Fuji Electric

Command Illuminated 22mm Metal Selector Switches

AR22PL-010E3RZA

AR22PL-210E3GZA

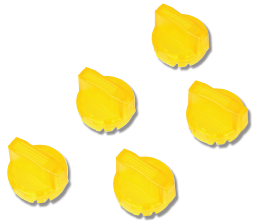
AR22PL-322E3YZA

AR22PL-322E3SZA

Command LED Illuminated 22mm Metal Selector Switches

Part Number	Color	Price	Drawing Link	Operation	Contacts	Lamp Voltage
AR22PL-010E3RZA	Red	$22.50	PDF	2-pos spring return	N.O.	24V AC/DC
AR22PL-010E3GZA	Green	$22.50	PDF			
AR22PL-010E3YZA	Yellow	$22.50	PDF			
AR22PL-010E3SZA	Blue	$32.00	PDF			
AR22PL-210E3RZA	Red	$22.50	PDF	2-pos maintained	N.O.	24V AC/DC
AR22PL-210E3GZA	Green	$22.50	PDF			
AR22PL-210E3YZA	Yellow	$22.50	PDF			
AR22PL-210E3SZA	Blue	$32.00	PDF			
AR22PL-322E3RZA	Red	$34.00	PDF	3-position maintained	2 N.O. + 2 N.C.	24V AC/DC
AR22PL-322E3GZA	Green	$34.00	PDF			
AR22PL-322E3YZA	Yellow	$34.00	PDF			
AR22PL-322E3SZA	Blue	$34.00	PDF			
AR22PL-611E3RZA	Red	$32.00	PDF	3-position spring/manual return (left to center)	1 N.O. + 1 N.C.	24V AC/DC
AR22PL-611E3GZA	Green	$32.00	PDF			
AR22PL-611E3YZA	Yellow	$32.00	PDF			
AR22PL-611E3SZA	Blue	$32.00	PDF			
AR22PL-010L3RZA	Red	$29.50	PDF	2-pos spring return	N.O.	115-127 VAC
AR22PL-010L3GZA	Green	$29.50	PDF			
AR22PL-010L3YZA	Yellow	$29.50	PDF			
AR22PL-010L3SZA	Blue	$39.50	PDF			
AR22PL-210L3RZA	Red	$26.50	PDF	2-pos maintained	N.O.	115-127 VAC
AR22PL-210L3GZA	Green	$26.50	PDF			
AR22PL-210L3YZA	Yellow	$26.50	PDF			
AR22PL-210L3SZA	Blue	$39.50	PDF			
AR22PL-311L3RZA	Red	$32.00	PDF	3-position maintained	1 N.O. + 1 N.C.	115-127 VAC
AR22PL-311L3GZA	Green	$32.00	PDF			
AR22PL-311L3YZA	Yellow	$32.00	PDF			
AR22PL-311L3SZA	Blue	$39.50	PDF			
AR22PL-611L3RZA	Red	$34.00	PDF	3-position spring/manual return (left to center)	1 N.O. + 1 N.C.	115-127 VAC
AR22PL-611L3GZA	Green	$34.00	PDF			
AR22PL-611L3YZA	Yellow	$34.00	PDF			
AR22PL-611L3SZA	Blue	$39.50	PDF			

2-Position Replacement Knobs



Color	Drawing Link	Part Number	Qty	Price
Red	PDF	AR9M005-R	5	$3.50
Green	PDF	AR9M005-G		$3.50
Yellow	PDF	AR9M005-Y		$3.50
Blue	PDF	AR9M005-S		$3.50

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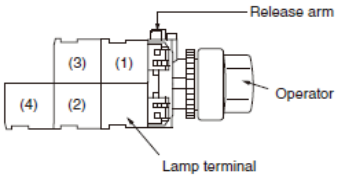
Command Illuminated 22mm Metal Selector Switches

