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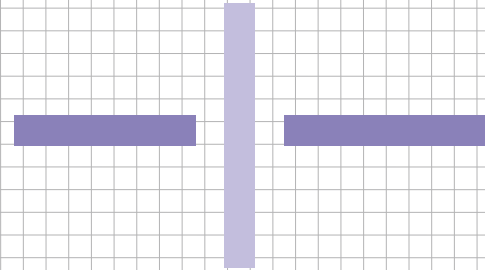
Command Switches

AR16•DR16, AF16•DF16

- An integrated structure with built-in contacts that can reduce control panel depth.
- A wide variety of sockets are available to simplify wiring.



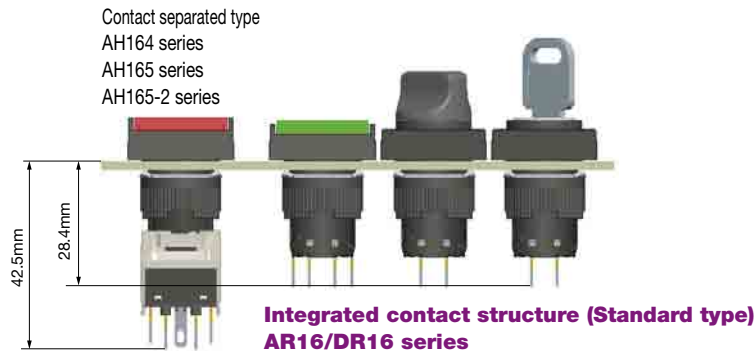
Operator • Contacts



Mounting panel

Supporting smaller and thinner operator's panels

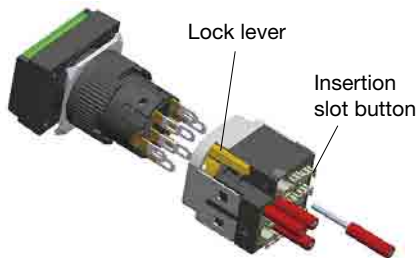
A structure that integrates operator and contacts to reduce panel-mounting depth. Terminals extending to the rear of the switch ensure easy wiring work.



A wide variety of sockets reduce wiring work

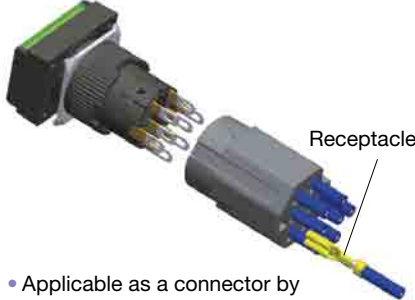
Switches combine with a variety of sockets to simplify wiring.

● Fast-connection socket



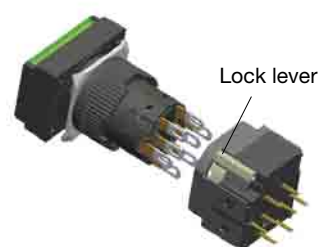
- Applicable as a fast-connection terminal switch by combining the socket with a switch.
- Easily wired by simply removing the wire sheath and inserting the wires while pressing the insertion slot button (no soldering required).
- Incorporates a branch terminal for easy branching.

