

**TK-M series thermal overload relays with phase-loss protective device**

■ **Features**

- This relay protects motor windings from burning due to overloads, locked rotor currents, or phase-loss.
- A finely divided scale for the current adjustment dial enables easy and exact current settings.
- Operating status can be visually checked with ease.
- The reset method after tripping can be set either manually or automatically.
- By mounting an auxiliary contact block, 1NO+1NC auxiliary contact arrangement is possible. In this case, thermal overload relay cannot be used with automatic reset.
- Test buttons can be pressed or released to turn the NC contact (terminal No. 95 and 96) OFF and ON.
- Adding the optional accessories (the base unit and input terminal) enables separate-mounting types of the thermal overload relays.



**TK-M0**

■ **Types and specifications**

• **Performance**

Applicable contactor Non-reversing	Operation	Type *1	Aux. contact arrangement	Trip category *2	No. of heater elements	Power consumption per element	Provided function
SC-M01, M01/G, M01/G1 SC-M01/G2	Standard operation	<b>TK-M0</b>	1NC	10A	3	2.3 VA	Overload, phase-loss protection Ambient temperature compensation Manual/auto reset selectable
SC-M02, M02/G, M02/G1 SC-M02/G2	Quick operation	<b>TK-M0Q</b>	1NC	5	3	2.3 VA	Manual trip mechanism Trip indicator

Notes: \*1 For operating characteristics, see page 02/44. \*2 According to JIS C 8201-4-1

• **Ampere setting range**

**Standard operation type**

Ampere setting range (A)	Order current	Ampere setting range (A)	Order current
0.11–0.17	<b>0.11A</b>	1.7–2.4	<b>1.7A</b>
0.17–0.26	<b>0.17A</b>	2.2–3.2	<b>2.2A</b>
0.26–0.43	<b>0.26A</b>	2.5–4.0	<b>2.5A</b>
0.43–0.65	<b>0.43A</b>	3.0–4.7	<b>3A</b>
0.65–1.0	<b>0.65A</b>	4.0–6.3	<b>4A</b>
0.85–1.3	<b>0.85A</b>	5.5–8.0	<b>5.5A</b>
1.1–1.6	<b>1.1A</b>	7.5–10.5	<b>7.5A</b>
1.35–2.0	<b>1.35A</b>		

**Quick operation type**

Ampere setting range (A)	Order current
1.35–2.0	<b>1.35A</b>
1.7–2.4	<b>1.7A</b>
2.2–3.2	<b>2.2A</b>
3.0–4.7	<b>3A</b>
4.0–6.3	<b>4A</b>
5.5–8.0	<b>5.5A</b>
7.5–10.5	<b>7.5A</b>

• **Auxiliary contact ratings**

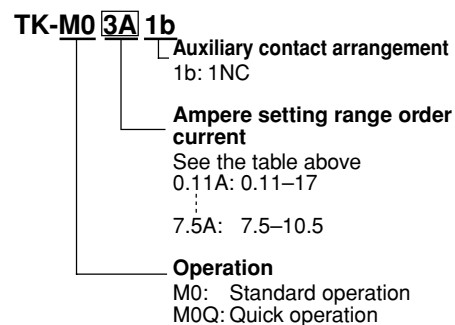
Rated thermal current	Rated operational current				Rated insulation voltage	
	IEC, JIS AC (AC-15) DC (DC-13)		UL, CSA rating code AC DC		IEC JIS	UL CSA
6A	120V 3A	24V 0.5A	B600	R300	750V	600V
	220V 3A	48V 0.5A				
	440V 2A	110V 0.2A				
	550V 0.6A	220V 0.1A				

■ **Ordering information**

Specify the following :

