Description of thermal overload relay

- **Automatic temperature compensation design**

  Bi-metal design can adjust and compensate automatically for ambient temperature changes, which increase the reliability of the product.

- **Single unit installation base can be added for independent use**

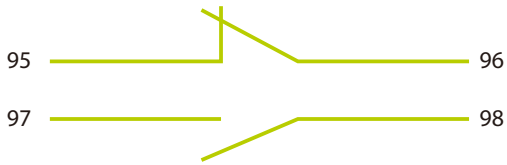
  TH-P12, TH-P18 can be installed to single unit installation base, which can be used independently on the track or be fixed on the installation plate.

- **Safety terminal cover design for high safety level**

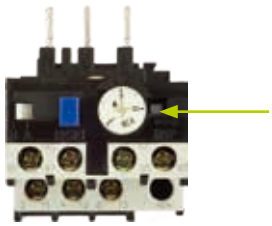
  Terminal cover, is easy to install and complies with IEC degree of protection of IP 20.

- **Auxiliary terminal of thermal overload relay is 1NO 1NC**

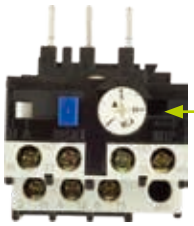
  The auxiliary contact are designed independently, which can be used for the control of two different power sources and are convenient for wiring.



- **Thermal overload relay reset/trip indicator can be seen easily and clear**

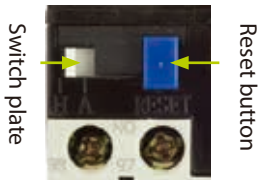


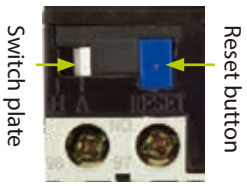
(Reset state) White rod will appear in the indicator window.



(Trip) White rod shifted and unable to be seen directly.

- **Switching of thermal overload relay between manual/automatic reset is easy (customers can switch by themselves according to their needs)**





TH-P12

Manual → Automatic reset switching method

Press reset button down and hold it; in the meantime, pull switch plate to the right to position "A" to lock reset rod and keep it in pressed down state, which then becomes the automatic reset state.

Automatic →Manual reset switching method

Pull switch plate to the left to position "H" to have reset rod recoiled back upward and finish.

TH-P20~TH-P600

Manual → Automatic reset switching method

Use cross screwdriver and align it with the cross hole on the top of reset button, engage and drive the button rotating it 90° counterclockwise to have the arrow points from "H" to "A" and keep reset button in pressed down state.

Automatic → Manual reset switching method

Use cross screwdriver and align it with the cross hole on the top of reset rod, engage and drive the rod rotating it 90° clockwise to have the arrow points from "A" to "H" and the reset rod recoiled back to its original position.

Thermal overload relay | TH Series

Type designation

TH	-	P	20	E	TA	PP
1		2	3	4	5	6

TH-P20TA

1 Model

TH	Thermal overload (overcurrent) relay

2 Series

P	P series

3 Rated Capacity

12、18、20、60、120、200、400、600

4 Type

Blank	2 heaters or Differential Type
E	3 heaters

5 Contact/CT

Blank	Contact without TA
TA	with TA contact
	20 type＝28A~40A（Other Ampere is left blank）
	60 type＝67A~80A（Other Ampere is left blank）
	120 type＝105A~160A（Other Ampere is left blank）
CT	CT included (current transformer)；only for 220、400、600 type

6 TH Type

Blank	2 heaters (standard) or 3 heaters
PP	Differential Type

Thermal Overload Relay



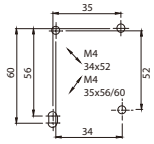
Type		12	20	
Standard	Contactor Assembled Type	TH-P12E	TH-P20E	TH-P20ETA
#3	Independently Installed Type	TH-P12ER	—	—
With phase failure protection	Contactor Assembled Type	TH-P12PP	TH-P20PP	TH-P20TAPP
#3	Independently Installed Type	TH-P12PPR	—	—
Reset Mode		Manual / Automatic	Manual / Automatic	
Magnetic Contactor		S-P11, S-P12, S-P15.	S-P16, S-P21, S-P25, S-P30T, S-P35T, S-P40T.	S-P25, S-P30T, S-P35T, S-P40T.