● Connector socket

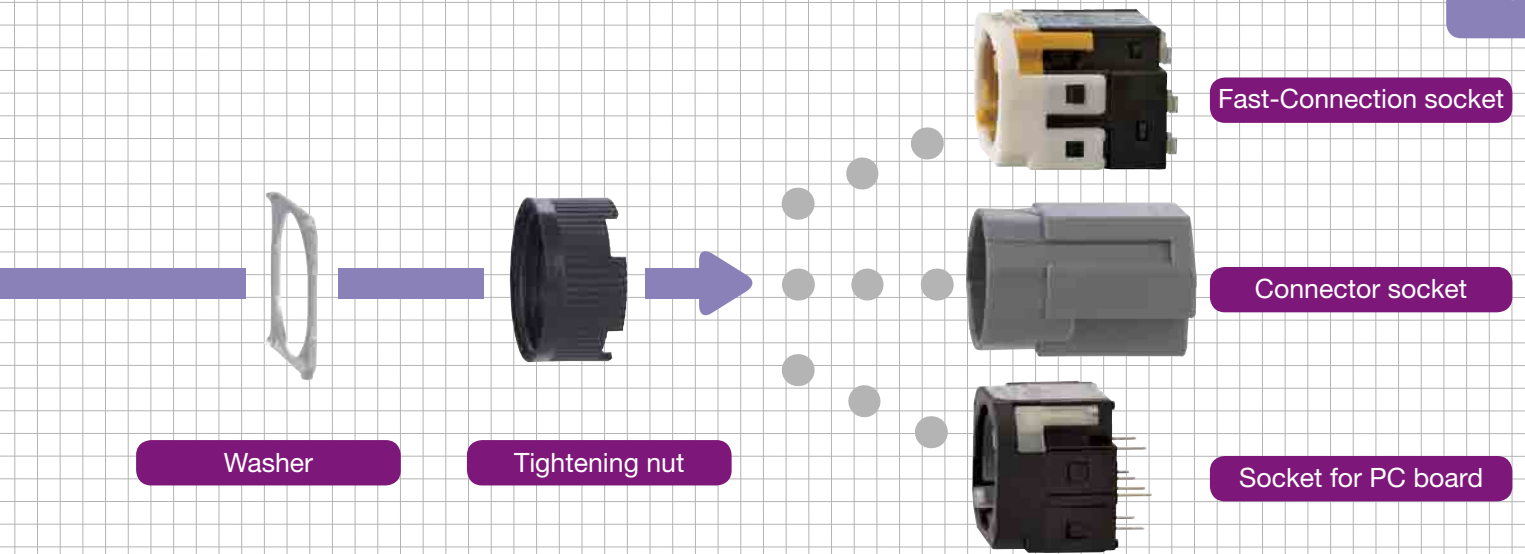


- Applicable as a connector by combining the socket with receptacles.
- The socket holds the receptacles, making it easy to connect the receptacle to the switch with a single operation.

● Socket for PC board



- Applicable as a switch for PC board by combining the socket with a switch.
- Pattern wiring reduces the number of wiring man-hour and helps prevent faulty wiring.



Contributes to attractive panel designs

In addition to the standard type, a thin type with a panel protrusion of only 2 mm is available, allowing high-density mounting for attractive panel designs.

Integrated contact structure (Thin type) AF16/DF16 series



- Keep in mind that the panel cutout size for the thin type depends on the operator shape. See page 04/167 for details.
- The panel depth is unified to 35.9mm.

Brighter illuminated surface

Less power consumption helps to save energy. A longer service life helps to reduce maintenance costs.



Dedicated LED lamp

Degrees of protection IP65

The operator has IP65 protection for smooth operation without adverse effects from oil, water, or dusts. Applicable to a wide variety of equipment, from machine tools to OA equipment.

Highly reliable contact mechanism

Gold-plated contacts and a snap-action mechanism enables IC-level applications (with a switching current of 1 mA at 5 V).

Meets EU RoHS requirements

Standard models meet RoHS requirements (EU Directive 2002/95/C).

Standard models meet international standards

Standard models meet UL/CSA requirements, China Compulsory Certification (CCC) standards, and TÜV EN standards, making them ideal for equipment for export.

Note: Command switches shipped as single articles to China must conform to the Product Quality Law. Check with your Fuji Electric representative.

The insertion/extraction life of the key is greatly extended

The key selector switch incorporates a pin tumbler type key (reversible type) to improve the insertion/extraction performance of the key.

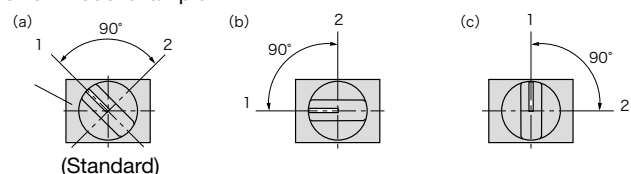


- Six key types are available.
- The pin tumbler construction improves security.

