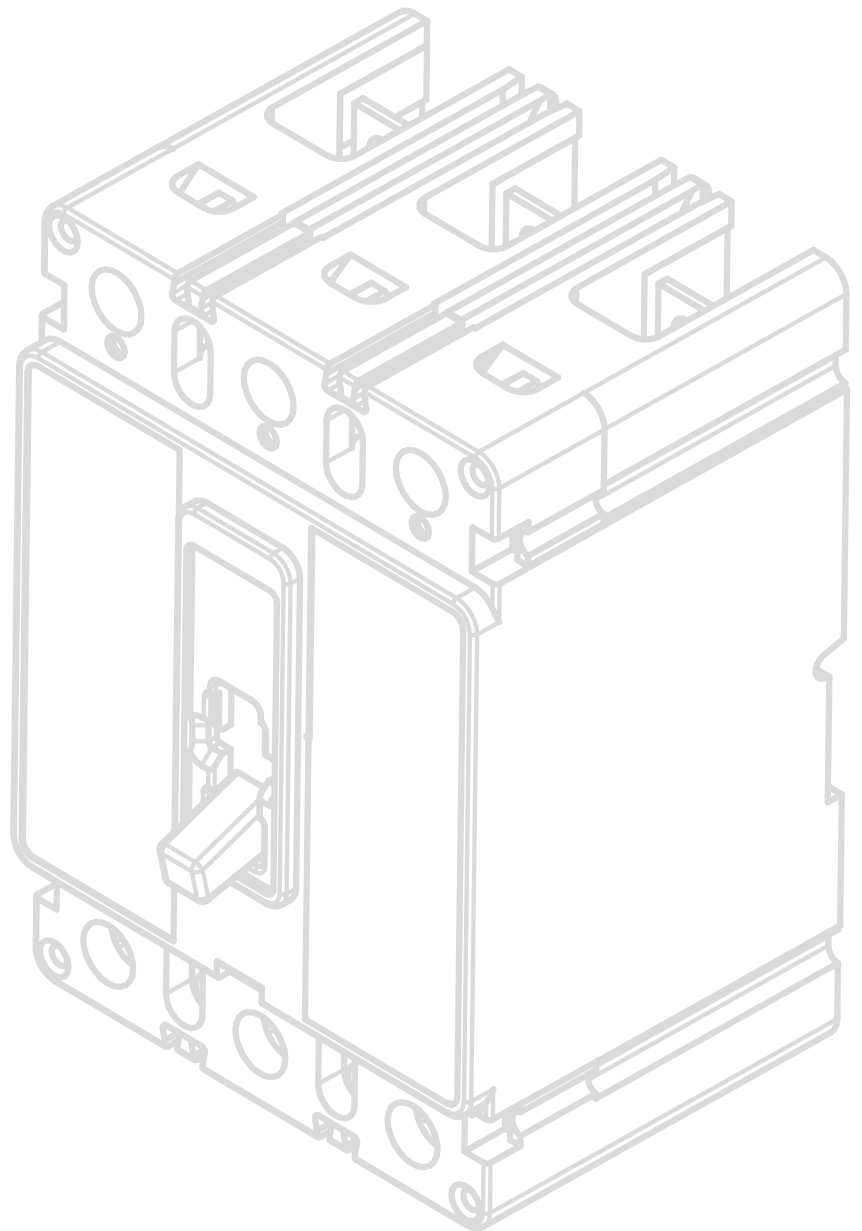
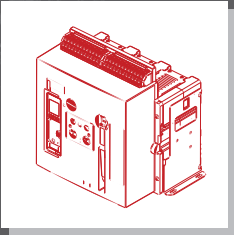


# E-Series

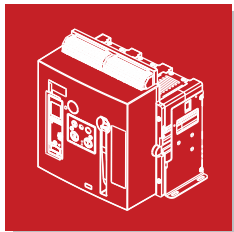
Low Voltage MCB & MCCB Technical Catalog