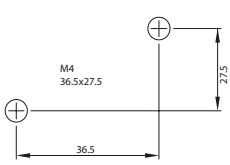
TOR Adjustment Range (A)	12		20			
	Rating (A)	Range (A)	Rating (A)	Range (A)	Rating (A)	Range (A)
	0.25	0.19~0.31	0.25	0.19~0.31	28	22~34
	0.4	0.3~0.5	0.4	0.3~0.5	33	28~38
	0.6	0.45~0.75	0.6	0.45~0.75	40	32~48
	0.9	0.7~1.1	0.9	0.7~1.1		
	1.2	0.9~1.5	1.2	0.9~1.5		
	1.7	1.3~2.1	1.7	1.3~2.1		
	2.1	1.6~2.6	2.1	1.6~2.6		
	3.3	2.5~4.1	3.3	2.5~4.1		
	4.4	3.4~5.4	4.4	3.4~5.4		
	6.5	5~8	6.5	5~8		
	9	7~11	9	7~11		
	11	9~13	11	9~13		
	＊15	12~18	15	12~18		
			21	17~24		

Auxiliary Contact	1NO 1NC	1NO 1NC	
Weight	0.11/ 0.12	0.18/ 0.19	0.20/ 0.21
Dimensions (mm) (W×H×D)	TH-P12(PP): 45.5×55.5×78 TH-P12(PP)R: 47×71×86.2	TH-P20(PP): 64.5×46.1×80	TH-P20TA(PP): 64.5×56.2×80

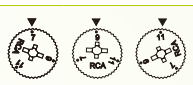
Installation Dimensions (mm)

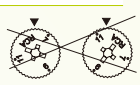
TH-P12(PP):
TH-P12(PP)R:





Note. 1. The purpose of using TOR is protecting load tripping. For protecting circuit, please choose circuit breaker.
2. When adjusting the rated current; please refer to the TOR range table above. Do not exceed its range.
3. (E): 3 Elements
4. ＊: The rating current of TH-P12 can only use up to "11A" when combined with S-P11.


Correct


Incorrect

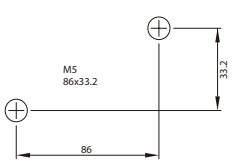
Type		60		120	
Standard	Contactor Assembled Type	TH-P60E	TH-P60ETA	TH-P120E	TH-P120ETA
	Independently Installed Type	—	—	—	—
With phase failure protection	Contactor Assembled Type	TH-P60PP	TH-P60TAPP	TH-P120PP	TH-P120TAPP
	Independently Installed Type	—	—	—	—
Reset Mode		Manual / Automatic		Manual / Automatic	
Magnetic Contactor		S-P50T, S-P60T, S-P80T.	S-P60T, S-P80T.	S-P100T, S-P125T, S-P150T.	

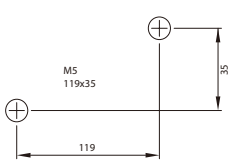
TOR Adjustment Range (A)

Rating (A)	Range (A)	Rating (A)	Range (A)	Rating (A)	Range (A)	Rating (A)	Range (A)
11	9~13	67	54~80	40	32~48	105	80~130
15	12~18	80	60~100	54	43~65	130	100~160
21	17~24			67	54~80	160	120~200
28	22~34			80	60~100		
33	28~38						
40	32~48						
54	43~65						

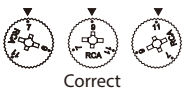
Auxiliary Contact	1NO 1NC		1NO 1NC	
Weight	0.28/ 0.30	0.34/ 0.36	0.55	0.76
Dimensions (mm) (W×H×D)	TH-P60(PP): 98×50.5×78	TH-P60TA(PP): 64.5×65.5×80	TH-P120(PP): 133×54×105	TH-P120TA(PP): 133×85.5×105

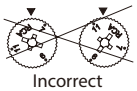
Installation Dimensions (mm)





