

POWER RELAY

1 POLE - 5A, SLIM TYPE (ATEX COMPLIANT)

FTR-F3 Series

RoHS Compliant

■ FEATURES

- Compliant to EN60079-15 EU ATEX Directive (type of protection “nC”) for use in hazardous location
- It is certified to UL explosion-proof standard UL121201 (Class 1, Division 2) (HAZLOC)
- 1 pole, 5A, 1a (1 Form A) contacts
- High density mounting
Slim type with 7mm width and 142mm² mounting space
- High insulation
Insulation distance:
Minimum 6mm between coil and contacts
Dielectric strength: 4,000V
Surge strength: 10,000V
- Through hole
- Safety standards: UL, CSA, VDE, CQC
- Plastic material: UL94V-0 flammability



■ APPLICATIONS

Control of factory automation equipment, home appliances etc. used in hazardous location

■ PART NUMBERS

[Example] FTR-F3 A A 012 E - B
 (a) (b) (c) (d) (e) (f)

(a)	Relay type	FTR-F3 series
(b)	Contact configuration	A : 1a (1 Form A, SPST-NO)
(c)	Coil type (power)	A : 200mW
(d)	Coil rated voltage	012 : 5....24VDC Please refer to coil rating table
(e)	Contact material	E : AgNi
(f)	Special type	B : ATEX compliant

Actual marking does not carry the type name : “FTR” and “-”

■ SPECIFICATIONS

Item			Specifications	Remarks/Conditions
Contact	Configuration		1a (1 Form A, SPST)	
Data	Construction		Single	
	Material		AgNi	
	Resistance		Max. 100mΩ	Initial at 1A, 6VDC
	Contact rating		5A, 250VAC/30VDC	Resistive
	Max. carrying current		6A	
	Max. switching voltage		277VAC/ 30VDC	
	Max. switching power		1,250VA/150W	
	Min. switching load ^{*1}		10mA, 5VDC	
Coil	Rated power (20°C)		200mW	
	Operate power		113mW	
	Operating temperature range		-40 °C to +70 °C	No frost
Time	Operate		Max. 10ms	Without bounce, no diode
	Release		Max. 10ms	Without bounce, no diode
Life	Mechanical		Min. 5 x 10 ⁶ operations	
	Electrical (resistive)		Min. 100 x 10 ³ operations	At rated load
Insulation	Insulation resistance		Min. 1,000MΩ	At 500VDC
	Dielectric strength	Open contacts	750VAC (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	Voltage	250V	
		Pollution	2	
		Material group	III	
Others	Vibration resistance	Misoperation	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	Min. 100m/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		7.0 x 20.3 x 15.0 mm / approx. 4g	
	Sealing		Plastic sealed RTIII	

*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

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance $\pm 10\%$ (Ω)	Must Operate Voltage (VDC)	Must Release Voltage (VDC)	Rated Power (mW)
005	5	125	3.75	0.5	200
012	12	720	9	1.2	
024	24	2,880	18	2.4	

Note 1: All values given in the coil table(s) are valid at 20°C ambient temperature, at zero contact current, without pre-energizing and are specified at pulse wave voltage.

Note 2: When applying a higher than rated coil voltage, please refer to the "coil temperature rise" and "operating range". Reference graphs for the effects on the relay operating behaviour.

■ SAFETY STANDARDS

●Certifications

Certified Body/Type	Certification No./Certified Part Number/Applicable Standard	Contact Rating
UL	Certification No. : E63614 Part number: FTR-F3AA()E ▲ Standard: UL60947-1, UL60947-4-1 Certification No.: E225300 Part number: FTR-F3AA()E ▲ ▲ Standard: UL121201 (Class I, Division 2)	5A, 277VAC/30VDC (resistive), 85°C 6A, 277VAC (resistive), 85°C, (CSA 40°C) 1/8hp 277VAC 85°C, (CSA 40°C) 1/10hp 125VA 85°C, (CSA 40°C) 1/10hp 250VA 85°C, (UL only) Pilot Duty: D300 85°C, (CSA 40°C)
CSA	Certification No. LR40304 Part number: FTR-F3AA()E Standard: C22.2 No.14	
VDE	Certification No. 40015024 Part number: FTR-F3AA()E Standard: IEC/EN61810-1	5A, 250VAC ($\cos\phi=1$) 85°C 5A, 30VDC (L/R=0ms) 85°C
CQC	Certification No. 17002164382 (China factory) 10002049449 (Malaysia factory) Part number: FTR-F3AA()E Standard: GB/T21711.1, GB4943.1; IEC61810-1	5A, 250VAC/30VDC 70°C

The part numbers on the safety standards' certifications and the ordering part numbers may differ. Coil code is in ().