1. Type number
2. Specify the ampere setting range order current

■ **Type number nomenclature**



# DUO series Contactors

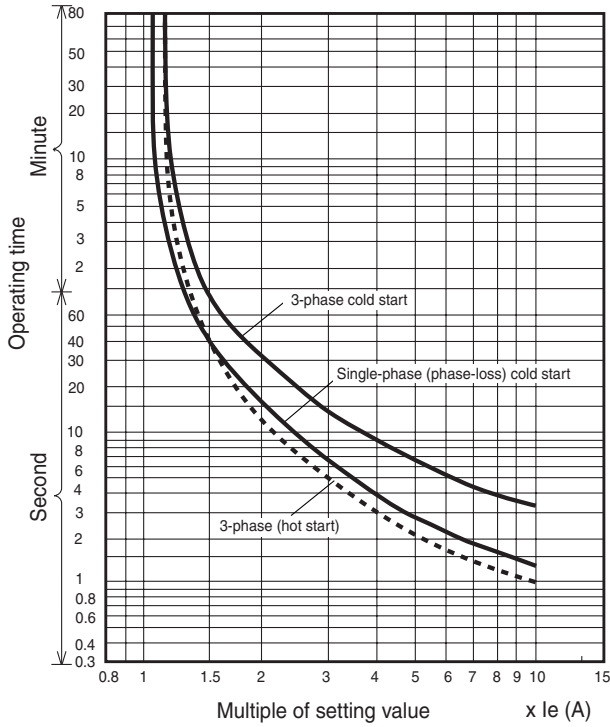
## SC-M series

### Thermal overload relays

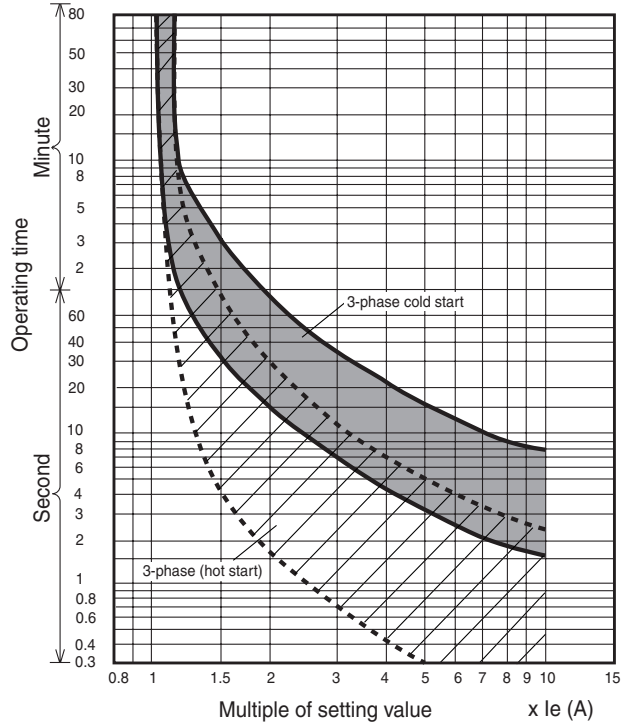
#### ■ Operating characteristics

- Standard operating type/TK-M0

##### Mean value



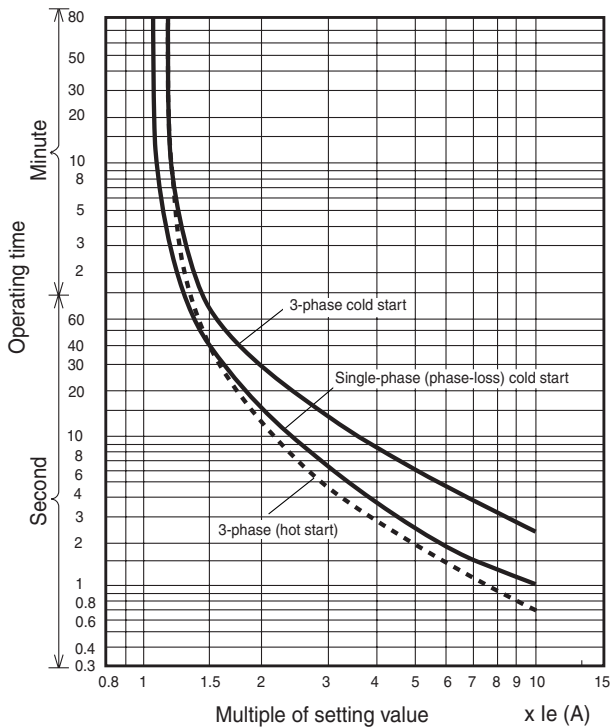
##### Operating range



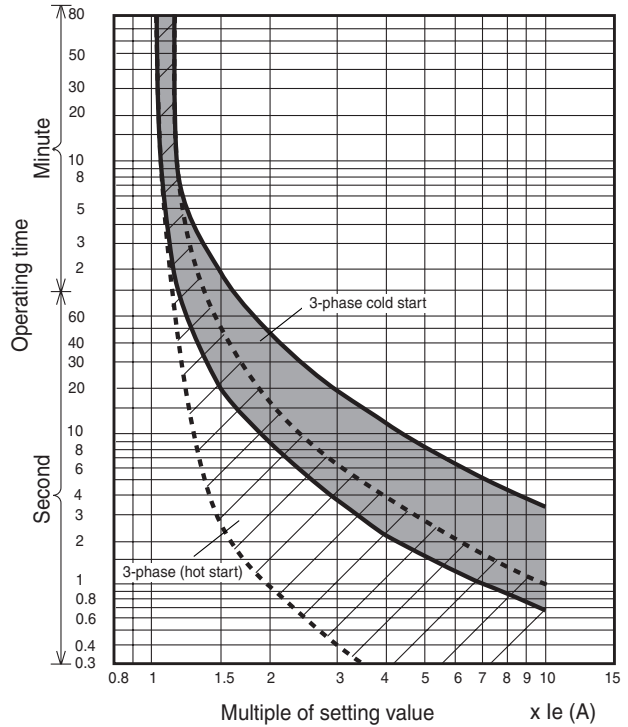
Note: For auto reset type, same as the standard type.