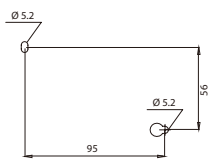
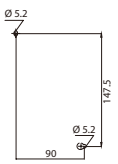
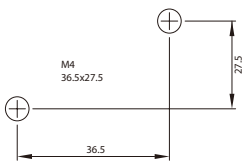
Note. 1. The purpose of using TOR is protecting load tripping. For protecting circuit, please choose circuit breaker.
2. When adjusting the rated current; please refer to the TOR range table above. Do not exceed its range.
3. (E): 3 Elements


Correct


Incorrect

		
220T	**400T**	**600CT**
TH-P220TE	TH-P400TE	TH-P600E
–	–	–
TH-P220TPP	TH-P400TPP	TH-P600PP
–	–	–
Manual / Automatic	Manual / Automatic	Manual / Automatic
S-P200T, S-P220T.	S-P300T, S-P400T.	M-600C

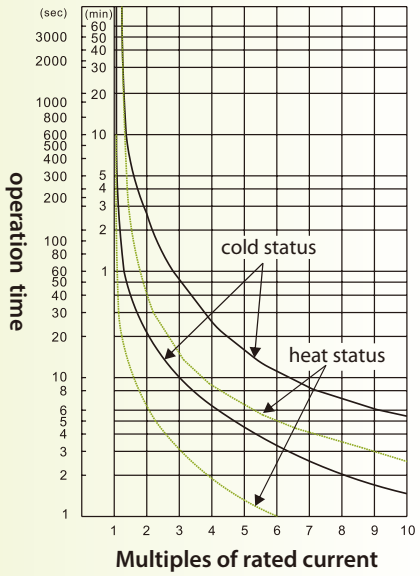
Rating (A)	Range (A)	Rating (A)	Range (A)	Rating (A)	Range (A)
80	60~100	105	80~130	260	200~320
105	80~130	130	100~160	350	260~440
130	100~160	160	120~200	500	400~600
160	120~200	200	150~250		
200	150~250	260	200~320		
		350	260~440		

1NO 1NC	1NO 1NC	1NO 1NC
2.25	2.65	3.93/ 3.95
140×151×158.7	164×165×163.7	TOR: 64.5×46.1×80 TOR W/CT: 106×46.8×104.5
		

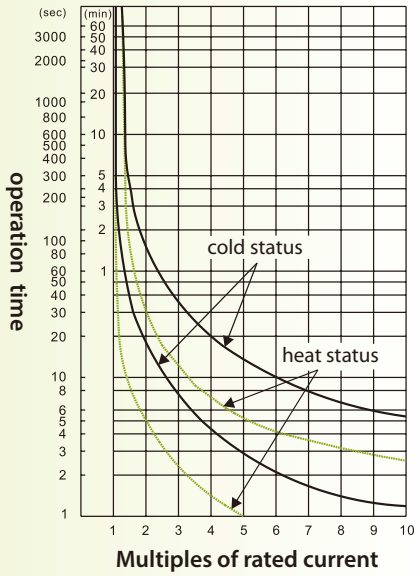
Thermal overload (overcurrent) relay | TH Series

