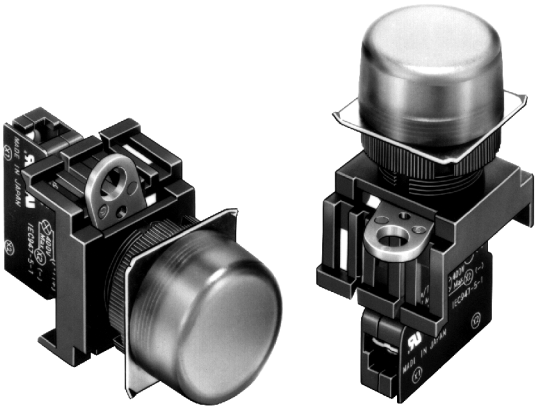
Pilot Lights – 22 mm

M22

22-mm dia. and 25-mm dia. Round and Square Indicators

- Locking lever ensures easy mounting and removal of switch unit
- Use optional 25-mm dia. ring to install in 25-mm dia. panel cutouts
- Finger protection mechanism on Lamp Unit provided as a standard feature
- IP65 oil resistant: EN60947-5-1



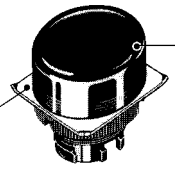
ISO 9001 Certified
JQA-0421

EC97J1162 (1998.1.26)

This product was manufactured at OMRON Izumo. OMRON Izumo has obtained approvals from international certification bodies for its quality system and environmental control system.

Ordering Information

■ CONSTRUCTION



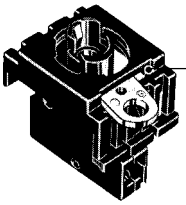
Indicator Unit

Available Colors
Red, green, yellow, white, blue

Lock Fitting

Lamp

- **Light source**
  LED Lamp
  Incandescent Lamp



Lamp Socket

- **Lighting Method**
  Illuminated (without transformer)
  Illuminated (with transformer)

(Actual color of yellow pushbuttons more closely resembles amber than true yellow.)

■ PART NUMBER LEGEND

Shipped as a set which includes the Operational Unit, LED, and Lamp Socket.

M22-□□-□ (1 2 3)

1 Flange Shape

Code	Description
F	Round/Flush
C	Square/Extended

2 Illumination Color

Code	Description
R	Red
G	Green
Y	Yellow
W	White
A	Blue

3 Light Source

Without transformer		
Code	Operating voltage	
6D	LED	6 VDC
6A		6 VAC
12A		12 VAC/DC
24A		24 VAC/DC
With transformer		
T1	LED	110 VAC
T2		220 VAC
Incandescent		
5	5 VAC	
12	12 VAC	
24	24 VAC	
HI	110 VAC	

Note: With the transformer types, LED lamp (24 VAC/DC) can be lit by directly applying 110 VAC/DC (220 VAC/DC) to the lamp terminal. The LED is 24-VAC/DC type.

(Actual color of yellow pushbuttons more closely resembles amber than true yellow.)

■ M22 INDICATOR

Appearance	Lighting	Rated voltage	Operator color	Part number
Round/Flush Without transformer	LED	6 VDC	Insert one of the following letters into the box □. R (red) Y (yellow) G (green) W (white) A (blue	**M22-F□-6D**
		6 VAC		**M22-F□-6A**
		12 VAC/DC		**M22-F□-12A**
		24 VAC/DC		**M22-F□-24A**
Round/Flush With transformer	LED	110 VAC		**M22-F□-T1**
		220 VAC		**M22-F□-T2**
Square/Extended Without transformer	LED	6 VDC		**M22-C□-6D**
		6 VAC		**M22-C□-6A**
		12 VAC/DC		**M22-C□-12A**
		24 VAC/DC		**M22-C□-24A**
Square/Extended With transformer	LED	110 VAC		**M22-C□-T1**
		220 VAC		**M22-C□-T2**

Note: To order Incandescent versions of the M22 Pilot Light, replace the last two digits in the part number (ie, 12A, 24A, T1) with the appropriate code from table 3 of the Part Number Legend at the top of the page.
Example: M22-FR-24 is a red, round indicator with 24 VAC incandescent light source.

