	
Mushroom head	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2ML□11E3** **AH165-2ML□22E3** **AH165-2ML□33E3**	– – –	Panel thickness 1 to 5 42.5 11.5 22 ø32
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2ML□11E** **AH165-2ML□22E** **AH165-2ML□33E**	– – –	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2ML□11H1** **AH165-2ML□22H1** **AH165-2ML□33H1**	– – –	
AF87-221		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2ML□11M1** **AH165-2ML□22M1** **AH165-2ML□33M1**	– – –	
Mushroom head with square bezel	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YML□11E3** **AH165-2YML□22E3** **AH165-2YML□33E3**	– – –	Panel thickness 1 to 5 42.5 11.5 22 ø32 25sq.
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YML□11E** **AH165-2YML□22E** **AH165-2YML□33E**	– – –	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YML□11H1** **AH165-2YML□22H1** **AH165-2YML□33H1**	– – –	
AF87-220		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YML□11M1** **AH165-2YML□22M1** **AH165-2YML□33M1**	– – –	

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

■ Illuminated pushbutton switches

Operator	Lamp	Voltage	Contact	Momentary action Type	Alternate action Type	Dimensions, mm
Flush square head AF87-201	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SFL□11E3** **AH165-2SFL□22E3** **AH165-2SFL□33E3**	**AH165-2SFL5□11E3** **AH165-2SFL5□22E3** **AH165-2SFL5□33E3**	Panel thickness 1 to 5 42.5 11.5 25sq. 20sq.
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SFL□11E** **AH165-2SFL□22E** **AH165-2SFL□33E**	**AH165-2SFL5□11E** **AH165-2SFL5□22E** **AH165-2SFL5□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SFL□11H1** **AH165-2SFL□22H1** **AH165-2SFL□33H1**	**AH165-2SFL5□11H1** **AH165-2SFL5□22H1** **AH165-2SFL5□33H1**	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SFL□11M1** **AH165-2SFL□22M1** **AH165-2SFL□33M1**	**AH165-2SFL5□11M1** **AH165-2SFL5□22M1** **AH165-2SFL5□33M1**	
Extended square head AF87-200	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SEL□11E3** **AH165-2SEL□22E3** **AH165-2SEL□33E3**	**AH165-2SEL5□11E3** **AH165-2SEL5□22E3** **AH165-2SEL5□33E3**	Panel thickness 1 to 5 42.5 11.5 15 25sq. 20sq.
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SEL□11E** **AH165-2SEL□22E** **AH165-2SEL□33E**	**AH165-2SEL5□11E** **AH165-2SEL5□22E** **AH165-2SEL5□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SEL□11H1** **AH165-2SEL□22H1** **AH165-2SEL□33H1**	**AH165-2SEL5□11H1** **AH165-2SEL5□22H1** **AH165-2SEL5□33H1**	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SEL□11M1** **AH165-2SEL□22M1** **AH165-2SEL□33M1**	**AH165-2SEL5□11M1** **AH165-2SEL5□22M1** **AH165-2SEL5□33M1**	
Concave square head AF87-199	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SCL□11E3** **AH165-2SCL□22E3** **AH165-2SCL□33E3**	**AH165-2SCL5□11E3** **AH165-2SCL5□22E3** **AH165-2SCL5□33E3**	Panel thickness 1 to 5 42.5 11.5 16.5 25sq. 20sq.
	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SCL□11E** **AH165-2SCL□22E** **AH165-2SCL□33E**	**AH165-2SCL5□11E** **AH165-2SCL5□22E** **AH165-2SCL5□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SCL□11H1** **AH165-2SCL□22H1** **AH165-2SCL□33H1**	**AH165-2SCL5□11H1** **AH165-2SCL5□22H1** **AH165-2SCL5□33H1**	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SCL□11M1** **AH165-2SCL□22M1** **AH165-2SCL□33M1**	**AH165-2SCL5□11M1** **AH165-2SCL5□22M1** **AH165-2SCL5□33M1**	

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

Illuminated Pushbutton Switches
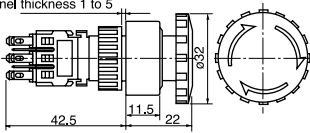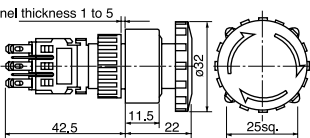## AH165-2

■ Illuminated pushbutton switches

Operator	Lamp	Voltage	Contact	Type	Dimensions, mm
Push-lock, turn-reset	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2VL□11E3** **AH165-2VL□22E3** **AH165-2VL□33E3**	Panel thickness 1 to 5 42.5 11.5 22 ø32
AF87-219	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2VL□11E** **AH165-2VL□22E** **AH165-2VL□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2VL□11H1** **AH165-2VL□22H1** **AH165-2VL□33H1**	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2VL□11M1** **AH165-2VL□22M1** **AH165-2VL□33M1**	
Push-lock, turn-reset with square bezel	Flat LED	24V DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YVL□11E3** **AH165-2YVL□22E3** **AH165-2YVL□33E3**	Panel thickness 1 to 5 42.5 11.5 22 ø32 25sq.
AF87-218	Incandescent	24V AC/DC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YVL□11E** **AH165-2YVL□22E** **AH165-2YVL□33E**	
	Neon	110V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YVL□11H1** **AH165-2YVL□22H1** **AH165-2YVL□33H1**	
		220V AC	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YVL□11M1** **AH165-2YVL□22M1** **AH165-2YVL□33M1**	