●ATEX directive compliance

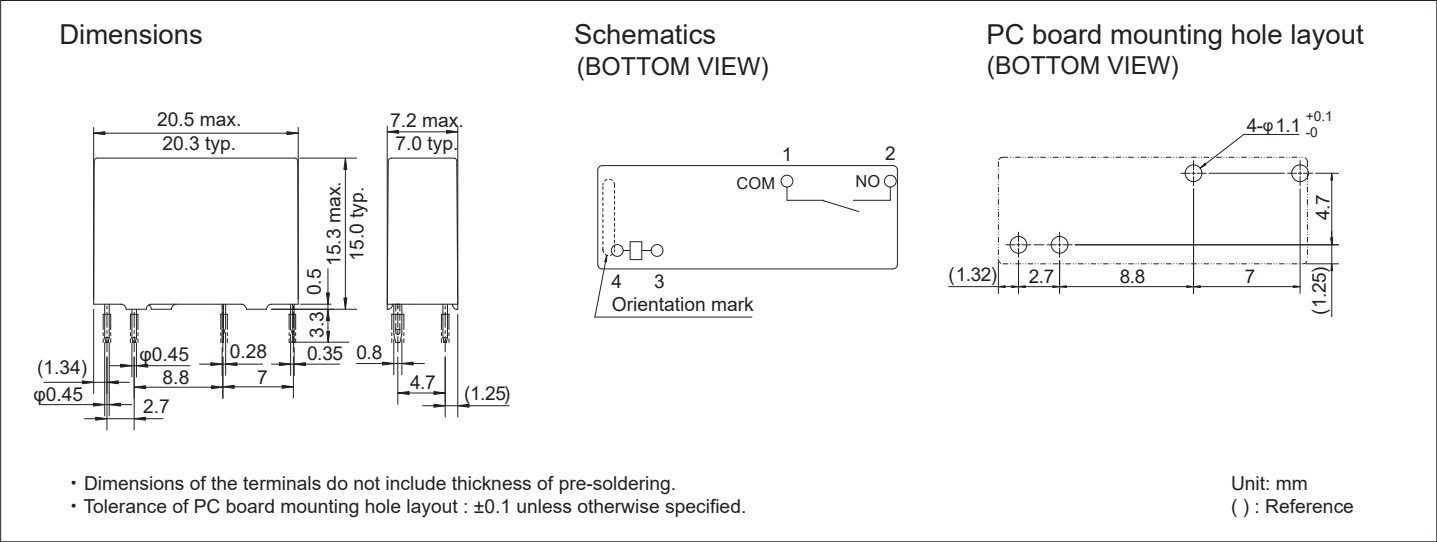
Certified Body/Type	Certification No./Certified Part Number/Applicable Standard	Contact Rating
UL	UL registration No.: UL 24 ATEX 3158U Part number: FTR-F3AA()E-B Standard: IEC/EN 60079-0, IEC/EN 60079-15 Equipment protection level: Ex II 3G Ex nC IIC Gc	6A, 277VAC (resistive) 85°C 5A, 30VDC (resistive) 85°C 1/10hp 125VAC 85°C Pilot Duty: D300 85°C

Coil code is in ().