Contact Operation Table

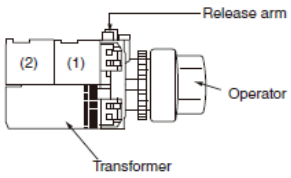
Selector Switch Type: AR22PL-0 (2-position)					
Transformer	*Contact Arrangement*	*Contact Block*		*Operator Position*	
		Mounting Position	*Type*	*Left* ↖	*Right* ↗
With/without	1 N.O.	1	N.O.	–	●
With/without	1 N.C.	1	N.C.	●	–
Without	1 N.O. + 1 N.C.	1	N.O.	–	●
		2	N.C.	●	–
With	1 N.O. + 1 N.C.	1	N.C.	●	–
		2	N.O.	–	●
With/without	2 N.O.	1	N.O.	–	●
		2	N.O.	–	●
With/without	2 N.C.	1	N.C.	●	–
		2	N.C.	●	–
Without	3 N.O.	1	N.O.	–	●
		2	N.O.	–	●
		3	N.O.	–	●
Without	2 N.O. + 1 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.O.	–	●
Without	1 N.O. + 2 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.C.	●	–
Without	3 N.C.	1	N.C.	●	–
		2	N.C.	●	–
		3	N.C.	●	–

● Position of contact block

Without transformer



With transformer



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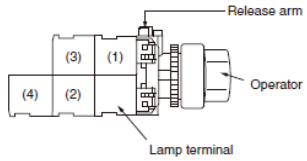
Command Illuminated 22mm Metal Selector Switches

Contact Operation Table

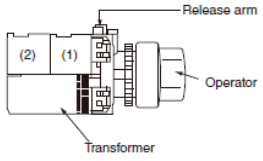
Selector Switch Type: AR22PL-2 (2-position)					
Transformer	*Contact Arrangement*	*Contact Block*		*Operator Position*	
		Mounting Position	*Type*	*Left* ↖	*Right* ↗
With/without	1 N.O.	1	N.O.	–	●
With/without	1 N.C.	1	N.C.	●	–
Without	1 N.O. + 1 N.C.	1	N.O.	–	●
		2	N.C.	●	–
With	1 N.O. + 1 N.C.	1	N.C.	●	–
		2	N.O.	–	●
With/without	2 N.O.	1	N.O.	–	●
		2	N.O.	–	●
With/without	2 N.C.	1	N.C.	●	–
		2	N.C.	●	–
With/without	3 N.O.	1	N.O.	–	●
		2	N.O.	–	●
		3	N.O.	–	●
Without	2 N.O. + 1 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.O.	–	●
With	2 N.O. + 1 N.C.	1	N.C.	●	–
		2	N.O.	–	●
		3	N.O.	–	●
Without	1 N.O. + 2 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.C.	●	–
With	1 N.O. + 2 N.C	1	N.C.	●	–
		2	N.C	●	–
		3	N.O.	–	●
With/without	3 N.C.	1	N.C.	●	–
		2	N.C.	●	–
		3	N.C.	●	–
Without	4 N.O.	1	N.O.	–	●
		2	N.O.	–	●
		3	N.O.	–	●
		4	N.O.	–	●
Without	3 N.O. + 1 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.O.	–	●
		4	N.O.	–	●
Without	2 N.O. + 2 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.O.	–	●
		4	N.C.	●	–
Without	1 N.O. + 3 N.C.	1	N.O.	–	●
		2	N.C.	●	–
		3	N.C.	●	–
		4	N.C.	●	–
Without	4 N.C.	1	N.C	●	–
		2	N.C	●	–
		3	N.C	●	–
		4	N.C	●	–

● Position of contact block

Without transformer



With transformer



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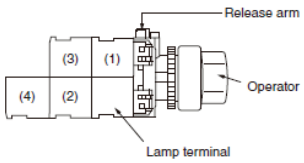
Command Illuminated 22mm Metal Selector Switches

