

Magnetic Contactors		
TC	Magnetic Contactors	T C 22 R 60Hz AC220V
Type		
C	AC coil	
D	DC coil	
Enclosed Starter		
Ampere Frame		
6	40	130 400
9	50	150 500
12	65	185 630
18	75	225 800
22	85	265
32	100	330
Application		
-	General / Standard	
R	Reversing	
Enclosed type Magnetic Switches (Metal)		
-	Without push button	
B	With push button	
Enclosed type Magnetic Switches (Mould)		
M	Without push button	
MB	With push button	
Low AF		
Type	Ac coil	Dc coil
	50Hz	60Hz DC
	24	24 12
	42	- 24V
	48	48 48
	100	100 60
	110	110 80
	120	120 100
	200	200 110
	220	220 125
	230	230 200
	240	240 220
	380	380 250
	415	415
	440	440
	500	500
	550	550
High AF		
Type	Nominal Voltage	Ac/Dc common coil
		AC 50Hz/60Hz DC
	24V	24-25V 24V
	48V	48-50V 48V
	100-200V	100-240V 100-220V
	110	110 110
	220	220 220
	300V	265-347V -
	400V	380-450V -
	500V	440-575V -
	100V	100-127V 100-110V
	200V	200-240V 200-220V
	300V	265-347V -
	400V	380-450V -
	500V	440-575V -
Note: 1. Available in TC 185a-225a only Note: 2. TC-130a-150a coil must be ordered separately for AC and DC voltage		

Thermal Overload Relays (Differential)		
TK	Differential	TK 32a - 12...18
Type		
Type	AC coil	Setting Range
12	TC-6a, 9a, 12a, 18a	0.1...18A
32	TC-9b, 12b, 18b, 22b, 32a, 40a	0.1...40A
63	TC-50a, 65a	4...65A
95	TC-75a, 85a, 100a	7...100A
150	TC-130a, 150a	34...150A
225	TC-185a, 225a	65...240A
400	TC-265a, 330a, 400a	85...400A
800	TC-500a, 630a, 800a	200...800A
Mounting Type		
-	Direct Mounting	
H	Separate Mounting	

Setting Ranges (A)							
Type	TK-12a	TK-32a	TK-63a	TK-95a	TK-150a	TK-225a	TK-400a
0.1...0.16	0.1...0.16	4...6	7...10	34...50	65...100	85...125	200...330
0.16...0.25	0.16...0.25	5...8	9...13	45...65	85...125	100...160	260...400
0.25...0.4	0.25...0.4	6...9	12...18	54...75	100...160	120...185	400...630
0.4...0.63	0.4...0.63	7...10	16...22	63...85	120...185	160...240	520...800
0.63...1	0.63...1	9...13	18...25	80...105	160...240	200...330	
1...1.6	1...1.6	12...18	24...36	95...130	260...400		
1.6...2.5	1.6...2.5	16...22	28...40	110...150			
2.5...4	2.5...4	18...25	34...50				
4...6	4...6	24...36	45...65				
5...8	5...8	28...40	54...75				
6...9	6...9	34...50	63...85				
7...10	7...10	45...65	70...95				
9...13	9...13		80...100				
12...18	12...18						
16...22	16...22						
18...25	18...25						
22...32	22...32						
28...40	28...40						

Mechanical Interlock Unit		
TSR	Mechanical Interlock Unit	TSR 02
Type		
TSR-02	Applied with TC9b-150a	
TKA-180	Applied with TC185a-400a	
TKA-600	Applied with TC500a-630a-800a	

Mechanical Latch Unit		
TSL	Mechanical Latch Unit	TSL 65
Type		
65	Applied with TC9b-65a	
150	Applied with TC75a-150a	

Surge Absorber Unit		
TSS	Surge Absorber Unit	TSS 1
Varistor TC9b-100a		
11	Operational Voltage 24...48 VAC/DC	
12	Operational Voltage 100...125 VAC/DC	
13	Operational Voltage 200...240 VAC/DC	
14	Operational Voltage 380...440 VAC/DC	

Insulation Barrier Unit		
TKI	Insulation Barrier Unit	TKI 100
Type TC		
100	Applied with TC-100a, 130a, 150a	
180	Applied with TC-185a, 225a, 265a, 330a, 400a	
600	Applied with TC-500a, 630a, 800a	

Separate Mounting Unit		
TSZ	Separate Mounting Unit	TSZ 32
Type		
32	Applied with TK-32a	
63	Applied with TK-63a	
95	Applied with TK-95a	
150	Applied with TK-150a	



Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact a qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