・ **Button color**
Replace the □ mark by the following button color code

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

・ With wire-wrap pin terminals have a depth of 47mm.
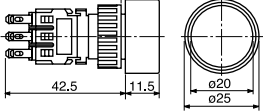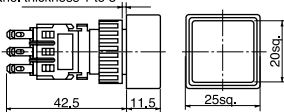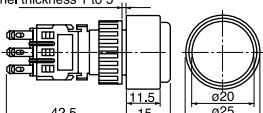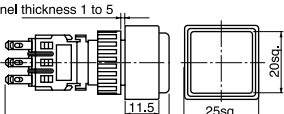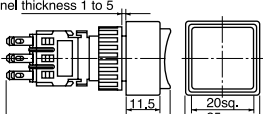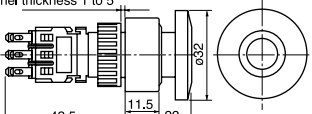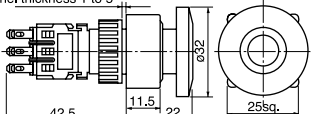
・ A white illuminated pushbutton is fitted with a transparent color lens.
・ The color lens is made of a tinted transparent material.

・ **Lamp voltage**
Voltages other than above are available

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

■ Pushbutton switches
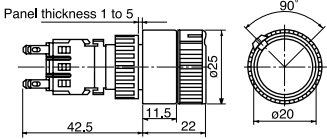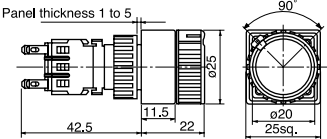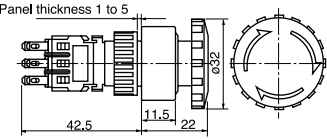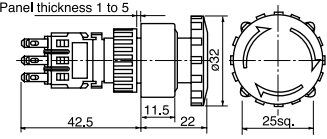
Operator	Contact	Momentary action	Alternate action	Dimensions, mm
		Type	Type	
Flush round head AF87-211	1NO+1NC	**AH165-2F☐11**	**AH165-2F5☐11**	Panel thickness 1 to 5 42.5 11.5 ø20 ø25
	2NO+2NC	**AH165-2F☐22**	**AH165-2F5☐22**	
	3NO+3NC	**AH165-2F☐33**	**AH165-2F5☐33**	
Flush square head AF87-201	1NO+1NC	**AH165-2SF☐11**	**AH165-2SF5☐11**	Panel thickness 1 to 5 42.5 11.5 20sq. 25sq.
	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**	Panel thickness 1 to 5 42.5 11.5 15 ø20 ø25
	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**	Panel thickness 1 to 5 42.5 11.5 15 20sq. 25sq.
	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**	Panel thickness 1 to 5 42.5 11.5 16.5 20sq. 25sq.
	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**	–	Panel thickness 1 to 5 42.5 11.5 22 ø32
	2NO+2NC	**AH165-2M☐22**	–	
	3NO+3NC	**AH165-2M☐33**	–	
Mushroom head with square bezel AF87-214	1NO+1NC	**AH165-2YM☐11**	–	Panel thickness 1 to 5 42.5 11.5 22 ø32 25sq.
	2NO+2NC	**AH165-2YM☐22**	–	
	3NO+3NC	**AH165-2YM☐33**	–	

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

Pushbutton Switches
AH165-2

■ Pushbutton switches

Operator	Contact	Type	Dimensions, mm
With selector ring AF87-207	2NO+2NC	**AH165-2S2□22**	Panel thickness 1 to 5 — 90° ø25 42.5 11.5 22 ø20
With selector ring with square bezel AF87-206	2NO+2NC	**AH165-2YS2□22**	Panel thickness 1 to 5 — 90° ø25 42.5 11.5 22 ø20 25sq.
Push-lock, turn-reset AF87-210	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2V□11** **AH165-2V□22** **AH165-2V□33**	Panel thickness 1 to 5 — ø32 42.5 11.5 22
Push-lock, turn-reset with square bezel AF87-200	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YV□11** **AH165-2YV□22** **AH165-2YV□33**	Panel thickness 1 to 5 — ø32 42.5 11.5 22 25sq.

· **Button color**

Replace the □ mark by the following button color code

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

· **Contact arrangement and operator position**

AH165-2S, 2YS

Button \ Ring	Left		Right	
Free	U	L	U	L
	1○ ○2 1○ ○2		1○ ○2 1○ ○2	
	3○ ○4 3○ ○4		3○ ○4 3○ ○4	
Depressed	1○ ○2 1○ ○2		1○ ○2 1○ ○2	
	3○ ○4 3○ ○4		3○ ○4 3○ ○4	
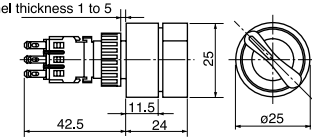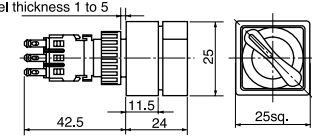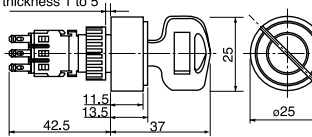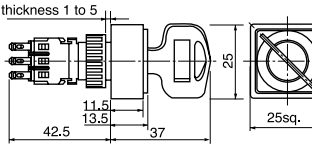
U: Upper contact block
L: Lower contact block