The operating angle position of the selector switch can be easily changed.

The bezel is separate from the knob (key), so the operating angle position can be easily changed in 45° increments (with the AR16 series rectangular or square type only). The following figure shows a knob type example. Same applies to the key type.

- Two-position model example.



Ø22 (Ø25) AR22 and DR22 Command Switches

The use of a release arm enables easy mounting.



Operator • Contacts

Mounting panel

Easy attachment and detachment with a release arm

The separate structure with a unique wedge mechanism enables one-step attachment and detachment of the operating section and contact section, without the use of any tool.

One-step lock!

Attachment



Detachment



One Touch!

One-step release!

Contact block and transformer unit can also be added or replaced in a single step

All contact block and transformer unit are designed with snap-on mounting, so no tools are required.

One Touch!

Attachment



Detachment



Improved work efficiency through bi-directional wiring

Terminals can be wired from two directions. This is ideal for wiring crossovers or wiring in narrow spaces. Square washers are used to enable wiring with solid wires.

Utility

Wiring from two directions



1NO

Blue



1NC

Red



Lamp terminals and Transformer Unit

Black



Color coding of contact blocks, lamp terminal and transformer unit makes wiring and checking easy.

Panel thickness need not be adjusted

Because the back surface of the operating section is mounted with a tightening nut, there is absolutely no need to adjust the panel thickness.

Also, the operator can be mounted on the panel along with a previously installed button and knob.

Easy



Mounting panel



Superior contact reliability

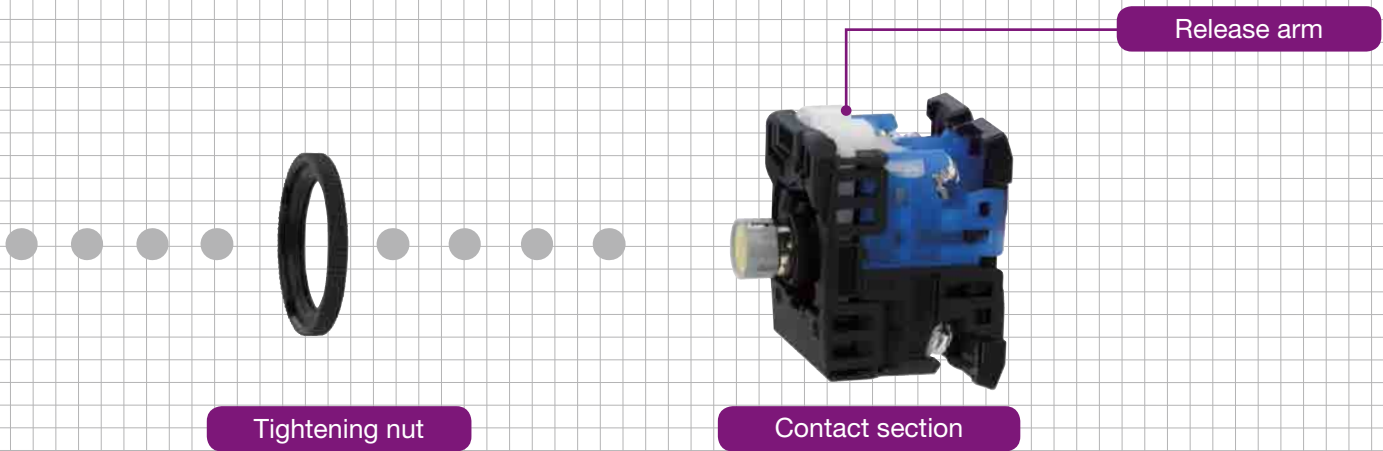
All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).

Buzzers are also available

Electronic or electromagnetic buzzers provide audible feedback on the status of the equipment.

Splash-proof buzzers that conform to EN 60204-1 (degrees of protection) are also available (enclosure used in general industry: IP54).





Tightening nut

Contact section

Depth of the short body

A short design enables full use of the available depth of the equipment.

