

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

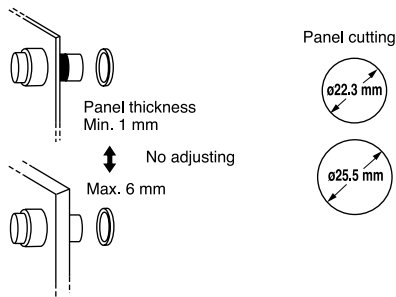
### General information

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

#### ■ Features

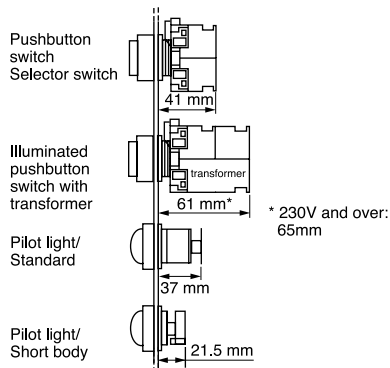
##### Facilitated mounting

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



##### Miniaturization

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



#### Illuminated pushbuttons



AR22F0L



AR22E0M



AR22V0L

#### Pushbuttons



AR22E0R



AR22E0Y



AR22VGE

#### Pilot lights



DR22D0L



DR22D0L-□8, □9

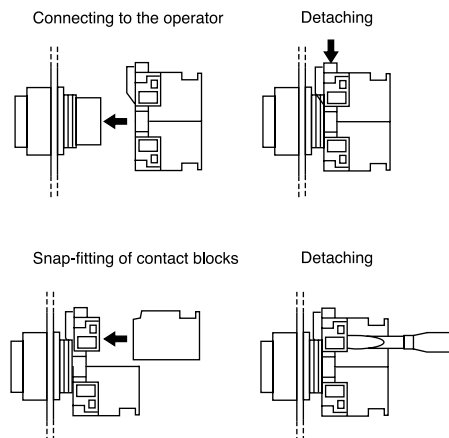
#### Selectors



AR22PR

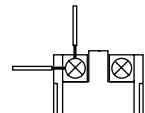
#### Easy replacing contact block and transformer

- 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.



#### Wiring

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



#### Safety

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

#### Protection

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

#### ■ Approvals



# Pushbuttons/Selectors/Pilot Lights/Buzzers







## AR22 and DR22

### Quick reference guide

#### ■ Illuminated pushbutton switches

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

#### ■ Pushbutton switches

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

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### Quick reference guide


#### ■ Pushbutton switches

Operator	Type	Operator	Type	Operator	Type
Extended with full guard (24mm dia.)	<b>AR22G3R, G8R</b>  AF94-292	Pushbutton with selector ring (2-position)	<b>AR22S1R, S2R, S3R, S6R</b>  AF97-507	Flush round head with square bezel	<b>AR22F0Y, F5Y</b>  AF94-295
Flush with full guard (24mm dia.)	<b>AR22G2R, G7R</b>  AF02-68	Push-lock, turn-reset (40mm dia. with white arrow)	<b>AR22V5R</b>  AF97-70	Extended round head with square bezel	<b>AR22E0Y, E5Y</b>  AF94-297
Extended with half guard	<b>AR22G0R, G5R</b>  AF96-236	Flush square head	<b>AR22F0S, F5S</b>  AF94-316	Mushroom head with square bezel (29mm dia.)	<b>AR22M4Y</b>  AF94-298
Mushroom head with full guard (40mm dia.)	<b>AR22M3R, M8R</b>  AF94-372	Extended square head	<b>AR22E0S, E5S</b>  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)	<b>AR22V0R</b>  AF97-70	Push-lock, turn-reset (29mm dia.)	<b>AR22V4R</b>  AF95-53	Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)	<b>AR22VGE</b>  KK03-037
Push-lock, turn-reset (40mm dia.)	<b>AR22V2R</b>  AF94-432	Key release push-lock, turn-reset (40mm dia.)	<b>AR22V7R</b>  AF98-37		
Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)	<b>AR22VSR</b>  AF99-317	Push-lock, pull-reset (35mm dia.)	<b>AR22Q2R</b>  AF95-52		













Notes: Provided with the  (Direct opening action)


# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Quick reference guide

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





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

Note: Provided with the  (Direct opening action)

#### ■ Selector switches

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

#### ■ Illuminated selector switches










Operator	Type	Operator	Type
Knob	<b>AR22PL</b>  AF94-306	Knob with square bezel	<b>AR22PP</b>  AF94-318
			

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22




### Quick reference guide

#### ■ Pilot lights




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

Note: With resistor unit type: Not approved standard

#### ■ Joy stick selector switches



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

#### ■ Buzzers

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

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

#### ■ Numerical indicators



Display	Type	Display	Type
One-digit	<b>DR22N1</b>  KK02-548	Two-digit	<b>DR22N2</b>  KK02-16B

# 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) \*<sup>1</sup>
- 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 <sup>2</sup>	A: Orange
B: Black	S: Blue
W: White	C: Clear
T: Green, Red, Black (For AR22F0R)	(For AR22FAR, FBR, EAR, EBR)

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

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

#### ⑥ Special product

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

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

\*<sup>2</sup> Button color of emergency stop switches are Red only.

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

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Ratings and specifications

#### ■ Standards approved

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

#### ■ Specifications (Indoor use)

Description	Pushbutton switch Illuminated pushbutton switch Emergency stop pushbutton switch Emergency stop illuminated pushbutton switch Selector switch Illuminated selector switch	Joy stick selector (Lever switch)	Pilot light
Rated insulation voltage	600V AC/DC * <sup>1</sup>	250V AC/DC	250V AC/DC * <sup>2</sup>
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 * <sup>3</sup>	2000V AC, 1 minute * <sup>4</sup>	
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 * <sup>5</sup> Constant: 16.7Hz, double amplitude 3mm		
Shock	Malfunction durability: 100m/s <sup>2</sup> * <sup>6</sup> Mechanical durability: 500m/s <sup>2</sup>		Mechanical durability: 500m/s <sup>2</sup>
Ambient temperature (No condensation or no icing)	-20 to +70°C * <sup>7</sup>	-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: \*<sup>1</sup> Illuminated type without transformer and AR22VG type: 250V AC/DC

\*<sup>2</sup> Pilot light with transformer: 600V AC

\*<sup>3</sup> Illuminated type without transformer: 2000V AC, 1 minute (except AR22VGF type)

\*<sup>4</sup> Pilot light with transformer: 2500V AC, 1 minute

\*<sup>5</sup> Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s<sup>2</sup>), according to the test condition of EN60947-5-5 (1998)

\*<sup>6</sup> Emergency stop type: 150m/s<sup>2</sup>

\*<sup>7</sup> AR22VGE type: -20 to +60°C, illuminated type: -20 to +50°C

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Ratings and specifications

#### ● Mechanical durability

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

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

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

#### ● Buzzers

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

#### •Current consumption

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



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Ratings and specifications

#### ■ Contact ratings

#### ● UL/CSA standards

AC (COS  $\phi=0.35$ )

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

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

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

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

#### ● EN standard/TÜV approved

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

Lamp rated voltage UL/CSA standards, TÜV approved

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

■ Operating characteristic (1NO+1NC)

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

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

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

■ Lamp ratings

•Illuminated pushbuttons, illuminated selectors, pilot lights

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

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

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

• Except AR22VGF type

•Emergency stop illuminated pushbuttons (AR22VGF type)

