

# FUJI ED & C TIMES

## New Products

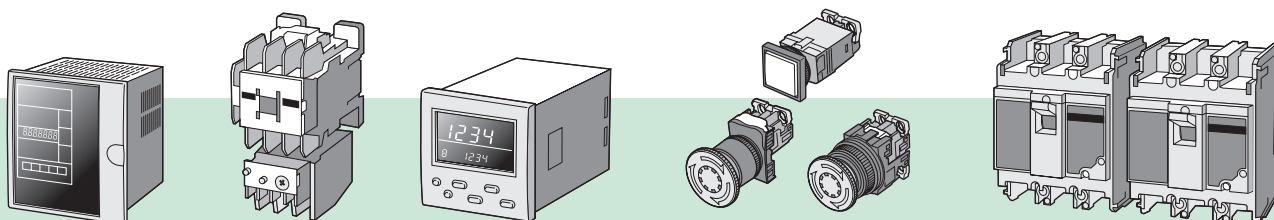
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# Guard ring for AR22 emergency stop pushbuttons

## Conforming to SEMI for semiconductor manufacturing equipment

### ■ Features

- Conforming to SEMI standards (Semiconductor Equipment and Materials International, SEMI-S2, SEMATECH Application Guide for SEMI S2-93) for semiconductor manufacturing equipment when used in combination with FUJI's emergency stop pushbutton switch.
- An EMERGENCY OFF legend plate is available as optional.
- Emergency stop pushbutton switches with EMO markings is also available.





Combination with the AR22V2R emergency stop pushbutton




Combination with AR22V3R emergency stop pushbutton with EMO markings

### ■ Guard ring and legend plate

Description	Color	Type
Guard ring 	Yellow	<b>AR9R008</b>
EMERGENCY OFF legend plate 	Yellow (Characters: Black)	<b>AR9P721-5C</b>

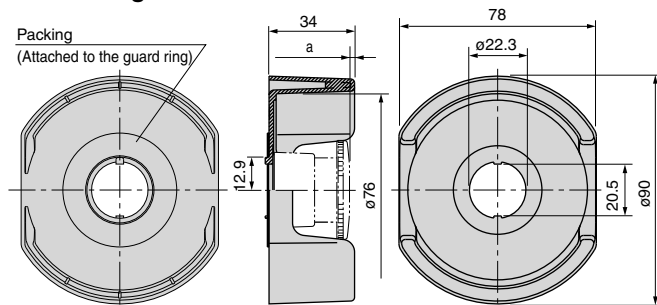
### ■ Emergency stop pushbutton switches with EMO markings

Operator	Button color	Contact	Type
Large push-lock, 40mm dia. with EMO markings 	Red (Characters: Black)	1NC	<b>AR22V3R-01RZ286</b>
		1NO+1NC	<b>AR22V3R-11RZ286</b>
		2NC	<b>AR22V3R-02RZ286</b>
		2NO+2NC	<b>AR22V3R-22RZ286</b>



## ■ Dimensions, mm

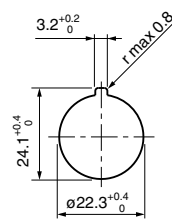
### • Guard ring AR9R008



- The level difference dimension “a” between guard ring and switch varies depending on the emergency stop (illuminated pushbutton switches). For details, see the table below.

Pushbutton	Panel thickness	Dimension “a” (for reference)
AR22V2R	1 to 2.5 mm	2 Used with EMERGENCY OFF legend plate
AR22V4R		
AR22V2L		
AR22VAL		
AR22V3R with EMO markings	1 to 3.6 mm	3 Not used with EMERGENCY OFF legend plate

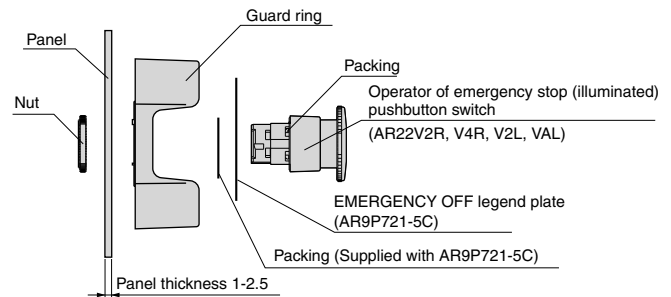
### Panel cutting



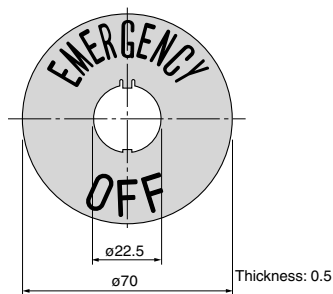
Note: Not provided with EMERGENCY OFF plates

### • Typical mounting method

Using EMERGENCY OFF legend plate



### • EMERGENCY OFF legend plate AR9P721-5C

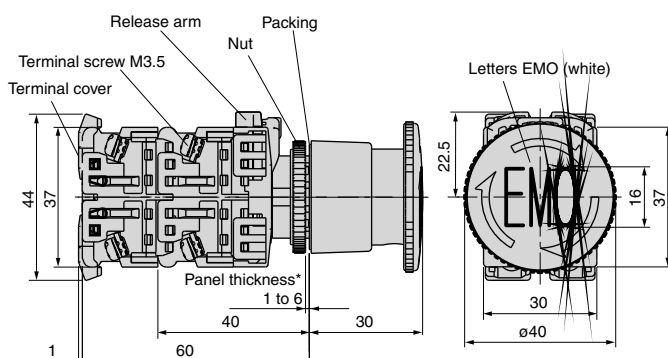


- The AR9P721 is aluminum with packing, yellow housing and black characters. Engraving is not possible.
- The character height is 13mm.

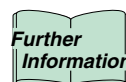
### ■ Notes on use

- The guard ring is for use on semiconductor manufacturing equipment only. Do not apply the guard ring to emergency stop pushbutton switches for industrial machines such as machine tools and printing machines.
- The guard ring can be used in combination with only the following FUJI emergency stop (illuminated) pushbutton switches.  
AR22V2R, V4R, V2L, VAL, and V3R with EMO markings  
The guard ring cannot be used in combination with the AR22V0R, VSR, V7R, Q2R, VGE, V0L, VDL, VSL, or VGF type.

### • Emergency stop pushbutton switch with EMO markings AR22V3R-□□RZ286



\* The panel thickness shown is the thickness of the switch alone.



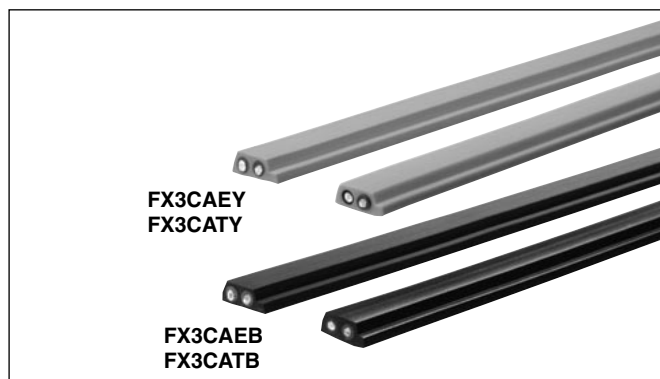
For the emergency stop (illuminated) pushbutton switches, see pages 04/23 and 04/24 of the D & C Catalog 19th Edition.