Short

1 The Short-body Pilot light is 21.5mm long.

Switches with IP2X-compliant terminals are also available

Switches with IP2X-compliant terminals with a finger protection structure conforming to EN 60204-1 (Protection against electric shock) are available. (A test finger that simulates a human finger does not come into contact with live parts.)

Safety

Contacts Transformer unit Lamp terminal for pilot light

Note: For details, refer to AR22 and DR22-series Special Products.

High brightness LED illuminated model, "PIKARI-KUN"

- Standard models feature (1) higher equipment grade, (2) enhanced safety that enables easy identification of the status, and (3) adoption of pure green illumination color through a major improvement in visibility (Luminance) through the adoption of four elements LED.
- Along with a significant improvement in Luminance, energy is saved through a reduction in power consumption.
- The maintenance cost is also reduced by increasing the service life.

Terminal cover for charged parts provided as a standard accessory

A terminal cover that covers the terminals is provided as a standard accessory to help prevent electric shock by reducing exposure to charged parts.

Note: Not provided on all models.

Lamp base shape facilitates easy replacement

The same lamp base shape of BA9s/13 for both high brightness LED lamps and incandescent lamps facilitates application.

Standard models meet international standards

Standard models meet UL/CSA requirements and TÜV EN standards, making them ideal for equipment for export.

Chinese CCC-compliant models are also available.

Note: For details, refer to List of Models.

See page 04/3 to 04/6

Global Standardization

Features 30 × 50 mm tight mounting

Note: Not applicable to all models.

Panel cutout dimensions of 22.3 mm and 25.5 mm diameter

By providing a projection on the tightening nut, one switch can be mounted on two different panel cutout dimensions. Therefore, switches do not need to be purchased to match the panel cutout dimensions.

Ø 22.3^{+0.4}₀ mm Ø 25.5^{+0.5}₀ mm

Units can be mounted on a 25.5-mm diameter hole simply by turning over the tightening nut.

Safety equipment

16 to 30 mm diameter

Command Switch Emergency Stop (Illuminated) Pushbutton Switches

These pushbutton switches comply with various international standards, so they can be reliably used as emergency stop devices.

Ø16 (AH165, AR16)

minico



AR16V0R

Compliance with International Standards

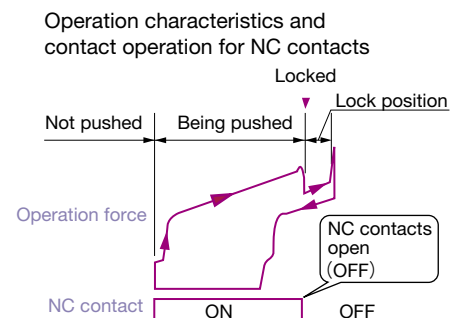
The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism.

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 EN 480.
- Provided with direct opening action (approved by TÜV) conforming to EN60947-5-1 and EN60947-5-5. ↻

Button section	Not pushed	Being pushed	Locked
Contact operation transitions			
NC contacts	Closed	Closed	Open



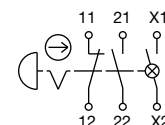
Emergency stop pushbutton switches available with an integrated contact structure

Emergency stop pushbutton switches are available with an integrated contact structure in which the operating section and contact section are combined into one unit (AH165-V, AR16V, and AR22VG). By arranging the contacts in an integrated structure, the reliability of the safety protection function is increased.

- The AR16V types feature a panel depth dimension of 28 mm for non-illuminated models and can have up to four sets of contacts.
- The AR22VGF types are equipped with a lamp circuit interlocking structure in which a lamp lights when the switch is locked.