· 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**

Type number display side
↓

Upper
Lower

③① ②④
NC
NO

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

Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
Knob AF02-111	Maintained	–	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2P2B11** **AH165-2P2B22** **AH165-2P2B33**	Panel thickness 1 to 5 25 / 11.5 / 42.5 / 24 / ø25
	Spring return	–	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2P0B11** **AH165-2P0B22** **AH165-2P0B33**	
Knob AF02-112	Maintained	–	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YP2B11** **AH165-2YP2B22** **AH165-2YP2B33**	Panel thickness 1 to 5 25 / 11.5 / 42.5 / 24 / 25sq.
	Spring return	–	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YP0B11** **AH165-2YP0B22** **AH165-2YP0B33**	
Key AF02-113	Maintained	A	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2J2A11A** **AH165-2J2A22A** **AH165-2J2A33A**	Panel thickness 1 to 5 25 / 11.5 / 13.5 / 42.5 / 37 / ø25
		B	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2J2B11A** **AH165-2J2B22A** **AH165-2J2B33A**	
		D	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2J2D11A** **AH165-2J2D22A** **AH165-2J2D33A**	
	Spring return	A	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2J0A11A** **AH165-2J0A22A** **AH165-2J0A33A**	
Key with square bezel AF02-114	Maintained	A	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YJ2A11A** **AH165-2YJ2A22A** **AH165-2YJ2A33A**	Panel thickness 1 to 5 25 / 11.5 / 13.5 / 42.5 / 37 / 25sq.
		B	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YJ2B11A** **AH165-2YJ2B22A** **AH165-2YJ2B33A**	
		D	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YJ2D11A** **AH165-2YJ2D22A** **AH165-2YJ2D33A**	
	Spring return	A	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2YJ0A11A** **AH165-2YJ0A22A** **AH165-2YJ0A33A**	

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

A: B: D:

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

• **Terminal number and contact block position**

Type number display side

Upper
Middle
Lower

③① ②④
NC
NO
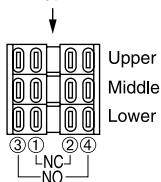
Contact arrangement (terminal No.: common)
1NO+1NC: Middle
2NO+2NC: Upper, lower
3NO+3NC: Upper, middle, lower

• **Contact arrangement and operator positions:**
2-position
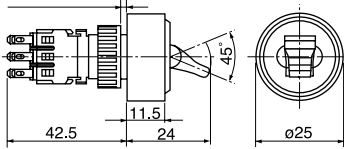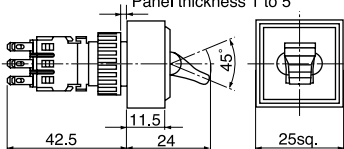
Contact arrangement		1NO+1NC	2NO+2NC	3NO+3NC
Operator position	Left	M 1 —— 2 3 —— 4	U 1 — 2 3 — 4 1 — 2 3 —L— 4	1 — 2 3 — 4 U 1 — 2 3 — 4 M 1 — 2 3 — 4 L
	Right	M 1 —— 2 3 —— 4	U 1 — 2 3 — 4 1 — 2 3 —L— 4	1 — 2 3 — 4 U 1 — 2 3 — 4 M 1 — 2 3 — 4 L

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

160
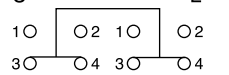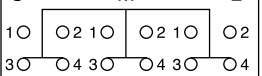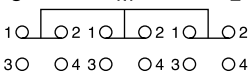
Selector Switches
AH165-2

■ **Selector switches/2-position**

Operator	Lever color	Operation	Contact	Type	Dimensions, mm
Lever AF87-209	Black	Maintained	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2H2B11** **AH165-2H2B22** **AH165-2H2B33**	Panel thickness 1 to 5 45° 11.5 42.5 24 ø25
Lever with square bezel AF87-203	Black	Maintained	1NO+1NC 2NO+2NC 3NO+3NC	**AH165-2SH2B11** **AH165-2SH2B22** **AH165-2SH2B33**	Panel thickness 1 to 5 45° 11.5 42.5 24 25sq.

· **Contact arrangement and operator position**

AH165-2H, 2SH

Lever / Contact block	Up	Down
1NO+1NC	M 1○ ○2 3○——○4	M 1○—|—○2 3○ ○4
2NO+2NC	U L 1○ ○2 1○ ○2 3○—○4 3○—○4	U L 1○—○2 1○—○2 3○ ○4 3○ ○4
3NO+3NC	U M L 1○ ○2 1○ ○2 1○ ○2 3○—○4 3○—○4 3○—○4	U M L 1○—○2 1○—○2 1○—○2 3○ ○4 3○ ○4 3○ ○4

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**

Type number display side
↓

Upper
Middle
Lower

③① ②④
└NC┘
└—NO—┘
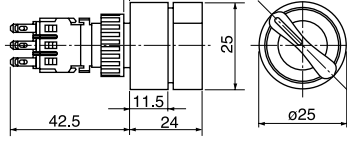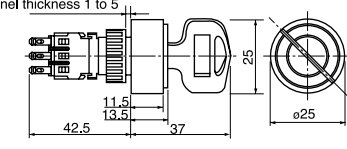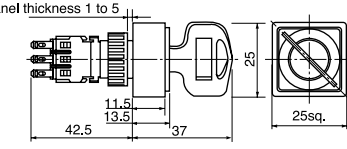
Contact arrangement (terminal No.: common)
1NO+1NC: Middle
2NO+2NC: Upper, lower
3NO+3NC: Upper, middle, lower