Authorised Dealer

ELECTRIMEC ASIA PACIFIC PTE LTD
 17 Tuas Street
 Singapore 638454
 Tel : (65) 6896 2979
 Fax : (65) 6896 2925
 Email: elecmecc@singnet.com.sg

TERASAKI CIRCUIT BREAKERS (S) PTE LTD
 17 Tuas Street
 Singapore 638454
 Tel : (65) 6744 9752
 Fax : (65) 6748 7592
 Email: tecs@pacific.net.sg



Type
TSZ-32
TSZ-63
TSZ-95
TSZ-150/S

Separate Mounting Units
 These accessories are used to mount the relays separately from contactors. If a relay is combined with a unit, it can be mounted on DIN rail or panel by fixing screws.

Type
TSM-4R
TSM-5R
TSM-6R

Remote Reset Units
 These accessories are used to reset the relays on the panel door.

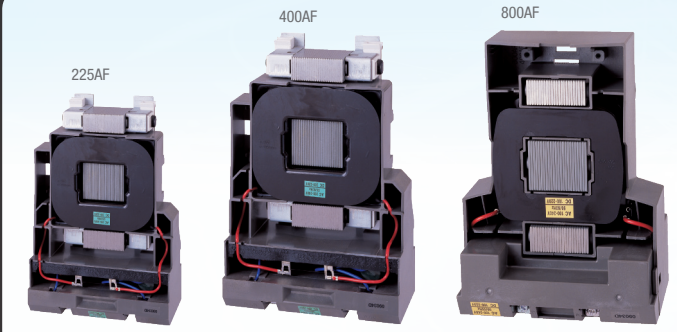
Type
TKM-9
TKM-50

Capacitor Unit
 Capacitor unit is connected to the terminals of the contactor to reduce the high inrush current.



Frame Size	18AF	22AF	40AF	65AF	100AF	150AF
Type	TC-6a, 9a, 12a, 18a	TC-9b, 12b, 18b, 22b	TC-32a, 40a	TC-50a, 65a	TC-75a, 85a, 100a	TC-130a, 150a
AC Coil						
Control Voltage [Uc]	24, 32, 36, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 415, 440, 500, 550V					24, 48, 110, 220, 300, 400, 500
50Hz [V]	24, 32, 36, 42, 48, 80, 100, 110, 220, 230, 240, 277, 380, 440, 480, 600V					24, 48, 110, 220, 300, 400, 500
60Hz [V]	24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V					24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550V
50/60Hz [V]	24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550V					24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550V
Voltage Limit [Uc]	85-110% (50Hz / 60Hz)					
Pick-up	30-60%					
Drop-out	30-60%					
Coil Consumption at 20°C						
AC 220Hz Inrush [VA]	58/56	58/56	53/50	110/104	229/216	108/104
50/60Hz Holding [VA]	9.0/6.0	9.0/6.0	12.0/9.0	13.0/10.0	17.0/13.0	18.0/21.0
Heat Dissipation [W]	2.1/1.5	2.1/1.5	2.7/2.2	2.8/2.4	5.4/4.7	2.7/3.6
Operating Time						
Closing [ms]	12 ... 22	12 ... 22	12 ... 22	12 ... 22	15 ... 30	20 ... 40
Opening [ms]	4 ... 19	4 ... 19	4 ... 19	4 ... 19	10 ... 30	60 ... 70
DC Coil						
Control Voltage [Uc]	12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250					24, 48, 110, 220
Voltage Limit [Uc]	70-110%					
Pick-up	10-30%					
Drop-out	10-30%					
Coil Consumption at 20°C						
DC 110V Inrush [W]	9	9	7	9	18	213
Holding [W]	9	9	7	9	18	7.5
Time Constant (L/R) [ms]	28	28	28	65	75	
Operating Time						
Closing [ms]	35 ... 50	35 ... 50	50 ... 65	50 ... 65	100 ... 120	70 ... 80
Opening [ms]	4 ... 19	4 ... 19	4 ... 19	4 ... 19	10 ... 25	60 ... 70

Pole	Appearance	Type	Composition NO NC	Contact Arrangement	Mount
2		TSU-01	1 1		Side
2		TSU-11	1 1		Front
2		TSU-02	- 2		Front
4		TSU-40	4 -		Front
4		TSU-31	3 1		Front
4		TSU-22	2 2		Front
4		TSU-13	1 3		Front
4		TSU-04	- 4		Front