# AS-Interface cable FX3CA

## FUJI brand AS-Interface cables

### Features

- Conforms to AS-Interface Standard (IEC 62026-2)
- Approved by UL and CSA ,oil-tight (TPE) cable
- RoHS compliant products
- A trapezoidal cross section is adopted to prevent polarity reversal.
- Both kinds of cable are available to suit environmental conditions: general-purpose use (EPDM) and oil-tight use (TPE).
- The connection uses the insulation piercing technology (IEC 60352-6). The cable can be connected into the waterproof and dustproof slaves very easily and quickly.
- The cable's insulation recovers after the connected slaves are detached.



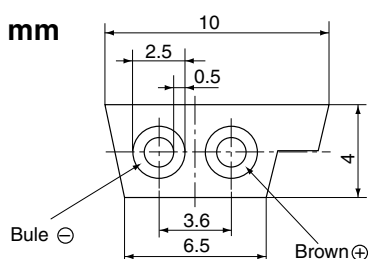
### Application example

Digital picking systems, automotive manufacturing equipment, material handling equipment, food manufacturing equipment.

### Ratings and specifications

Type	FX3CAEY	FX3CATY	FX3CAEB	FX3CATB
Application	As-i communications, 30V DC		External power supply, 24V DC	
Environmental condition	General-purpose use	Oil-tight use	General-purpose use	Oil-tight use
Cable color	Yellow	Yellow	Black	Black
Cable sheath material	Ethylene Propylene Diene Monomer (EPDM)	Thermoplastic Elastomers (TPE)	Ethylene Propylene Diene Monomer (EPDM)	Thermoplastic Elastomers (TPE)
Sheath color of core	Brown (AS-i (+)), Blue (AS-i (-))		Brown (24V DC (+)), Blue (0V)	
Core cross-section (IEC 60228)	2 x 1.5mm <sup>2</sup>		2 x 1.5mm <sup>2</sup>	
Withstand voltage	1.5kV		1.5kV	
Cable length per packing	100m/roll		100m/roll	
Operating temperature	-25 to +85°C	-30 to +105°C	-25 to +85°C	-30 to +105°C
Smallest permissible bending radius (DIN VDE 0298 Part 300)	Fixed: 12mm Movable: 24mm		Fixed installed: 12mm Movable: 24mm	
Bending performance (IEC 60227)	No break after 30,000 back and forward movements		No break after 30,000 back and forward movements	
Behavior in fire	Flammable	Flame-resistant	Flammable	Flame-resistant
Ozone and weather resistance	Non-resisting	Resisting	Non-resisting	Resisting
Oil- resistance	Non-resisting	Resisting	Non-resisting	Resisting
Water soluble cutting fluid resistance	Resisting	Non-resisting	Resisting	Non-resisting
Approval	—		—	UL758, cUL, AWM Style2376

### Dimensions, mm

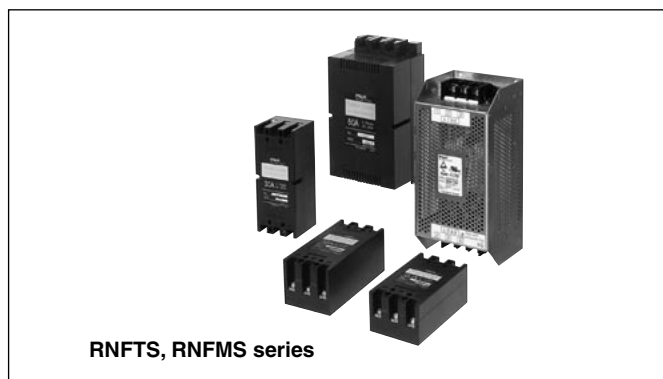


# Noise suppression filters, RNFTS and RNFMS series output circuit Power Filters

**Combination with an input circuit Power Filter provides high damping characteristics.**

## ■ Features

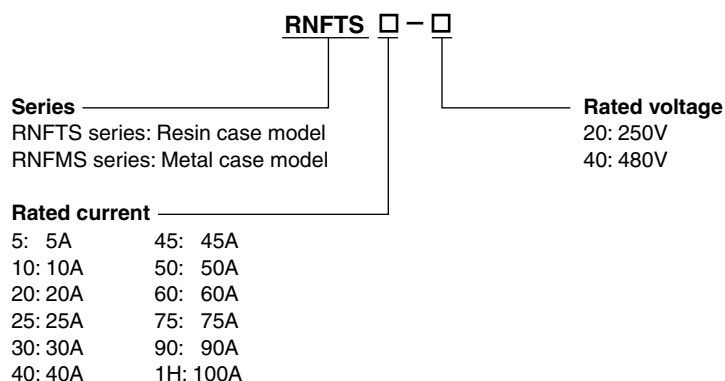
- Prevent noise emission from inverter output cables.
- Combination with an RNFTC or RNFMC or RNFHA series input circuit Power Filter provides high damping characteristics.
- External terminal construction equivalent to field-wiring terminal in durability.
- For resin case model RNFTS series, identical terminal configuration with FUJI's MCCB, thus simplifying wiring work.



## ■ Types and specifications

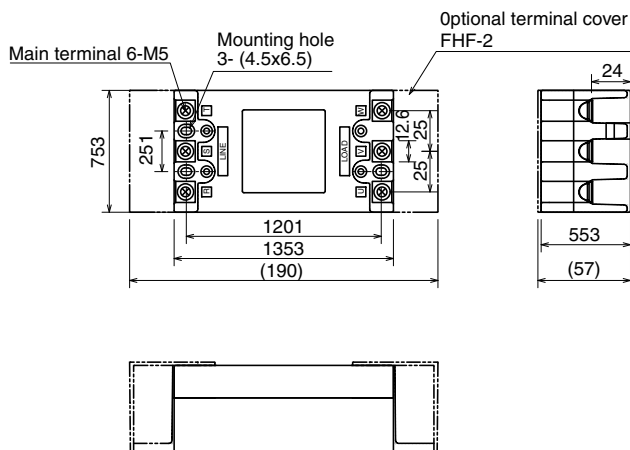
Type	Phase	Rated voltage(V)	Rated current (A)	Withstand voltage to grounding (V AC)	Voltage drop (V)	Operating ambient temperature (°C)
RNFTS05-20	3-phase	250	5	2000, 1 minute	1.0 max.	-10 to +50
RNFTS10-20			10			
RNFTS20-20			20			
RNFTS30-20			30			
RNFTS50-20			50			
RNFMS60-20			60			
RNFMS75-20			75			
RNFMS90-20			90			
RNFTS10-40			10			
RNFTS20-40			20			
RNFTS25-40	3-phase	480	25	2500, 1 minute	1.0 max.	-10 to +50
RNFTS30-40			30			
RNFTS40-40			40			
RNFTS45-40			45			
RNFMS75-40			75			
RNFMS1H-40			100			