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

Operator	Operation	Key removable position	Contact	Type	Dimensions, mm
Knob	Maintained	–	2NO+2NC 3NO+3NC	**AH165-2P3B22** **AH165-2P3B33**	Panel thickness 1 to 5 25 / 11.5 / 42.5 / 24 / ø25
	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	Maintained	–	2NO+2NC 3NO+3NC	**AH165-2YP3B22** **AH165-2YP3B33**	Panel thickness 1 to 5 25 / 11.5 / 42.5 / 24 / 25sq.
	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	Maintained	A	2NO+2NC 3NO+3NC	**AH165-2J3A22A** **AH165-2J3A33A**	Panel thickness 1 to 5 25 / 11.5 / 13.5 / 42.5 / 37 / ø25
		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	Maintained	A	2NO+2NC 3NO+3NC	**AH165-2YJ3A22A** **AH165-2YJ3A33A**	Panel thickness 1 to 5 25 / 11.5 / 13.5 / 42.5 / 37 / 25sq.
		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**	

(Operator images: AF87-208, AF87-202, AF87-223, AF87-222)

• The Key can be removed at the following positions:

A: ⊘ B: ⊗ C: ✳ D: ⊘ E: ① F: ⑂ G: ⑂
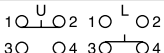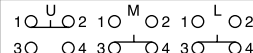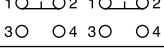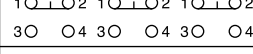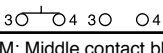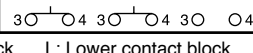
For spring-return selector switches, the key can be removed only at position E.
For manual/spring-return selector switches, the key can be removed at positions D, E and F for type J6, and position A, E and G for type J7.
• There are 6 available key types; A, B, C, D, E and F.
  Standard key code is A.
• With wire-wrap pin terminals have a depth of 47mm.

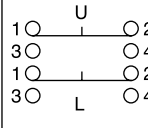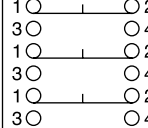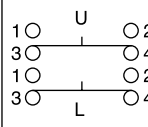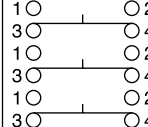• **Contact arrangement and operator positions:**

Contact arrangement		2NO+2NC	3NO+3NC
Operator position	Left	1○–○2 1○–○2 (U) (L) 3○ ○4 3○–○4	1○–○2 1○–○2 1○–○2 (U) (M) (L) 3○ ○4 3○–○4 3○–○4
	Center	1○–○2 1○–○2 3○ ○4 3○ ○4	1○–○2 1○–○2 1○–○2 3○ ○4 3○ ○4 3○ ○4
	Right	1○ ○2 1○–○2 3○–○4 3○ ○4	1○ ○2 1○ ○2 1○–○2 3○–○4 3○–○4 3○ ○4
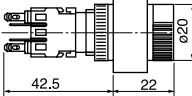
U: Upper contact block   M: Middle contact block   L: Lower contact block
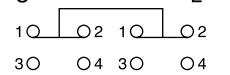• Contact block positions: *See page 161*

■ **Illuminated selector switches**

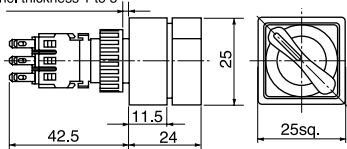| Operator	Operation	Lamp voltage	No. of positions	Contact	Type	Dimensions, mm
Knob	Maintained	Flat LED 24V DC	2	1NO+1NC	**AH165-2PL2☐11E3**	
				2NO+2NC	**AH165-2PL2☐22E3**	
			3	2NO+2NC	**AH165-2PL3☐22E3**	
		Incandescent 24V AC/DC	2	1NO+1NC	**AH165-2PL2☐11E**	
				2NO+2NC	**AH165-2PL2☐22E**	
			3	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**	

AF90-607

· **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
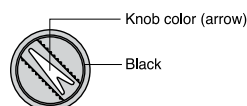
Knob color (arrow)
Black

· **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**

Type number display side

Upper
Middle
Lower

③① ②④
NC
NO
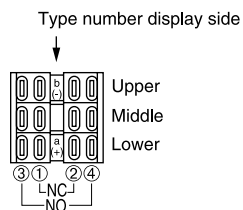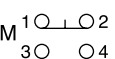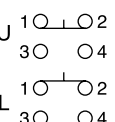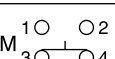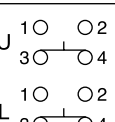
Contact arrangement (terminal No.: common)
1NO+1NC: Middle
2NO+2NC: Upper, lower

