Fuji Electric Command Series Pilot Devices

Fuji Electric Command Series pilot devices are used in machine tools, industrial machines, control panels, distribution panels, and instrumentation panels. Pushbuttons improve interfacing by allowing better layout and wiring, easier installation and increased safety. Reliability is also built in to handle complex multi-functional controls.

The AR16, AR22 and AR30 series are configurable with a wide range of choices. Our selection of 16mm, 19mm, 22mm and 30mm pushbuttons include non-illuminated as well as illuminated models with flush round heads, extended round heads, and mushroom style heads. Other 16mm, 22mm and 30mm pilot devices available include emergency stop pushbuttons, selector switches, pilot lights, joystick selector switches, and buzzers.

We also offer a wide array of accessories to complement our selection of Fuji 16mm, 19mm, 22mm and 30mm Command Series pilot devices.

AR16 Series Features
- 16.2 or 19.2 mm diameter hole
- Fits 1 to 6mm max panel thickness
- Integrated structure with built-in contacts that reduce control panel depth
- Offered in Thin-type profile with only 2mm of panel protrusion for high-density mounting and attractive panel designs
- Bright LED-illuminated surface with less power consumption
- Gold-plated contacts and snap-action mechanism with low 1mA at 5V switching
- Oil- and dust-proof operator modules (IP65)

AR22 Series Features
- 22.3 mm diameter hole
- Fits 1 to 6mm max panel thickness
- Mountable in either a 22.3 or 25.5 mm diameter cutout (except for joysticks and buzzers)
- Provided with release arm
- Terminal cover included for added safety
- Wiring possible in vertical and horizontal directions
- Oil- and dust-proof operator modules (IP65), except for buzzers DR22B5 (IP00), DR22B8 (IP54)

AR30 Series Features
- 30.5 mm diameter hole
- Fits 1mm to 6mm max panel thickness
- Quick snap-on replacement of contact blocks
- Double-break self-cleaning contacts
- Terminal cover included for added safety
- Wiring possible in vertical and horizontal directions
- Oil- and dust-proof operator modules (IP65) except for buzzer DR30B5 (IP00)

Pushbuttons

E-Stop Pushbuttons

Selector Switches

Pilot Lights

Electronic Buzzers

Joysticks

Command Series Accessories

TO OBTAIN THE MOST CURRENT AGENCY APPROVAL INFORMATION, SEE THE AGENCY COMPLIANCE & CERTIFICATIONS CHECKLIST SECTION ON THE SPECIFIC PART NUMBER'S WEB PAGE.
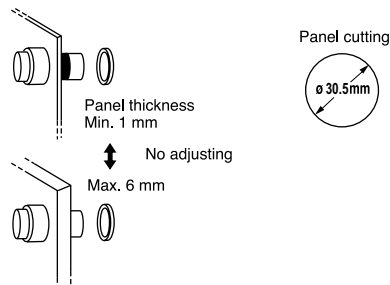
Fe Fuji Electric 30mm Pilot Devices Overview

Pushbuttons, Selectors, Pilot Lights, Joysticks, Buzzers

Fuji Electric AR30 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.
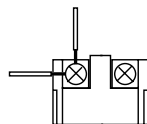
Easy mounting
Fuji Electric AR30 pilot devices can be mounted on panels between 1 and 6mm thick and are mountable in panel cutouts of 30.5 mm.

Panel cutting

ø 30.5mm

Panel thickness
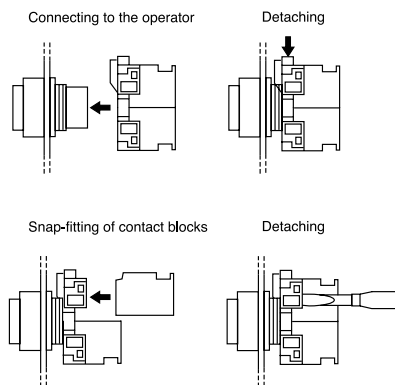Min. 1 mm

No adjusting

Max. 6 mm

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

Quick contact block and transformer replacement
Fuji AR30 pilot devices have a snap-on mounting that makes replacing or adding a contact block and transformer unit easier.

Connecting to the operator

Detaching

Snap-fitting of contact blocks

Detaching

Pushbuttons	**Illuminated Pushbuttons**	**Pilot Lights**
AR30F0R-01RZC	AR30E0L-10L3GZC	DR30D0L-L9SZC

E-Stop Pushbuttons	**Selector Switches**	**Buzzers**
AR30Q2R-01RZC	AR30PR-210BZC	DR30B5-EBZC

Short depth
Fuji AR30 pilot devices are designed to occupy less space than traditional 30mm devices.

Safety
AR30 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
AR30 pilot devices feature oil- and dust-tight operator construction (IP65), except for buzzers DR30B5 (IP00).
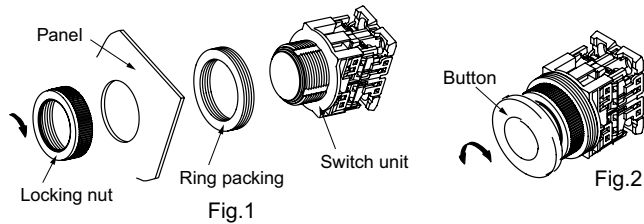
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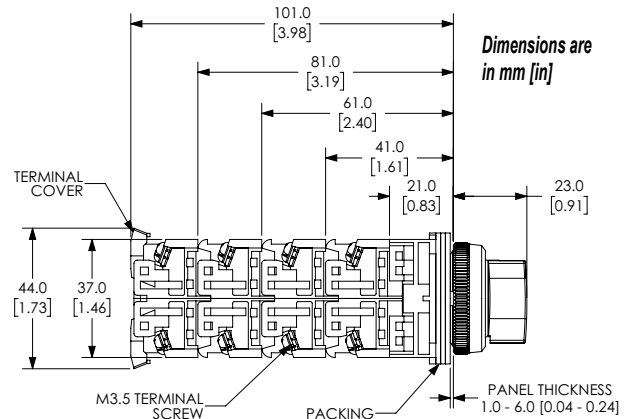
Fuji Electric