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

Notes: Lamp base: BA9S/13

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

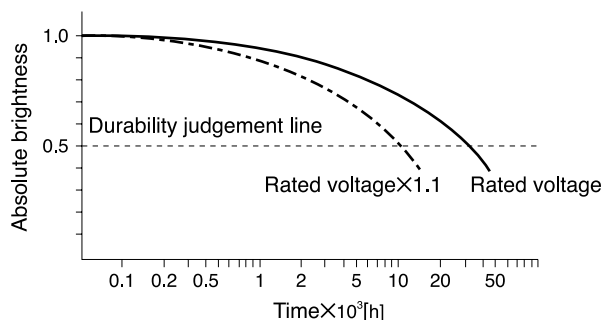
### Ratings and specifications

#### ■ Lamp durability

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

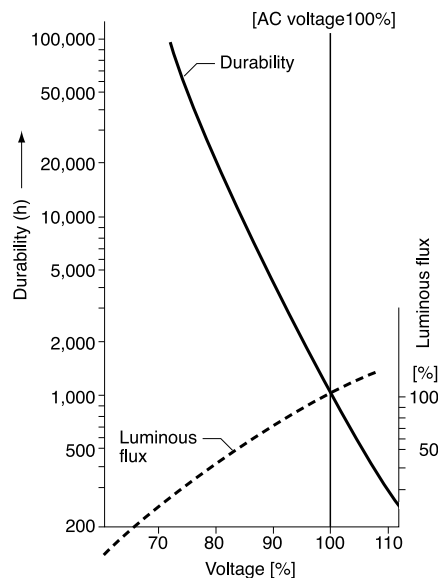
Note: The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.

#### Estimated durability for LED lamps



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

#### Incandescent lamp voltage characteristics



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

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

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

# Pushbuttons AR22


## ■ Pushbutton switches

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

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


Note: ■ □ See page 21

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



AF94-297

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



AF94-298

### •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

### •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


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

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

Replace the ■ mark by the symbol mark code

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

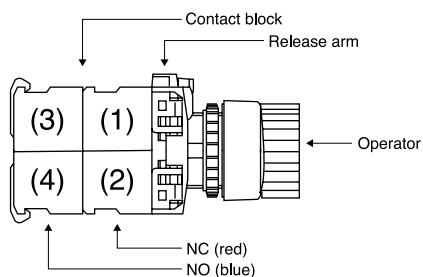
# Pushbuttons AR22

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

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





● Contact closed  
— Contact open

## •Position of contact block



### ■ Emergency stop pushbutton switches

➞ (Direct opening action), conform to EN418

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




Note: • Button color: Red only

### •Contact arrangements

Contact arrangements other than above are available

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

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

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

# Pushbuttons/Selectors/Pilot Lights/Buzzers

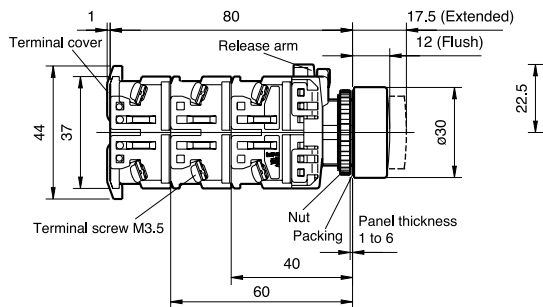
## AR22 and DR22

### Dimensions

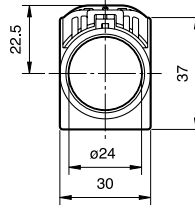
#### ■ Dimensions, mm

#### • Pushbutton switches

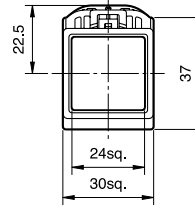
##### Flush/Extended



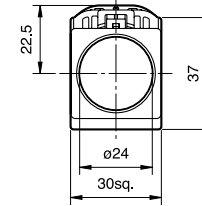
AR22F0R, F5R  
AR22E0R, E5R  
AR22FAR, FBR  
AR22EAR, EBR



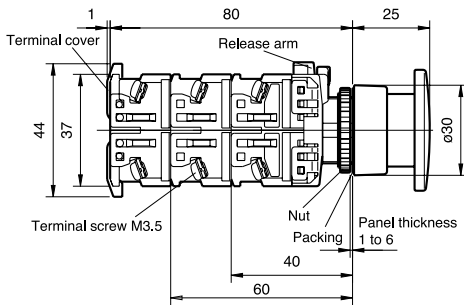
AR22F0S, F5S  
AR22E0S, E5S



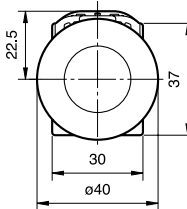
AR22F0Y, F5Y  
AR22E0Y, E5Y



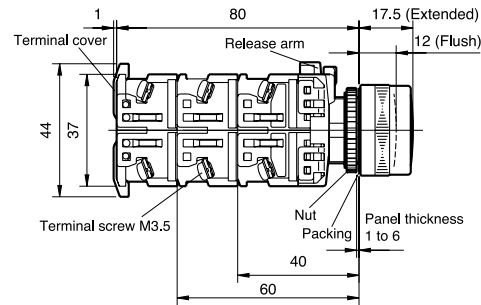
##### Mushroom (40mm dia.)