Contact Operation Table

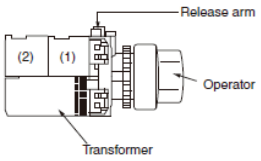
Selector Switch Type: AR22PL-3 (3-position)						
Transformer	*Contact Arrangement*	*Contact Block*		*Operator Position*		
		Mounting Position	*Type*	*Left* ↖	*Center* ↑	*Right* ↗
With/without	1 N.O.	1	N.O.	●	–	–
With/without	1 N.C.	1	N.C.	–	–	●
Without	1 N.O. + 1 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
With	1 N.O. + 1 N.C.	1	N.C.	–	–	●
		2	N.O.	●	–	–
With/without	2 N.O.	1	N.O.	●	–	–
		2	N.O.	●	–	–
With/without	2 N.C.	1	N.C.	–	–	●
		2	N.C.	–	–	●
With/without	3 N.O.	1	N.O.	●	–	–
		2	N.O.	●	–	–
		3	N.O.	●	–	–
Without	2 N.O. + 1 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.O.	●	–	–
With	2 N.O. + 1 N.C.	1	N.C.	–	–	●
		2	N.O.	●	–	–
		3	N.O.	●	–	–
Without	1 N.O. + 2 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.C.	–	–	●
With	1 N.O. + 2 N.C	1	N.C.	–	–	●
		2	N.C	–	–	●
		3	N.O.	●	–	–
With/without	3 N.C.	1	N.C.	–	–	●
		2	N.C.	–	–	●
		3	N.C.	–	–	●
Without	4 N.O.	1	N.O.	●	–	–
		2	N.O.	●	–	–
		3	N.O.	●	–	–
		4	N.O.	●	–	–
Without	3 N.O. + 1 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.O.	●	–	–
		4	N.O.	●	–	–
Without	2 N.O. + 2 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.O.	●	–	–
		4	N.C.	–	–	●
Without	1 N.O. + 3 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.C.	–	–	●
		4	N.C.	–	–	●
Without	4 N.C.	1	N.C	–	–	●
		2	N.C	–	–	●
		3	N.C	–	–	●
		4	N.C	–	–	●

● Position of contact block

Without transformer



With transformer



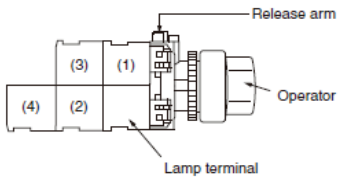
Fuji Electric Command Illuminated 22mm Metal Selector Switches

Contact Operation Table

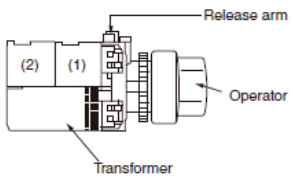
Selector Switch Type: AR22PL-6 (3-position)						
Transformer	*Contact Arrangement*	*Contact Block*		*Operator Position*		
		Mounting Position	*Type*	*Left* ↖	*Center* ↑	*Right* ↗
With/without	1 N.O.	1	N.O.	●	–	–
With/without	1 N.C.	1	N.C.	–	–	●
Without	1 N.O. + 1 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
With	1 N.O. + 1 N.C.	1	N.C.	–	–	●
		2	N.O.	●	–	–
With/without	2 N.O.	1	N.O.	●	–	–
		2	N.O.	●	–	–
With/without	2 N.C.	1	N.C.	–	–	●
		2	N.C.	–	–	●
Without	3 N.O.	1	N.O.	●	–	–
		2	N.O.	●	–	–
		3	N.O.	●	–	–
Without	2 N.O. + 1 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.O.	●	–	–
Without	1 N.O. + 2 N.C.	1	N.O.	●	–	–
		2	N.C.	–	–	●
		3	N.C.	–	–	●
Without	3 N.C.	1	N.C	–	–	●
		2	N.C	–	–	●
		3	N.C	–	–	●

● Position of contact block

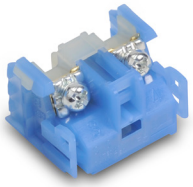
Without transformer



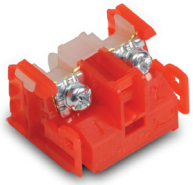
With transformer



Fuji Electric Accessories for 22mm Command Series Pilot Devices



AR9B290



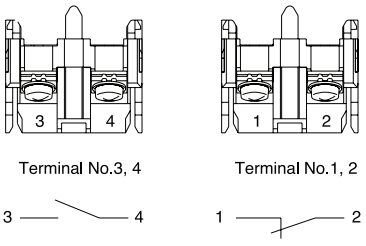
AR9B291

Contact Blocks for Command Series 22mm Pushbuttons

Part Number	Qty	Price	Drawing Link	Color	Contacts
AR9B290	1	$6.25	PDF	Blue	N.O.
AR9B291	1	$6.25	PDF	Red	N.C.