## ■ Type number nomenclature



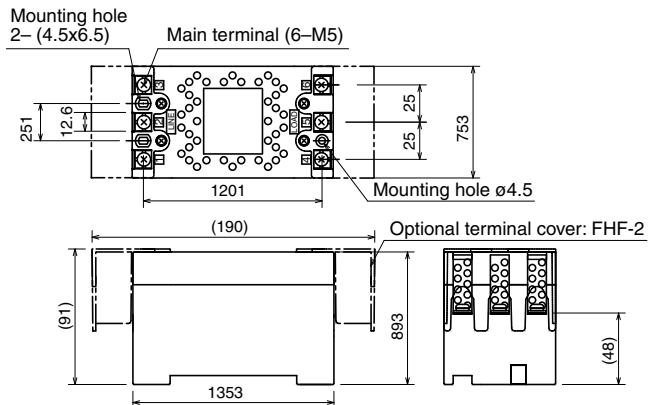
## ■ Dimensions, mm

### RNFTS05-20, 10-20, 20-20, 10-40



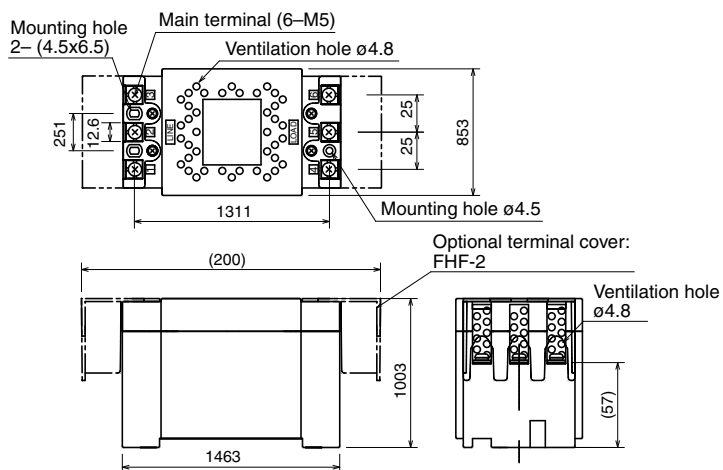
Mass:  
RNFTS05-20, 10-20: 0.5kg  
RNFTS20-20: 0.6kg  
RNFTS10-40: 0.7kg

### RNFTS30-20, 20-40



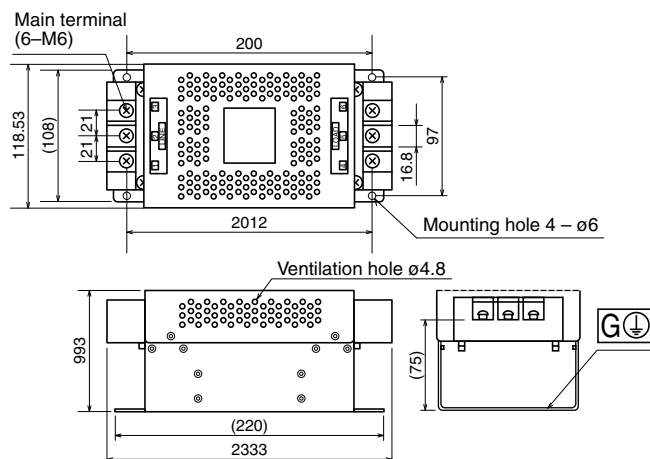
Mass:  
RNFTS30-20: 0.8kg  
RNFTS20-40: 1.0kg

### RNFTS50-20, 25-40, 30-40, 40-40, 45-40



Mass:  
RNFTS50-20: 1.6kg  
RNFTS25-40, 30-40: 1.4kg  
RNFTS40-40, 45-40: 1.6kg

### RNFMS60-20, 75-20, 90-20, 75-40, 1H-40



Mass:  
RNFMS60-20, 75-20, 90-20: 2.2kg  
RNFMS75-40, 1H-40: 2.6kg

## RoHS compliant products

## Revised

Changes have been made to some details (target products, release dates) that were included in the FUJI ED & C TIMES Vol. 8 edition that was published in March 2005.

Fuji Electric FA abolished and will abolish the application of six environmental impact substances (see below) to its products because the use of these substances will be officially banned by the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive in July 2006.

The six environmental impact substances are lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyl), and PBDE (polybrominated diphenyl ether).

### ■ Applicable products

Please refer to the following schedule.


Non-applicable products will also successively adopt environment-friendly parts for any parts that are common to both applicable and non-applicable products.

### ■ Method of change

The change to RoHS-compliant products are made sequentially, i.e., new products replace conventional ones as soon as the conventional ones are no longer in stock.

### ■ Method of identification

Packages of RoHS compliant products bear the following mark.

Identification mark on RoHS compliant products	FUJI's RoHS compliant standards	
	Lead and lead compounds	1,000 ppm max.
	Mercury and mercury compounds	1,000 ppm max.
	Cadmium and cadmium compounds	100 ppm max.
	Hexavalent chromium and hexavalent chromium compounds	1,000 ppm max.
	PBB (polybrominated biphenyl)	1,000 ppm max.
	PBDE (polybrominated diphenyl ether)	1,000 ppm max.

Note: Products themselves bear no identification mark.

### ■ Type numbers/Prices

The above change does not involve any changes in type numbers or prices.

### Remarks

- 1) No functional changes are planned for products accompanying the RoHS compliance process.  
If functional changes in products should occur, however, FUJI will provide individual reports separately.
- 2) Partial color changes in products will be made to comply with the RoHS Directive. FUJI has confirmed that the changes will not have an adverse effect on the performance of the products.  
Please understand that some products may incorporate both RoHS compliant parts and RoHS non-compliant parts during the transition period.

### ■ Magnetic contactors, thermal overload relays, solid-state contactors and MMSs

Description		Type	Time of enforcement
<b>Magnetic contactors</b>	SC series	SC-03 to 5-1	Enforced
		SC-03/G, 5-1/G	Enforced
		SC-03/V to 5-1/V	Enforced
		SC-03/C to 5-1/C	Enforced
		SC-N1 to N3 <sup>*1</sup>	Apr. 2006
		SC-N1/SE to N3/SE <sup>*1</sup>	Apr. 2006
		SC-N4 <sup>*2</sup>	Enforced
<b>Thermal overload relays</b>	TR (TK) series	SC-N4/SE to N12	Apr. 2006
		SC-N14, N16	Jul. 2006
		TR (TK)-0N, 5-1N	Enforced
		TR (TK)-0N/L, 5-1N/L	Enforced
<b>Phase sequence protective relays</b>	For SW-□/2E	TR (TK)-N2 to N14	Enforced
		QE-20N, 40N	Apr. 2006
<b>Magnetic contactors</b>	SJ series	SJ-0G to 1SG	Enforced
<b>Magnetic motor starters</b>	FC series	FC-0 to 4	Enforced
	FW series	FW-1	Enforced
<b>DC magnetic contactors</b>	SB series	FW-1S to 4 <sup>*2</sup>	Enforced
		SB-2N	Enforced
<b>Optional accessories for contactors</b>	Auxiliary contact block Main circuit surge suppression unit Coil surge suppression unit Operation counter Mechanical interlock unit Power connection kit for reversing	SB-2N/SE, 5N to 11N	Jul. 2006
		SZ-A□, SZ-AS1 to AS3	Enforced
		SZ-ZM	Enforced
		SZ-Z1 to Z9, SZ-Z31 to Z45	Apr. 2006
		SZ-J	Enforced
		SZ-RM	Enforced
<b>Optional accessories for thermal overload relays</b>	Base unit for separate mounting Trip indicator	SZ-RW	Enforced
		SZ-H	Enforced
<b>Solid-state contactors</b>	Single-pole	SZ-L	Enforced
		SS101 to 501	Apr. 2006
		SS701 to 2001	Jul. 2006
		SS03 to 08	Apr. 2006
		SS20 to 50	Dec. 2006
<b>DUO series Manual motor starters</b>	32AF 63AF	SS80 to 120	Apr. 2006
		BM3R	Enforced
		BM3V	Enforced
<b>Magnetic contactors and thermal overload relays</b>	SC-E series	SC-E02 to E4	Enforced
		SC-E5 to E7	May 2006
		TK-E02 to E6	Enforced

Note: • Packages of RoHS compliant products bear the identification mark (Ro).  
 • Note that the production schedule of RoHS compliant products is subject to change without notice.  
 • Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.  
 Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

<sup>\*1</sup> Plans to eliminate cadmium from electrical contacts have been withdrawn.

