

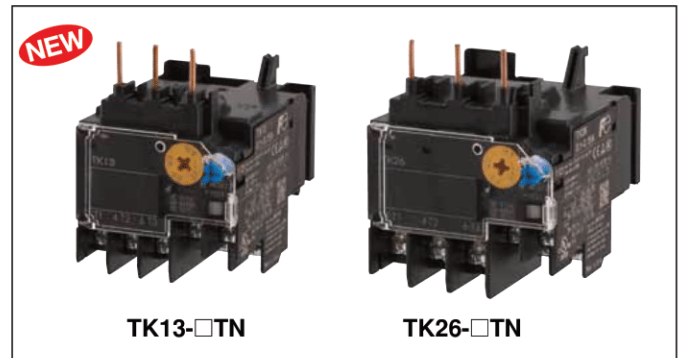
# Thermal overload relay

## TK13, TK26

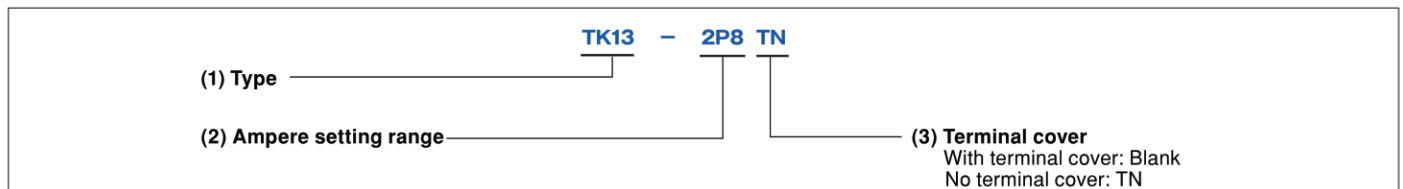
### Full model change for low-rating Thermal Overload Relays (0.1 to 26 A)

#### ■ Features

- Phase-loss protection on standard models.
- Terminal arrangement changed to greatly improve ease of wiring.
- Standard-feature dial cover that opens and closes to prevent unintentional operation.
- Conforming to, or certified major certifications such as IEC, UL, and CCC.
- All materials used are compliant to RoHS Directive and the main components are easy to recycle.



#### ■ Type number nomenclature



#### ■ Specifications

Type		Ampere setting range (Specification codes for ampere setting range are given in brackets [ . ])						Contactors to be combined
No terminal cover	With terminal cover							
<b>TK13-□TN</b>	<b>TK13-□</b>	0.1-0.15	[P10]	0.95-1.45	[P95]	7-10.5	[007]	SC-03 SC-0 SC-05
		0.13-0.2	[P13]	1.4-2.1	[1P4]	9-13	[009]	
		0.18-0.27	[P18]	1.7-2.6	[1P7]			
		0.24-0.36	[P24]	2.2-3.4	[2P2]			
		0.34-0.52	[P34]	2.8-4.2	[2P8]			
		0.48-0.72	[P48]	4-6	[004]			
		0.64-0.96	[P64]	5-7.5	[005]			
		0.8-1.2	[P80]	6-9	[006]			
<b>TK26-□TN</b>	<b>TK26-□</b>	0.1-0.15	[P10]	0.95-1.45	[P95]	7-10.5	[007]	SC-4-0 SC-4-1 SC-5-1
		0.13-0.2	[P13]	1.4-2.1	[1P4]	9-13	[009]	
		0.18-0.27	[P18]	1.7-2.6	[1P7]	12-18	[012]	
		0.24-0.36	[P24]	2.2-3.4	[2P2]	16-22	[016]	
		0.34-0.52	[P34]	2.8-4.2	[2P8]			
		0.48-0.72	[P48]	4-6	[004]			
		0.64-0.96	[P64]	5-7.5	[005]			
		0.8-1.2	[P80]	6-9	[006]			

Note 1. Replace □ in the type number with the specification code for the ampere setting range.

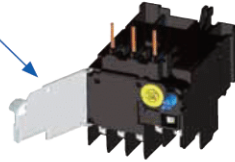
# New compact Thermal Overload Relays that emphasize environmental friendly and safety

## Enhanced Safety

- 2E Thermal Overload Relay overload and phase-loss protection with standard models.
- A standard-feature transparent cover that serves as a dial lock and that also protects against unintentional operation of the reset button.