Minimum current requirement AC/DC is 5mA

Terminal Layout



AR9B290 AR9B291

Max 6 contacts for non-illuminated momentary devices. Max 4 for alternate action non-illuminated devices.
Max 5 contacts for illuminated momentary devices. Max 3 for alternate action illuminated devices.
**Exceeding the maximum number of contacts could affect the mechanical durability of the operators.*

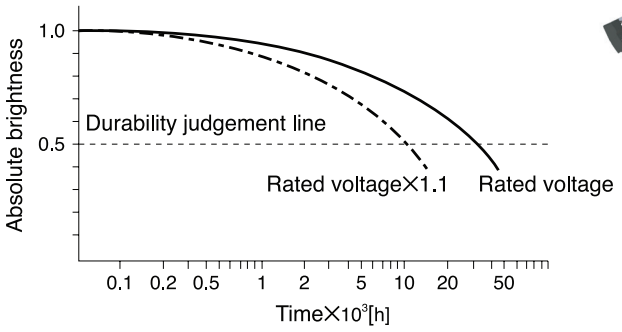
APX510-24R

LED Bulbs for Command Series 22mm Pilot Devices

Part Number	Color	Qty	Price	Use With	Lamp Voltage	Current Consumption	Power Consumption	Lamp Durability
APX510-24R	Red	2	$15.50	AR22 / DR22 Series	24V AC/DC	12mA AC 11mA DC	0.8 W	30,000h
APX510-24G	Green	2	$15.50					
APX510-24Y	Yellow	2	$15.50					
APX510-24S	Blue	2	$58.00					
APX510-24O	Orange	2	$15.50					

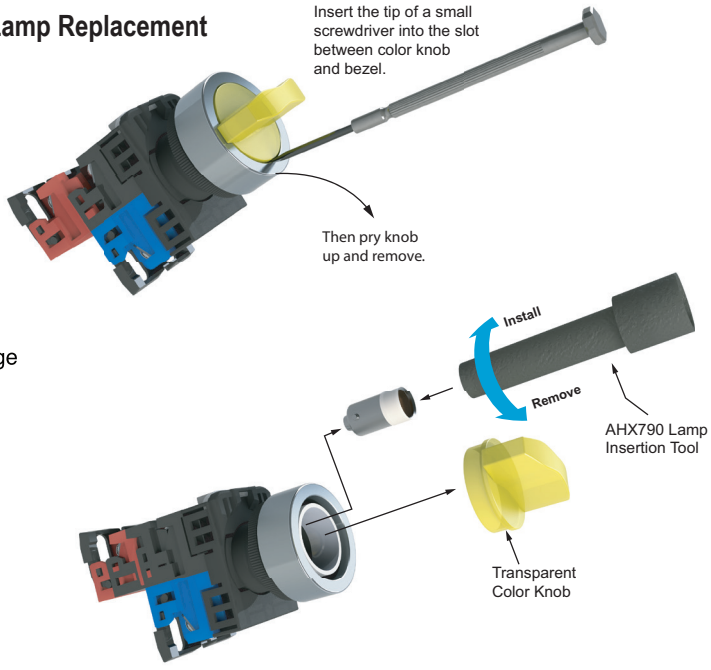
**Lamp base: Ba9s/13*

Estimated durability for LED lamps



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

Lamp Replacement



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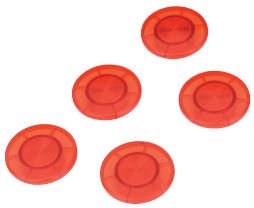
Accessories for 22mm Command Series Pilot Devices