<sup>\*2</sup> Except for the tropical and marshy area, the change will be made in Apr. 2006.



## ■ Industrial relays, time delay relays, and counteres

Description		Type	Time of enforcement
Industrial relays	SH series	SH-4, SH-5	Enforced
Industrial control relays		HH22, 23, 24	Enforced
		HH22-L, 23-L, 24-L, -F	Apr. 2006
		HH22-R, 23-R	Apr. 2006
Miniature control relays		HH52P, 53P, 54P	Enforced
		HH52U, 54U	Enforced
		HH52B, 53B, 54B	Enforced
		HH52-L, 53-L, 54-L, -F, -FL, -CRL	Apr. 2006
		HH52-R	Apr. 2006
Miniature power relays		HH62	Enforced
		HH62-L, 63-L, 64-L, -F, -FL, -CRL	Apr. 2006
Annunciator relay units	Annunciator relays	RV	Apr. 2006
	Flicker relays	JH13PN	Apr. 2006
Card relays	Optional accessory, relay remover	RB104, 105	Enforced
		TY3	Enforced
Relay-and-terminal modules		RS4N, 6N	Apr. 2006
		RS41, 42	Apr. 2006
		RS4A, 4D, 6A, 6D, 16A, 16D	Apr. 2006
		RS16, 16E	Apr. 2006
Optional accessories for control relays	Sockets	TP04	Enforced
		TP38, TP311	Enforced
		TP58, 511, 514, B, R2	Enforced
		TP58X1, 514X1, 58X2, 511X2, 514X2	Enforced
		TP58X1-CR, 514X1-CR	Apr. 2006
		TP58X2-CR, 511X2-CR, 514X2-CR	Apr. 2006
		TP58X2-Z, 511X2-Z, 514X2-Z	Apr. 2006
		TP68, 68B, 68R, 68X2	Enforced
		TP68X2-CR, 68X2-Z	Apr. 2006
		FX5, FX1B, FX1C	Enforced
		RS910□, AUX□	Enforced
		RZ□, FX14X2	Enforced
		Time delay relays    MS4S	On-delay
Off-delay	MS4SF		Jul. 2006
Star-delta	MS4SY		Apr. 2006
Off-delay repetitive operation	MS4SR		Apr. 2006
ST7P	On-delay	ST7P	Apr. 2006
Electronic counters	Time counter	MA4	Apr. 2006

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### ■ Sockets for time delay relays and counters, and terminal blocks

Description	Type	Time of enforcement
<b>Optional accessories for time delay relays and counters</b> Sockets	TP48X, 48SB * <sup>1</sup>	Enforced
	TP411X, 411SB * <sup>1</sup>	Enforced
	TP88X1, 88X2 * <sup>1</sup>	Enforced
	TP814X1, 814X2 * <sup>1</sup>	Enforced
	TP28X-UL * <sup>1</sup>	Enforced
	TP88, TP88B, TP88R2	Enforced
<b>Terminal blocks</b> General purpose	TP814, TP814B, TP814R2	Enforced
	AYBN, AYBS * <sup>1</sup>	Enforced
	Rail mounted	Enforced
	AYHN, TS	Enforced
	Rail mounted	Enforced
With stud terminal	FD220DB	Enforced
	TV * <sup>1</sup>	Enforced
	LT2E	Enforced
<b>Testing terminals</b> For panel mounting	TT	Enforced
	Connector terminal-block	Apr. 2006
	AU-CW21	

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\*<sup>1</sup> Except for the tropical and marshy area, the change will be made in Apr. 2006.

### ■ Pushbuttons, selectors, pilot lights, indicators, rotary switches, panel switches

Description	Type	Time of enforcement
<b>Round head pushbuttons, selectors, pilot lights</b> 16mm dia.	AH164, 165 * <sup>1</sup>	Enforced
	AH165-2 * <sup>1</sup>	Enforced
	22mm dia.	
	AR22, DR22 * <sup>1</sup>	Enforced
	AM22, DM22 * <sup>1</sup>	Enforced
	30mm dia.	
	AR30, DR30 * <sup>1</sup>	Enforced
<b>Multi display lights</b> F series	AP30F, 40F * <sup>1</sup>	Enforced
<b>Rotary switches</b>	AC09, 16, 32	Enforced
<b>Cam type control selector switches</b>	RC310	Apr. 2006

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\*<sup>1</sup> Except numerical indicator and buzzer. Except incandescent and neon lamp types

### ■ Limit switches and proximity switches

Description	Type	Time of enforcement
<b>Limit switches</b>	K244, HK244, WK244	Apr. 2006
	AL	Apr. 2006
	AL-S	Enforced
<b>Proximity switches</b> Magnetically operated reed switches	PM	Enforced
<b>Photoelectric switches</b> Slot type	PH8AU	Apr. 2006

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## ■ Molded case circuit breakers

Description			Type	Time of enforcement
MCCBs	S series	2- and 3-pole	SA30C	Enforced
			SA50C, SA50RC <sup>*1</sup>	Apr. 2006
			SA60C, SA60RC <sup>*1</sup>	Apr. 2006
			SA100C, SA100RC <sup>*1</sup>	May 2006
			SA225C, SA225RC <sup>*1</sup>	May 2006
			SA400C, SA400RC	Enforced
			SA603RC	Enforced
			SA803RC	Enforced
		UL489 Listed	SA50RCUL	Apr 2006
			SA100CUL, SA100RCUL <sup>*1</sup>	May 2006
			SA225CUL, SA225RCUL <sup>*1</sup>	May 2006
			SA400CUL, SA400RCUL	Enforced
			SA603RCUL	Enforced
			SA803RCUL	Enforced
		With earth leakage alarm	SA103CL <sup>*1</sup> , SA103RCL <sup>*1</sup>	May 2006
			SA203CL <sup>*1</sup> , SA203RCL <sup>*1</sup>	May 2006
			SA403CL, SA403RCL, SA603CL, SA803CL	Apr 2006
	E series	2- and 3-pole	EA30AC	Enforced
			EA50AC, EA50C	Enforced
			EA60C <sup>*1</sup>	Enforced
			EA100C, EA100AC <sup>*1</sup>	Enforced
			EA225C <sup>*1</sup>	May 2006
			EA400C	Enforced
			EA603C	Enforced
			EA803C	Enforced
		For distribution board	EA30FC, EA50FC <sup>*1</sup>	Enforced
		UL489 Listed	EA103FC <sup>*1</sup>	Apr. 2006
			EA100CUL <sup>*1</sup>	Apr. 2006
		With earth leakage alarm	EA53CL	Enforced
			EA103CL <sup>*1</sup>	Apr. 2006
			EA403CL, EA603CL, EA803CL	Apr. 2006
			EA203CL <sup>*1</sup>	May 2006
	H series		H403R	Enforced
			H603R	Enforced
			H803R	Enforced

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  - Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.
- Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

<sup>\*1</sup> Plans to eliminate cadmium from electrical contacts have been withdrawn.