Frame Size	225AF	400AF	800AF
Type	TC-185a, 225a	TC-265a, 330a, 400a	TC-500a, 630a, 800a
AC/DC Coil			
Control Voltage [Uc]	24/24	-	-
AC/DC	48/48	-	100/100
AC/DC	100-240 / 100-220	100-240 / 100-220	200/200
AC	300, 400, 500	300, 400, 500	300, 400, 500
Voltage Limit [Uc]			
Pick-up	86-110%		
Drop-out	30-60%		
Coil Consumption at 20°C			
AC 220Hz Inrush [VA]	380	571	1000
50/60Hz Holding [VA]	11.6	14	29
Heat Dissipation [W]	4.7	5	7.8
Operating Time			
Closing [ms]	70	55	75
Opening [ms]	70	55	75

TC Type Magnetic Contactors



Frame size		18AF				22AF				
Type		TC-6a	TC-9a	TC-12a	TC-18a	TC-9b	TC-12b	TC-18b	TC-22b*	
Number of poles	screws clamp terminals	•	•	•	•	•	•	•	•	
Rated operational voltage, Ue		3pole				3pole				
Rated insulation voltage, Ui		690V				690V				
Rated frequency		50/60Hz				50/60Hz				
Rated impulse withstand voltage, Uimp		6kV				6kV				
Maximum operating rate in operating cycles per hour(AC3)		1800 operations per hour				1800 operations per hour				
Durability	Mechanical	15 mil. operations				15 mil. operations				
	Electrical	2.5 mil. operations				2.5 mil. operations				
Current and power	AC-1, Thermal current	A	25	25	32	25	25	32	40	
	AC-3	200/240V	kW	2.2	2.5	3.5	4.5	5.5	5.5	
			A	9	11	13	18	22	22	
		380/440V	kW	3	4	5.5	7.5	11	11	
			A	7	9	12	18	22	22	
		500/550V	kW	3	4	7.5	7.5	15	15	
			A	6	7	12	13	20	20	
		690V	kW	3	4	7.5	7.5	15	15	
			A	4	5	9	9	18	18	
			A	25	25	25	32	25	25	40
UL rating (50/60Hz)	Continuous current	A	25	25	25	32	25	25	40	
	Single	110-120V	HP	0.5	0.5	0.75	1	1	2	
	phase	220-240V	HP	1.5	1.5	2	3	3	3	
		200-208V	HP	2	2	3	5	7.5	7.5	
	Three	220-240V	HP	3	3	5	7.5	10	10	
	phase	440-480V	HP	5	5	7.5	10	15	15	
		550-600V	HP	7.5	7.5	10	15	20	20	
			A	00	00	0	0	0	1	
			A	0.33					0.34	
			mm	45 × 73.5 × 82				45 × 73.5 × 86		
Size and weight	AC control	Weight	0.5				0.51			
	DC control	Weight	45 × 83 × 113.7				45 × 73.5 × 117.7			
Auxiliary (standard)			1a or 1b				1a1b			
Auxiliary	Side mount		TSU-01				TSU-01			
	Front mount		TSU-20, 11, 02, 40, 31, 22, 13, 04				TSU-20, 11, 02, 40, 31, 22, 13, 04			

Note) Minimum conduct current of Auxiliary contactor is DC 17V 5mA.

TC Type Magnetic Contactors



Frame size		150AF		225AF			
Type		TC-130a	TC-150a	TC-185a	TC-225a		
Number of poles	screws clamp terminals	•	•	•	•		
Rated operational voltage, Ue		3pole		3pole			
Rated insulation voltage, Ui		690V		690V			
Rated frequency		1000V		1000V			
Rated impulse withstand voltage, Uimp		50/60Hz		50/60Hz			
Maximum operating rate in operating cycles per hour(AC3)		8kV		8kV			
Durability	Mechanical	1200 operations per hour		1200 operations per hour			
	Electrical	5 mil. operations		5 mil. operations			
Current and power	AC-1, Thermal current	A	160	210	230	275	
	AC-3	200/240V	kW	37	45	55	75
			A	130	150	185	225
		380/440V	kW	60	75	90	132
			A	130	150	185	225
		500/550V	kW	60	70	110	132
			A	90	100	180	200
		690V	kW	55	55	110	140
			A	60	60	120	150
			A	160	210	230	275
UL rating (50/60Hz)	Continuous current	A	160	210	230	275	
	Single	110-120V	HP	10	15	15	15
	phase	220-240V	HP	20	25	30	40
		200-208V	HP	40	40	60	60
	Three	220-240V	HP	40	50	60	75
	phase	440-480V	HP	75	100	125	150
		550-600V	HP	75	75	125	150
			A	3	4	4	4
			mm	95 × 158 × 132		138 × 203 × 181	
	Size and weight	AC control	Weight	2.4		5.4	
DC control		Weight	95 × 158 × 132		138 × 203 × 181		
Auxiliary (standard)			2a2b		2a2b		
Auxiliary	Side mount		TSU-01		TSU-100 (Max.4NO4NC)		
	Front mount		TSU-20, 11, 02, 40, 31, 22, 13, 04		-		

