

POWER RELAY

1 POLE - 10A RELAY TYPE

FTR-H2 Series

RoHS Compliant

■ FEATURES

- High density mounting
Saves space by 26% compared to FTR-H1 type
- High insulation
Insulation distance: Minimum 6mm between coil and contact
Dielectric strength: 4,000V
Surge strength: 10,000V
- TV-5 rating
- Heat resistance, class B (130°C) wire class, flammability 94V-0
- Cadmium free contact for eco-program
- Safety standards:
UL, CSA, VDE approved
UL/CSA TV-5 rating approved
- Flux proof relay, RT II
- RoHS compliant



■ APPLICATIONS

Power switching, FA equipment control etc.

■ PART NUMBERS

[Example] FTR-H2 A K 012 T
 (a) (b) (c) (d) (e)

(a)	Relay type	FTR-H2 series
(b)	Contact configuration	A : 1a (1 Form A, SPST-NO)
(c)	Coil type	K : Standard type (530mW) L : High sensitive type (250mW)
(d)	Coil rated voltage	012 : 5....48VDC Please refer to coil rating table
(e)	Contact material / TV type	T : Silver tin dioxide / TV-5

Actual marking does not carry the type name : "FTR"

E.g.: Ordering code: FTR-H2AK012T Actual marking: H2AK012T

■ SPECIFICATIONS

Item			Specifications		Remarks/Conditions
			FTR-H2AK()T	FTR-H2AL()T	
Contact Data	Configuration		1a (1 Form A, SPST-NO)		
	Construction		Single		
	Material		Silver tin dioxide (AgSnO ₂)		
	Resistance		Max. 100mΩ		Initial at 1A, 6VDC
	Contact rating		10A, 250VAC/30VDC		Resistive
	Max. carrying current		10A		
	Max. inrush current		78A, 250VAC		
	Max. switching voltage		400VAC/300VDC		
	Max. switching power		2,500VA/300W		
	Min. switching load ^{*1}		100mA, 5VDC		
Coil	Rated power (20°C)		530mW	250mW	
	Operate power (20°C)		260mW	160mW	
	Operating temperature range		-40°C to +70°C		No frost
Time	Operate		Max. 15ms		Without bounce
	Release		Max. 5ms		Without bounce
Life	Mechanical		Min. 2 x 10 ⁶ operations		
	Electrical	AC contact rating	Min. 100 x 10 ³ operations		
		DC contact rating	Min. 100 x 10 ³ operations		
		Lamp load (TV-5)	Min. 25 x 10 ³ operations		
Insulation	Insulation resistance (initial)		Min. 1,000MΩ		At 500VDC
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1 minute		
		Coil to contacts	4,000VAC (50/60Hz) 1 minute		
	Surge strength	Coil to contacts	10,000V / 1.2 x 50μs standard wave		
	Clearance		6mm		
	Creepage		6mm		
	EN61810-1, VDE0435	Voltage	250V		
		Pollution	2		
		Material group	III		
		Category	B / 250V		
Others	Vibration resistance	Misoperation≥1μs	10 to 55 to 10Hz single amplitude 0.75mm		Coil ON/OFF, 3 axis, total 6 cycles
		Endurance	10 to 55 to 10Hz single amplitude 0.75mm		Coil OFF, 3 axis, total 6 hours
	Shock resistance	Misoperation≥1μs	Min. 200m/s ² (11±1ms)		Coil ON/OFF, 3 axis, total 36 operations
		Endurance	Min. 1,000m/s ² (6±1ms)		Coil OFF, 3 axis, total 18 operations
	Dimensions / Weight		11.0 x 24.0 x 25.0mm / Approx. 13.0g		
	Sealing		Flux proof RTII		

*1: Minimum switching loads mentioned above are reference values. Please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

■ COIL DATA

Standard type (530mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
005	5	47	3.5	0.25	530
006	6	68	4.2	0.3	
009	9	155	6.3	0.45	
012	12	270	8.4	0.6	
018	18	610	12.6	0.9	
024	24	1,110	16.8	1.2	
048	48	4,400	33.6	2.4	

High sensitive type (250mW)

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage ^{*1} (VDC)	Must Release Voltage ^{*1} (VDC)	Rated Power (mW)
005	5	100	4	0.25	250
006	6	145	4.8	0.3	
009	9	325	7.2	0.45	
012	12	575	9.6	0.6	
018	18	900	12	0.75	
024	24	2,310	19.2	1.2	

Note: All values in the table are valid at 20°C and zero contact current, unless otherwise specified.