# ACB





# ACB

## The Ranges

TYPE		EA-2000	EA-3200	EA-4000
Rated voltage Ue (V)		415	415	415
Rated insulation voltage Ui (V)		1000	1000	1000
Rated impulse withstand voltage Uimp (KV)		8	8	8
Rated current In (A)		630-2000	2500-3200	4000
Number of poles		3	3	3
Category (EN/IEC 60947-2)		A/B	A/B	A/B
Rated ultimate short circuit breaking capacity Icu kA	50HZ AC 415V	100	80/100	80/100
Rated operating short circuit breaking capacity Ics kA	50HZ AC 415V	65	65/80	65/80
Rated Current Adjustment Field (In)		(0.4-1)In	(0.4-1)In	(0.4-1)In
Long time delay current (IL) (Ir1)		(0.4-1)In	(0.4-1)In	(0.4-1)In
Long time delay interval (tl) (sec)		15-500	15-500	15-500
Short time delay current (Is) (Ir2)		(0.4-15)In	(0.4-15)In	(0.4-15)In
Short time delay interval (ts) (sec)		0.1-1	0.1-1	0.1-1
Instantaneous breaking current (Ii) (Ir3)		In-50kA	In-50kA	In-50kA
Ground fault current (Ig) (Ir4)		(0.2-0.8)In	(0.2-0.8)In	(0.2-0.8)In
Mechanical life	Mechanical with maintenance	10000	10000	10000
	Mechanical without maintenance	3000	3000	3000
Product accessories	Undervoltage release	■	■	■
	Shunt trip release	■	■	■
	Auxiliary contact block	■	■	■
	AC Motor control mechanism	■	■	■

■ : Available

## Ambient Temperature Impact on Rated Operating Current of Circuit Breaker

Temperature	(A) Amp							
40 °C	630	800	1000	1250	1600	2000	2500	3200
45 °C	630	800	1000	1250	1600	1900	2400	3000
50 °C	630	800	1000	1250	1500	1900	2300	3000
55 °C	630	800	1000	1200	1500	1800	2200	2800
60 °C	610	800	1000	1150	1300	1700	2200	2800
65 °C	610	800	1000	1150	1300	1650	2200	2600



# ACB

## Function Information

Air type circuit breakers are used for protection of generators with large powers, motors, capacitor groups and transformers, as well as general protection of factories, shopping malls and business centers.

### Features of Control Circuit

#### Protection Function:

Various functions such as overload, long reverse time delayed, short reverse time delayed, short time delayed. Fixed time curves are available for users demanding various protection features.

#### Indicator Function:

There is current adjustment indicator and operating current indicator.

#### Ammeter Function:

It shows the current passing through the circuit.

#### Alarm Feature:

It shows overload status.

#### Self-Control Feature:

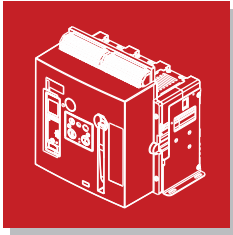
It separates itself from the system with protection and controls units against overheating.

#### Test Feature:

It is used to test features of the breaker.

**Functions of buttons:**

- 1- RESET:** Press reset button after breaker trips, the breaker will get ready to close again.
- 2- CURRENT-TIME indicator:** It shows the current and opening time.
- 3- LED:** It shows status and features of the breaker.
- 4- SELECT:** It shows maximum phase current under normal conditions. Current of each phase is displayed when you press this button.
- 5- CLEAN:** Reset button must be pressed to close the breaker after adjusting operating current or opening breaker fault current.
- 6- SET:** You may press this button to adjust and check current and time characteristics and each status may be displayed in order.
- 7- FAULT CHECK:** When you press this button, the last fault status, faulty current and time is displayed.
- 8- TRIP and NON-TRIP:** Only for test.
- 9- MEMORY:** Features adjusted with (+) and (-) buttons are saved.



# ACB

## Accessories



UVR - Undervoltage Release

### Undervoltage Release:

Undervoltage release is used in opening air type circuit breaker due to low voltage or phase disconnection.

There are two types of low voltage releasers as instant opening and delayed opening types. Delayed type undervoltage release has 1 sec., 2 sec. and 5 sec. delayed models and accuracy class is 15%.

Rated control power voltage  $U_s$  (V): AC 230

Actuation voltage (V): (0.85-1.1)  $U_e$

Release voltage (V): (0.35-0.7)  $U_e$

Power consumption: 48 W



CR - Closing Release

SR - Shunt Trip Release

### Closing Release:

After the motor mechanism completes energy storage, the closing coil promptly closes the breaker by releasing the spring in the mechanism.