Non-illuminated

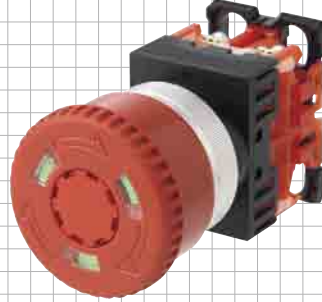
Illuminated



Ø22 (AR22, AM22)

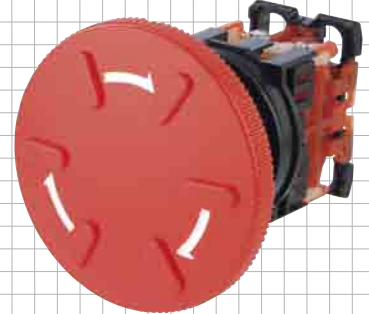


AR22V0L



AM22VME

Ø30 (AR30)

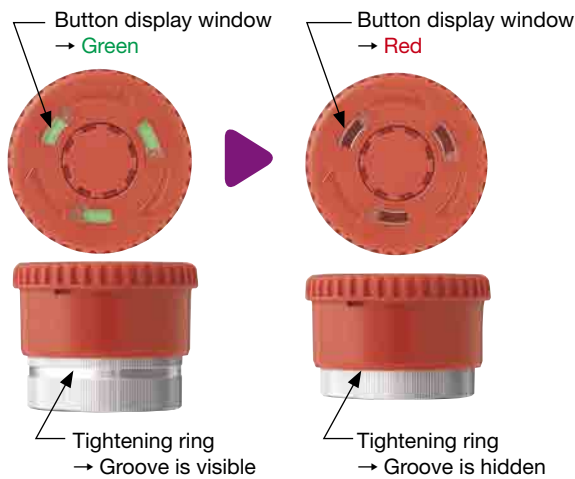


AR30V1R

A mechanical indicator mechanism by which the operating status can be seen at a single glance is available.

In AM22VME types, the operating status is indicated mechanically in the form of green and red colors in three button display windows

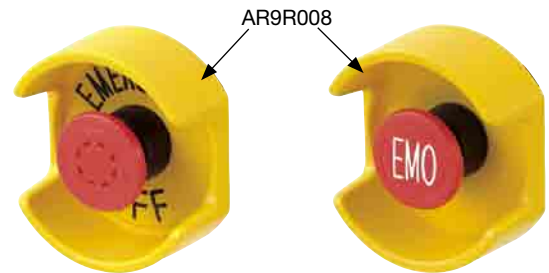
Reset status (no operation being performed): **Green** Locked status (during operation): **Red**



- Ideal for mechanical control panels in which display power supply is difficult to ensure.

SEMI-compliant guard rings are also available

This guard ring can be combined with our emergency stop switches to comply with the SEMI standards required for semiconductor manufacturing devices.



Combination of an AR9R008 guard ring with an AR22V2R switch

Combination of an AR9R008 guard ring with an AR22V3R Z286 switch

- Emergency stop switches with the "EMO" mark are available (AR22V3R Z286).
- EMERGENCY OFF labels are available.



Note: For details, refer to SEMI-compliant guard rings.

AR22V3R Z286

Standard models meet international standards

Standard models meet UL/CSA requirements and TÜV, EN Standard are available and exhibit CE marking. Chinese CCC-compliant models are also available.



Note: For details, refer to the list of models.






Emergency stop pushbutton switches with IP2X -compliant terminals are also available

Emergency stop pushbutton switches with IP2X-compliant terminals with a finger protection structure conforming to EN 60204-1 (protection against electric shock) are available. (A test finger that simulates a human finger does not come in contact with live parts.)

Note: The AR16V types is IP2X compliant when used with a terminal cover for charged parts (AR9Y262, sold separately). Switches from the AH165-V types are not IP2types compliant. For details on the AR22, 30V, Q, and AM22V types, refer to Special Products. The standard AR22VG types are IP2X compliant.