*1: Specified operated values are valid for pulse wave voltage.

Note: Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

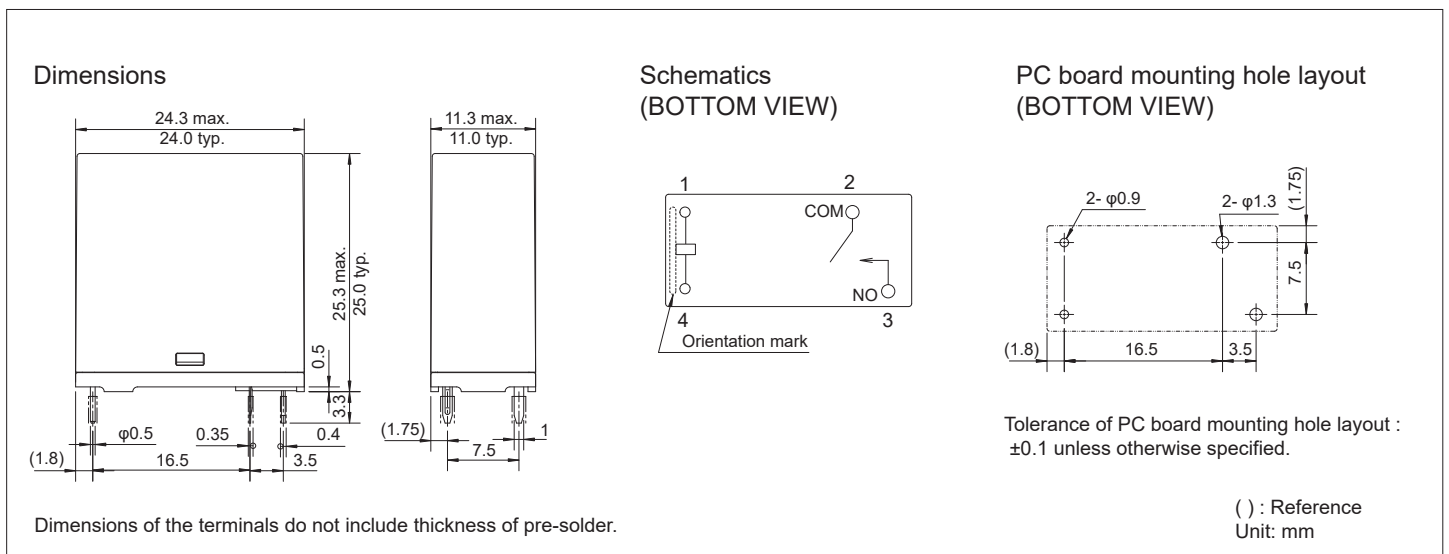
■ SAFETY STANDARDS

Type	Compliance	Contact Rating
UL	Flammability: UL 94-V-0 (plastics)	
	UL 508 (File No. E63614)	10A, 250VAC/30VDC (resistive) 15A, 125VAC (resistive) (UL)
CSA	C22.2 No. 14 (File No. LR 40304)	1/6 hp, 125VAC 1/2 hp, 250VAC TV-5, 120VAC/240VAC Pilot duty: C300
VDE	IEC/EN61810-1, EN60065 clause 14.6.1 (File No. 40014652)	10A, 250VAC ($\cos\phi=1$) 3A, 250VAC ($\cos\phi=0.4$) 10A, 30VDC (0ms) 5/80A, 250VAC
CQC	GB/T21711.1, GB15092.1 (File No. 03001005579)	10A, 250VAC

■ PART NUMBER LIST

Part Number	Contact Configuration	Contact Rating	Contact Material
FTR-H2AK()T	1a (1 Form A, SPST-NO)	Standard (530mW)	Silver tin dioxide, TV-5 rating
FTR-H2AL()T		High insulation (250mW)	

