Autonics

Refrigeration Temperature Controllers

TC3YF Series
CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc are subject to change without notice for product improvement Some models may be discontinued without notice.

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website .

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❶ Control output for refrigeration
1: Compressor
2: Compressor + Defrost
3: Compressor + Defrost + Evaporation-fan

❷ Power supply
1: 12-24 VDC⎓
4: 100-240 VAC∼ 50/60 Hz

Product Components

- Product
- Bracket ✕2
- Instruction manual
- NTC sensor (5 kΩ) ✕ 1

Specifications

Series		TC3YF Series
Power supply	AC	100 - 240 VAC∼ 50/60 Hz
	DC	12-24 VDC⎓
Allowable voltage range		90 to 110% of rated voltage
Power consumption	AC	≤ 4 VA
	DC	≤ 8 W
Sampling period		500 ms
Input specification		Refer to 'Input Type and Using Range'.
Display accuracy		At room temperature (23±5 °C): (PV±0.5% or 1 °C higher one) rdg ±1 digit Out of room temperature range: (PV±0.5% or 1 °C higher one) rdg ±1 °C
Control output	Compressor (COMP)	250 VAC∼ 5 A 1a, 30 VDC⎓ 5 A 1a
	Defrost (DEF)	250 VAC∼ 10 A 1a
	Evaporation-fan (FAN)	250 VAC∼ 5 A 1a, 30 VDC⎓ 5 A 1a
Display type		7 segment (red), LED type
Control type		ON/OFF Control
Hysteresis		0.5 to 5.0 °C, 2 to 50 °F
Relay life cycle	Mechanical	≥ 20,000,000 operations
	Electrical	• COMP, DEF: ≥ 50,000 operations (load resistance: 250 VAC∼ 5 A) • FAN ≥ 100,000 operations (load resistance: 250 VAC∼ 10 A)
Dielectric strength		Between all external terminals and case: 2,000 VAC∼ 60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Malfunction vibration		0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity	AC	±2 kV square shaped noise (pulse width 1 µs) by noise simulator R-phase, S-phase
	DC	±500 V square shaped noise (pulse width 1 µs) by noise simulator R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure		IP65 (Front panel, IEC standards)
Approval	AC	c🅄us 🅲🅴 (Except RTD option models) 🅴🅰🅲
	DC	🅴🅰🅲
Unit weight (packaged)		≈ 143 g (≈ 229 g)

Features

- ON/OFF control

- Standard input type : thermistor (NTC)
  - RTD(Pt100Ω) input models available upon request.

- Temperature range
  - Thermistor (NTC) : -40.0 to 99.9 °C (-40 to 212 °F)
  - RTD (Pt100 Ω) : -99.9 to 99.9 °C (-148 to 212 °F)

- Various functions available for optimal cooling control
  - Auto/manual defrost selection, compressor start-up delay, restart delay, minimum ON time, end-defrost delay, evaporator fan operation delay

- Input correction function

- Operation cycle programming available to protect contents in case of error

Input Type and Using Range

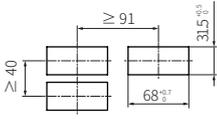| Input type		Using range (°C)	Using range (°F)
Thermistor	5 kΩ	-40.0 to 99.9	-40 to 212
RTD [01]	DPt100 Ω	-99.9 to 99.9	-148 to 212

01) RTD input type is option.
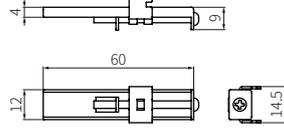• Allowable line resistance per wire: ≤ 5 Ω

Dimensions

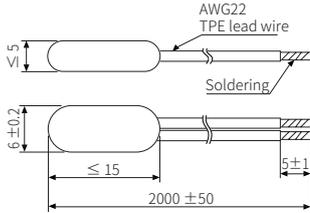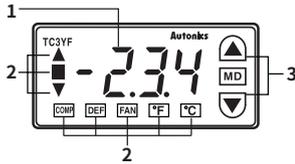• Unit: mm, For the detailed drawings, follow the Autonics website.
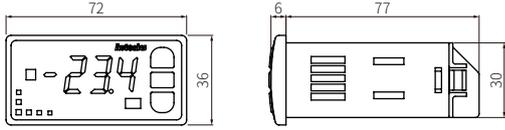
■ **Panel cut-out**   ■ **Bracket**

■ **NTC sensor (5kΩ)**

Unit Descriptions

1. Temperature display part (Red)   **3. Input key**
• Run mode: Displays PV (Present value)
• Setting mode: Displays parameter name

2. Indicator

Display	Name	Description
▲ ■ ▼	Deviation	Displays deviation of PV (Present value) based on SV (Setting value).
COMP	Compressor output	Turns ON when compressor output is ON. Flashes when output is OFF or protection operation.
DEF	Defrost output	Turns ON when defrost output is ON. Flashes when defrost delay operation.
FAN	Evaporation-fan output	Turns ON when evaporator-fan output is ON. Flashes when evaporator-fan output delay operation.
°C, °F	Temperature unit	Displays selected unit (parameter).