· **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
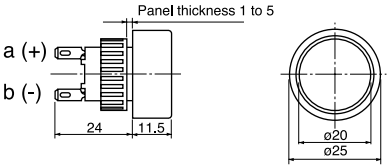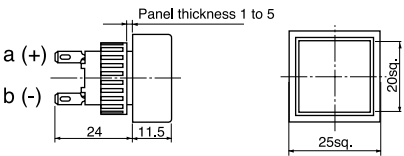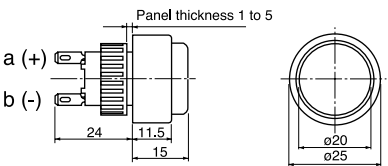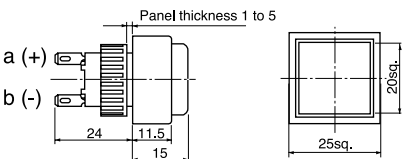
3-position

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**	Panel thickness 1 to 5 a (+) b (-) 24 11.5 ø20 ø25
	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**	Panel thickness 1 to 5 a (+) b (-) 24 11.5 20sq. 25sq.
	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**	Panel thickness 1 to 5 a (+) b (-) 24 11.5 15 ø20 ø25
	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**	Panel thickness 1 to 5 a (+) b (-) 24 11.5 15 20sq. 25sq.
	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.

AH165-2
Mounting space

■ Mounting space, mm
· **Illuminated pushbuttons, pushbuttons, selector switches,**
  illuminated selector switches and pilot lights

Round head

Panel
cutting
ø16.2$^{+0.2}_{0}$

25

25   25

Square head

Panel
cutting
ø16.2$^{+0.2}_{0}$

25

25   25
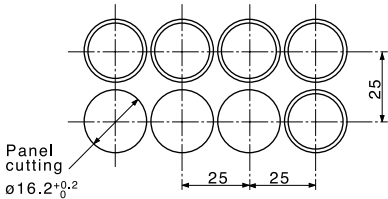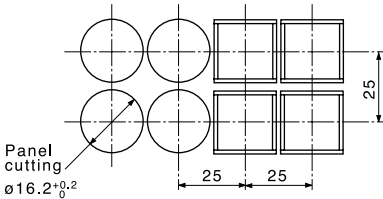
Mushroom head
Push-lock, turn-reset

Panel
cutting
ø16.2$^{+0.2}_{0}$

33

33
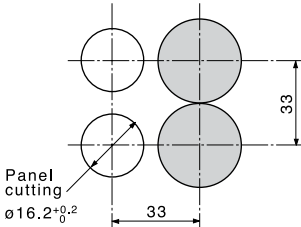
■ Terminal number

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

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.
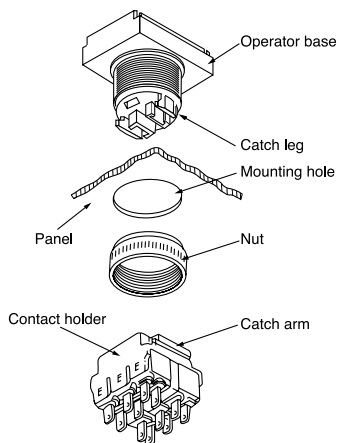
■ Mounting steps of switch with transformer
①Pass the switch
operator through the
panel hole and secure
with a nut by way of the
retainer metal from the
front of the panel.
②Align the position of the
catch arm of the contact
block holder with that of
the catch leg of the switch
operator. Engage these
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.
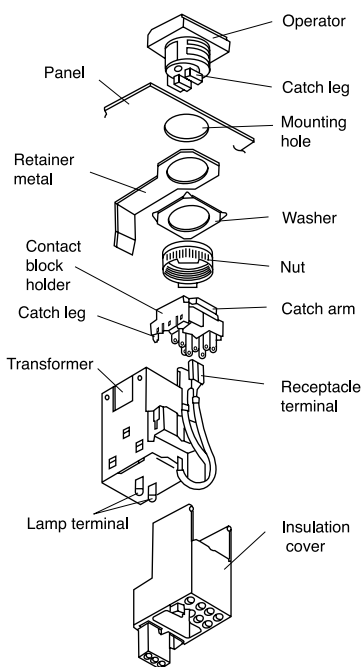
■ Installing the protection cover / dust-tight cover, guard-ring
Be careful that the panel thickness does not exceed the
following:
Panel thickness
Protection cover: 2.6mm max.
Dust-tight cover: 2.0mm max.
Guard ring: 2.5mm max.

■ 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).
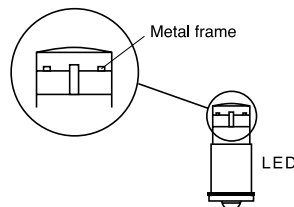
· To replace the lamp of a AH165-2 illuminated pushbutton
 switch (ML,VL), remove the button and draw out the oil-tight
 cap.
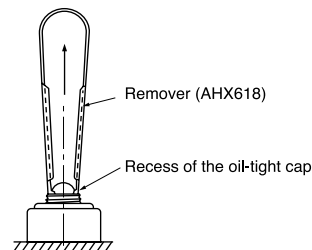
· Then, replace the lamp using a lamp changer (AHX672)
 and push the oil-tight cap into its original position with its
 engaging projection properly adjusted (see the figure below).
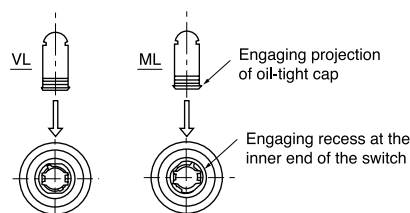
Note: Lamp of AH165-ZM type can not be replaced.

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■ 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.