Tripping Characteristic

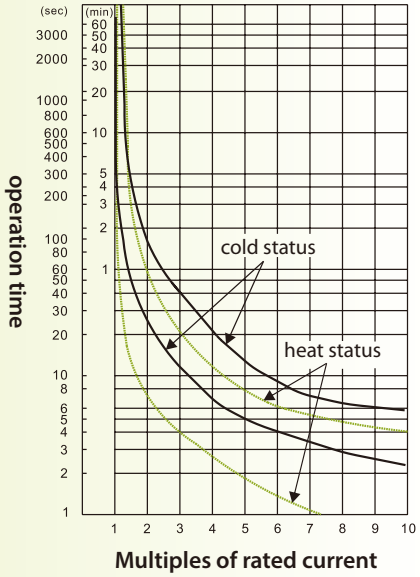
TH-P12E tripping characteristic curve



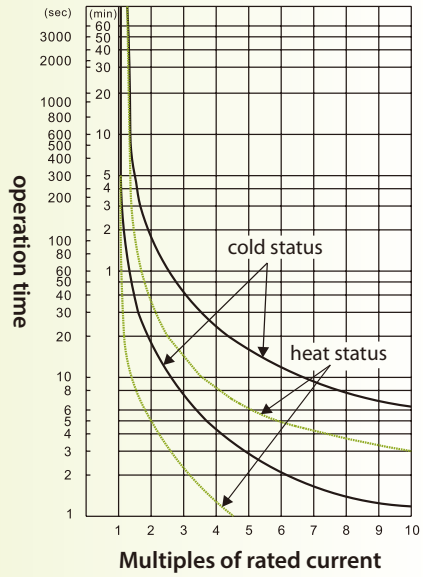
TH-P18E – below 6.5A tripping characteristic curve



TH-P18E – above 9A tripping characteristic curve



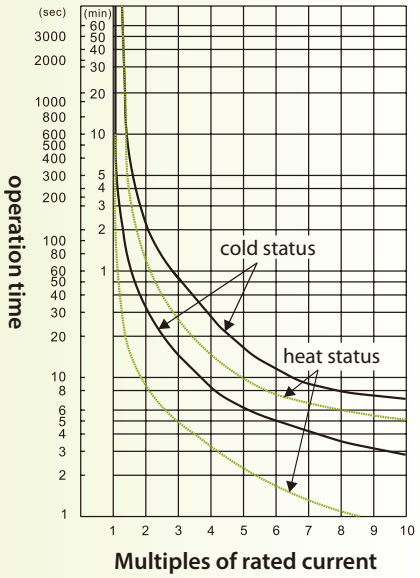
TH-P20E – below 6.5A tripping characteristic curve



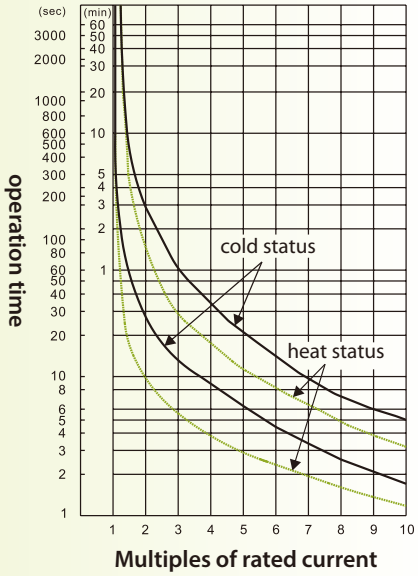
Thermal overload (overcurrent) relay | TH Series |

Tripping Characteristic

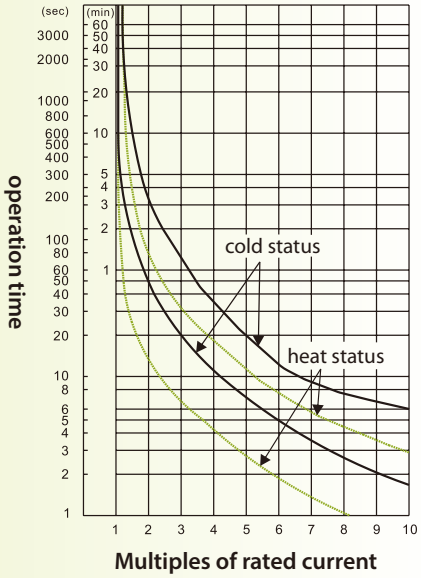
TH-P20ETA – above 9A tripping characteristic curve