Rated control power voltage  $U_s$  (V): AC 230

Actuation voltage (V): (0.85-1.1)  $U_e$

Power consumption: 40 W

Closing time: < 70 ms

### Shunt Trip Release:

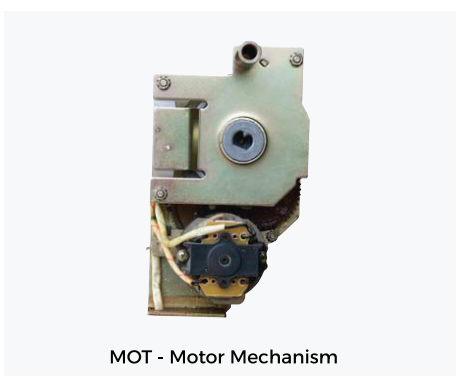
Air type circuit breakers, other than manual type, may be remote controlled with shunt trip coil.

Rated control power voltage  $U_s$  (V): AC 230

Actuation voltage (V): (0.7-1.1)  $U_e$

Power consumption: 40 W

Closing time: < 30 ms



MOT - Motor Mechanism

### Motor Mechanism:

Motor mechanism sets the mechanism springs (energy storage) and has the breaker ready for closing.

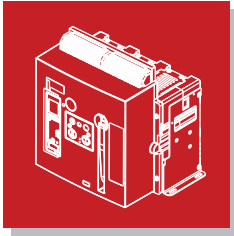
Rated control power voltage  $U_s$  (V): AC 230

Actuation voltage (V): (0.85-1.1)  $U_e$

Power consumption: 190 W

Setup period: 4 sec

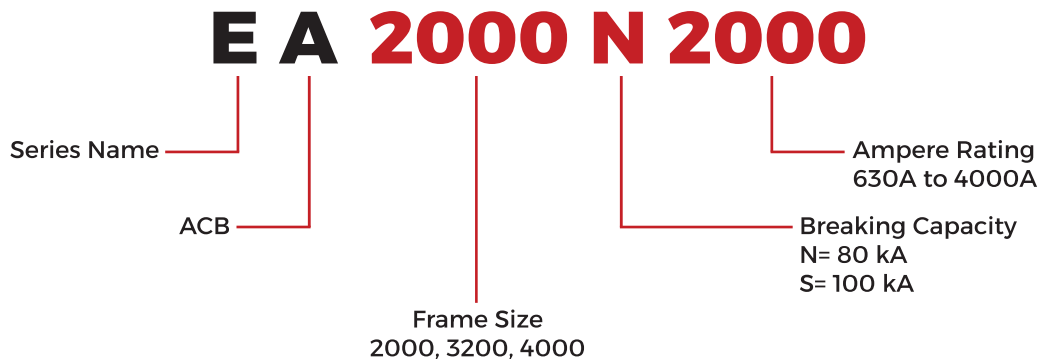




# ACB

## Selection Guide

Ordering codes for E-Series air circuit breakers range has been made easy to select the suitable product quickly as shown below:



### Order Codes - Frame 2000A, 100 kA, Electronic (LSIG)

Description	Amp (A)	Icn (kA)	Order Code
ACB-EA2000N 630A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	630A	100	EA2000N3P630A65KALSIG
ACB-EA2000N 800A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	800A	100	EA2000N3P800A65KALSIG
ACB-EA2000N 1000A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	1000A	100	EA2000N3P1000A65KALSIG
ACB-EA2000N 1250A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	1250A	100	EA2000N3P1250A65KALSIG
ACB-EA2000N 1600A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	1600A	100	EA2000N3P1600A65KALSIG
ACB-EA2000N 2000A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	2000A	100	EA2000N3P2000A65KALSIG

### Order Codes - Frame 3200A, 80 kA, Electronic (LSIG)

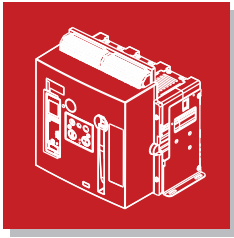
Description	Amp (A)	Icn (kA)	Order Code
ACB-EA3200N 2500A 80KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	2500A	80	EA3200N3P2500A65KALSIG
ACB-EA3200N 3200A 80KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	3200A	80	EA3200N3P3200A65KALSIG

