

TC Series



Contents

Description	Page
TC Series	
Product Selection	126
Technical Data and Specifications	127

TC Series

Product Description

Temperature controllers for a wide range of applications including heat treating, baking, packaging, furnace control, and chillers.

Features and Benefits

- Universal temperature inputs allow user to select from PT100 or J, K, T, E, B, R, S, N, L thermocouples without modification to the unit
- Advanced fuzzy modified PID technology minimizes overshoot/undershoot and allows quick and accurate responses
- Fast sampling rate of up to five times per second ensures accuracy in fast processes
- Standard IP65 front panel (TC48) provides protection in wash-down and other challenging environments

Standards and Certifications

- UL recognized
- CSA certified
- CE marked
- RoHS compliant



Product Selection

TC24411100



TC Series

Description	Normally Stocked Item	Catalog Number
Temperature control, 24 x 48 mm, two relay out, 90–250 Vac	Yes	TC24411100
Temperature control, 24 x 48 mm, SSR driver/relay out, 90–250 Vac		TC24412100
Temperature control, 48 x 48 mm, one relay out, relay alarm, 90–250 Vac	Yes	TC484110101
Temperature control, 48 x 48 mm, SSR driver out, 90–250 Vac	Yes	TC484120001
Temperature control, 48 x 48 mm, SSR driver out, relay alarm, 90–250 Vac	Yes	TC484120101
Temperature control, 48 x 48 mm, analog out, relay alarm, 90–250 Vac	Yes	TC484130101
Temperature control, 96 x 48 mm, one relay out, relay alarm, 90–250 Vac	Yes	TC964110100
Temperature control, 24 x 48 mm, two relay out, 11–26 Vac/Vdc	—	TC24511100
Temperature control, 48 x 48 mm, one relay out, relay alarm, 11–26 Vac/Vdc	—	TC485110101
Process control, 24 x 48 mm, analog/relay out, 90–250 Vac	—	PC24463100
Temperature control, 48 x 48 mm, analog out, relay alarm, 90–250 Vac	—	TC24413100

TC484120001



TC964110100



Technical Data and Specifications

General Specifications

Description	Specification
Power	
Power	90–250 Vac, 47–63 Hz, 10 VA (TC24), 12 VA (TC48/TC96), 5W maximum (TCxx4) 11–26 Vac/Vdc, 10 VA (TC24), 12 VA (TC48/TC96), 5W maximum (TCxx5)
Input	
Resolution	18 bits
Sampling rate	5 times/second
Temperature effect	±1.5µV/°C for all inputs except mV input ±3.0µV/°C for mV input
Sensor lead resistance effect T/C	0.2µV/ohm
Three-wire RTD	2.6°C/ohm of resistance difference of 2 leads
Two-wire RTD	2.6°C/ohm of resistance sum of 2 leads
Burn-out current	200nA
Common mode rejection ratio (CMRR)	120dB
Normal mode rejection ratio (NMRR)	55dB
Sensor break detection	Sensor open for TC, RTD and mV inputs, sensor short for RTD input, below 1 mA for 4–20 mA, below 0.25V for 1–5V input
Sensor break response time	Within 4 seconds for TC, RTD, and mV inputs; 0.1 second for 4–20 mA and 1–5V inputs
Output	
Relay rating	2A/240 Vac; 200,000 life cycles for resistive load
Pulsed voltage	Source voltage 5V, current limiting resistance of 66 ohms
Linear output Resolution	15 bits
Output regulation	0.02% for full load change
Output setting time	0.1 sec. (stable to 99.9%)
Isolation breakdown voltage	1000 Vac
Temperature effect	±0.01% of SPAN/°C
Alarm	
Alarm relay	Form C rating; 2A/240 Vac; 200,000 life cycles for resistive load
Alarm functions	Dwell timer, deviation high/low alarm, deviation band high/low alarm, PV high/low alarm
Alarm mode	Normal, latching, hold, latching/hold
Dwell timer	0.1 to 4553.6 minutes
Environmental and Physical	
Operating temperature	14 to 122°F (–10 to 50°C)
Storage temperature	–40 to 140°F (–40 to 60°C)
Humidity	0–90% RH (non-condensing)
Altitude	2000m max.
Pollution	Degree 2
Insulation resistance	20 mohm min. (at 500 Vdc)
Dielectric strength	2000 Vac, 50/60 Hz for 1 minute
Vibration resistance	10–55 Hz, 10 m/s ² for 1 minute
Moldings	Flame resistant polycarbonate
Dimensions	TC96 = 1.88 in (48 mm) (W) x 3.77 in (96 mm) (H) x 3.15 in (80 mm) (D) TC48 = 1.88 in (48 mm) (W) x 1.88 in (48 mm) (H) x 4.56 in (116 mm) (D) TC24 = 1.96 in (50 mm) (W) x 1.04 in (26.5 mm) (H) x 4.35 (110.5 mm) (D)

Input Characteristics

Type	Range	Accuracy at 25°C	Input Impedance
J	-120°C to 1000°C (-184°F to 1832°F)	±2°C	2.2 mohms
K	-200°C to 1370°C (-328°F to 2498°F)	±2°C	2.2 mohms
T	-250°C to 400°C (-418°F to 752°F)	±2°C	2.2 mohms
E	-100°C to 900°C (-148°F to 1652°F)	±2°C	2.2 mohms
B	0°C to 1800°C (32°F to 3272°F)	±2°C (-200°C to 1800°C)	2.2 mohms
R	0°C to 1767.8°C (32°F to 3214°F)	±2°C	2.2 mohms
S	0°C to 1767.8°C (32°F to 3214°F)	±2°C	2.2 mohms
N	-250°C to 1300°C (-418°F to 2372°F)	±2°C	2.2 mohms
L	-200°C to 900°C (-328°F to 1652°F)	±2°C	2.2 mohms
PT100 (DIN)	-210°C to 700°C (-346°F to 1292°F)	±0.4°C	1.3 kohms
PT100 (JIS)	-200°C to 600°C (-328°F to 1112°F)	±0.4°C	1.3 kohms
mV	-8 mV to 70 mV	±0.05%	2.2 mohms
mA	-3 mA to 27 mA	±0.05%	70.5 ohms
V	-1.3V to 11.5V	±0.05%	650 kohms