Fuji Odyssey Series 3N Contactors

Fuji Electric

Description

- 180 - 361A rating (AC3)
- Provides higher current and horsepower capabilities than SC-E series. Designed for reliable use in applications requiring constant switching, reduced coil energyconsumption, and increased horsepower capabilities.
- Available in 154 mm and 169 mm frame widths
- SUPERMAGNET™ for high operating reliability.
- Use with Odyssey 3N series overload relays.

Features

- Equipped with 2 N.O. and 2 N.C. auxiliary contacts
- Chatter-free operation eliminates contact welding and coil burning
- SUPERMAGNET™ coil operates on either AC or DC voltage
- Wire Terminal Connection Type: Crimp ring Terminal

Agency approvals

- UL listed file E42419, Standard UL508
- cUL listed file E42419, Standard CSA C22.2 No. 14
- CE: Meets LVD EN60947-4-1
- SEMI F47-0200

Optional accessories

- Replacement coils
- Terminal covers
- Auxiliary contacts

3NC4H0122

Ecology

- Low power consumption
- Recycled thermoplastic resin used for plastic parts.
- The names of materials are indicated on all major parts to facilitate recycling.

Odyssey 3N Series Contactors 180–361 Amps

Part Number	*Fuji Type*	*Price*	*Coil Voltage*	*Rated Motor Capacity (HP)*						*Rated AC-3 Current (A) [note 1]*	*Rated AC-1 Thermal Current (A) [note 2]*	*Quantity of Auxiliary Contacts*		*SCCR Ratings (KA)*	*Frame Width (mm)*
				3-Phase				*1-Phase*							
				200–208V	*220–240V*	*440–480V*	*550–600V*	*100–120V*	*220–240V*			*NO*	*NC*		
3NC4Q0E22	SC-N8		24–25VAC / 24VDC	60	60	150	150	N/A		180	260	2	2	10	138
3NC4Q0122			100–127VAC / 100–120VDC												
3NC4Q0222			200–250VAC / 200–240VDC												
3NC4H0E22	SC-N10		24–25VAC / 24VDC	75	75	150	200	N/A		221	260	2	2	10	138
3NC4H0122			100–127VAC / 100–120VDC												
3NC4H0222			200–250VAC / 200–240VDC												
3NC4H0Q22			380–450VAC												
3NC4H0422			460–575VAC												
3NC5F0E22	SC-N11		24–25VAC / 24VDC	100	100	200	250	N/A		285	350	2	2	18	148
3NC5F0122			100–127VAC / 100–120VDC												
3NC5F0222			200–250VAC / 200–240VDC												
3NC5H0E22	SC-N12		24–25VAC / 24VDC	125	150	300	350	N/A		361	450	2	2	18	148
3NC5H0122			100–127VAC / 100–120VDC												
3NC5H0222			200–250VAC / 200–240VDC												
3NC5H0Q22			380–450VAC												
3NC5H0422			460–575VAC												

Notes: 1. AC3 type loads consist of squirrel cage three-phase motors; occasional, limited jogging duty.
2. AC1 non-inductive or slightly inductive loads. Typically resistive loads (i.e. furnaces, ovens, etc.)

Contactor Coil Characteristics - AC Input

Part Number	*Power Consumption (VA)*		*Pick-up Voltage (V)*	*Drop-out Voltage (V)*	*Operating Time (ms)*	
	Inrush	*Sealed*			*Coil ON to Contact ON*	*Coil OFF to Contact OFF*
3NC4Qxxxx, 3NC4Hxxxx	277	5.4	70-80	35-50	35-41	37-45
3NC5Fxxxx, 3NC5Hxxxx	265	5.9	70-80	35-50	40-47	36-43

NOTE: This data is based on 100-120V SUPERMAGNET™ coil, tested at 120VAC, 60Hz.