### Order Codes - Frame 3200A, 100 kA, Electronic (LSIG)

Description	Amp (A)	Icn (kA)	Order Code
ACB-EA3200N 2500A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	2500A	100	EA3200S3P2500A80KALSIG
ACB-EA3200N 3200A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	3200A	100	EA3200S3P3200A80KALSIG

### Order Codes - Frame 4000A, 80/100 kA, Electronic (LSIG)

Description	Amp (A)	Icn (kA)	Order Code
ACB-EA3200N 4000A 80KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	4000A	80	EA4000N3P4000A65KALSIG
ACB-EA3200N 4000A 100KA 3P 415VAC LSIG (0.4-1)In (0.2-0.8)In 50°C	4000A	100	EA4000S3P4000A80KALSIG



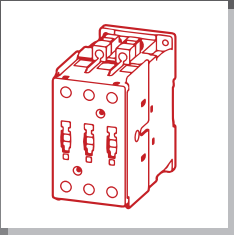
# ACB

## Order Codes - ACB Accessories

Description	Order Code
Motor Mechanizm ACB EA2000 (PLUG-IN) 220 V,220 V	ACBMOMEA2000
Motor Mechanizm ACB EA3200 (PLUG-IN) 220 V,220 V	ACBMOMEA3200
Mechanical Interlock For ACB (PLUG-IN)	ACBMecInter
Aux. Contact for ACB 4NO+4NC 250V	ACBAux/4+4
Shunt Trip Release ACB	ACBSTR
Under Voltage Release For ACB	ACBUVR
Under Voltage Release For ACB With Time Delay	ACBUVR+Time
Closing Coil For ACB	ACBCO

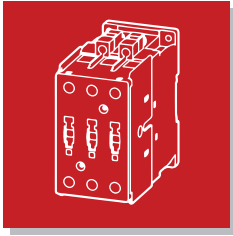
# NOTES

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# Contactors & Overloads





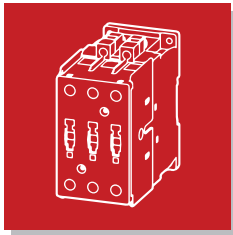
# Contactors & Overloads

## The Ranges

TYPE		EFC09D	EFC12D	EFC18D	EFC25D	EFC32D	EFC40D
Utilization class- Ie (≤400V) A	AC-3	9	12	18	25	32	40
	AC-5a	12	16	25	35	45	55
	AC-1	25	25	32	25	25	25
Rated thermal current Ith - ≤55 °C (A)		25	25	32	40	50	60
Rated insulation voltage Ui - 50/60Hz (V)		800	800	800	800	800	800
Rated impulse withstand voltage Uimp (kV)		8	8	8	8	8	8
AC-3 Rated operational power (kW)	230 V	2.2	3	4	5.5	7.5	11
	400 V	4	5.5	7.5	11	15	18.5
	440 V	4	5.5	9	11	15	22
	500 V	5.5	7.5	10	15	18.5	22
	690 V	5.5	7.5	10	15	18.5	30
Weight (kg)		0.33	0.33	0.33	0.345	0.52	1.14
Coil power consumption (VA)	AC coil holding	9.5	9.5	9.5	9.5	11	30
	AC coil pull	75	75	75	75	110	225
	DC coil	9	9	9	9	11	20
Power loss per pole - AC3 (W)		0.3	0.5	1.2	2.1	2.3	2.8
Min-Max tightening torque (Nm)		1-1.5	1-1.5	1-1.5	1-1.5	1.2-2	3.5-4.5
Dimension	a (Width) (mm)	47	47	47	47	57	77
	b (Height) (mm)	76	76	76	76	86	129
	c (Depth) (mm)	82	82	82	87	95	115
	DC coiled c (Depth) (mm)	116	116	116	120	130	175