## ■ Earth leakage circuit breakers and protective relays

Description			Type	Time of enforcement
ELCBs	SG series	2- and 3-pole	SG30C	Enforced
			SG50C, SG50RC *1	Apr. 2006
			SG60C, SG60RC *1	Apr. 2006
			SG103C, SG103RC *1	May 2006
			SG203C, SG203RC *1	May 2006
			SG403C, SG403RC	Apr. 2006
			SG603RC	Apr. 2006
			SG803RC	Apr. 2006
		UL489 Listed	SG53RCUL *1	Apr. 2006
			SG103CUL *1	May 2006
			SG203CUL *1	May 2006
			SG403CUL	Apr. 2006
	EG series	2- and 3-pole	EG30AC	Enforced
			EG50AC, EG50C	Enforced
			EG60C *1	Apr. 2006
			EG100C, EG100AC *1	Apr. 2006
			EG203C *1	May 2006
			EG403C	Apr. 2006
			EG603C	Apr. 2006
			EG803C	Apr. 2006
		For distribution board	EG30FC, EG50FC	Enforced
			EG103FC *1	Apr. 2006
			EG100CUL *1	Apr. 2006
UL489 Listed				
Earth leakage protective relays			RRD, BRR	Apr. 2006

Note: • Packages of RoHS compliant products bear the identification mark (Ro).

- Note that the production schedule of RoHS compliant products is subject to change without notice.
  - Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.
- Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

<sup>\*1</sup> Plans to eliminate cadmium from electrical contacts have been withdrawn.

## ■ Accessories for MCCBs and ELCBs

Description		Type	Time of enforcement
<b>Operating handles</b>	<b>N type</b>	BZ6N□C, BZ-N	Jun. 2006
	<b>V type</b>	BZ6V□C, BZ-V	Jun. 2006
	<b>G type</b>	BZ-G	Not enforced
<b>Other accessories</b>			Enforced

Note: • Packages of RoHS compliant products bear the identification mark (Ro).  
 • Note that the production schedule of RoHS compliant products is subject to change without notice.

• Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.  
 Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

## ■ Circuit protectors and fuses

Description			Type	Time of enforcement
<b>Circuit protectors</b>	For control circuit, with auxiliary and alarm switches		CP31D, 32D CP31F, 32F, 33F, CP31T, 32T, 33T	Enforced Enforced
	For electronic circuit, with auxiliary and alarm switches		CP31E, 32E, 33E, 34E, CP31V 32V, 33V, 34V CP31P, 32P, 33P CP31B, 32B, 33B CP51B, 52B, 53B	Enforced Apr. 2006 Apr. 2006 Apr. 2006
	Optional accessories			Enforced
<b>Fuses</b>	Current limiting fuse	Fuse link	BLA	Enforced
		Screw cap	Pa	Enforced
		Base	AFa, Ba	Enforced
		Adapter ring	R	Enforced
		Fuse link	FCF	Apr. 2006
		Fuse link	FCK	Apr. 2006
	Super Rapid Fuses		CS1F, 2F, 5F, 8F, 10F, 15F BLC CR2L, 2LS, 6L	Enforced Enforced Enforced

Note: • Packages of RoHS compliant products bear the identification mark (Ro).  
 • Note that the production schedule of RoHS compliant products is subject to change without notice.

• Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.  
 Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

## ■ Power factor controllers

Description		Type	Time of enforcement
<b>Power factor controllers</b>		QC06E, 12E	Apr. 2006

Note: • Packages of RoHS compliant products bear the identification mark (Ro).  
 • Note that the production schedule of RoHS compliant products is subject to change without notice.

• Prior to the production of RoHS compliant products, the conventional parts are replaced in sequence.  
 Note that during the transition period some products may incorporate both RoHS compliant parts and RoHS non-compliant parts.

## Magnetic contactors and starters/SC-N14, N16

### Changes in arc chamber, wire spring and base plate

The arc chamber has been changed to unify the materials of “SC-N4 to N16” and to comply with RoHS. The metal catch has been changed to prevent the arc chamber from removing easily by hand.

The color of base plate has been slightly changed due to the difference in deburring work.

#### Arc chamber

SC-N14, N14RM, SW-N14, N14RM  
SC-N14/VS, SC-N14RM/VS  
SC-N16

Material:  
Depth:  
Arc gas emission outlet:

#### Conventional

Ceramic  
80mm  
One-side groove



#### New

**Molded resin**  
**75mm**  
**Butting grooves on both sides**

#### Metal catch

SC-N14, N14RM, SW-N14, N14RM  
SC-N14/VS, SC-N14RM/VS  
SC-N16

Wire diameter:

3.2mm

**4.0mm**

#### Base plate

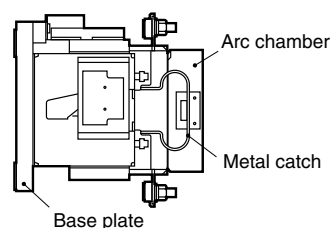
SC-N16

Color:

Unglossy silver

**Slightly dark silver**

■ Time of modification: January 2006



## Reversing magnetic contactors and starters/N4RM, N5RM

### Change in depth of contactors

The contactor base thickness has changed, and contactor depth has been increased.

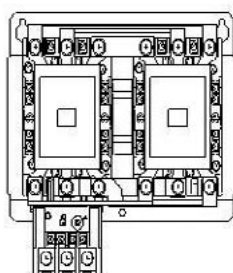
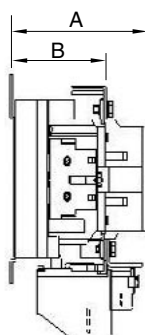
#### Conventional

	A	B
SC-N4RM, SW-N4RM	122.0mm	81.5mm



#### New

	A	B
SC-N4RM, SW-N4RM	<b>123.5mm</b>	<b>83.5mm</b>
SC-N4RM/SE, SW-N4RM/SE SC-N5RM, SW-N5RM SC-N4RM/VS SC-N5RM/VS SC-E5RM, SW-E5RM	<b>138.5mm</b>	<b>98.0mm</b>



■ Time of modification: January 2006

## Manual Motor Starters/BM3 series

### Certification (Korea) mark added

FUJI acquired a certificate of conformance to Electrical Appliances Safety Control Law of Korea. The certification mark will be added on the front of the starter cover.