Fuji Odyssey Series 3N Contactors

Contactor Coil Characteristics - DC Input - 110VDC

Part Number	Power Consumption (watts)		Pick-up Voltage (V)	Drop-out Voltage (V)	Operating Time (ms)	
	Inrush	Sealed			Coil ON to Contact ON	Coil OFF to Contact OFF
3NC4Qxxxx, 3NC4Hxxxx	324	4.1	77-88	28-44	35-41	37-45
3NC5Fxxxx, 3NC5Hxxxx	340	4.5	77-88	28-44	40-47	36-43

NOTE: This data is based on 100-120V SUPERMAGNET™ coil, tested at 110VDC.

Contactor Coil Characteristics - DC Input - 24VDC

Part Number	Power Consumption (watts)		Pick-up Voltage (V)	Drop-out Voltage (V)	Operating Time (ms)	
	Inrush	Sealed			Coil ON to Contact ON	Coil OFF to Contact OFF
3NC4Qxxxx, 3NC4Hxxxx	250	5.9	17-19.2	6-12	35-41	37-45

NOTE: This data is based on 100-120V SUPERMAGNET™ coil, tested at 110VDC.

Contactor Auxiliary Contact Ratings

NEMA ICS 5-2000 Ratings (note 1)

AC Ratings			DC Ratings	
Designation	Making VA	Breaking VA	Designation	Making/Breaking VA
A600	7200	720	Q300	69

Note 1: NEMA ICS 5-2000. For more information, refer to Control Circuit Contact Electrical Ratings, page MRC-tMRC-111.

Contactor Terminal Tightening Torque Chart

Part Number	Terminal Size	Cable Size Maximum	Applicable Max. Width for Ring Terminal	Tightening Torque
3NC4Q0XXX	M10	300MCM [152mm²]	36.5 mm [1.44 in]	15-20 N·m [133-177 lb·in]
3NC4H0XXX	M10	300MCM [152mm²]	36.5 mm [1.44 in]	15-20 N·m [133-177 lb·in]
3NC5F0XXX 3NC5H0XXX	M12	400MCM [203mm²]	44.5 mm [1.75 in]	35-45 N·m [310-399 lb·in]

Contactor Life Expectancy Performance Data

Model	Current Capacity Make/Break	Operating Cycles per Hour	Life Expectancy (million operations)	
			Electrical	Mechanical
3NC4Qxxxx through 3NC5Fxxxx	12xle/10xle	1200	1	5
3NC5Hxxxx	12xle/10xle	1200	0.5	5

Note: Rated operational current. Electrical life test: Conforming to IEC947-4-1, AC3. The endurance test complies with the requirements of international standard IEC, JIS and JEM.

Note: Super Magnet Coils on 3NC4 and 3NC5 series contactors have internal surge suppression. See diagram below.

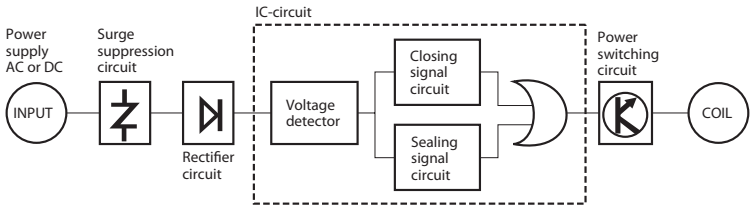
Optional Accessories

Terminal covers

Prevent contact with electrified terminals.

SZ-N8T

SZ-N11T



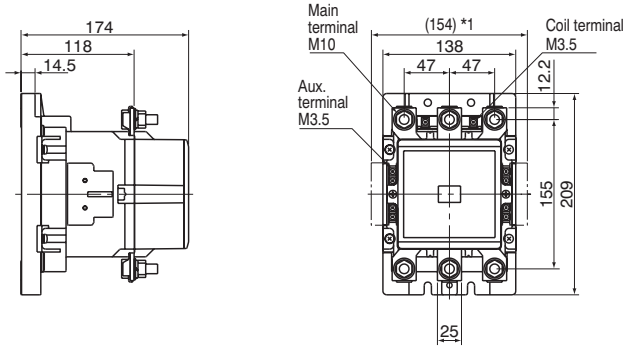
Odyssey Series Contactor Terminal Covers