General information

Command Series

Series	Type	Features
Command Series	AR22 and DR22 	<ul style="list-style-type: none"> • Standard models feature illumination with high brightness LEDs. • No adjusting of panel thickness is necessary. • The button and lens can be mounted on a panel while the operator is engaged. • Easy replacing contact block and transformer. • Wiring from two directions is possible. • The shortest among industrial pushbuttons. The transformer now occupies far less space. • A terminal cover are provided, assuring safety and security. • The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety. • Mountable even on panel cutout 25mm diameter. • AR22 and DR22 series of the ø22 Command Switches are approved by UL/CSA CCC and TÜV (EN standard). • Bearing CE markings.
	AR30 and DR30 	<ul style="list-style-type: none"> • Standard models feature illumination with high brightness LEDs. • Easy replacing contact block and transformer. • The shortest among industrial pushbuttons. The transformer now occupies far less space. • A terminal cover are provided, assuring safety and security. • The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety. • AR30 and DR30 series of the ø30 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard). • Bearing CE markings.
	AR16 and AF16 	<ul style="list-style-type: none"> • An integrated operator component and contact mechanism that reduces control panel's depth. A unified depth of 28.4mm for the Standard type and 35.9mm for the Thin type. • Thin type and Standard types available for your control panel design. Select an optimum one to match your control panel design. • A wide variety of sockets help to reduce wiring. • Incorporating a gold-flashed SPDT or 2PDT contact mechanism with a snap-action structure that makes and breaks 1mA at 5V. • A key selector switch with a pin tumbler key and reversible type mechanism provides improved key insertion and removal (extraction) performance. • Complies with RoHS (EU Directive 2002/95/EC). • The standard AR16 and DR16, AF16 and DF16 series of the ø16 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard). • Bearing CE markings.
	AH164 and AH165 AH165-2 	<ul style="list-style-type: none"> • Standard models feature illumination with high brightness LEDs. • Unified depth dimension of 24 mm for type with indicator and 42.5 mm for other types. • Application possible at 1 mA, 5 V due to gold-plated contacts and sliding structure. • Incandescent, neon and LED lamps are available. • Easy replacing contact block. • AH165-2 series are about twice as large as the AH165 series. • AH164 and AH165, AH165-2 series of the ø16 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard). • Bearing CE markings.
	AM22 and DM22 	<ul style="list-style-type: none"> • Standard models feature illumination with high brightness LEDs. • Easy addition or replacement of text plates with front tightening nut mounting system. • Easy replacing contact block and transformer. • The shortest among industrial pushbuttons. The transformer now occupies far less space. • A terminal cover are provided, assuring safety and security. • The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety. • AM22 and DM22 series of the ø22 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard). • Bearing CE markings.

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Type	AR22	DR22
Degree of protection	IP65	
Illuminated pushbutton switches	●	
Pushbutton switches	●	—
Emergency stop pushbutton switches	●	—
Emergency stop illuminated pushbutton switches	●	—
Selector switches	●	—
Illuminated selector switches	●	—
Joy stick selector switches	●	—
Buzzer	—	● (IP00, IP54)
Pilot lights	—	●

04/55

Type	AR30	DR30
Degree of protection	IP65	
Illuminated pushbutton switches	●	—
Pushbutton switches	●	—
Emergency stop pushbutton switches	●	—
Emergency stop illuminated pushbutton switches	●	—
Selector switches	●	—
Illuminated selector switches	●	—
Joy stick selector switches	●	—
Buzzer	—	● (IP00, IP54)
Pilot lights	—	●

04/129

Type	AR16	DR16	AF16	DF16
Degree of protection	IP65			
Illuminated pushbutton switches	●	—	●	—
Pushbutton switches	●	—	●	—
Emergency stop pushbutton switches	●	—	—	—
Emergency stop illuminated pushbutton switches	●	—	—	—
Selector switches	●	—	●	—
Pilot lights	—	●	—	●

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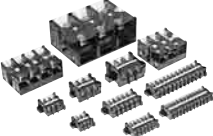
Type	AH164	AH165	AH165-2
Degree of protection	IP40	IP65	IP65
Illuminated pushbutton switches	●	●	●
Pushbutton switches	●	●	●
Emergency stop pushbutton switches	—	●	—
Selector switches	●	●	●
Pilot lights	●	●	●
Buzzer	● (IP00)	● (IP54)	—