Specifications

■ RATINGS

LED Lamp

Rated voltage	Rated current	Operating voltage
6 VDC	60 mA	6 VDC±5%
6 VAC/DC	60 mA	6 VAC/DC±5%
12 VAC/DC	30 mA	12 VAC/DC±5%
24 VAC/DC	15 mA	24 VAC/DC±5%

Incandescent Lamp

Rated voltage	Rated current	Operating voltage
6 VDC	200 mA	5 V
14 VAC/DC	80 mA	12 V
28 VAC/DC	40 mA	24 V
130 VAC/DC	20 mA	100 V

Transformer Lighting

Rated voltage	Operational voltage	Applicable lamp (BA9S/13□ gold)
110 VAC	95 to 115 VAC	LED Lamp (A22-24□)
220 VAC	190 to 230 VAC	

■ APPROVED STANDARDS

Recognized organization	Standards	File No.
UL, cUL (See note)	UL508	E41515
ASTA	EN60947-5-1	—

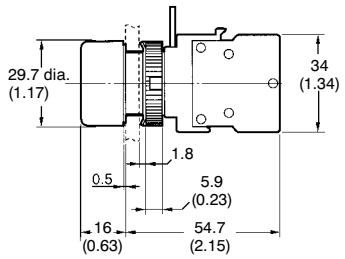
Note: UL: CSA C22 No. 14

Dimensions

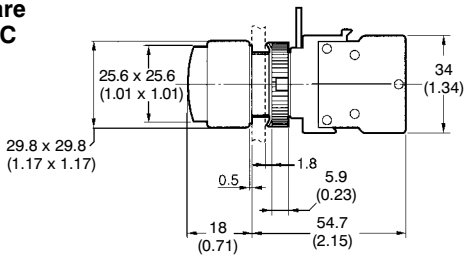
Unit: mm (inch)

■ INDICATORS

Flush
M22-F



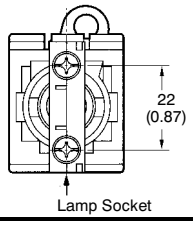
Square
M22-C



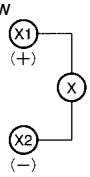
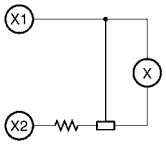
■ TERMINAL ARRANGEMENT

Terminal Arrangement (Bottom View)

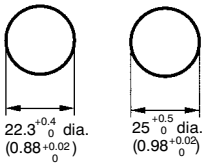
Without transformer/With transformer



■ TERMINAL CONNECTION

Without transformer	With transformer
Bottom view 	Top view 

■ PANEL CUTOUT DIMENSIONS



Note: When applying a coating such as paint to a panel, the dimensions should be those after the application of the coating. A lock fitting is provided as a standard item.

Note: For additional specifications and information refer to the *Common to all assemblies* section at the end of this publication.

Specifications

■ APPROVED STANDARDS

Recognized organization	Standards	File No.
UL, cUL (See note)	UL508	E41515
ASTA	EN60947-5-1	—

Note: UL: CSA C22 No. 14

■ RATINGS

Contacts (General-purpose Load)

Rated carry current	Rated voltage	Rated current (A)			
		Utilization category			
		AC15 (inductive load)	AC12 (resistive load)	DC13 (inductive load)	DC12 (resistive load)
10 amps	24 VAC	10	10	—	—
	110 VAC	5	10		
	220 VAC	3	6		
	380 VAC	2	3		
	440 VAC	1	2		
	24 VDC	—	—	1.5	10
	110 VDC			0.5	2
	220 VDC			0.2	0.6
	380 VDC			0.1	0.2

