



FLAG DROP TYPE FAULT INDICATOR

TK TYPE



FEATURES

- The built-in switching contacts are applicable to the output from 4 circuits with different functions. The use of this indicator can save the auxiliary relays.
- The versions for voltage and current are so designed as to prevent wrong insertion.
- The inside element is a plug-in type, which facilitates maintenance and checks (or replacement).
- A no-voltage one-shot pulse contact can be incorporated.
- A variety of combinations of output contacts are available.

SPECIFICATIONS (RATINGS, PERFORMANCE)

Specification \ Type	TK
Rated insulation voltage (UI)	250V
Operating temperature	-20 to 50°C
Operating humidity	45 to 85%
Storing temperature	-20 to 60°C
Shape	Embedded in switchboard, with 1 element
Panel thickness	1 to 3.2mm
Inclination of applicable panel	30 degrees max. from vertical plane
Surface cover color	JIS (Munsell color) code: N1.5, 7.5BG4 / 1.5 (N1.5 only for MK type)
Weight	Approx. 430g

PILOT LAMP & INDICATOR

HOW TO ORDER Select from the following product coding.

●Standard spec

TKL 121 - DC110 B

① ② ③ ⑤

●Power monitor spec (Normally exciting type)

TKL 12B0 TX - DC110 B R

① ② ③ ④ ⑤ ⑥

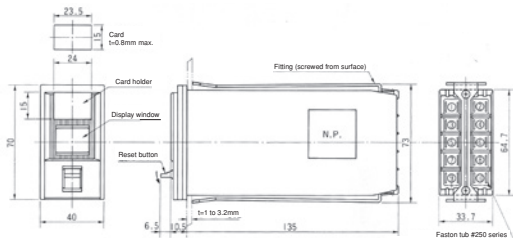
No.	Item	Code	Detail	Note
①	Basic type	TKL	For voltage	—
		TKH	For current	—
②	Contact arrangement	Contact arrangement (see list of contact arrangement)		—
③	Spec	Blank	Standard coil spec	—
		W	Double coil spec (1.0A DC only)	For TKH (1.0A) type only. It is special type.
		X	Internal element fixed type With varistor	⑥ also requires instructions.
		TX	For power source monitoring	⑥ also requires instructions.
④	Coil spec	DC024	24V DC	Coil resistance: 250Ω
		DC030	30V DC	Coil resistance: 320Ω
		DC048	48V DC	Coil resistance: 1,170Ω
		DC110	100 / 110V DC	Coil resistance: 4,700Ω
		L DC125	125V DC	Coil resistance: 5,200Ω
		DC220	200 / 220V DC	Coil resistance: 18,600Ω
		AC110	100 / 110V AC	Coil resistance: 4,700Ω
		AC220	200 / 220V AC	Coil resistance: 18,600Ω
		AC240	240 AC	Coil resistance: 20,600Ω
		DC0.5A	0.5A DC	Coil resistance: 3.0Ω
		H DC0.7A	0.7A DC	Coil resistance: 2.0Ω
		DC1A	1.0A DC	Coil resistance: 0.75Ω
		DC2A	2.0A DC	Coil resistance: 0.35Ω
⑤	Front cover color	B	Black (N1.5)	—
		4 / 1.5	7.5BG4 / 1.5	—
⑥	Flag color (when power loses)	Blank (O) *	Orange	*Selection required if ③ is "X" or "TX".
		R	Red	—



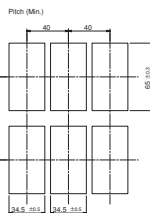
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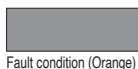
TK TYPE



●Mounting hole size



Normal condition (Black)



Fault condition (Orange)



Continuous fault condition (Stripe pattern)