Part Number	Price	Description	Applicable Contactors
SZ-N8T		Terminal cover for line or load side. Prevents contact with electrified contactor terminals.	3NC4Qxxxx, 3NC4Hxxxx contactors
SZ-N11T			3NC5Fxxxx, 3NC5Hxxxx contactors

Fuji Odyssey Series 3N Contactors

Dimensions (mm)

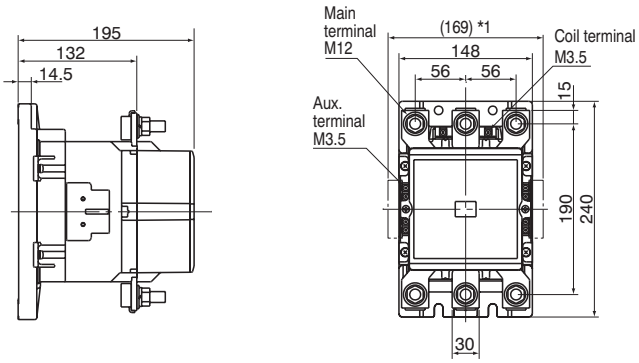
3NC4Q0#22
3NC4H0#22



*1 Aux. contact block (Side mounted)

Weight: 4.9kg

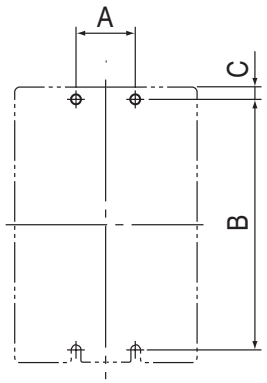
3NC5F0#22
3NC5H0#22



*1 Aux. contact block (Side mounted)

Weight: 7.8kg

Mounting Dimensions



Frame Size	A	B	C	Screw Size
3NC4Qxxxx	45	190	9.5	4-M6
3NC4Hxxxx	45	190	9.5	4-M6
3NC5Fxxxx	60	220	10	4-M8
3NC5Hxxxx	60	220	10	4-M8

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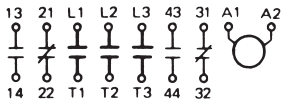
Wiring Diagrams

Non-reversing Contactors



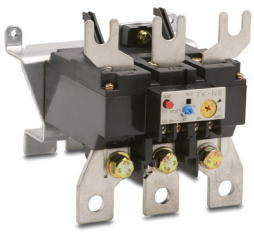
Fuji Odyssey Series 3N Overload Relays

General Information

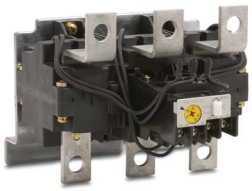
- Use with Odyssey 3N series contactors.
- Protects motor windings from burning due to overloads, locked rotor currents, or open phases.

Agency approvals:

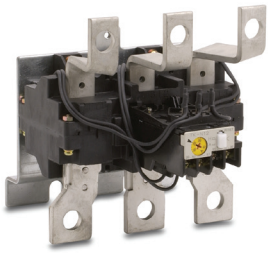
- UL listed file E42419, Standard UL 508
- cUL listed file E42419, Standard CSA C22.2 No. 14
- CE: LVD EN60947-4-1



3NK4QL



3NK4HN



3NK5HQ

Odyssey Series Overload Relays						
Part Number	***Fuji Type***	***Price***	***Adjustable Current Range (A)***	***Frame Width***	***CompatibleContactor***	***Trip Class IEC 60947-4-1***
3NK4QL	TK-N8		85 - 125	119mm [4.69 in]	3NC4Qxxxx	10A
3NK4QN	TK-N8		110 - 160			
3NK4QP	TK-N8		125 - 185			
3NK4HP	TK-N10		125 - 185	138mm [5.43 in]	3NC4Hxxxx	20
3NK4HQ	TK-N10		160 - 240			
3NK5HQ	TK-N12		160 - 240	142mm [5.59 in]	3NC5Fxxxx, 3NC5Hxxxx	20
3NK5HR	TK-N12		200 - 300			
3NK5HS	TK-N12		240 - 360		3NC5Hxxxx	