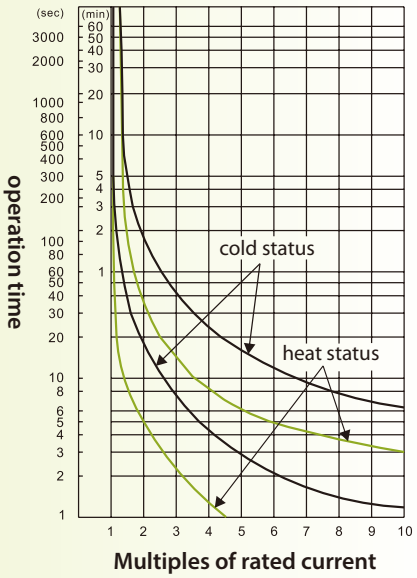
TH-P60ETA tripping characteristic curve



TH-P120ETA tripping characteristic curve

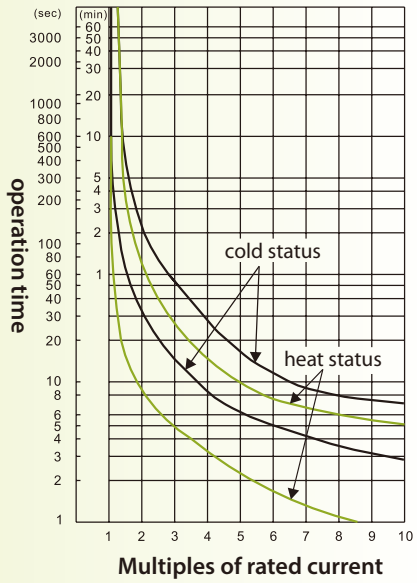


TH-P220ECT、P400ECT、TH-P220TE P400TE 130A tripping characteristic curve

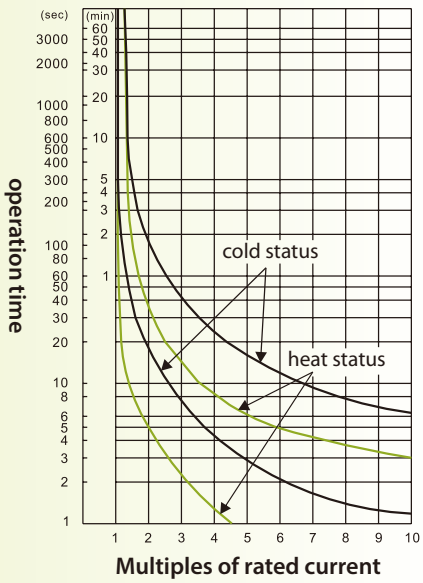


Tripping Characteristic

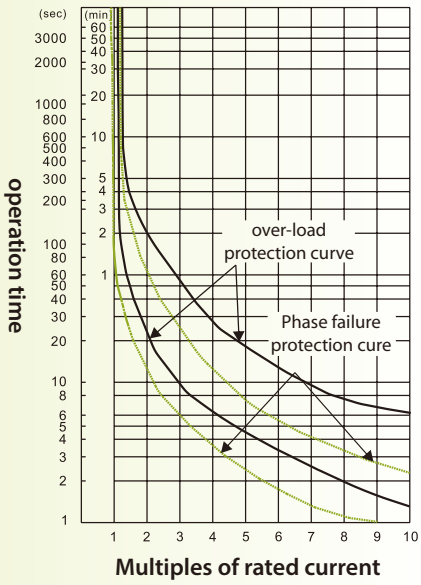
TH-P220ECT、TH-P400ECT、TH-P220TE TH-P400TE 160A tripping characteristic curve



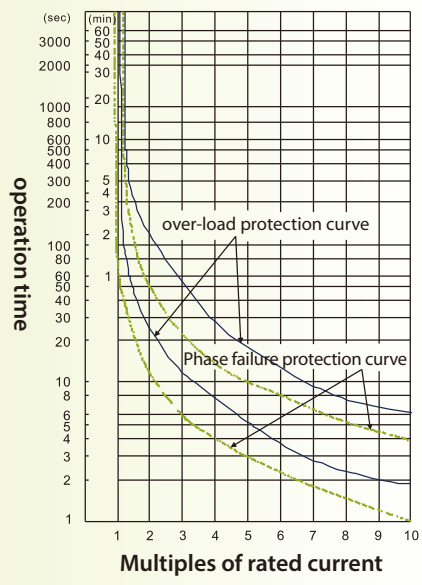
TH-P600ECT tripping characteristic curve