●Operation



: Manual resetting

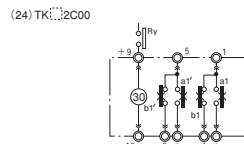
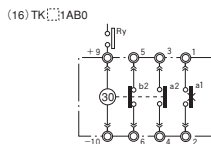
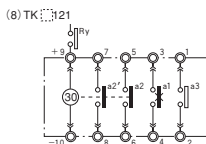
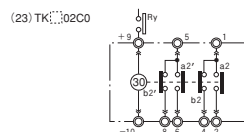
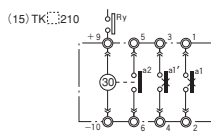
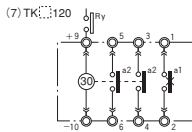
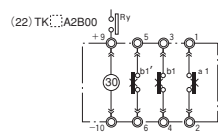
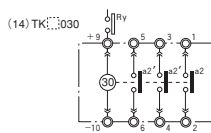
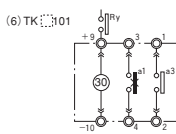
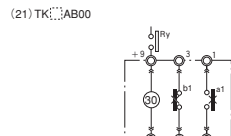
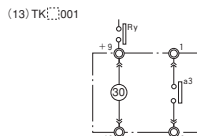
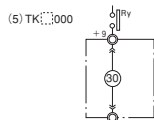
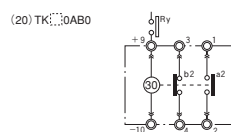
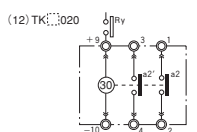
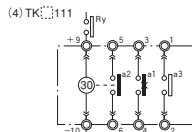
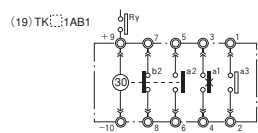
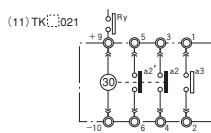
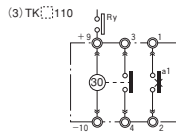
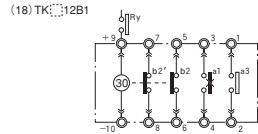
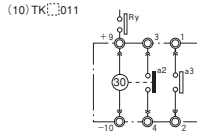
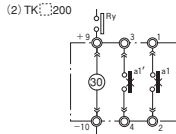
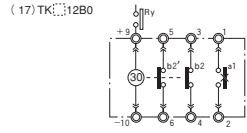
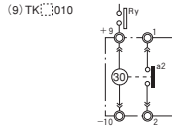
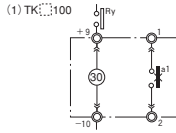


: Automatic resetting

SPECIFICATIONS (RATINGS, PERFORMANCE)

Item	Type	Voltage operation type	Current operation type
Rating		Continuous at rated value	
Overload tolerance		Coil temperature rise of 55°C max. in the maximum operating range (1.3 times the rating for 3 hours)	30S at 500%
Minimum operating value		70% of rating	80% of rating
Contact current-carrying capacity		3A 110V DC	
Contact breaking capacity		R load: 0.4A (110V DC) 0.2A (220V DC) L load: 0.1A (110V DC) 0.03A (220V DC) L / R = 12ms	
Operating time (at rated voltage and current)		a1 : 60±15ms 75ms or less a2 : 40±10ms 50ms or less a3 : 90±10ms 100ms or less	a1 : 50±15ms 75ms or less a2 : 20±10ms 45ms or less a3 : 80±10ms 90ms or less
		Time taken before rise of contact after rise of IN input	
Pulse contact time		50 to 100ms	
Display panel color (Munsell color)		In normal use: N1.5 (Black) At failure: 2.5YR6/13 (Orange) When failure persists: N1.5 and 2.5YR6/13 stripes	In normal use: N1.5 (Black) At failure: 2.5YR6/13 (Orange) When failure persists: N1.5 and 2.5YR6/13 stripes
Insulation resistance		50MΩ or more (500V DC)	
Withstand voltage		Whole terminals and contact points: 2,000V AC / 1 min. Between electric circuit and contact: 2,000V AC / 1 min. Between contact circuits: 2,000V AC / 1 min. Between open contacts: 1,000V AC / 1 min.	
Lightning impulse		Between open contacts: 3,000V (1.2 / 50μs) Between live parts and live part to assembly mounting panel: 4,500V (1.2 / 50μs)	
Service life		10,000 times or more. each for electrical and mechanical life	
Vibration resistance		Frequency: 16.7 Hz Double amplitude: 4mm 10 min. in each of 3 axial directions	
Shock resistance		Shock resistance: 30G or more Each 2 axial directions: 2 times each	