#### • Quick operating type/TK-M0Q

##### Mean value

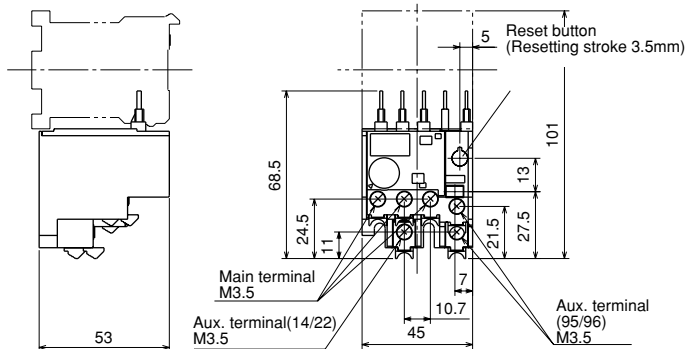


##### Operating range



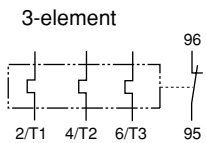
Note: For auto reset type, same as the standard type.

■ Dimensions, mm  
 TK-M0, TK-M0Q



Mass: 98g

■ Wiring diagram



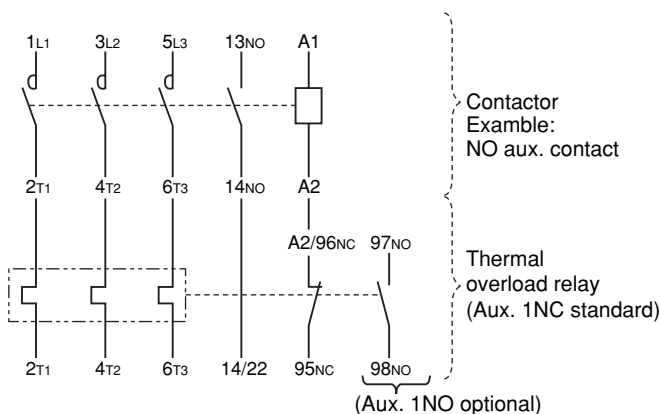
■ Note on use

When using a thermal overload relay in combination with a contactor, the terminals are connected as described in 1) and 2) below and shown in the following diagram.