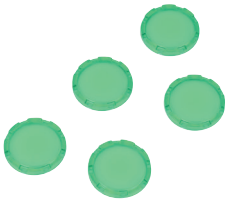


AR9C016-R

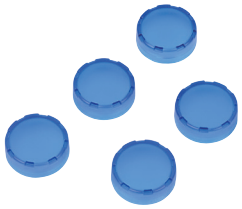
AR9C021-R

Lenses for Command Series 22mm Illuminated Pushbuttons

Part Number	Color	Qty	Price	Drawing Link	Use With
AR9C016-R	Red	5	$4.75	PDF	AR22MOL, AR22M5L
AR9C021-R	Red	5	$14.50	PDF	AR22VOR, AR22VOL
AR9C011-R	Red	5	$2.25	PDF	AR22FOL AR22F5L
AR9C011-G	Green	5	$2.25	PDF	
AR9C011-Y	Yellow	5	$2.25	PDF	
AR9C011-S	Blue	5	$2.25	PDF	
AR9C011-C	Clear	5	$2.25	PDF	
AR9C012-R	Red	5	$2.25	PDF	AR22EOL
AR9C012-G	Green	5	$2.25	PDF	
AR9C012-Y	Yellow	5	$2.25	PDF	
AR9C012-S	Blue	5	$2.25	PDF	
AR9C012-C	Clear	5	$2.25	PDF	



AR9C011-G



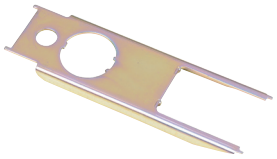
AR9C012-S

AHX790

Tools and Lock Nut for Use with Command Series 22mm Pilot Devices

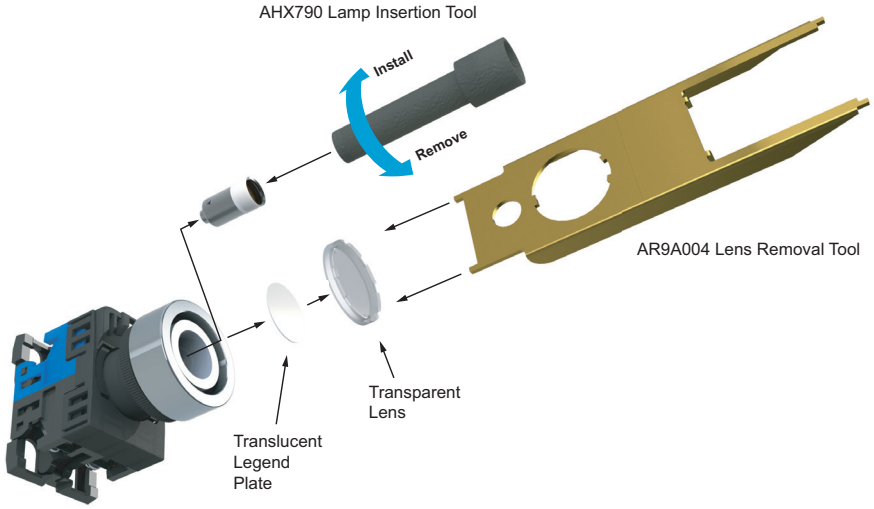
Part Number	Qty	Price	Drawing Link	Description
AHX790	1	$3.50	PDF	Bulb removal tool
AHX702	1	$6.00	N/A	Wrench/lamp removal tool
AR9A004	1	$4.75	N/A	Wrench
AR9R744	5	$2.25	PDF	Lock nut