#### Adj. thermal-magnetic types

32AF standard breaking capacity, BM3RSB

63AF standard breaking capacity, BM3VSB

32AF high breaking capacity, BM3RHB

63AF high breaking capacity, BM3VHB

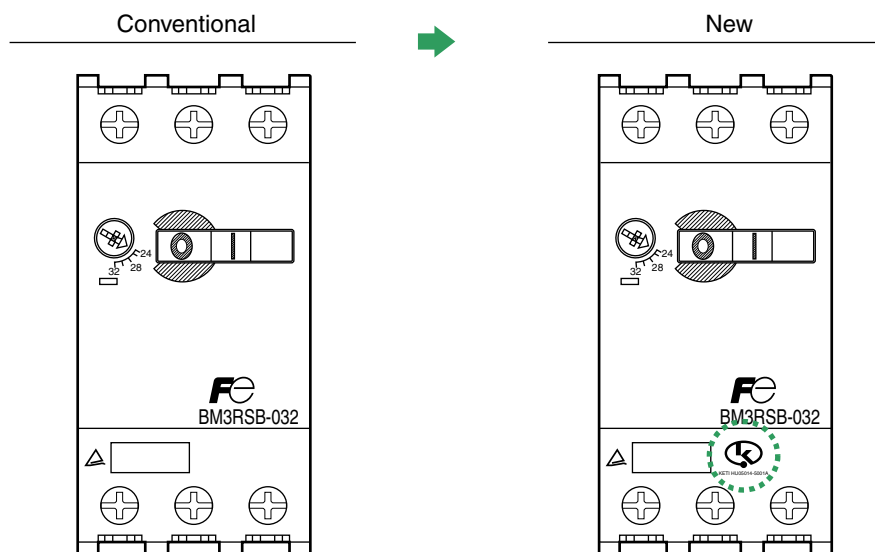
#### instantaneous trip types

32AF standard breaking capacity, BM3RSBK

63AF standard breaking capacity, BM3VSBK

32AF high breaking capacity, BM3RHBK

63AF high breaking capacity, BM3VHBK



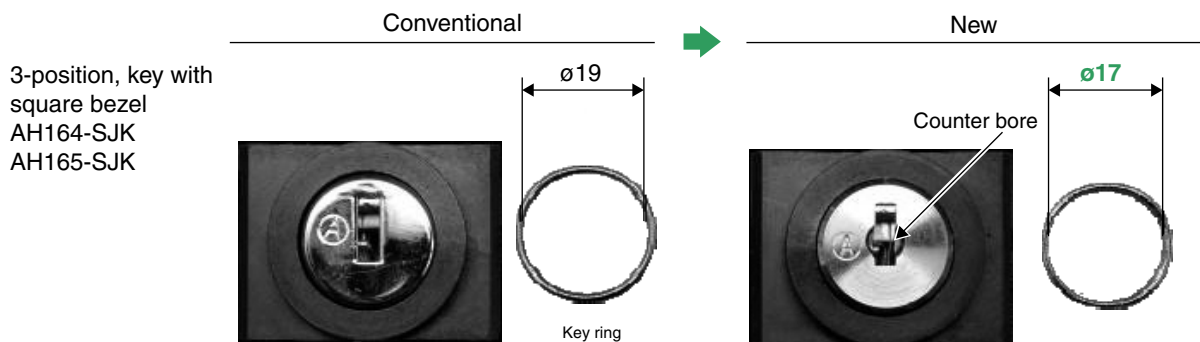
Except for the ring terminal connection type BM3V□-063

■ Time of modification: April 2006

## Selector switches/AH164-SJK, AH165-SJK

### Change of key ring

- The key insertion section has a counter bore, and buff finishing (mirror finished surface) is made.
- The material of key ring changes from stainless wire (matte) to hard steel wire (nickel-plated, glossy)



■ Time of modification: April 2006

## $\alpha$ -TWIN series ELCBs, CE conformed and UL Listed

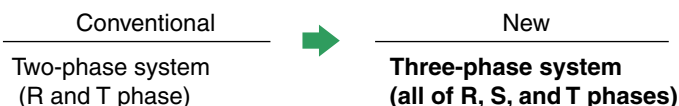
### Change in earth leakage detection section

CE conformed and UL Listed  $\alpha$ -TWIN series ELCBs (3-pole) will be changed according to the revision of IEC60947-2. The earth leakage detection section inside ELCBs will be

three-phase system (connected to all of R, S, and T phases). This enables earth leakage detection in phase loss state.