Screen
Color lens

Screen

Color lens   Legend plate

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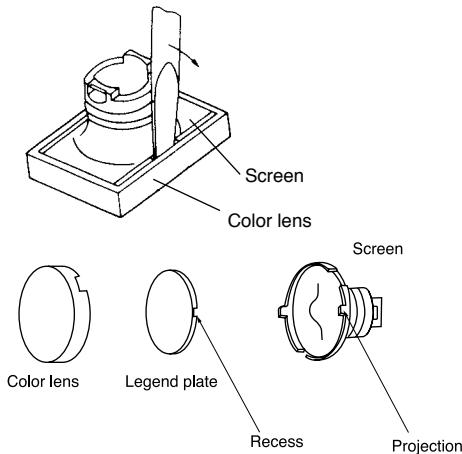
· For an AH165-2, use a small standard screwdriver or a similar tool with a flat end. If one side of the color lens is removed from the screen, insert the screwdriver or a similar tool deeper and remove the color lens together with the screen.

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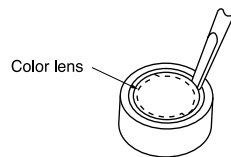
■ Replacing pushbuttons
In the case of alternative action type pushbutton switches and illuminated pushbutton switches, be sure not to replace the pushbuttons in their locked state. This could result in internal damage to the mechanism.

■ 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.
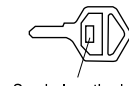
Symbol on the key   Symbol on the main unit

· Fully insert the key into the main unit before turning the key.
· The key turning force should not exceed 0.1 N·m.
· Do not pull out or insert the key forcibly.

■ Wiring connections
· Use a soldering iron with a wattage of not more than 30W and a tip length of more than 20mm.
  Use a rosin-core solder
  With a 30W iron complete soldering within 5 seconds, or 10 seconds with a 20W iron. Do not apply external force to the terminals. Do not deform the terminals.
  Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorie is rather high.
· Wires that can be connected
  Two solid wires with a maximum diameter of 0.8mm (solder)
  One stranded wire with a maximum area of 0.75mm^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.

■ 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
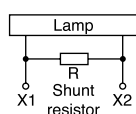
Lamp

R
X1 Shunt X2
    resistor

・24V DC
 R: 10kΩ (1W)

Example 2

Transformer

C   R   C: Capacitor
          R: Resistor
X1   X2
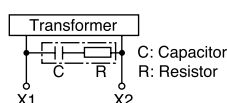
・110V AC
 C: 0.33μF (250V AC)
 R: 120Ω (0.25W)
・220V AC
 C: 0.33μF (250V AC)
 R: 120Ω (0.25W)

・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 is
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.
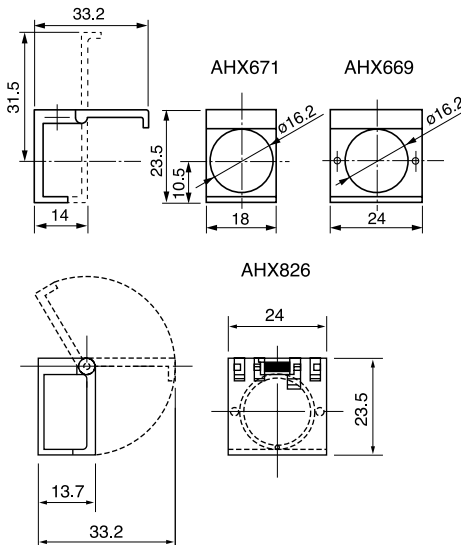
All crossed out items are discontinued.

Description	Type
Legend sheet	Round Type: **AHX615-□** Legend: ON, OFF, UP, DOWN Square Type: **AHX616-□** Legend: ON, OFF, UP, DOWN START, STOP, OPEN CLOSE, AUTO, MAN, RESET, POWER, REV, FWD, HIGH, LOW Rectangular Type: **AHX617-□** Legend: ON, OFF, UP, DOWN START, STOP, AUTO, MAN, FOWARD, REVERSE
SH-165	When ordering, specify desired legend in the □ at the end of ordering code, Transparent blank sheets are also available. Use black oil ink.

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	
SH-164	**AHX667-B**	Black	

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**
AF87-74 Rectangular		**AHX667-T**

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
	
	33.2
	31.5
	14
	AHX671 AHX669
	23.5
	10.5
	ø16.2 ø16.2
	18 24
	
	AHX826
	24
	23.5
	13.7
	33.2

Dust-tight cover AF91-123, SI-41	For round and square head button Type: **AHX822** Dimensions, mm: 24sq. x 14.2 For rectangular head button Type: **AHX668** Dimensions, mm: 24 x 30 x 14.2 For mushroom head button Type: **AHX649** Dimensions, mm: ø30 x 18 These covers protect against dust. Note: Applicable panel thickness is 2.0mm max.