AHX702



AR9A004

AR9R744



Fuji Electric Command Series 22mm Pilot Devices Specifications

Specifications (Indoor Use)			
	Pushbuttons Emergency stop pushbuttons Selector switches	***Joysticks***	***Pilot Lights***
Rated thermal current (contact block)	A600 / P600	–	–
Mechanical durability	See durability table below	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%)		–
Operating force (Avg)	9N – Pushbuttons 30-45 N – Emergency stop pushbuttons 0.15 - 0.1 N·m – Selector switches	Less than 100N	
Positive opening operation	All functions incorporating a N.C. contact are positive-opening operation.		
Dielectric strength	2,500VAC, 1 minute (w/o transformer 2000VAC)	2000VAC, 1 minute (Pilot light with transformer: 2500 VAC, 1minute)	
Insulation resistance	100MΩ or more (500VDC megger)		
Rated impulse dielectric strength	6kV	–	6kV
Conditional short-circuit current	1000A		–
Short-circuit protective device	Fuse 15A (recommended, not supplied)	Fuse 1A (recommended, not supplied)	–
Pollution degree	3		
Vibration	Resonance: 10 to 55Hz, double amplitude 0.1 mm* / Constant: 16.7 Hz, double amplitude 3mm		
Shock	Malfunction durability: 100 m/s² ** / Mechanical durability: 500 m/s²		Mechanical durability: 500 m/s²
Ambient temperature (no condensation or no icing)	-20 to +70°C [-4 to +158°F] Illuminated type: -20 to -50°C [-4 to -58°F]	-5 to +60°C [+23 to +140°F]	-2 to +50°C [-4 to +122°F]
Temperature ratings	Storage: -40 to +80°C [-40 to +176°F]		
Humidity	45 to 85% RH (within -5° to +40°C)		
Degree of protection	IP65		
Initial contact resistance	≤ 50mΩ	–	–
Terminal markings	IEC 60445	–	–
Connections	AWG 18 to AWG 14; Stripping length: 8mm to 11mm / Tightening torque: 0.8 to 1.0 N·m, 7.1 in·lb to 8.8 in·lb		
Contacts operation	Self-cleaning types. Slow action. Positive opening.		
Operation frequency	1,200 cycle/hour (Application ratio 40%)	–	–
Utilization category/contact ratings	AC-15: 24VAC at 6A, 110VAC at 6A DC-13: 24VDC at 4A, 110VDC at 1.3 A	AC-1: 110VAC at 0.3 A DC-13: 24VDC at 0.7 A, 110VDC at 0.15 A	–
Rated insulation voltage	600V AC/DC***	250V AC/DC	250V AC/DC (w/transformer 600VAC)
Materials	Enclosure: Polyamide / Contacts: silver, nickel		
Standards	UL 508, CSA C22.2, No.14, TUV - EN60947-5-1		
Approvals	UL file E44592, CSA file LR20479		

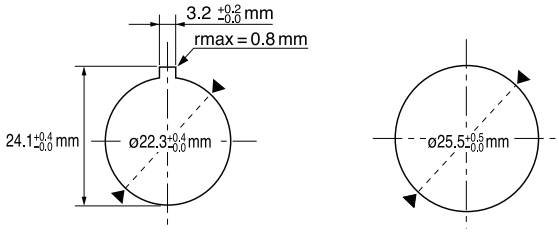
*** Emergency stop type: 10 to 500 Hz, double amplitude 0.7mm(acceleration 50m/s²), according to test condition of EN60947-5-5 (1998)**
**** Emergency stop type: 150 m/s² ***Illuminated type without transformer**

Mechanical Durability		
		Operations
Pushbutton switch Illuminated pushbutton switch E-stop pushbutton switch E-stop illuminated pushbutton	Momentary action Alternate action Push-lock, turn-reset Push-lock, pull-reset	5 million 1 million 100,000 30,000
Selector switch	Maintained 1, 2, 3, 4-contact Maintained 5, 6-contact 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

22mm Pilot Devices Cutouts

AR22 pilot devices can be mounted in either 22.3 or 25.5 mm diameter holes as shown in the figure below without any extra adapter.



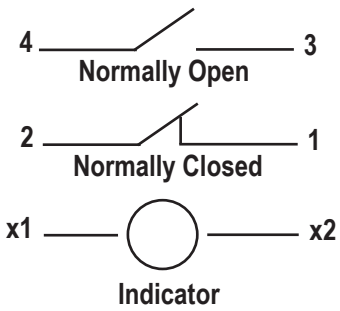
Note: If key washer or legend plate is not used, 3.2 mm-wide location holes do not need to be cut out.