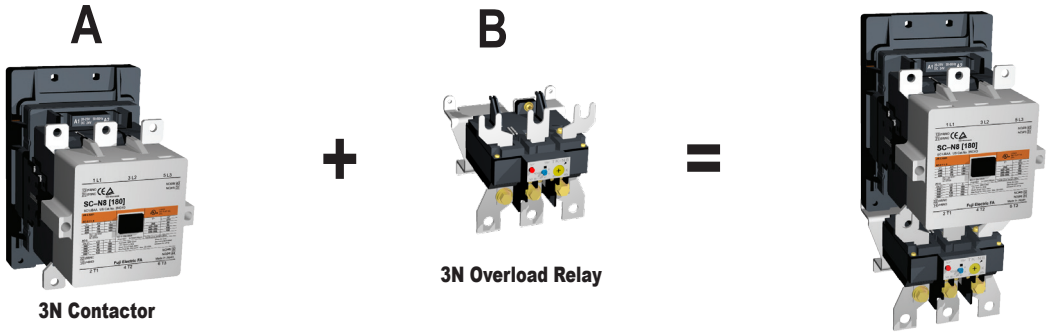
Specifications

Overload Relay Alarm Contact Ratings				
AC Ratings (note 1)			***DC Ratings (note 1)***	
Designation	Making VA	Breaking VA	Designation	Making/Breaking VA
C600	1800	180	---	---

Notes:
1. NEMA ICS 5-2000. For more information, refer to Control Circuit Contact Electrical Ratings.

Wire Terminal Tightening Torque Chart					
Part Number	***Contactor or Starter***	***Terminal Size***	***Cable Size Maximum***	***Applicable Max. Width for Ring Terminal***	***Tightening Torque***
3NK4Qx	3NC4Q0	M10	300MCM (152mm2)	36.5mm	133-177 in.lbs., 15-20 Nm
3NK4Hx	3NC4H0	M10	300MCM (152mm2)	36.5mm	133-177 in.lbs., 15-20 Nm
3NK5Hx	3NC5F0	M12	400MCM (203mm2)	44.5mm	310-399 in.lbs., 35-45 Nm
	3NC5H0				

Fuji Odyssey Series 3N Overload Relays Selection Tables



Step 1. Select an Odyssey 3N contactor from Column A based on motor voltage and horsepower.

Step 2. Select an Odyssey 3N overload relay from Column B to work with the contactor selected in Step 1. The motor full load current (FLA) should be within the adjustable current range of the overload relay.

220-240V 3-Phase Motor (60 to 150 hp)

Motor Rating		A	B	
			Overload Relay	
HP	Motor Full Load Amperage (FLA) (See Note 1)	Contactor	Part Number	Adjustable Current Range
60	154	3NC4Q0x22	3NK4QN	110 to 160 Amps
75	192	3NC4H0x22	3NK4HQ	160 to 240 Amps
100	248	3NC5F0x22	3NK5HR	200 to 300 Amps
125	312	3NC5H0x22	3NK5HS	240 to 360 Amps
150	360	3NC5H0x22	3NK5HT	300 to 450 Amps

Note 1: Per NEC 2005 Table 430.250

440-480V 3-Phase Motor (125 to 300 hp)

Motor Rating		A	B	
			Overload Relay	
HP	Motor Full Load Amperage (FLA) (See Note 1)	Contactor	Part Number	Adjustable Current Range
125	156	3NC4Q0x22	3NK4QP	125 to 185 Amps
150	180	3NC4H0x22	3NK4HQ	160 to 240 Amps
200	240	3NC5F0x22	3NK5HR	200 to 300 Amps
250	302	3NC5H0x22	3NK5HS	240 to 360 Amps
300	361	3NC5H0x22	3NK5HT	300 to 450 Amps

Note 1: Per NEC 2005 Table 430.250

Fuji Odyssey Series 3N Overload Relays

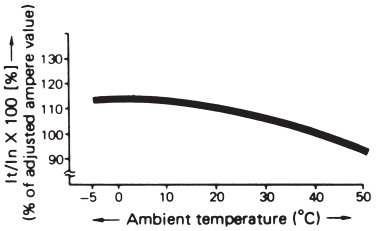
Specifications

Ambient temperature compensator

Overload relays are provided with an ambient temperature compensator. Their characteristics limit current value changes to approximately 10% as the ambient temperature changes between −5°C and 40°C.