TH-P12PP tripping characteristic curve



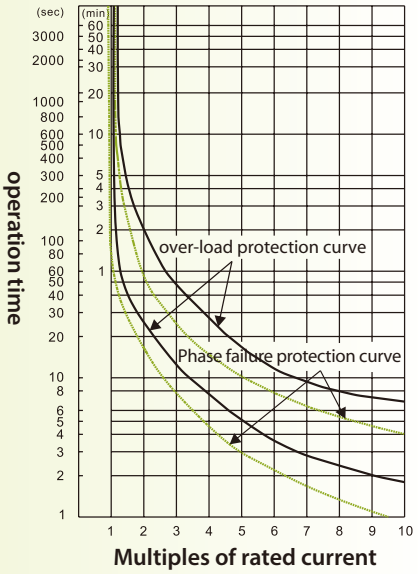
TH-P20TAPP tripping characteristic curve



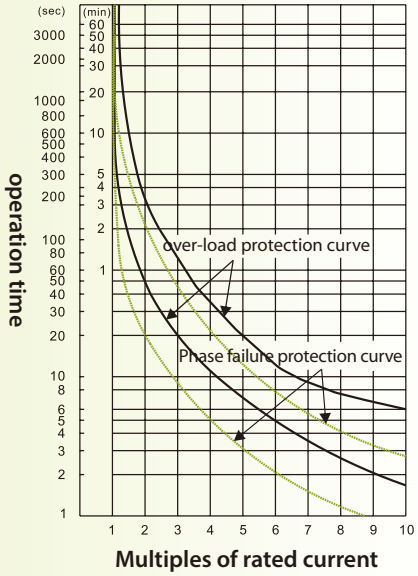
Thermal overload (overcurrent) relay | TH Series |

Tripping Characteristic

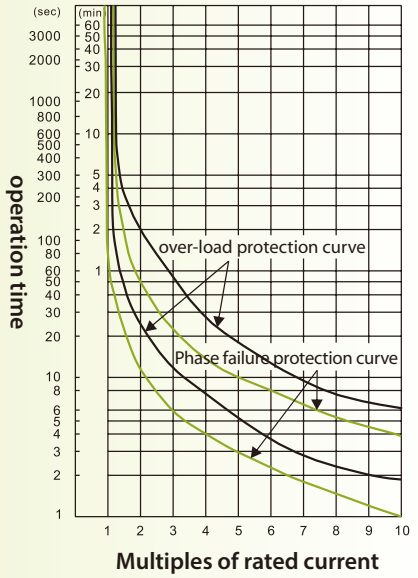
TH-P60TAPP tripping characteristic curve



TH-P120TAPP tripping characteristic curve



TH-P220CTPP、P400CTPP、P600CTPP、TH-P220TPP、P400TPP tripping characteristic curve



Selection Table ◆ λ - Δ Starter

Heater selection table (A)	Motor output kW (HP)				TH selection of λ - Δ Starter																	
	A		B		21		35		50		60		80		100		125		150		220	
	200~220V		380~440V		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
6.5	1.5	(2)	3	(4)	TH-P20	TH-P20																
9	1.9	(2 1/2)	3.7	(5)																		
9	2.2	(3)	4.5	(6)																		
11	3	(4)	5.5	(7 1/2)			TH-P60	TH-P60	TH-P60	TH-P60												
15	3.7	(5)	7.5	(10)																		
15	4.5	(6)	10	(13)																		
21	5.5	(7 1/2)	11	(15)																		
28	6.5	(8)	14	(19)	TH-P20TA	TH-P20TA																
28	7.5	(10)	15	(20)																		
33	9	(12 1/2)	19	(25)																		
40	11	(15)	22	(30)							TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120						
40	14	(19)	26	(35)																		
54	15	(20)	30	(40)																		
67	19	(25)	37	(50)			TH-P60TA		TH-P60TA	TH-P60TA												
80	22	(30)	45	(60)													TH-P220T	TH-P220T	TH-P220T	TH-P220T	TH-P400T	TH-P400T
80	25	(34)	50	(67)																		
105	30	(40)	55	(75)							TH-P120TA	TH-P120TA	TH-P120TA	TH-P120TA	TH-P120TA	TH-P120TA						
130	37	(50)	75	(100)																		
160	45	(60)	90	(125)																		
200	55	(75)	110	(150)																		
200	65	(85)	132	(200)																		
260	75	(100)	150	(200)															TH-P400T			
350	110	(150)	200	(260)																		