Fuji Electric

NEMA Aux Contact Ratings

Control Circuit Contact Electrical Ratings and Wiring

Typical Wiring



NEMA Mechanical Switching Ratings and Test Values for DC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum Make or Break DC Current (A)			Volt amperes
		125 Volts	250 Volts	301 to 600 Volts	
P300	5.0	1.1	0.55	---	138
P600	5.0	1.1	0.55	0.20	138
Q300	2.5	0.55	0.27	---	69
Q600	2.5	0.55	0.27	0.10	69
R300	1.0	0.22	0.11	---	28

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-2.

NEMA Mechanical Switching Ratings and Test Values for AC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum AC Current, 50/60Hz (A)								Volt amperes	
		120 Volts		240 Volts		480 Volts		600 Volts			
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A300	10	60	6.00	30	3.00	---	---	---	---	7200	720
A600	10	60	6.00	30	3.00	15	1.50	12	1.20	7200	720
B300	5	30	3.00	15	1.50	---	---	---	---	3600	360
B600	5	30	3.00	15	1.50	7.5	0.75	6	0.60	3600	360
C600	2.5	15	1.5	7.5	0.75	3.75	0.375	3.00	0.30	1800	180

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-1.

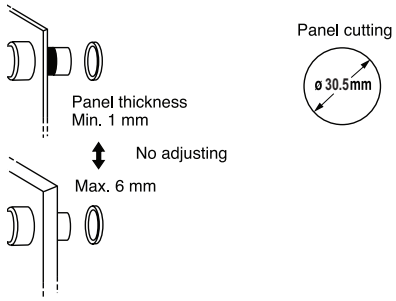
Fuji Electric 22mm Pilot Devices Overview

Pushbuttons, Selectors, Pilot Lights, Joysticks, Buzzers

Fuji Electric AR22 pilot devices can be mounted on panels up to 6mm thick by securing the operator with a locking nut from behind the panel without needing any adjustment.

Easy mounting

Fuji AR22 pilot devices can be mounted on panels between 1 and 6mm thick and are mountable in panel cutouts of 22.3 or 25.5 mm. The button and lens can be mounted on a panel while the operator is engaged.



Pushbuttons

AR22F0R-01RZA

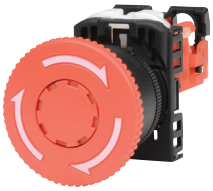
Illuminated Pushbuttons

AR22F0L-10E3YZA

Pilot Lights

DR22E3L-E3SZA

E-Stop Pushbuttons



AR22V0R-01R

Selector Switches

AR22PR-210BZA

Buzzers

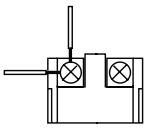
DR22B8-EB

Wiring

These pilot devices can be wired in both vertical and lateral directions making wiring in narrow spaces easier. Contact block color coding makes wiring even easier.

1N.O. Blue, 1N.C. Red

Lamp terminal and transformer unit: black

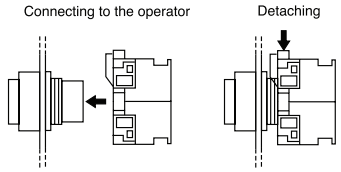


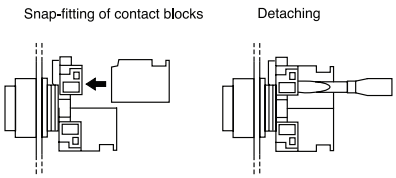
Short depth

Fuji AR22 pilot devices are designed to occupy less space than traditional 22mm devices.

Quick contact block and transformer replacement

Fuji AR22 pilot devices have a snap-on mounting that makes replacing or adding a contact block and transformer unit easier.





Safety

AR22 pilot devices include terminal covers for added safety and security. Emergency stop pushbuttons include a trigger action mechanism that prevents the contacts from moving until the button is pushed and locked.

Protection

AR22 pilot devices feature oil and dust-tight operator construction (IP65), except for buzzers DR22B5 (IP00), DR22B8 (IP54).