Note: 1. Rated current values are determined according to the testing conditions specified by JIS C4520. The above ratings were obtained by conducting tests under the following conditions as specified by JIS C4505.
(1) Ambient temperature: 20°±2°C
(2) Ambient humidity: 65±5%
(3) Operating frequency: 20 operations/min
2. Minimum applied load: 10 mA, 5 VDC

Contacts (Microload)

Rated applied load	Minimum applied load
50 mA, 5 VDC (Resistive load)	1 mA, 5 VDC

LED Indicators without Transformer

Rated voltage	Rated current	Operating voltage
6 VDC	60 mA	6 VDC±5%
6 VAC	60 mA	6 VAC/DC±5%
12 VAC/DC	30 mA	12 VAC/DC±5%
24 VAC/DC	15 mA	24 VAC/DC±5%

Incandescent Lamp

Rated voltage	Rated current	Operating voltage
6 VDC	200 mA	5 V
14 VAC/DC	80 mA	12 V
28 VAC/DC	40 mA	24 V
130 VAC/DC	20 mA	100 V

Transformer Lighting

Rated voltage	Operational voltage	Applicable lamp (BA8S/13□ gold)
110 VAC	95 to 115 VAC	LED Lamp (A22-24A□)
220 VAC	190 to 230 VAC	

■ CHARACTERISTICS

Item		Pushbutton switches		Emergency stop switches		Knob-type selector switches		Key-type selector switch
		Non-illuminated models: A22-F, A22-T, A22-G, A22-S, A22-C, A22-D, A22-H, A22-M	Illuminated models: A22L-T, A22L-G, A22L-H, A22L-D, A22L-C	Non-illuminated models: A22E	Illuminated models: A22EL	Non-illuminated models: A22S	Illuminated models: A22W	Non-illuminated models: A22K
Allowable operating frequency	Mechanical	Momentary operation: 60 operations/min max.		30 operations/min max.		Manual release: 30 operations/min max. Automatic release: 30 operations/min max.		
	Electrical	30 operations/min max.				30 operations/min max.		
Insulation resistance		100 MΩ min. (at 500 VDC)						
Dielectric strength		2,500 VAC, 50/60 Hz for 1 min between terminals of same polarity 2,500 VAC, 50/60 Hz for 1 min between terminals of different polarity and also between each terminal and ground						
Vibration resistance (See note 2)		Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)						
Shock resistance	Mechanical	1,000 m/s^2 {100G}	1,000 m/s^2 {100G}	1,000 m/s^2 {100G}		1,000 m/s^2 {100G}	1,000 m/s^2 {100G}	1,000 m/s^2 {100G}
	Malfunction (See note 2)	1,000 m/s^2 {100G} max.	600 m/s^2 {60G} max.	250 m/s^2 {25G} max.		1,000 m/s^2 {100G} max.	600 m/s^2 {60G} max.	1,000 m/s^2 {100G} max.
Life expectancy	Mechanical	Momentary operation: 5,000,000 operations min.		Momentary operation: 300,000 operations min.		500,000 operations min.	100,000 operations min.	500,000 operations min.
	Electrical	500,000 operations min.		300,000 operations min.	300,000 operations min.	500,000 operations min.	100,000 operations min.	500,000 operations min.
Ambient temperature (See note 1)		Operating: -20°C to 70°C (-4°F to 158°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 55°C (-4°F to 131°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 70°C (-4°F to 158°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 55°C (-4°F to 131°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 70°C (-4°F to 158°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 55°C (-4°F to 131°F) Storage: -40°C to 70°C (-40°F to 158°F)	Operating: -20°C to 70°C (-4°F to 158°F) Storage: -40°C to 70°C (-40°F to 158°F)
Ambient humidity		Operating: 35% to 85%						
Degree of protection		IP65						
Electric shock protection class		Class II						
Degree of contamination		3 (IEC947-5-1)						

Note: 1. With no icing or condensation.
2. Malfunction within 1 ms.