04CD/2/1

Type	AM22	DM22
Degree of protection	IP65	
Illuminated pushbutton switches	●	—
Pushbutton switches	●	—
Emergency stop pushbutton switches	●	—
Emergency stop illuminated pushbutton switches	●	—
Selector switches	●	—
Illuminated selector switches	●	—
Pilot lights	—	●

General information

Command Series

Series	Type	Features
Command Series	AH25 	<ul style="list-style-type: none"> Standard models feature illumination with high brightness LEDs. Easy replacing contact block and transformer. A terminal cover are provided, assuring safety and security. The standard AH25 series of the ø25 Command Switches are approved by UL/CSA.
	AG22 and AG23 	<ul style="list-style-type: none"> Application possible at 1 mA, 5 V due to gold-plated contacts and sliding structure. Easy replacing contact block. Compact design with a short depth. Solder/tab terminals. The standard AG22 and AG23 series are approved by UL/CSA.
Multi Display	AP30F and AP40F 	<ul style="list-style-type: none"> High brightness for more vivid colors Newly added blue and pure white LEDs improve visibility. Transformer-free design for lighter structure and shorter depth (for 100-V and 200-V models) Easy color and voltage changes. Wide window size selection. A wide selection, including half-size windows. UL/CSA-compliant models also available.
Rotary Switches	AB09, AB16 and AB32 	<ul style="list-style-type: none"> Rotary switches with code output. Three types of code output are available. Select either soldered or connector connections.
Cam Type	RC310 	<ul style="list-style-type: none"> A wide range of models available for control, instrumentation, and motor starting and with bifurcated contacts, keys, and indicators.
Panel Switches	NS387 	<ul style="list-style-type: none"> Ideal for switching all types of electric circuits.
Terminal Blocks		<ul style="list-style-type: none"> FUJI can supply a variety of terminal blocks for switchboard or switchgear use.

						Page
Type		AH25				04CD/3/1
Degree of protection		IP40		IP65		
Illuminated pushbutton switches		● (Square type)		●		
Pushbutton switches		● (Square type)		●		
Selector switches		● (Square type)		●		
Pilot lights		● (Square type)		●		
Mechanical interlocked pushbutton switches		—		●		
Mounting hole dimensions		23.5×22.5		23.5×30.5		04CD/1/1
Type		AG22		AG23		
Degree of protection		IP40		IP40		
Illuminated pushbutton switches		● (Square type)		●		
Pilot lights		● (Square type)		●		
Illuminated lever switches		● (Square type)		●		
Illuminated rocker switches		● (Square type)		●		
Type	Illuminated face	Face size	Type	Illuminated face	Face size	04/235
AP30F	Half size (H)	15×30	AP40F	Half size (H)	20×40	
	Square (S)	30×30		Square (S)	40×40	
	Rectangular horizontally long (T)	30×60		Rectangular horizontally long (T)	40×80	
	Rectangular vertical long (V)	60×30		Rectangular vertical long (V)	80×40	
	Mixture of S, T, V (X)	—		Mixture of S, T, V (X)	—	
Type	Type of code			04/256		
	Real binary code	Complementary binary code	Real gray code			
AC09	●	●	●			
AC16						
AC32						
Type	Mounting	Rated insulation voltage	Rated thermal current		Remarks	04/263
RC310-1	40 x 40, mounted with 4 screws	600V	10A		The following are also available: Keys, indicators, bifurcated contacts, case covers, etc.	
Type	Rated thermal current	Application		04/272		
NS387	15A	Voltmeter changeover switches Ammeter changeover switches Industrial control switches				
Type	Rated insulation voltage	Rated thermal current	Application	04/276		
AYBN	600V	15 to 600A	General purpose terminal blocks			
AYBS	600V	49 to 115A	High quality terminal blocks			
LT4D	660V	20A	Rail mounted terminal blocks with isolating switch			
SKT	600V	50 to 200A	Terminal block with pressure solderless box lug type connector on one side and screw type connector on the other			
LT2E	600V	22 to 600A	Rail mounted terminal blocks			
LT5	250V	30A	Testing terminal and link for VT and CT circuit			