Open-phase protection

Compensation characteristics (Average value)



It : Operational current
In : Rated current

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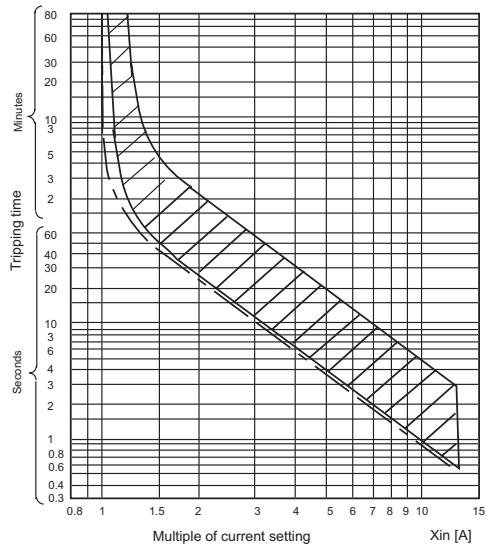
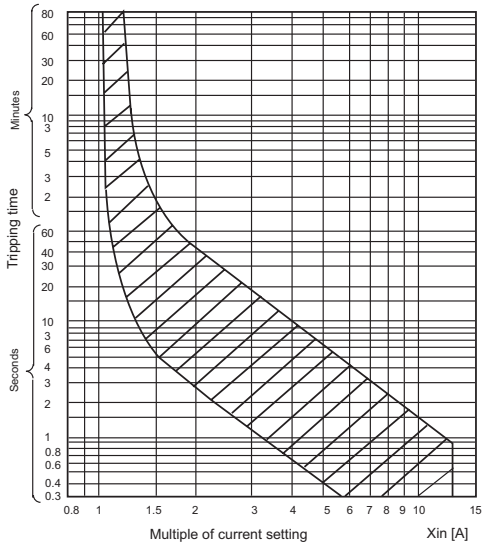
3NK4Qx

Cold start

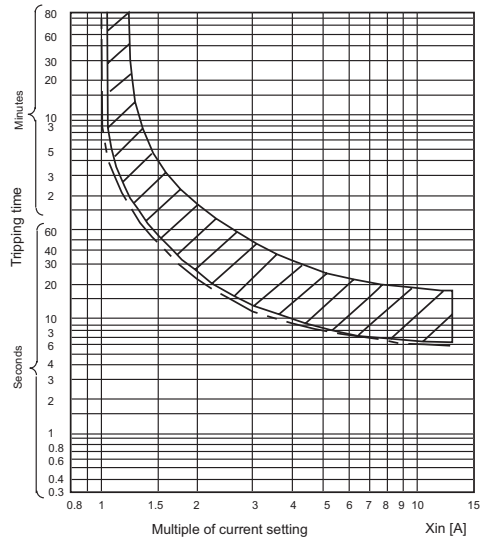


Hot start

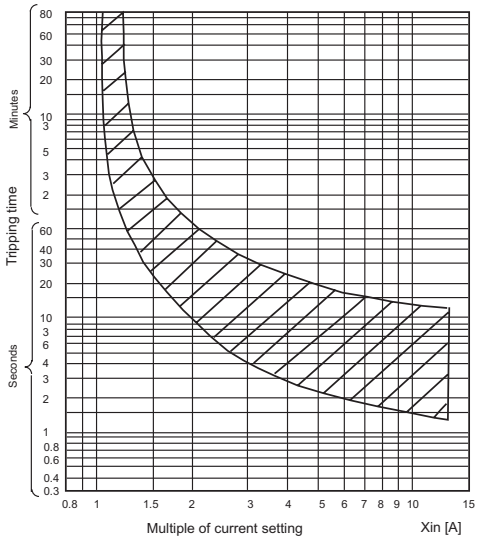


3NK4Hx, 3NK5Hx

Cold start



Hot start



Fuji Odyssey Series 3N Overload Relays

Optional Accessories

Terminal covers

NOTE: Larger terminal covers may require some adjustment for proper fit.