■ OPERATING CHARACTERISTICS (FOR SPST-NO/SPST-NC)

Item	Pushbutton switches	Emergency stop switches	Knob-type selector switch		Key-type selector switch	
	Illuminated Non-illuminated Pushbutton Switches	Push-lock turn-reset system	Manual release	Automatic release	Manual release	Automatic release
	A22-F, A22-G, A22-C, A22-S, A22-T, A22-H, A22-D, A22-M, A22L-T, A22L-H, A22L-D, A22L-G, A22L-C	A22E	A22S, A22W	A22S, A22W	A22K	
Total travel force (TTF) max.	29.4 N {3.0 kgf}	44.1 N {4.5 kgf}	0.34 N • m {3.5 kgf • cm} (See note)	0.25 N • m {2.5 kgf • cm} for two position (See note)	0.34 N {3.5 gf} (See note)	0.25 N • m {2.5 kgf • cm} for three position (See note)
				0.34 N • m {3.5 kgf • cm} for three position		0.34 N • m {3.5 kgf • cm} for three position
Total travel (TT)	5.5 mm max.	10±1 mm	Approx. 90° for two position (Approx. 45° for three position)		Approx. 90° for two position	
Releasing force (RF) min.	—	0.25 N • m max. {2.5 kgf • cm} (See note)	0.34 N • m max. {3.5 kgf • cm} (See note)	—	0.34 N • m max. {3.5 kgf • cm} (See note)	—

Note: Rotation torque for Emergency Stop Pushbutton, Knob-type Selector, and Key-type Selector Switches.

Accessories (Order Separately)

Item		Appearance	Classification		Remarks	Part number
Contact Blocks			SPST-NO	General-purpose load	Provided as standard. Order Contact Blocks only when adding or replacing them.	**A22-10**
				Microload		**A22-10S**
			SPST-NC	General-purpose load		**A22-01**
				Microload		**A22-01S**
			DPST-NO	General-purpose load		**A22-20**
				Microload		**A22-20S**
			DPST-NC	General-purpose load		**A22-02**
				Microload		**A22-02S**
Lamp Sockets			Direct lighting		Used when changing the lighting method.	**A22-TN**
			Transformer illumination	110 VAC		**A22-T1**
				220 VAC		**A22-T2**
Mounting Latches			For momentary models		Provided as standard. Order Mounting Latches only when mounting Contact Blocks or Lamp Sockets that are purchased individually.	**A22-3200**
Legend plate frames	Standard size		With Snap-in Legend Plate (Without text)	White	Snap-in Legend Plate is acrylic.	**A22Z-3321**
				Red		**A22Z-3322**
				Black		**A22Z-3323**
			Without Snap-in Legend Plate			**A22Z-3320**
	Large size		With Snap-in Legend Plate (Without text)	White		**A22Z-3331**
				Red		**A22Z-3332**
				Black		**A22Z-3333**
			Without Snap-in Legend Plate			**A22Z-3330**

(This table continues on the next page.)

(continued from previous page)