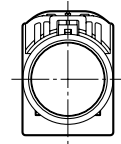
AR22M0R, M5R



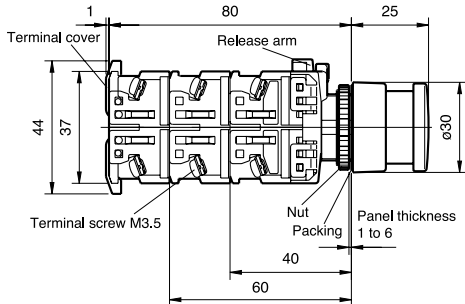
##### Flush/Extended with full guard



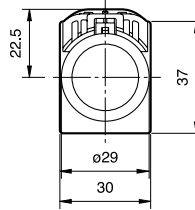
AR22G3R, G8R  
AR22G2R, G7R



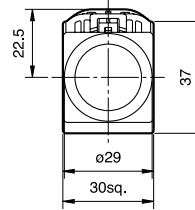
##### Mushroom (29mm dia.)



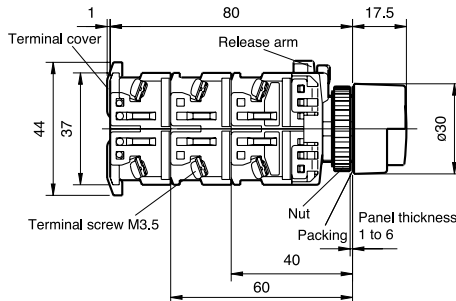
AR22M4R, M9R



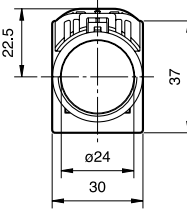
AR22M4Y



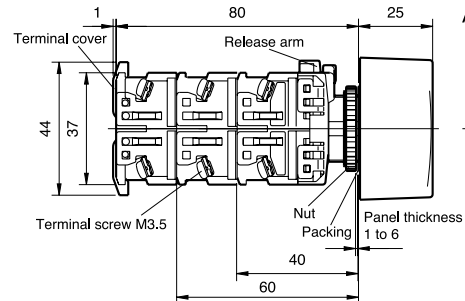
##### Extended with half guard



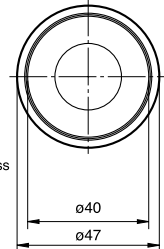
AR22G0R, G5R



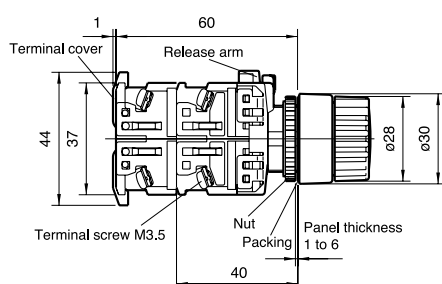
##### Mushroom with full guard (40mm dia.)