SZ-WN8T

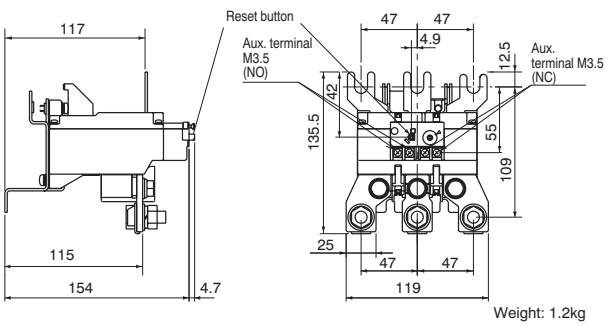
SZ-WN10T

SZ-WN11T

Odyssey Series Overload Relay Terminal Covers			
Part number	***Price***	***Description***	***Applicable Contactors, Overload Relays***
SZ-WN8T		Terminal cover for load side. Prevents contact with electrified contactor terminals.	3NK4Qx overload relays
SZ-WN10T			3NK4Hx overload relays
SZ-WN11T			3NK5Hx overload relays

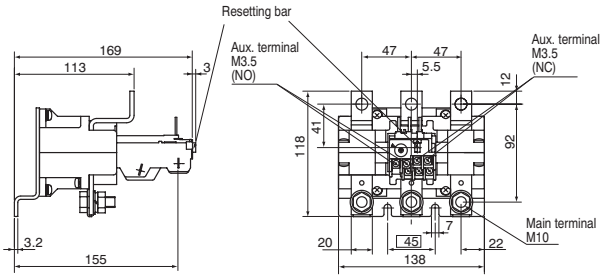
Dimensions [mm]