Item		Appearance	Classification		Remarks	Part number
Lock fitting			Round		The body is equipped with a Lock Fitting. This Lock Fitting is used when a more secure lock feature is required.	**A22Z-3360**
Metallic bezel rings			For flush or projection models		Replace with the standard model. Material: nickel-plated zinc	**A22Z-3580**
			For full-guard models			**A22Z-3582**
Sealing caps			For flush models		Used to prevent dust or water from entering the Operational Unit. Color: opaque Material: silicon	**A22Z-3600F**
			For extended models			**A22Z-3600T**
			For full-guard models			**A22Z-3600G**
Color lenses			Red		Used for changing the Operational Unit color of the Pushbutton Switch.	**A22Z-30TR**
			Green			**A22Z-30TG**
			Yellow			**A22Z-30TY**
			White			**A22Z-30TW**
			Blue			**A22Z-30TA**
Three-throw spacers			For Pushbutton Switches		Used when mounting three Non-Illuminated Switch Units. Cannot be used with Illuminated Emergency Stop Switches.	**A22Z-3003**
Hole plug			Round		Can be plugged into pre-cut panel holes for future expansion. The color is black.	**A22Z-3550**
25 mm-dia. ring			25 mm ring		Can be fit into a 25 mm-dia. hole in the panel. Since this is not attached to the main body, order separately.	**A22Z-R25**
Snap-in legend plates	Standard size		Without text	Black	Attached to the Standard-size Legend Plate Frame. Material: Acrylic	**A22Z-3443B**
				Red		**A22Z-3443R**
				White		**A22Z-3443W**
				Transparent		**A22Z-3443C**
			White text on red background	○		**A22Z-3443R-2**
				STOP		**A22Z-3443R-4**
			White text on black background	|		**A22Z-3443B-1**
				START		**A22Z-3443B-3**
				ON		**A22Z-3443B-5**
				OFF		**A22Z-3443B-6**
				UP		**A22Z-3443B-7**
				DOWN		**A22Z-3443B-8**
				POWER ON		**A22Z-3443B-9**
				OFF-ON		**A22Z-3443B-10**
	Large size		Without text	Black	Attached to the Large-size Legend Plate Frame Material: Acrylic	**A22Z-3453B**
				Red		**A22Z-3453R**
				White		**A22Z-3453W**
				Transparent		**A22Z-3453C**
	For Emergency Stop Switch		60-dia. round plate with black letters on a yellow background		"EMERGENCY STOP" is engraved on the plate. Used as an Emergency Stop Switch Legend Plate.	**A22Z-3466-1**
			90-dia. round plate with black letters on a yellow background			**A22Z-3476-1**

(This table continues on the next page.)

(continued from previous page)

Item	Appearance	Classification		Remarks	Part number
Character films		No print (Round)		After printing on a film, affix to the indicator plate of the Illuminated Pushbutton Switch. (The back is coated with adhesive.)	**A22Z-3460**
		Character print (Round)	|		**A22Z-3460-1**
			○		**A22Z-3460-2**
			START		**A22Z-3460-3**
			STOP		**A22Z-3460-4**
		No print (Square)			**A22Z-3480**
Lamp extractor		—		Rubber tool used to easily replace Lamps.	**A22Z-3901**
Tightening wrench		—		Tool used to tighten nuts from the back of the panel.	**A22Z-3905**
Lens tightening tool		—		Used for replacing the cap of the Half-guard Pushbutton Switch.	**A22Z-3908**
Lens puller		—		Used for removing the lens from the indicator of the Square Illuminated Pushbutton Switch.	**A3PJ-5080**

■ ENCLOSURES

Material	Hole size	Number of holes	Part number
Polyester	22.5 mm (0.88 in)	1	**A22N-PENC-1**
		2	**A22N-PENC-2**
		3	**A22N-PENC-3**
Metallic	22.5 mm (0.88 in)	1	**A22N-MENC-1**
		2	**A22N-MENC-2**
		3	**A22N-MENC-3**
		4	**A22N-MENC-4**
		6	**A22N-MENC-6**
		9	**A22N-MENC-9**
		12	**A22N-MENC-12**
		16	**A22N-MENC-16**

Note: For more information on pushbutton enclosures refer to drawings in the *Dimensions* section.

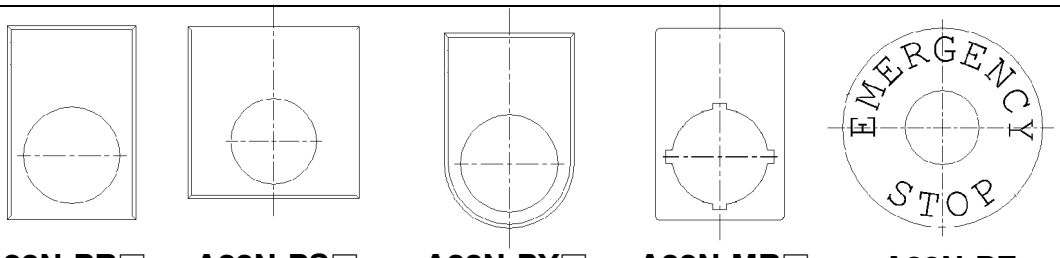
■ NAMEPLATE NOMENCLATURE

A22N-□□□ (1 2 3)