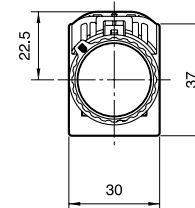
AR22M3R, M8R



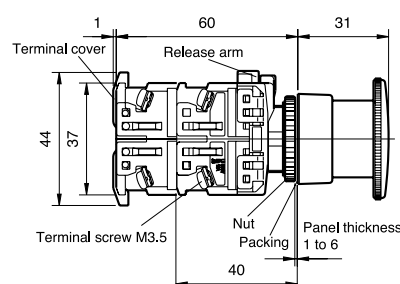
##### Pushbutton with selector ring



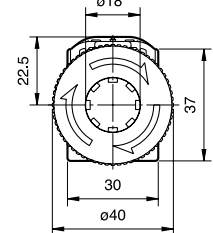
AR22S1R, S2R  
AR22S3R, S6R



##### Push-lock, turn-reset



AR22V5R





# Pushbuttons/Selectors/Pilot Lights/Buzzers

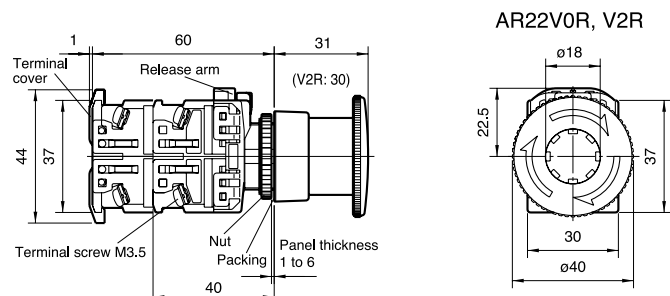
## AR22 and DR22

### Dimensions

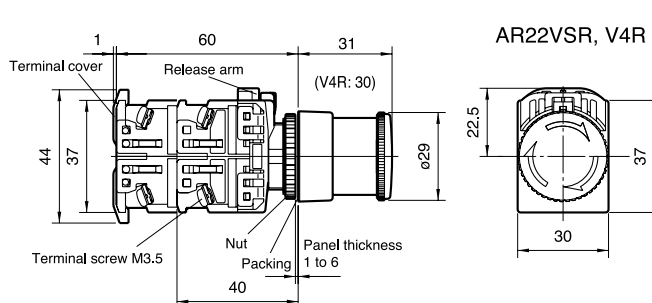
#### ■ Dimensions, mm

#### •Emergency stop pushbutton switches

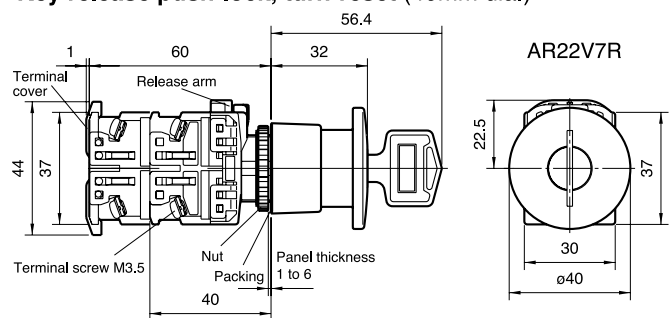
##### Push-lock, turn-reset (40mm dia.)



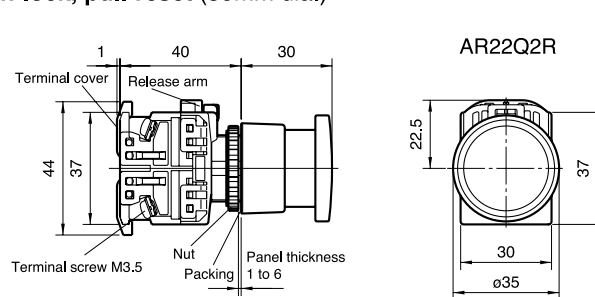
##### Push-lock, turn-reset (29mm dia.)



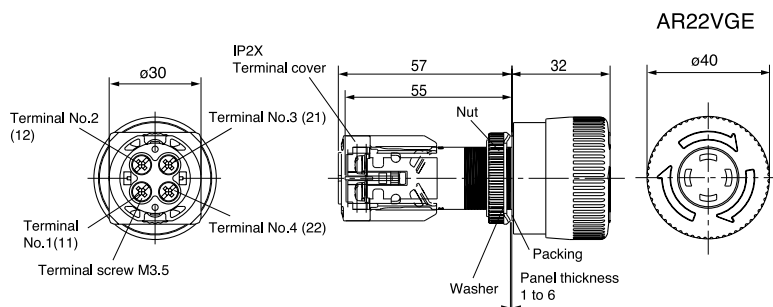
##### Key release push-lock, turn-reset (40mm dia.)



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

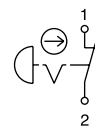


##### Unibody push-lock, turn-reset (40mm dia.)

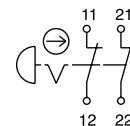


#### Wiring diagrams

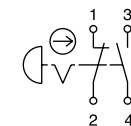
1NC



2NC



1NO+1NC



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