## Order Codes - Contactors

Description	Amp (A)	P (kW)	Order Code
Contactors EFC09D Coil 220Vac-AC3/9A-@380=4KW	9	4	COEFC09D004
Contactors EFC12D Coil 220Vac-AC3/12A-@380=5.5KW	12	5.5	COEFC12D5D5
Contactors EFC18D Coil 220Vac-AC3/18A-@380=7.5KW	18	7.5	COEFC18D7D5
Contactors EFC25D Coil 220Vac-AC3/25A-@380=11KW	25	11	COEFC25D011
Contactors EFC32D Coil 220Vac-AC3/32A-@380=15KW	32	15	COEFC32D015
Contactors EFC40D Coil 220Vac-AC3/40A-@380=18.5KW	40	18.5	COEFC40D18D5



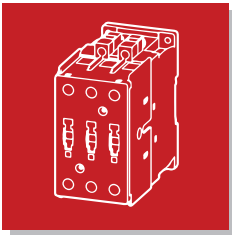
# Contactors & Overloads

## The Ranges

TYPE		EFC50D	EFC65D	EFC80D	EFC95D	EFC115D	EFC150D
Utilization class- Ie (≤400V) A	AC-3	50	65	80	95	115	150
	AC-5a	70	80	100	115	140	180
	AC-1	80	80	125	125	200	200
Rated thermal current Ith - ≤55 °C (A)		80	80	125	125	200	200
Rated insulation voltage Ui - 50/60Hz (V)		800	800	800	800	1000	1000
Rated impulse withstand voltage Uimp (kV)		8	8	8	8	8	8
AC-3 Rated operational power (kW)	230 V	15	18.5	22	25	30	40
	400 V	22	30	37	45	55	75
	440 V	25	37	45	45	59	80
	500 V	30	37	55	55	75	90
	690 V	33	37	45	45	80	100
Weight (kg)		1.14	1.14	1.38	1.38	2.1	2.1
Coil power consumption (VA)	AC coil holding	30	30	30	30	22	22
	AC coil pull	225	225	225	225	300	300
	DC coil	20	20	20	20	-	-
Power loss per pole - AC3 (W)		4.1	6	7.7	10.9	10	17
Min-Max tightening torque (Nm)		3.5-4.5	3.5-4.5	6-10	6-10	8-12	8-12
Dimension	a (Width) (mm)	77	77	87	87	120	120
	b (Height) (mm)	129	129	129	129	154	154
	c (Depth) (mm)	115	115	127	127	121	121
	DC coiled c (Depth) (mm)	175	175	183	183	-	-

## Order Codes - Contactors

Description	Amp (A)	P (kW)	Order Code
Contactors EFC50D Coil 220Vac-AC3/50A-@380=22KW	50	22	COEFC50D022
Contactors EFC65D Coil 220Vac-AC3/65A-@380=30KW	65	30	COEFC65D030
Contactors EFC80D Coil 220Vac-AC3/80A-@380=37KW	80	37	COEFC80D037
Contactors EFC95D Coil 220Vac-AC3/95A-@380=45KW	95	45	COEFC95D045
Contactors EFC115D Coil 220Vac-AC3/115A-@380=55KW	115	55	COEFC115D055
Contactors EFC150D Coil 220Vac-AC3/150A-@380=75KW	150	75	COEFC150D075



# Contactors & Overloads

## The Ranges

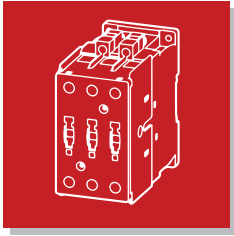
TYPE		EFC220D	EFC260D	EFC300D	EFC400D
Utilization class- Ie (≤400V) A	AC-3	220	260	300	400
	AC-5a	260	300	350	470
	AC-1	300	315	400	600
Rated thermal current Ith - ≤55 °C (A)		300	315	400	600
Rated insulation voltage Ui - 50/60Hz (V)		1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)		8	8	8	8
AC-3 Rated operational power (kW)	230 V	60	80	90	110
	400 V	110	140	160	200
	440 V	129	150	160	220
	500 V	132	180	200	257
	690 V	160	200	250	280
Weight (kg)		4.7	4.7	8.5	8.5
Coil power consumption (VA)	AC Coil holding	55	55	13	20
	AC coil pull	750	750	1100	1100
	DC coil	-	-	-	-
Power loss per pole - AC3 (W)		24	33	35	44
Min-Max tightening torque (Nm)		15-20	15-20	20-25	20-25
Dimension 	a (Width) (mm)	170	170	218	215
	b (Height) (mm)	175	175	210	210
	c (Depth) (mm)	183	183	223	223
	DC coiled c (Depth) (mm)	-	-	-	-