Guard ring
 	
SI-42
	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
M, M5 SI-40		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
SM, SM5 SI-43		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
TM, TM5 SI-44		Green Red White Blue Yellow Orange Black	**AHX684-G** **AHX684-R** **AHX684-W** **AHX684-S** **AHX684-Y** **AHX684-O** **AHX684-B**

■ Accessories for AH165-2

Description	Type
Color lens (Round)	**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 2E, 2E5, 2EL, 2EL5, 2ZE) Color Type Green **AHX2605-G** Red **AHX2605-R** Yellow **AHX2605-Y** Blue **AHX2605-S** Orange **AHX2605-O** Clear **AHX2605-C** AF87-631
Color lens (Square)	**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** AF87-632

Description	Type

Legend plate	**For flush head**
	Color Type Used with
	White **AHX2609-W** Incandescent lamp,
	                  LED lamp, Pushbutton [1]
	Clear **AHX2609-C** Neon lamp [2]
	Black **AHX2609-B** Pushbutton [3]
	Dimensions, mm: ø18 x 0.9 [4]
	
	For extended head
	Color Type Used with
	White **AHX2610-W** Incandescent lamp,
	                  LED lamp, Pushbutton [1]
	Clear **AHX2610-C** Neon lamp [2]
	Black **AHX2610-B** Pushbutton [3]
	Dimensions, mm: ø18 x 4.4 [4]
	
	For flush square
	Color Type Used with
	White **AHX2611-W** Incandescent lamp,
	                  LED lamp, Pushbutton [1]
	Clear **AHX2611-C** Neon lamp [2]
	Black **AHX2611-B** Pushbutton [3]
	Dimensions, mm: 17sq. x 0.9
	
	For extended square, concave square
	Color Type Used with
	White **AHX2612-W** Incandescent lamp,
	                  LED lamp, Pushbutton [1]
	Clear **AHX2612-C** Neon lamp [2]
	Black **AHX2612-B** Pushbutton [3]
	Dimensions, mm: 17sq. x 4.4
	
	[1] Illuminated pushbutton switches and pilot lights with incandescent lamps or LED lamps, Pushbutton switches (excluding).
	[2] Illuminated pushbutton switches and pilot lights with neon lamps.
	[3] Pushbutton switches (black)
	[4] Engraved range: 17mm dia.
	
	AF87-631
	AF87-630

Mushroom head button	**For illuminated pushbuttons** (Used with 2ML, 2YML) Color Type Green **AHX2614-G** Red **AHX2614-R** White **AHX2614-W** Yellow **AHX2614-Y** Blue **AHX2614-S** Orange **AHX2614-O** **For non-illuminated pushbuttons** (Used with 2M, 2YM) Color Type Green **AHX2613-G** Red **AHX2613-R** White **AHX2613-W** Yellow **AHX2613-Y** Blue **AHX2613-S** Orange **AHX2613-O** Black **AHX2613-B** AF87-633
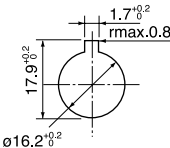
Description	Type

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 $1.7^{+0.2}_{0}$ rmax.0.8 $17.9^{+0.2}_{0}$ ø$16.2^{+0.2}_{0}$

Key	Type	Used with
   AF94-464	**AHX662-□**	AH164-J, SJ, JK, SJK AH165-J, SJ, JK, SJK, JM, RJM
	AR9C022-□	AH165-2J, 2YJ
	Note: Replace the □ mark by the key type code.	
	Code: A, B, C, D , E, F Types	
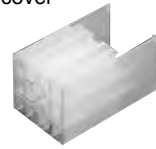
■ **Accessories for AH164, AH165 and AH165-2**

Description	Type		
Incandescent lamp	Voltage	Type	
SD-924	6V, 0.6W	**AHX641**	
	14V, 0.7W	**AHX642**	
	28V, 0.7W	**AHX643**	
LED lamp	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)		
AF02-116	Note: White LED switches use Orange LED bulbs.		
Neon lamp	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
SP-119		**AHX654-P**	Orange
Panel plug	Color	Type	
Round	Black	**AHX622-B**	IP40
	Gray	**AHX622-GY**	IP40
Square	Black	**AHX644-B**	IP40
	Gray	**AHX644-GY**	IP40
Rectangular	Black	**AHX645-B**	IP40
	Gray	**AHX645-GY**	IP40
SI-186	Black	**AHX850-B**	IP65
Lamp changer	Type: **AHX672**		
AF02-117	If the switch is fitted with a lamp, use this tool to remove the lamp. The tool is unnecessary when installing a lamp.		
Remover	Type: **AHX618**		
SE-34	This tool is used for replacing the color chips or screens.		
Contact holder remover	Type: **AHX699**		
SP-522	This tool is used to remove a contact holder when switches are densely installed.		

Description	Type	
Wrench	Type: **AHX601**	
SE-741	When installing a command switch on a panel, this tool is useful for tightening the switch firmly and efficiently.	
Terminal cover	Type: **AHX2602**	
AF87-637	This cover is used with AH164 and AH165 and AH165-2 (except pilot lights). Pass the wires through the cover, then mount the cover in position.	
Contact block	Terminal	Type
	Solder/Tab	**AGX001**
SK-1140	Wire-wrap	**AGX001–W**
Dummy unit	Type: **AGX002**	
SK-1141	A dummy unit is used to fill the space where no contact blocks are installed. For example, two dummy units are used if 1NO+1NC contact block is installed, and one dummy unit is used if 2NO+2NC contact blocks are installed.	
Remover	Type: **AGX012**	
SM-334	This tool is used for replacing the contact blocks or dummy units.	