3NK4Qx



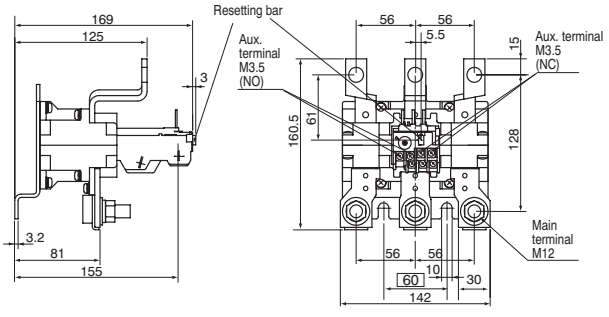
Weight: 1.2kg

3NK4Hx



Weight: 1.85kg

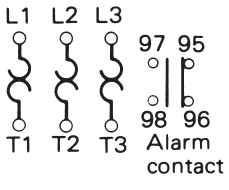
3NK5Hx



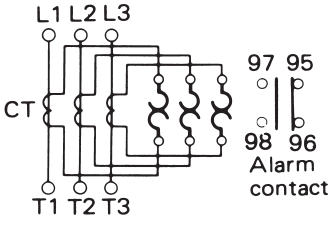
Weight: 2.3kg

Wiring Diagrams

3NK4Qx

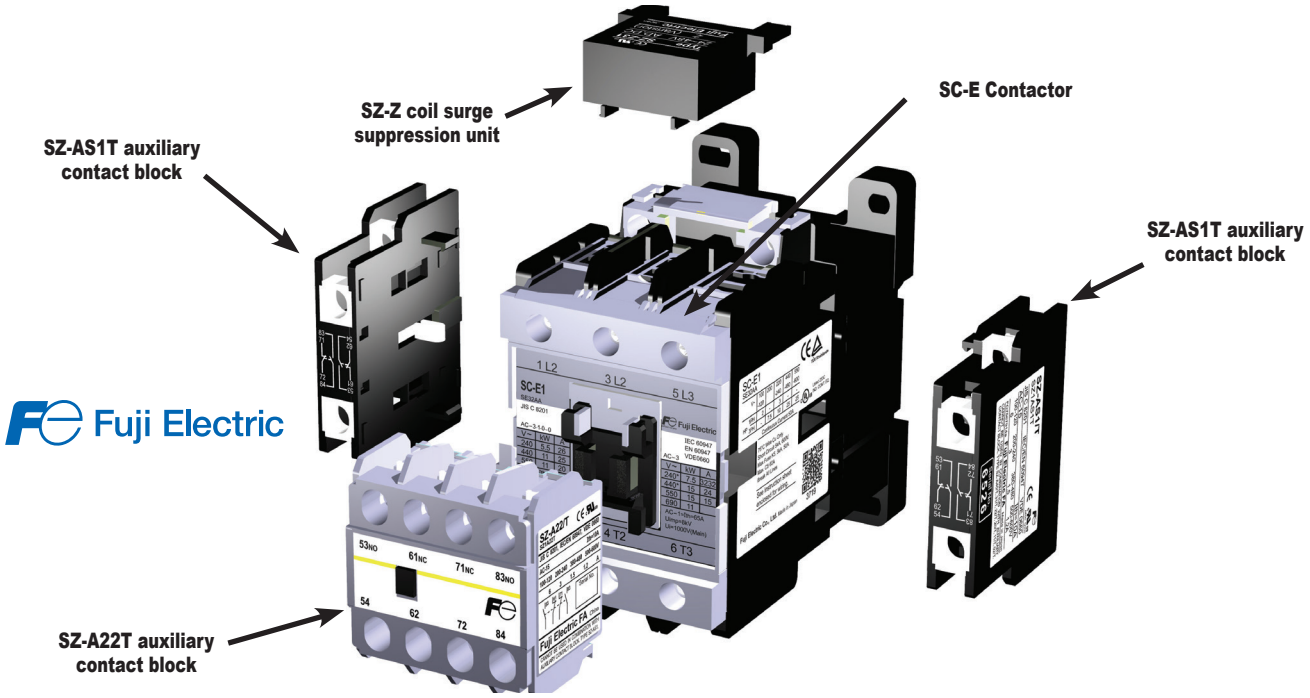


3NK4Hx, 3NK5Hx



Fuji Duo Series SC-E Contactors Accessories

Optional accessories



Auxiliary contact blocks with terminal covers

Maximum auxiliary contact blocks:

2 side mounted (1 per side) OR 1 front mounted. The front and side blocks cannot be mounted together on the same contactor.

SZ-A22T

SZ-A11T

SZ-AS1T

SZ-AS2T

Caution on use:

1. Front mounting auxiliary contact block and side mounting block cannot be attached to one contactor at the same time.
2. Only one front mounting block can be attached to one contactor.
3. Where interlock unit is already attached, side mounting auxiliary contact block can be attached on one side only.

Auxiliary Contact Blocks with Terminal Covers

Part Number	*Price*	*Applicable Contactor*	*Mounting*	*Number of Contacts*	*Contact Arrangement*
SZ-A22T		SC-E02(G)-xxx to E4(G)-xxx	Front mounting	4	2NO + 2NC
SZ-A20T				2	2NO
SZ-A11T					1NO + 1NC
SZ-AS1T		SC-E02(G)-xxx to E4(G)-xxx	Side mounting	2	1NO + 1NC
SZ-AS2T		SC-E5, E6, E7-xxx, SC-N4, N5, N6, N7, N8, N10, N11, N12, SC-E5(G)-xxx to E7(G)-xxx		2	1NO + 1NC

Accessory Auxiliary Contact Ratings - UL and CSA

NEMA ICS 5-2000 Ratings (note 1)				
AC Ratings			DC Ratings	
Designation	Making VA	Breaking VA	Designation	Making/Breaking VA
A600	7200	720	Q300	69

Note: For more information, refer to Control Circuit Contact Electrical Ratings

Accessory Auxiliary Contact Ratings - IEC and JIS continued on next page.