#### • Earth leakage detection section

SG series 30 to 400AF  
EG series 30 to 400AF



#### • Auxiliary and alarm switches with terminal blocks

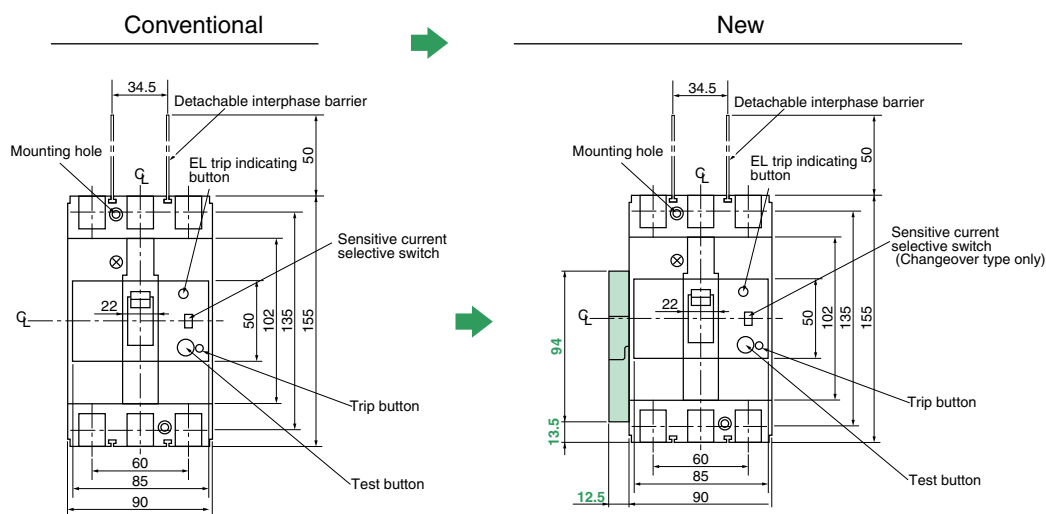
SG series 100, 225AF  
EG series 225AF



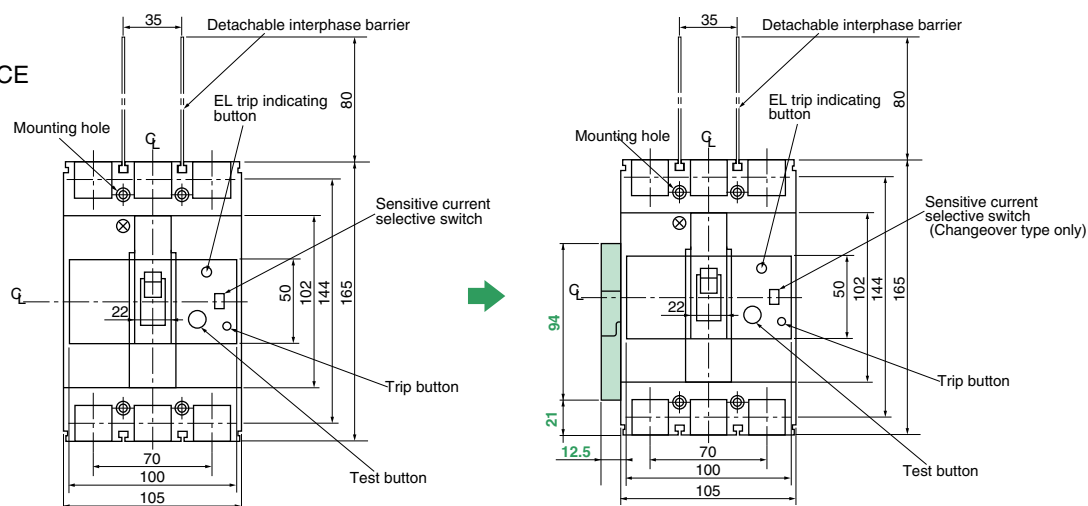
#### • Dimensions, mm

##### CE conformed

SG103C-CE, 103CM-CE  
SG103RC-CE, 103RCM-CE



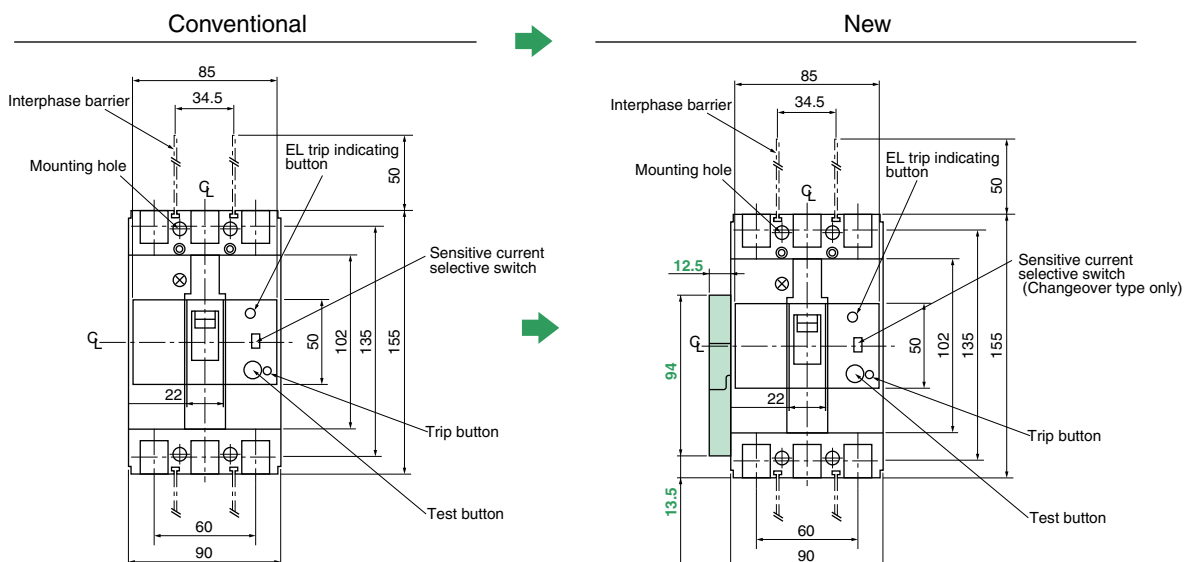
EG203C-CE, EG203CM-CE  
SG203C-CE, SG203RC-CE  
SG203CM-CE, SG203RCM-CE



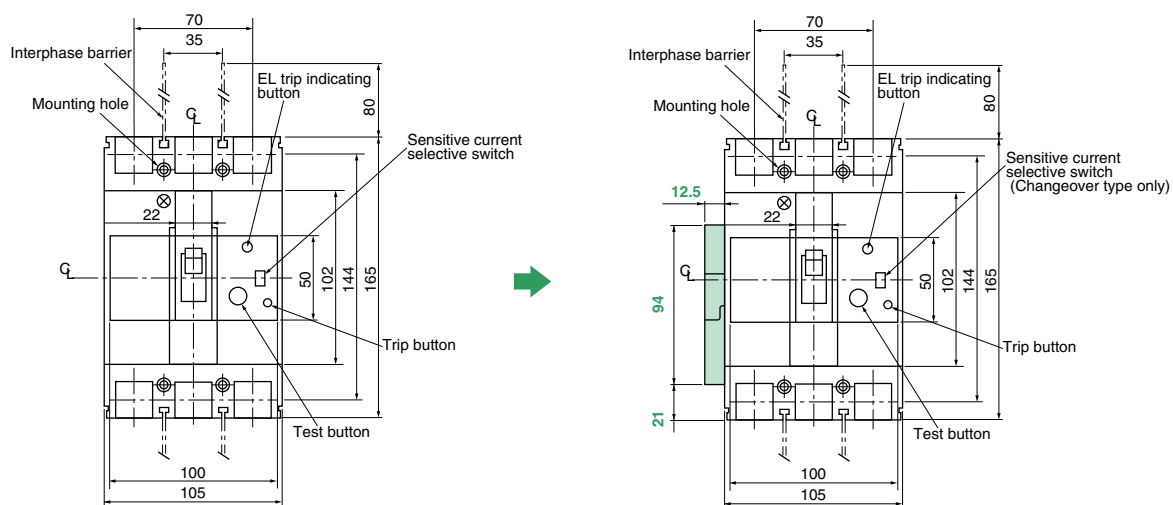


UL Listed

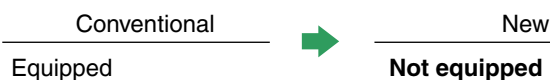
SG103CUL



SG203CUL



• Megger test switch



Note: "Ed.3" will be added on the nameplate and carton box of modified products

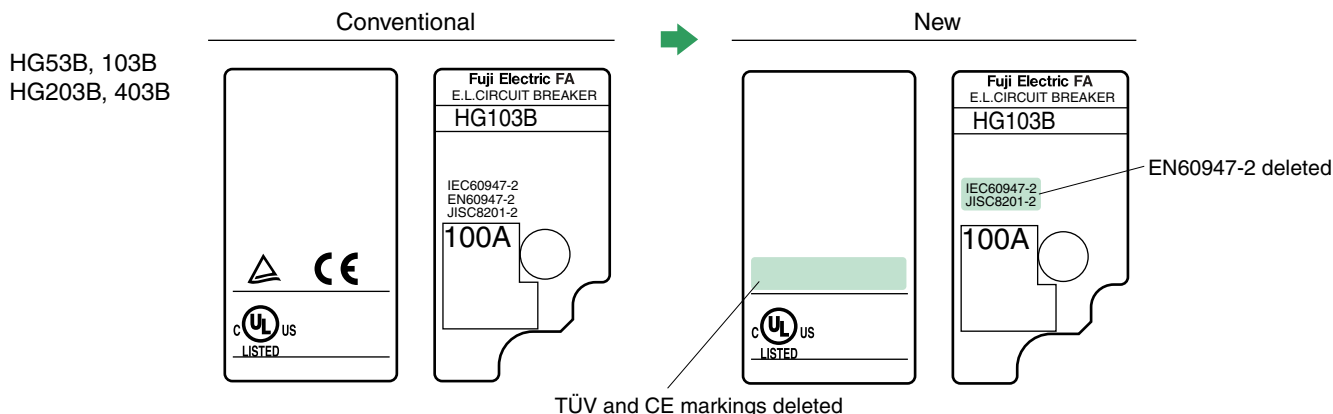
■ Time of modification: May 2006

## ELCBs/HG series

### Change in nameplate

The CE marking and TÜV marking will be deleted for the following ELCBs according to the revision of IEC60947-2 standard. While the revised IEC60947-2 stipulates that the

earth-leakage detection section inside ELCBs be three-phase system, the relevant models have been two-phase system.



■ Time of modification: June 2006

## Arresters for signal line circuit/CN226

### UL approved

UL497B File No. E253735



• For signal line circuit:

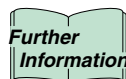
- CN226-A20
- CN226-A50
- CN226-TC
- CN226-PT
- CN226-PM
- CN226-SP
- CN226-24
- CN226-48

■ Time of modification: January 2006

## Magnetic contactors SC-2K, 2SK/Space-saving types

	Discontinued	→	Substitute
Space-saving type	SC-2K SC-2SK		SC-E2P SC-E2SP

■ Time of discontinuation: June 2006

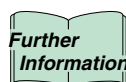


Contact FUJI for details of substituting models.