Command Series 30mm Pilot Devices Specifications

Assembly Information

These pushbuttons are supplied with the appropriate contact blocks, unless otherwise indicated. Use these drawings as a guide to make sure there is adequate clearance behind the panel. Insert the switch unit in the panel hole at the back of the panel and secure it with a locking nut at the panel front.

Panel
Locking nut
Ring packing
Switch unit
Fig.1

Button
Fig.2

Example mounting diagram for AR30M0R

Dimensions are in mm [in]

101.0 [3.98]
81.0 [3.19]
61.0 [2.40]
41.0 [1.61]
21.0 [0.83]
23.0 [0.91]

TERMINAL COVER

44.0 [1.73]
37.0 [1.46]

M3.5 TERMINAL SCREW
PACKING
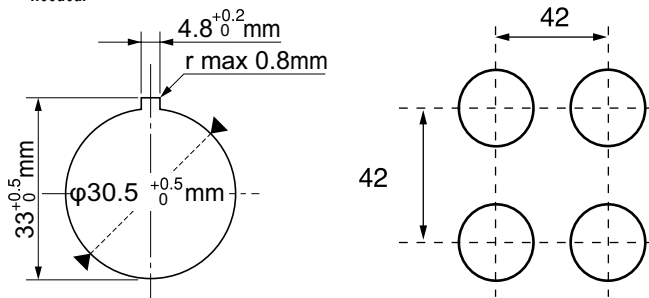PANEL THICKNESS 1.0 - 6.0 [0.04 - 0.24]

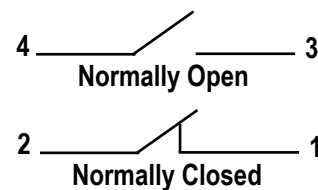*NOTE: Contact blocks can be arranged up to four deep by two wide.*

Panel Holes

For safe operation, use these mounting hole drawings to ensure that there is adequate space between switches.

Note: Location hole 4.8mm x 33mm is for use with a key washer or legend plate. If key-washer or legend plate are not used, this location hole is not needed. ADC does not currently carry an appropriate 4.8mm punch if the hole is needed.

$4.8^{+0.2}_{0}$ mm
r max 0.8mm
$33^{+0.5}_{0}$ mm
$\phi 30.5^{+0.5}_{0}$ mm

42
42

Typical Wiring

4 _____/ _____ 3
Normally Open

2 _____ /_____ 1
Normally Closed

Mechanical Durability		
		Operations
Pushbutton switch	Momentary action	5 million
Illuminated pushbutton switch	Alternate action	1 million
E-stop pushbutton switch	Push-lock, turn-reset	100,000
E-stop illuminated pushbutton	Push-lock, pull-reset	30,000
Selector switch	Maintained 1, 2, 3, 4-contact	1 million
	Maintained 5, 6-contact	500,000
	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

Fuji Electric Command Series 30mm Pilot Devices Specifications

Specifications (Indoor Use)			
	Pushbuttons **Selector switches**	**Joysticks**	**Pilot Lights**
Rated thermal current (contact block)	A600 P600	—	—
Mechanical durability	See mechanical durability table	250,000 operations	—
Electrical durability	500,000 operations at 220VAC 6A 1,000,000 operations at 220VAC 3A	100,000 operations at 220VAC 1A (res. load)	—
Operating frequency	1200 operations/hour (on-load factor: 40%)		—
Operating force (Avg)	9N – Pushbuttons 0.15 - 0.1 N·m – Selector switches	Less than 100N	
Positive opening operation	All functions incorporating an N.C. contact are positive-opening operation.		
Dielectric strength	2,000VAC, 1 minute*** 2,500VAC, 1 minute****	2,000VAC, 1 minute	
Insulation resistance	100MΩ or more (500VDC megger)		
Rated impulse dielectric strength	6kV	-	6kV
Conditional short-circuit current	1000A		—
Short-circuit protective device	Fuse 15A	Fuse 1A	—
Pollution degree	3		
Vibration	Resonance: 10 to 55 Hz, double amplitude 0.1mm*, Constant: 16.7 Hz, double amplitude 3mm		
Shock	Malfunction: 100m/s²** Mechanical: 500m/s²		Mechanical: 500m/s²
Ambient temperature (no condensation or no icing)	-20 to 70°C [-4 to 158°F]	-5 to 60°C [23 to 140°F]	-20 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°C to 40°C]		
Degree of protection	IEC IP65		
Initial contact resistance	≥ 50mΩ	—	—
Terminal markings	IEC 60445	—	—
Connections	14 to 18 AWG; Stripping length: 5 to 11mm Tightening torque: 0.8 to 1.0 N·m, 7.1 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	250V AC/DC*** 600V AC/DC	250V AC/DC	250V AC/DC*** 600VAC w/transformer
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
**** Illuminated type with transformer
To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.