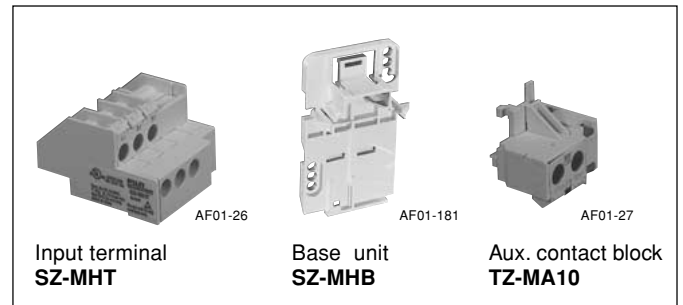
- 1) Connected between the auxiliary terminal (14NO or 22NC) on the load side of the contactor and the junction terminal (14/22) of the thermal overload relay.
- 2) Connected between the coil terminal (A2) on the load side of the contactor and the NC contact (96NC) of the thermal overload relay.

Notes:

- When using the thermal overload relay to directly turn off the contactor: Connect the operating coil circuit A1 and 95NC.
- When using the thermal overload relay not to directly turn off the contactor: Connect the operating coil circuit A1 and A2/96NC.
- To detect the NC contact signal of the thermal overload relay, connect 95NC and A2/96NC.
- The junction terminal 14/22 is not used when installing only the thermal overload relay.



■ Optional accessories



• Input terminal for separate mounting

Type: **SZ-MHT**

• Base unit for separate mounting

The base unit modifies thermal overload relay to separate mounting types that can be mounted to 35mm-wide top hat rail (DIN) or secured with screws.

Type: **SZ-MHB**

• Auxiliary contact block (1NO)

Easily add 1NO auxiliary contact to the thermal overload relays. A trip indicator is provided.

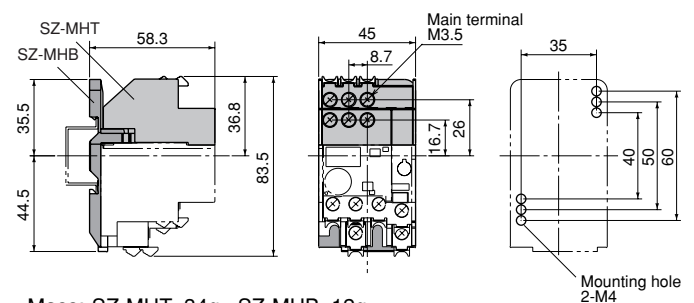
Type: **TZ-MA10**

Ratings of auxiliary contact block (1NO)

Rated thermal current	Rated operational current				Rated insulation voltage	
	IEC, JIS		UL, CSA rating code		IEC	UL
	AC (AC-15)	DC (DC-13)	AC	DC	JIS	CSA
6A	220V 1A	48V 0.1A	D300	R300	750V	600V
	440V 0.5A	110V 0.05A				

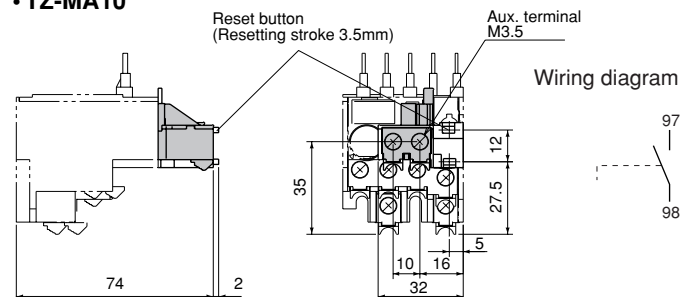
Dimensions, mm

• SZ-MHT, SZ-MHB



Mass: SZ-MHT 34g, SZ-MHB 12g

• TZ-MA10



Mass: 13g