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

Dimensions, mm

Solder/Tab
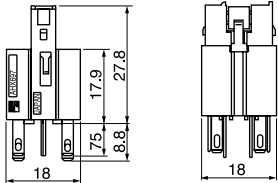
PC board mounting
Pushbuttons
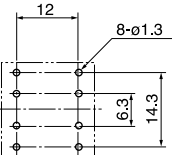
Wire-wrap
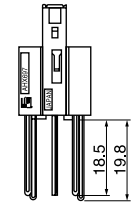
PC board

Illuminated pushbuttons

Switch

Socket

50.6
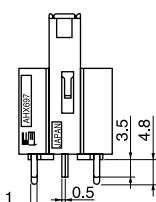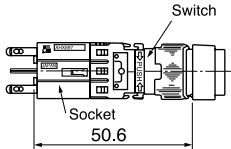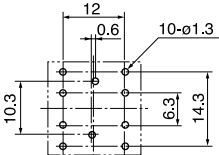
For wiring to wire-wrap pin terminals, select appropriate wire sizes and tool from the table below.

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

Type			
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		

Type			
AH164-TX	16		
TX1	17.5		
TX2B	13.2		

Type			
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	-

Type			
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		

Type			
AH165-X	13.6		

Type			
AH165-TS	9.7		
TC	15.6		
TC4□E-□K1	46.4		
TC4□E-□K	52.8		

Note: [*1] For 1NC
[*2] For 2NC

■ **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	-

Type	
AH165-2Z	9.7
2ZE	10.1
2SZ	10.9
2SZE	11.4

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   &: lamp type

#: color of button or grove $: draw-out position of key

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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   &: 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-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 &: lamp type
#: color of button or grove $: draw-out position of key
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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*	DR22B3-*B	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

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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-*&#	

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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		Discontinued	Replacement	
PART #	PART #	TYPE	PART #	PART #	TYPE
RCa470-AE#@	AR30E5R-@@#	Round extended head	RCa470-P2#@	AR30PR-2@@#	Selector switch
RCa470-AF@	AR30F5R-@@#	Flush head	RCa470-P3#@	AR30PR-3@@#	
RCa470-AG#@	-	w/guard	RCa470-PA01#@	AR30PR-1@@#	
RCa470-AG1#@	AR30G6R-@@#	w/guard	RCa470-PA2#@	AR30PR-0@@#	
RCa470-B1#@	AR30B0R-@@#	Giant head	RCa470-PA3#@	AR30PR-6@@#	
RCa470-B2#@	AR30B1R-@@#		RCa470-PC#@@@	AR30PCR-3@@@#	
RCa470-B3#@	AR30B2R-@@#		RCa470-PL3#2@*	AR30PL-2@@*&#	
RCa470-B4#@	AR30B3R-@@#		RCa470-PL3#3@*	AR30PL-3@@*&#	
RCa470-D@%	-	Push button w/key	RCa470-Q#@	-	Pull type
RCa470-EF#@	AR30E0R-@@#	Round extended head	RCa470-S1#2	AR30S1R-22#	w/selector ring
RCa470-F#@	AR30F0R-@@#	Flush head	RCa470-S2#2	AR30S2R-22#	
RCa470-G#@	AR30G0R-@@#	w/guard	RCa470-S3#2	AR30S3R-22#	
RCa470-G1#@	AR30G1R-@@#		RCa470-S4#2	-	
RCa470-H2#@	AR30WR-2@@#	Selector switch	RCa470-S5#2	-	
RCa470-H3#@	AR30WR-3@@#		RCa470-S6#2	AR30S6R-22#	
RCa470-HA01#@	AR30WR-1@@#		RCa470-T#1(T)*	AR30Q7L-11*&#	Push-pull
RCa470-J2$@%	AR30JR-2$@@%	Key selector switch	RCa470-UB@	AR30A!!-@@@@B	Joy stick
RCa470-J3$@%	AR30JR-3$@@%		RCa470-V#@	AR30V0R-@@#	E-stop
RCa470-JA01$@%	AR30JR-1E@@%		RCa470-V1#@	AR30V1R-@@R	
RCa470-JA2$@%	AR30JR-0A@@%		RCa470-V1J#@	-	
RCa470-JA3$@%	AR30JR-6$@@%		RCa470-VJ#@	-	
RCa470-JC3$@@%	AR30JCR-3$@@@%		RCa470-W1#@	-	Lever select
RCa470-K2$@%	-		RCa470-W3#@	-	
RCa470-K3$@%	-		RCa470-ZK#(T)*	DR30K0L-*&#	Pilot light
RCa470-L#@(T)*	AR30E0L-@@*&#	Round extended head	RCa470-ZK3#(T)*	-	
RCa470-L#@(T)*G	AR30G4L-@@*&#	w/guard	RCa470-ZM#(T)*	DR30D0L-*&#	
RCa470-L#@*GS	AR30G3L-@@*&#		RCa470-ZM3#(T)*	-	
RCa470-L3#@(T)*	-	Round extended head	RCa470-ZN#(T)*	DR30F4M-*&#	
RCa470-L4#1(T)*	-		RCa470-ZN1#(T)*	DR30F4N-*&#	
RCa470-M#@	AR30M0R-@@#	Mushroom head	RCa470-ZN2#(T)*	-	
RCa470-M1#@	-		RCa470-ZN3#(T)*	-	
RCa470-M2#@	AR30M3R-@@#		RCa470-ZS#(T)*	-	
RCa470-N#@	AR30N0R-@@R	Turn-lock	RCa470-ZS3#(T)*	-	

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

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