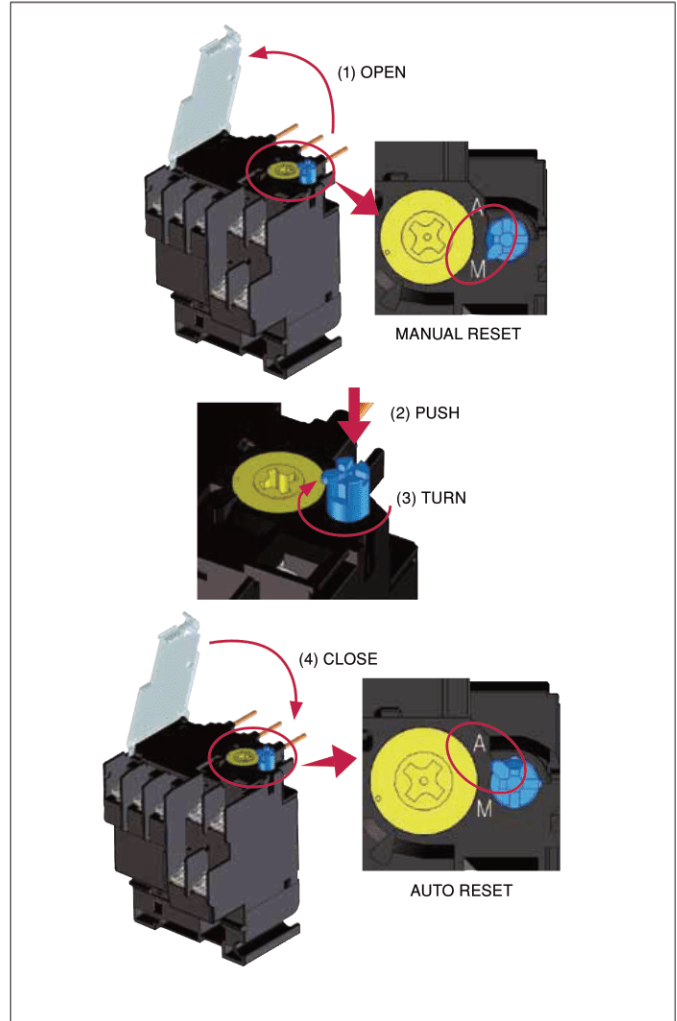
Transparent cover

- Dial lock.
- Protects against unintentional changes on the reset method.



- Easily change between manual and automatic tripping.

- (1) Open the front cover.
- (2) Use a screwdriver or similar tool to press the reset button and turn it 90° clockwise.
- (3) Make sure that the reset button remains in the pressed state.
- (4) Close the front cover.



## Easier Wiring

- (1) The Relays are now much easier to wire than previous products.

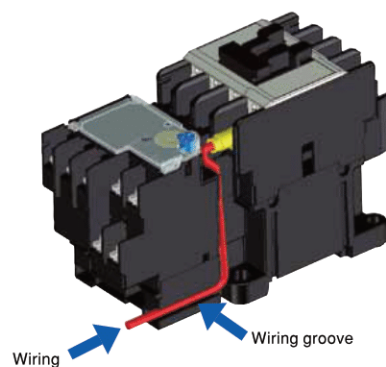
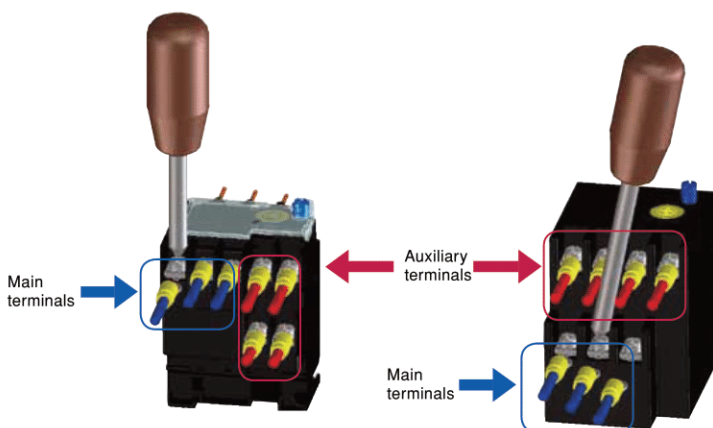
### TK13, TK26

The Relays are now much easier to wire than previous products.