## Order Codes - Contactors

Description	Amp (A)	P (kW)	Order Code
Contactor EFC220D Coil 220Vac-AC3/220A-@380=110KW	220	110	COEFC220D110
Contactor EFC260D Coil 220Vac-AC3/260A-@380=140KW	260	140	COEFC260D140
Contactor EFC300D Coil 220Vac-AC3/300A-@380=150KW	300	150	COEFC300D150
Contactor EFC400D Coil 220Vac-AC3/400A-@380=200KW	400	200	COEFC400D200

## Order Codes - Contactors Accessories

Description	Order Code
Aux.Contact For Contactor EFC(9:150)A	Aux.EFC150
Aux.Contact For Contactor EFC(9:400)A	Aux.EFC400
Mechanical interlock for Contactor EFC(115:150)A	MIEFC150
Mechanical interlock for Contactor EFC(220:260)A	MIEFC260
Mechanical interlock for Contactor EFC(300:475)A	MIEFC475
Mechanical interlock for Contactor EFC(9:38)A	MIEFC38
Mechanical interlock for Contactor EFC (50:65)A	MIEFC65
Mechanical interlock for Contactor EFC (80:95)A	MIEFC95



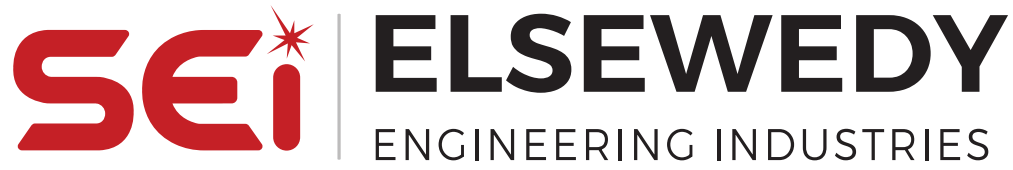
# Contactors & Overloads

## Order Codes - Overloads

Description	Order Code
Thermal Overload Relay EFTR25 (0.1:0.16)A	TOREFTR250D16
Thermal Overload Relay EFTR25 (0,16:0,25)A	TOREFTR250D25
Thermal Overload Relay EFTR25 (0,25:0,4)A	TOREFTR250D4
Thermal Overload Relay EFTR25 (0,4:0,63)A	TOREFTR250D63
Thermal Overload Relay EFTR25 (0,63:1)A	TOREFTR25001
Thermal Overload Relay EFTR25 (1:1,6)A	TOREFTR251D6
Thermal Overload Relay EFTR25 (1,25:2)A	TOREFTR25002
Thermal Overload Relay EFTR25 (1,6:2,5)A	TOREFTR252D5
Thermal Overload Relay EFTR25 (2,5:4)A	TOREFTR25004
Thermal Overload Relay EFTR25 (4:6)A	TOREFTR25006
Thermal Overload Relay EFTR25 (5,5:8)A	TOREFTR25008
Thermal Overload Relay EFTR25 (7:10)A	TOREFTR25010
Thermal Overload Relay EFTR25 (9:13)A	TOREFTR25013
Thermal Overload Relay EFTR25 (12:18)A	TOREFTR25018
Thermal Overload Relay EFTR25 (17:25)A	TOREFTR25025
Thermal Overload Relay EFTR25 (23:32)A	TOREFTR25032
Thermal Overload Relay EFTR40 (30:40)A	TOREFTR40040
Thermal Overload Relay EFTR95 (37:50)A	TOREFTR95050
Thermal Overload Relay EFTR95 (48:65)A	TOREFTR95065
Thermal Overload Relay EFTR95 (55:70)A	TOREFTR95070
Thermal Overload Relay EFTR95 (63:80)A	TOREFTR95080
Thermal Overload Relay EFTR95 (80:93)A	TOREFTR95093







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