## Magnetic contactors and starters DC operated high sensitivity SJ series, UL approved

	Discontinued	→	Substitute
<b>Contactors</b>			
• Aux. contact: 1NO, 1NC 2NO, 1NO+1NC	SJ-0G/UL SJ-1SG/UL		<b>SJ-0G</b> <b>SJ-1SG</b> SJ series standard type contactors and starters are UL-approved.
<b>Starters</b>			
• Aux. contact: 1NO, 1NC 2NO, 1NO+1NC	SJ-0WG/NUL SJ-0WG/2EUL SJ-1SWG/UL SJ-1SWG/2EUL		<b>SJ-0WG/N3H</b> <b>SJ-0WG/2E</b> <b>SJ-1SWG/3H</b> <b>SJ-1SWG/2E</b> SJ series standard type contactors and starters are UL-approved.

■ Time of discontinuation: June 2006

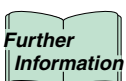


Contact FUJI for details of substituting models.

## Magnetic contactors, SC-03 to 5-1 Auxiliary contact blocks/SZ-AL, SZ-AR

	Discontinued	→	Substitute
<b>Auxiliary contact block</b>			
• Left side mounting	SZ-AL		<b>SZ-AS-1</b> Mountable on right and left sides
• Right side mounting	SZ-AR		<b>SZ-AS-1</b> Mountable on right and left sides

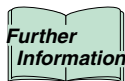
■ Time of discontinuation: June 2006



See page 01/77 of the D & C Catalog 19th Edition.

## Molded case circuit breakers 30 to 100AF

		Discontinued	➔	Substitute
<b>Line protection</b>				
• S series	30AF	SA32B, SA33B		SA32C□-CE, SA33C□-CE
	50AF	SA52B, SA53B		SA52C□-CE, SA53C□-CE
		SA52R, SA53R		SA52RC□-CE, SA53RC□-CE
	60AF	SA62B, SA63B		SA62C□-CE, SA63C□-CE
		SA62R, SA63R		SA62RC□-CE, SA63RC□-CE
• E series	30AF	EA32, EA33		EA32AC□-CE, EA33AC□-CE
	50AF	EA52A, EA53A		EA52AC□-CE, EA53AC□-CE
		EA52B, EA53B		EA52C□-CE, EA53C□-CE
	60AF	EA62B, EA63B		EA62C□-CE, EA63C□-CE
	100AF	EA102B, EA103B		EA102C□-CE, EA103C□-CE
		EA103F		EA103AC□-CE
<b>Motor protection</b>				
• S series	30AF	SA32BM, SA33BM		SA32CM□-CE, SA33CM□-CE
	50AF	SA53BM		SA53CM□-CE
		SA53RM		SA53RCM□-CE
	60AF	SA63BM		SA63CM□-CE
• E series	30AF	EA33M		EA33CM□-CE
	50AF	EA53BM		EA53CM□-CE
	60AF	EA63BM		EA63CM□-CE
	100AF	EA103BM		EA103CM□-CE
<b>UL508 Listed</b>				
• S series	30AF	SA32BUL, SA33BUL		SA32C□-CE, SA33C□-CE
	50AF	SA52BUL, SA53BUL		SA52C□-CE, SA53C□-CE
		SA52RUL, SA53RUL		SA52RC□-CE, SA53RC□-CE
	60AF	SA62BUL, SA63BUL		SA62C□-CE, SA63C□-CE
		SA62RUL, SA63RUL		SA62RC□-CE, SA63RC□-CE
• E series	30AF	EA52BUL, EA53BUL		EA52C□-CE, EA53C□-CE
	100AF	EA103BUL		EA103C□-CE

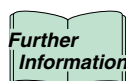


See pages 06/10 to 06/27 of  
the D & C Catalog 19th Edition.

■ Time of discontinuation: September 2006

## Earth leakage circuit breakers 30 to 100AF

		Discontinued	➔	Substitute
<b>Line protection</b>				
• SG series	30AF	SG33B		SG33C□-CE
	50AF	SG53B		SG53C□-CE
		SG53R		SG53RC□-CE
	60AF	SG63B		SG63C□-CE
		SG63R		SG63RC□-CE
• EG series	30AF	EG32F, EG33F		EG32AC□-CE, EG33AC□-CE
		EG33B		EG33C□-CE
	50AF	EGa52A		EG52AC□-CE
		EG52F, EG53F		EG52AC□-CE, EG53AC□-CE
		EG53B		EG53C□-CE
	60AF	EG63B		EG63C□-CE
	100AF	EG102B, EG103B		EG102C□-CE, EG103C□-CE
		EG103F		EG103AC□-CE
<b>Motor protection</b>				
• S series	30AF	SG33BM		SG33CM□-CE
	50AF	SG53BM		SG53CM□-CE
	60AF	SG63BM		SG63CM□-CE
• E series	30AF	EG33BM		EG33CM□-CE
	50AF	EG53BM		EG53CM□-CE
	60AF	EG63BM		EG63CM□-CE
	100AF	EG103BM		EG103CM□-CE



See pages 07/10 to 07/23 of  
the D & C Catalog 19th Edition.

■ Time of discontinuation: September 2006

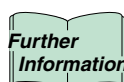
## MCCBs and ELCBs External accessories

	Discontinued
G type handle	BZ-G10B
Flat terminals	BZ-S20B-502 BZ-S20B-1002, 1003
Modification kits	
For front mounting, rear connection	BZ-X20B-502
X type	BZ-X20B-1002, 1003
For flush mounting, rear connection	BZ-E20B-502
E type	BZ-E20B-1002, 1003
Steel enclosures Standard	BZ-C10B-2, BZ-C10B-3 BZ-C20B-2 BZ-C25B-2, BZ-C25B-3
V type handle-operated	BZ-CV25C
Mechanical interlocking device	BZ-M120C-2

■ Time of discontinuation: September 2006

## Power Filters/Noise suppression filters FHF-TA, FHF-MA, FHF-TB series

	Discontinued	→	Substitute
<b>Power filters</b>			
• For input circuit	FHF-TA FHF-MA		<b>RMFTC, RNPMC series</b> <b>RNPMC series</b>
• For output circuit	FHF-TB		<b>RNFTS, RNFMS series</b>



See pages 10/30 to 10/40 of  
the D & C Catalog 19th Edition.

■ Time of discontinuation: December 2005

### **Safety Considerations**

- For safe operation, before using the product read the instruction manual or user manual that comes with the product carefully or consult the Fuji sales representative from which you purchased the product.
- Products introduced in this catalog have not been designed or manufactured for such applications in a system or equipment that will affect human bodies or lives.
- Customers, who want to use the products introduced in this catalog for special systems or devices such as for atomic-energy control, aerospace use, medical use, passenger vehicle, and traffic control, are requested to consult the Fuji sales division.
- Customers are requested to prepare safety measures when they apply the products introduced in this catalog to such systems or facilities that will affect human lives or cause severe damage to property if the products become faulty.
- For safe operation, wiring should be conducted only by qualified engineers who have sufficient technical knowledge about electrical work or wiring.

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