■ PART NUMBER LIST

Part Number	Contact Configuration	Rated Power	Contact Material	Contact rating	Special type
FTR-F3AA()E-B	1a (1 Form A)	Approx. 200mW	AgNi	5A, 250VAC/30VDC	ATEX compliant

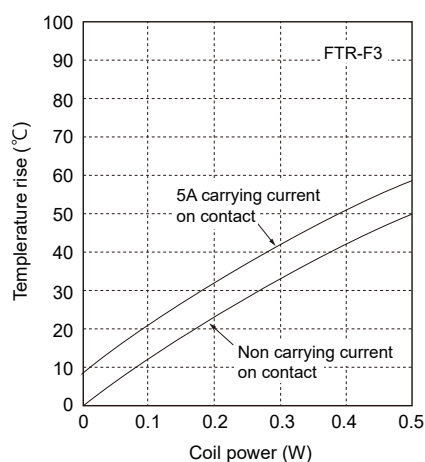
■ DIMENSIONS



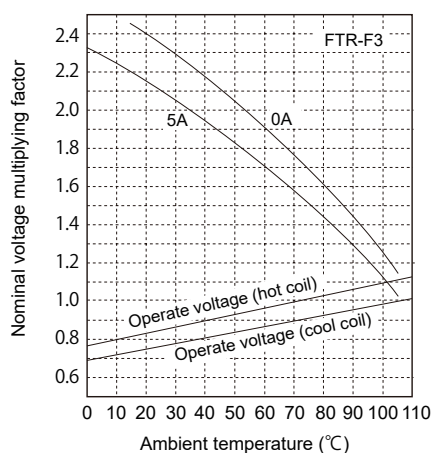
CHARACTERISTIC DATA

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

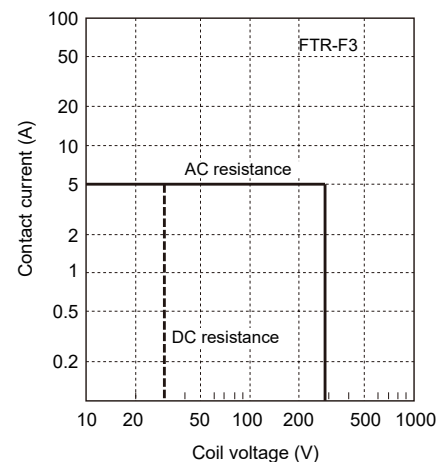
Coil temperature rise



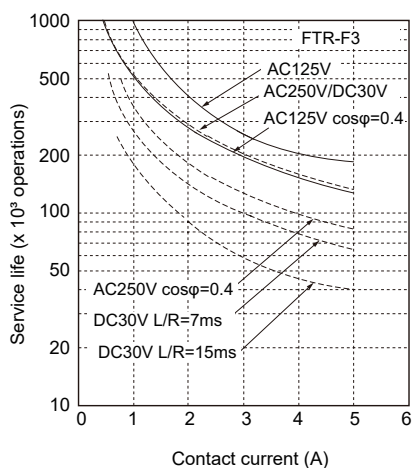
Operating range



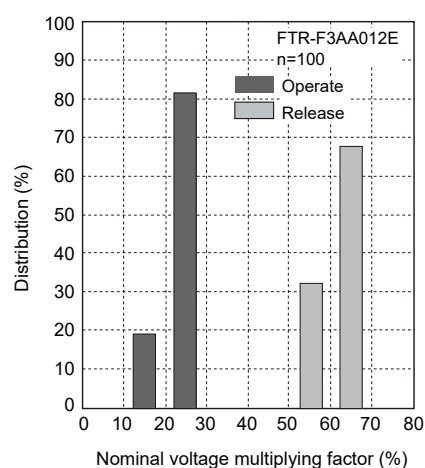
Maximum switching power



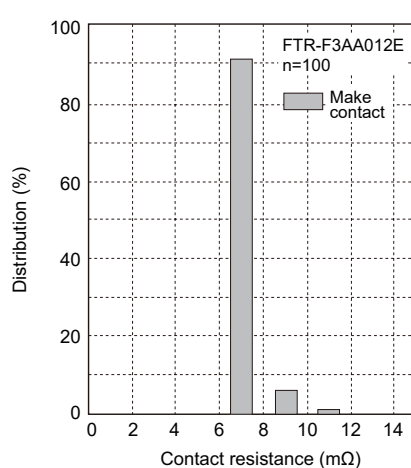
Life curve



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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