### Previous Models

The main circuit had to be wired first.

- (2) We have provided a groove for auxiliary terminal wiring on the side of the magnetic contactor. Wiring can be performed without interference with the wiring for the adjacent device.



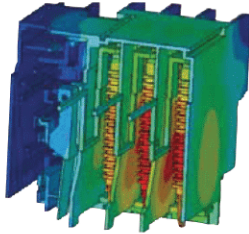
■ **Optimization of heating element and inversion mechanism.**

Optimization was achieved through 3D thermal analysis and inversion mechanism simulation.

• **3D Thermal Analysis Simulation**

We have carried out three-dimensional thermal analysis on the heating element.

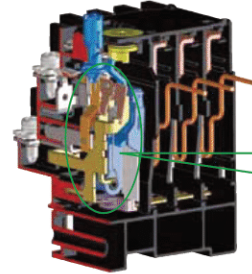
We have made heat generation efficient and stabilized the curvature of the bimetal, while further miniaturizing the device.



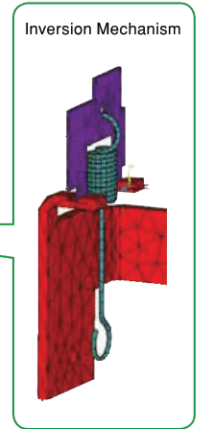
3D Thermal Analysis Simulation

• **New inversion mechanism**









We have conducted a simulation on the reversal mechanism to both miniaturize it and also stabilize its operating characteristics.