CONTACT ARRANGEMENT DIAGRAM





TK TYPE

LIST OF FUNCTIONS

No.	Model for each contact configuration	Input rating		Output contact		
		Voltage element (TKL)	Current element (TKH) (TKH...W)	Contact which interlocked with flag 	Contact which interlocked with coil 	One-shot pulse contact
1	TK□100	○	○	a1×1	—	—
2	TK□200	○	○	a1×2	—	—
3	TK□110	○	○	a1×1	a2×1	—
4	TK□111	○	○	a1×1	a2×1	a3×1
5	TK□000	○	○	—	—	—
6	TK□101	○	○	a1×1	—	a3×1
7	TK□120	○	○	a1×1	a2×1	—
8	TK□121	○	○	a1×1	a2×2	a3×1
9	TK□010	○	○	—	a2×1	—
10	TK□011	○	○	—	a2×1	a3×1
11	TK□021	○	○	—	a2×2	a3×1
12	TK□020	○	○	—	a2×2	—
13	TK□001	○	○	—	—	a3×1
14	TK□030	○	○	—	a2×3	—
15	TK□210	○	○	a1×2	a2×1	—
16	TK□1AB0	○	○	a1×1	a2×1, b2×1	—
17	TK□12B0	○	○	a1×1	b2×2	—
18	TK□12B1	○	○	a1×1	b2×2	a3×1
19	TK□1AB1	○	○	a1×1	a2×1, b2×1	a3×1
20	TK□0AB0	○	○	—	a2×1, b2×1	—
21	TK□AB00	○	○	a1×1, b1×1	—	—
22	TK□A2B00	○	○	a1×1, b1×2	—	—
23	TK□02C0	○	○	—	c×2	—
24	TK□2C00	○	○	c×2	—	—

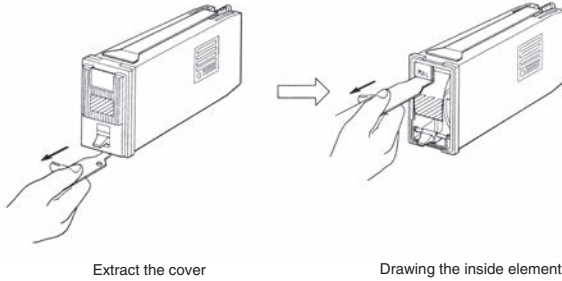
1. For the above □, specify L for voltage or H for current.

2. Please ask us when you need other contact type than the above.

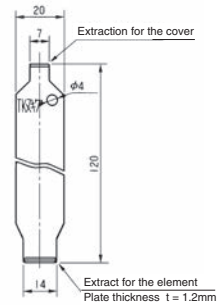
PILOT LAMP & INDICATOR

HOW TO REMOVE THE INTERNAL ELEMENT

ACCESSORY

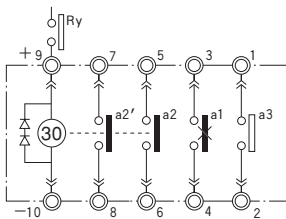


TK extraction tool



OPERATIONAL INTRODUCTION

- When the failure detection contact of the outside protective relay is closed, the operating coil is excited, and the display panel falls off. The display window changes from black (N1.5) indicating the normal status to orange (2.5YR6/13) indicating the failure status.
 - When the reset button is pressed, the display panel will be returned to blank. If the failure is instantaneous and no input is provided, the display window will return to the black display in the normal status. If the failure persists, however, the coil receives input and a pattern of stripes of orange and black is displayed indicating that the failure persists. Once the failure is rectified, the display will automatically return to the black display in the normal status.
 - Max. 4 contacts are available.
- Contacts interlocked with the display panel may be taken for a maximum of 2 circuits. Those interlocked with the coil may be taken for a maximum of 3 circuits. One-shot pulse contacts interlocked with the display panel may be taken for a maximum of 2 circuits. Each circuit is provided with contacts a and b.
- The one-shot pulse contacts output pulses (50 to 70 ms) at the initial operation only.



1: All the coils for voltage type are added a counter induced-voltage absorption device.

～ Remark ～

The coil is normally in excited status (black). Upon occurrence of a fault, the coil excitation is released, resulting in drop of the target (red). No continuing fault indicating function is provided.

● Standard specification

Coil voltage					
Display color	Black				
	Orange				
	Stripe pattern				
	Contact which interlocked with flag (a contact)	a1			
Contact	Contact which interlocked with coil (a contact)	a2 · a2'			
	One-shot pulse	a3			
Manual reset operation					

● Power monitor specification (Normally excited type)

Coil voltage					
Display color	Black				
	Orange / Red				
Contact	Contact which interlocked with flag (a contact)	a			
	Contact which interlocked with coil (b contact)	b			
Manual reset operation					