400AF			800AF						
Type			TC-265a	TC-330a	TC-400a	TC-500a	TC-630a	TC-800a	
Number of poles			•	•	•	•	•	•	
Rated operational voltage, Ue			3pole			3pole			
Rated insulation voltage, Ui			690V			690V			
Rated frequency			1000V			1000V			
Rated impulse withstand voltage, Uimp			50/60Hz			50/60Hz			
Maximum operating rate in operating cycles per hour(AC3)			8kV			8kV			
Durability	Mechanical		1200 operations per hour			1200 operations per hour			
	Electrical		5 mil. operations			2.5 mil. operations			
Current and power	AC-1, Thermal current	A	300	350	450	580	660	900	
	AC-3	200/240V	kW	80	90	125	147	190	
			A	265	330	400	500	630	
		380/440V	kW	147	160	200	265	330	
			A	265	330	400	500	630	
		500/550V	kW	147	160	200	265	330	
			A	225	280	350	400	500	
		690V	kW	160	200	250	300	400	
			A	185	225	300	380	420	
			A	300	350	450	580	660	
UL rating (50/60Hz)	Continuous current	A	300	350	450	580	660	900	
	Single	110-120V	HP	-	-	-	-	-	
	phase	220-240V	HP	-	-	-	-	-	
		200-208V	HP	-	-	-	-	-	
	Three	220-240V	HP	75	100	125	150	200	
	phase	440-480V	HP	100	125	150	200	250	
		550-600V	HP	200	250	300	400	500	
			A	5	5	5	6	7	
			mm	163 × 243 × 198			285 × 312 × 242		
	Size and weight	AC control	Weight	9.2			22.4		
DC control		Weight	163 × 243 × 198			285 × 312 × 242			
Auxiliary (standard)			2a2b			2a2b			
Auxiliary	Side mount		TSU-100 (Max.4NO4NC)			TSU-100 (Max.4NO4NC)			
	Front mount		-			-			

TK Type Thermal Overload Relays

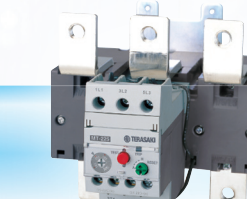


Type		TK-12a	TK-32a
Rated operational voltage, Ue	Screws clamp terminals	•	•
Rated insulation voltage, Ui		690V	690V
Rated impulse withstand voltage, Uimp		690V	690V
Trip class		6kV	6kV
Setting range		10A, 20	10A, 20
		0.1~18A	0.1~40A
Size and weight	Weight	kg	0.1
	Size(W × H × D)	mm	45 × 73.2 × 63.7
			0.17
			45 × 75 × 90

The safety cover of magnetic contactor and thermal overload relay is optional.

Type		TK-32a	TK-63a	TK-95a
Rated operational voltage, Ue	Screws clamp terminals	•	•	•
Rated insulation voltage, Ui		690V	690V	690V
Rated impulse withstand voltage, Uimp		690V	690V	690V
Trip class		6kV	6kV	6kV
Setting range		10A, 20	10A, 20	10A, 20
		0.1~40A	4~65A	7~100A
Size and weight	Weight	kg	0.17	0.31/0.33
	Size(W × H × D)	mm	45 × 75 × 90	55 × 81 × 100
				0.48/0.5
				70 × 97 × 110

TK Type Thermal Overload Relays



Type		TK-150a	TK-225a
Rated operational voltage, Ue	Screws clamp terminals	•	•
Rated insulation voltage, Ui		690V	690V
Rated impulse withstand voltage, Uimp		690V	690V
Trip class		6kV	6kV
Setting range		10A, 20	10A, 20
		34~150A	65~240A
Size and weight	Weight	kg	0.67
	Size(W × H × D)	mm	95 × 109 × 113
			2.5
			147 × 141 × 184

The safety cover of magnetic contactor and thermal overload relay is optional.

Type		TK-400a	TK-800a
Rated operational voltage, Ue	Screws clamp terminals	•	•
Rated insulation voltage, Ui		690V	690V
Rated impulse withstand voltage, Uimp		690V	690V
Trip class		6kV	6kV
Setting range		10A, 20	10A, 20
		85~400A	200~800A
Size and weight	Weight	kg	2.6
	Size(W × H × D)	mm	151 × 171 × 198
			11.5
			360 × 530 × 212