Code	Material
P	Plastic
M	Metal

Code	Shape
X	Shield
R	Rectangular
S	Square

Note: To complete the part number of the standard nameplates, select the plate type and add the number from the table below. Example: Plastic Square Nameplate engraved "Reset" A22N-PS38



A22N-PR□ **A22N-PS□** **A22N-PX□** **A22N-MR□** **A22N-PE**

1	AUTO	30	ON	106	HIGH-LOW	150	AUTO-MAN-OFF	175	START-JOG-STOP
2	CLOSE	31	OPEN	107	INCH-REVERSE	151	AUTO-OFF-HAND	176	START-RUN-STOP
3	CYCLE START	32	OUT	108	JOG-FOR	152	AUTO-OFF-MAN	177	UP-OFF-DOWN
4	CYCLE STOP	33	POWER ON	109	JOG-REV	153	CLOSE-OFF-OPEN	178	1-OFF-2
5	DECREASE	34	PULL TO START	110	JOG-RUN	154	DOWN-OFF-SLOW	179	HAND-OFF-AUTO
6	DOWN	35	PUSH TO TEST	111	LEFT-RUN	155	FAST-OFF-SLOW	180	I
7	EMERG.STOP (red)	36	PUSH TO STOP	112	LOWER-RAISE	156	FOR-OFF-REV	181	II
8	FAST	37	RAISE	113	MAN-AUTO	157	FOR-STOP-REV	182	I-O
9	FAULT	38	RESET	114	OFF-ON	158	HIGH-LOW-OFF	183	O-I
10	FEED	39	REVERSE	115	ON-OFF	159	HIGH-OFF-LOW	184	I-O-II
11	FEED START	40	RIGHT	116	OPEN-CLOSE	160	JOG-SAFE-RUN	185	I-II
12	FEED STOP	41	RUN	117	RAISE-LOWER	161	JOG-STOP-RUN	186	I-O-I
13	FLUID LEVEL LOW	42	SLOW	118	REV-FOR	162	LEFT-OFF-RIGHT	187	I-II-III
14	FORWARD	43	SPEED	119	RUN-INCH	163	LOC-OFF-REMOTE	188	III
15	FULL SPEED	44	START	120	RUN-JOG	164	LOW-OFF-HIGH	190	60 MM E-STOP
16	HAND	45	STOP	121	RUN-SAFE	165	LOWER-OFF-RAISE	191	90 MM E-STOP
17	HIGH	46	TEST	122	SAFE-RUN	166	OFF COOLANT ON	200	BLANK NAMEPLATE
18	IN	47	UP	123	SLOW-FAST	167	OFF-LOC-REMOTE	200E	SPECIAL ENGRAVING
19	INCH	48	1ST SPEED	124	START-JOG	168	OFF-MAN-AUTO		
20	INCREASE	49	2ND SPEED	125	START-STOP	169	OFF-SLOW-FAST		
21	JOG	50	3RD SPEED	126	STOP-START	170	OFF-1-2		
22	JOG FORWARD	51	4TH SPEED	127	SUMMER-WINTER	171	OPEN-OFF-CLOSE		
23	LEFT	100	AUTO-MAN	128	UP-DOWN	172	RAISE-OFF-LOWER		
24	LOW	101	CLOSE-OPEN			173	SLOW-OFF-FAST		
25	LOW SPEED	102	DOWN-UP			174	SLOW-OFF-START		
26	LOWER	103	FAST-SLOW						
27	MOTOR RUN	104	FOR-REV						
28	MOTOR STOP	105	HAND-AUTO						
29	OFF								

Note: All plastic name plates are adhesive backed, contain beveled edges and are supplied standard with white lettering on black background. Any deviation from items listed here will be a special order. Contact Omron.