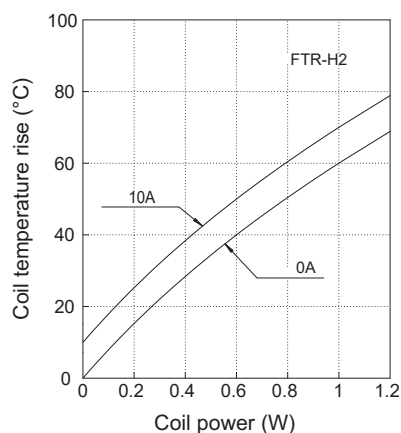
■ DIMENSIONS



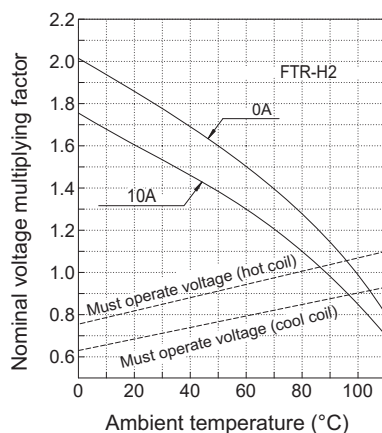
■ CHARACTERISTIC DATA

(Characteristic data is not guaranteed value but measured values of samples from production line.)

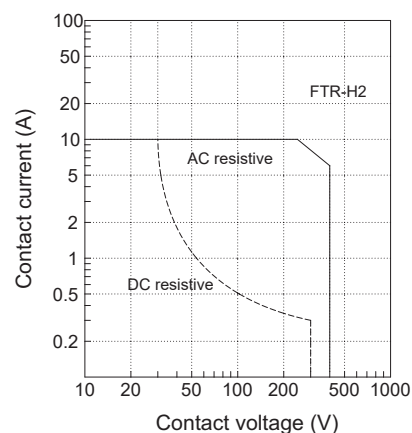
Coil temperature raise



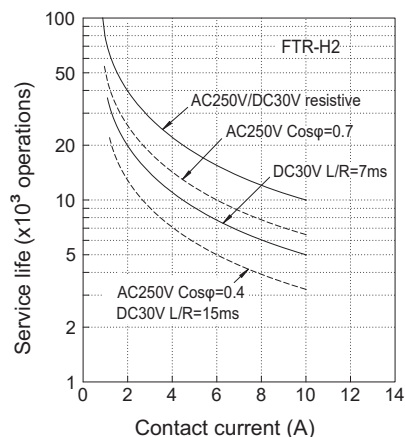
Operating range



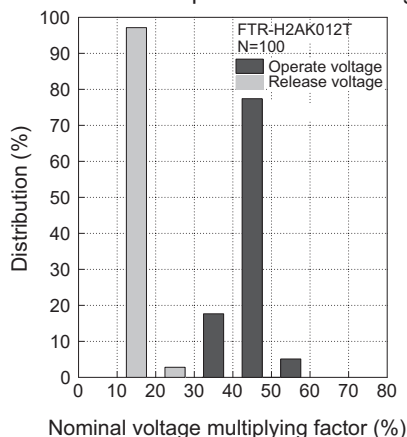
Maximum switching power



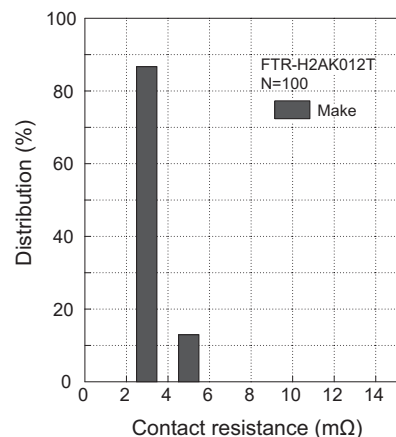
Life curve



Distribution of operate/release voltage



Distribution of contact resistance



CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

GENERAL INFORMATION

1. ROHS Compliance

- All relays produced by FCL Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

2. Recommended lead free solder condition

- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-Heating: Maximum 120°C within 90 sec.

Soldering: Dip within 5 sec. at 255°C±5°C solder bath

Relay must be cooled by air immediately after soldering

Solder by Soldering Iron:

Soldering Iron: 30-60W

Temperature: Maximum 340-360°C

Duration: Maximum 3 sec.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays, unless otherwise indicated.

4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

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