Inversion Mechanism Simulation

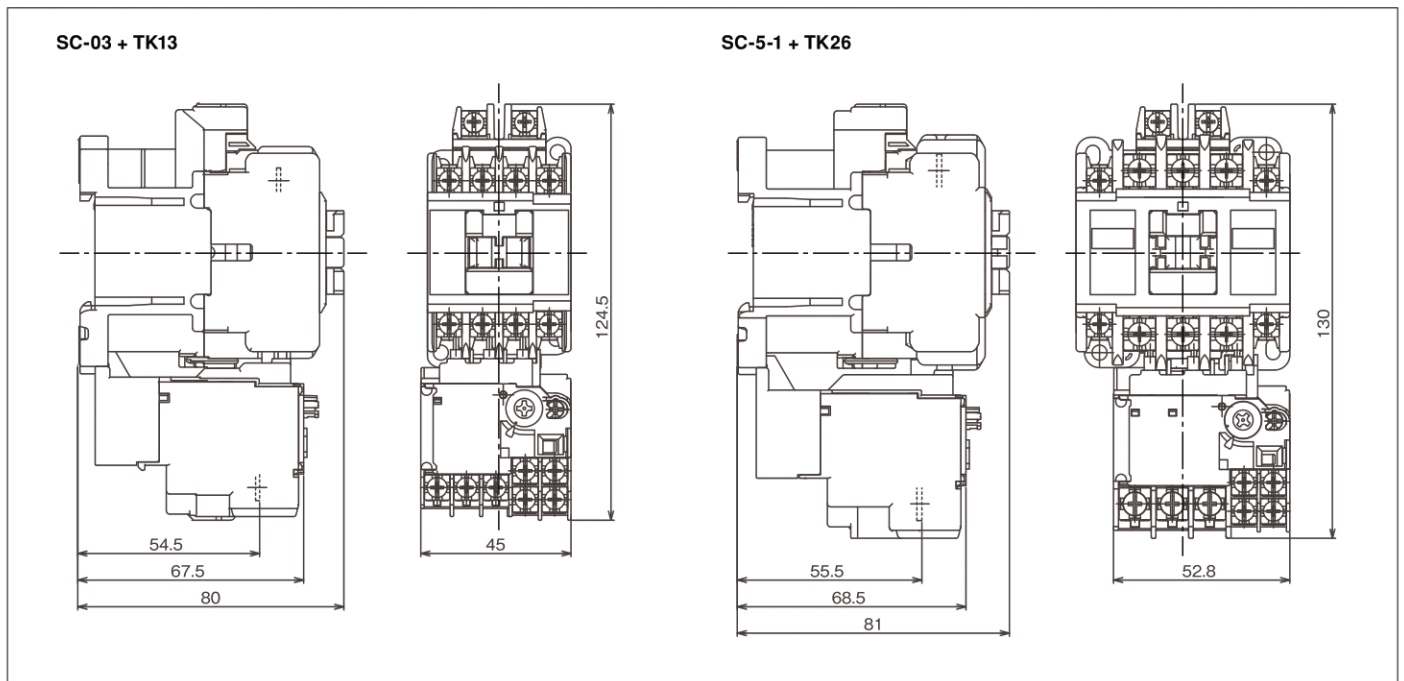


■ **International standards**

Models	Conforming standards			Certified standards			EC Directives	Certification organization
	IEC	EN	JIS	UL	CSA	GB	CE	TÜV
	International	Europe	Japan	USA	Canada	China	Europe	Germany
								
TK13 TK26	○	○	○	○	○	○	○	○

Note ○ : Compliance with standard models.





■ **Dimensions, mm (Typical examples in combination with magnetic contactors)**



## ■ Comparison with previous products

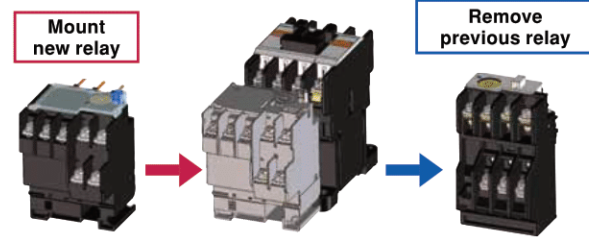
### Changes

- (1) The shape has been changed so that the dial cover is built in.
- (2) The dimensions have changed to reduce the volume by 14% over the previous product.
- (3) Terminal locations were changed to make wiring easier. (Locations of main terminals and auxiliary terminals were changed.)
- (4) Phase-loss protection was added to all relays.

Previous product	New product
<b>TR-0N/3, TK-0N</b> Outline dimensions 44×45.5×77mm (W×H×D) 	<b>TK13-□TN</b> Outline dimensions 45×48.5×61mm (W×H×D) 
<b>TR-5-1N/3, TK-5-1N</b> Outline dimensions 53×47.5×77mm (W×H×D) 	<b>TK26-□TN</b> Outline dimensions 52.8×48.5×61mm (W×H×D) 

### Thermal Overload Relay replacement





You can change the Thermal Overload Relays and still use your current magnetic contactors.



The mounting is compatible between the new and previous Thermal Overload Relays.

## ■ New and previous magnetic contactor combinations for the new Thermal Overload Relays

Different Thermal Overload Relays are provided when the relays are purchased separately and when they are purchased in magnetic motor starters.

		Previous	New	Remarks
1. Purchasing magnetic contactor and Thermal Overload Relay separately and combining them as a magnetic motor starter	Magnetic Contactor	<b>SC-03</b> <b>SC-0</b> <b>SC-05</b> <b>SC-4-0</b> <b>SC-4-1</b> <b>SC-5-1</b> 		There are no changes to the product. Use the previous type number to order.
	Thermal overload relay	<b>TR-0N/3</b> <b>TK-0N</b> <b>TR-5-1N/3</b> <b>TK-5-1N</b> 	<b>TK13-□TN</b> <b>TK26-□TN</b> 	The Thermal Overload Relay can be changed to the new model. Use the new type number to order.
2. Purchasing the products together as a magnetic motor starter	Magnetic starter	<b>SW-03/3H (SC-03+TR-0N/3)</b> <b>SW-03/2E (SC-03+TK-0N)</b> <b>SW-0/3H (SC-0+TR-0N/3)</b> <b>SW-0/2E (SC-0+TK-0N)</b> <b>SW-05/3H (SC-05+TR-0N/3)</b> <b>SW-05/2E (SC-05+TK-0N)</b> <b>SW-4-0/3H (SC-4-0+TR-5-1N/3)</b> <b>SW-4-0/2E (SC-4-0+TK-5-1N)</b> <b>SW-4-1/3H (SC-4-1+TR-5-1N/3)</b> <b>SW-4-1/2E (SC-4-1+TK-5-1N)</b> <b>SW-5-1/3H (SC-5-1+TR-5-1N/3)</b> <b>SW-5-1/2E (SC-5-1+TK-5-1N)</b> 		The Thermal Overload Relay will not be changed. The previous products will be sold.