Autonics

Dual Display PID Temperature Controllers

TCN 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.

Features

- Dual digital display (PV/SV)
- 100ms high-speed sampling rate and ±0.5% display accuracy
- Switch between relay output and SSR drive output (patent) *
- SSR drive output (SSRP function) control options : ON/OFF control, cycle control, phase control
- Compact design with large display panels for easier reading
- Connector plug types offer easier wiring and maintenance (TCN4S-□-P)

*Korea Patent Registration 10-1002582, U.S.A. Patent Registration 8645000, Japan Patent Registration 3184816, China Patent Registration ZL200980111733.X, Vietnam Patent Registration 1-0012131, India Patent Registration 291573, Indonesia Patent Registration IDP0032166

Ordering Information

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

| T | C | N | 4 | ❶ | - | 2 | ❷ | R | - | ❸ |

❶ Size
S: DIN W 48 × H 48 mm
M: DIN W 72 × H 72 mm
H: DIN W 48 × H 96 mm
L: DIN W 96 × H 96 mm

❷ Power supply
2: 24 VAC∼ 50/60 Hz, 24-48 VDC⎓
4: 100-240 VAC∼ 50/60 Hz

❸ Wiring type
No mark: Bolt
P: Connector plug connection

Product Components

- Product
- Bracket
- Instruction manual

Specifications

Series		TCN4□-22□-□	TCN4□-24□-□
Power supply		24 VAC∼ 50/60 Hz ±10% 24 - 48 VDC⎓ ±10%	100 - 240 VAC∼ 50/60 Hz ±10%
Power consumption		AC: ≤ 5 VA, DC: ≤ 3 W	≤ 5 VA
Sampling period		100 ms	
Input specification		Refer to 'Input Type and Using Range.	
Control output	Relay	250 VAC∼ 3A, 30 VDC⎓ 3A, 1a	
	SSR	12 VDC⎓ ±2 V, ≤ 20 mA	
Alarm output		250 VAC∼ 1 A 1a	
Display type		7 Segment (red, green), LED type	
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control	
Hysteresis		1 to 100 (0.1 to 50.0) °C/°F	
Proportional band (P)		0.1 to 999.9 °C/°F	
Integral time (I)		0 to 9,999 sec	
Derivative time (D)		0 to 9,999 sec	
Control cycle (T)		0.5 to 120.0 sec	
Manual reset		0.0 to 100.0%	
Relay life cycle	Mechanical	≥ 5,000,000 operations	
	Electrical	OUT1/2: ≥ 200,000 operations (load resistance: 250 VAC∼ 3 A) AL1/2: ≥ 300,000 operations (load resistance: 250 VAC∼ 1 A)	
Dielectric strength		Between input terminal and power terminal: 1,000 VAC∼ 50/60 Hz for 1 min	Between input terminal and power terminal: 2,000 VAC∼ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)	
Noise immunity		±2 kV 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)	
Insulation type		Mark: ▣, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 1 kV)	Mark: ▣, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 2 kV)
Approval		CE 𝒸ᴿᵁᵁₛ EHC ⬙	
Unit weight (packaged)		• TCN4S: ≈ 100 g (≈ 147 g) • TCN4H: ≈ 124 g (≈ 194 g)	• TCN4M: ≈ 133 g (≈ 203 g) • TCN4L: ≈ 179 g (≈ 275 g)

CE 𝒸ᴿᵁᵁₛ EHC ⬙

Input Type and Using Range

The setting range of some parameters is limited when using the decimal point display.

Input type		Decimal point	Display	Using range (°C)	Using range (°F)
Thermo-couple	K (CA)	1	ԿՇRH	-50 to 1,200	-58 to 2,192
		0.1	ԿՇRL	-50.0 to 999.9	-58.0 to 999.9
	J (IC)	1	JI C.H	-30 to 800	-22 to 1,472
		0.1	JI C.L	-30.0 to 800.0	-22.0 to 999.9
	L (IC)	1	LI C.H	-40 to 800	-40 to 1,472
		0.1	LI C.L	-40.0 to 800.0	-40.0 to 999.9
	T (CC)	1	ԷCC.H	-50 to 400	-58 to 752
		0.1	ԷCC.L	-50.0 to 400.0	-58.0 to 752.0
	R (PR)	1	rPr	0 to 1,700	32 to 3,092
	S (PR)	1	SPr	0 to 1,700	32 to 3,092
RTD	Cu50 Ω	1	CU5.H	-50 to 200	-58 to 392
		0.1	CU5.L	-50.0 to 200.0	-58.0 to 392.0
	DPt100 Ω	1	dPt.H	-100 to 400	-148 to 752
		0.1	dPt.L	-100.0 to 400.0	-148.0 to 752.0

■ Display accuracy

Input type	Using temperature	Display accuracy
Thermocouple RTD	At room temperature (23°C ±5 °C)	(PV ±0.5% or ±1 °C higher one) ±1-digit • Thermocouple R, S below 200 °C: (PV ±0.5% or ±3 °C higher one) ±1-digit Over 200 °C: (PV ±0.5% or ±2 °C higher one) ±1digit • Thermocouple L, RTD Cu50 Ω: (PV ±0.5% or ±2 °C higher one) ±1-digit
	Out of room temperature range	(PV ±0.5% or ±2 °C higher one) ±1-digit • Thermocouple R, S below 200 °C: (PV ±1.0% or ±6 °C higher one) ±1digit Over 200 °C: (PV ±0.5% or ±5 °C higher one) ±1digit • Thermocouple L, RTD Cu50 Ω: (PV ±0.5% or ±3 °C higher one) ±1digit

• For TCN4S-□-P, add ±1°C by accuracy standard.
• If the input specification is set to 'decimal point 0.1' display, add ±1°C by accuracy standard.
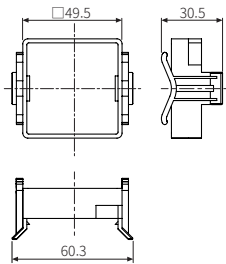
Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.
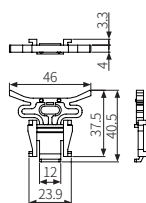• Below is based on TCN4S Series.
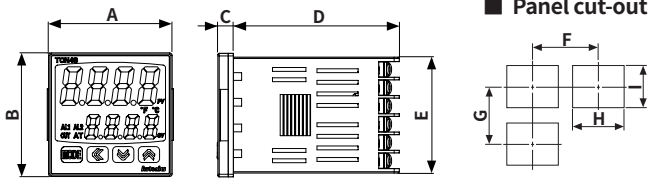
■ Panel cut-out

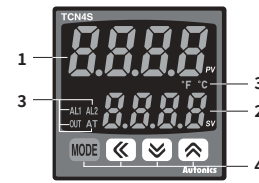|	Body					Panel cut-out			
	A	B	C	D	E	F	G	H	I
TCN4S	48	48	6	64.5	44.8	≥ 65	≥ 65	$45^{+0.5}_{0}$	$45^{+0.5}_{0}$
TCN4S-□-P	48	48	7.7	65.8	44.8	≥ 65	≥ 65	$45^{+0.5}_{0}$	$45^{+0.5}_{0}$
TCN4M	72	72	6	64.5	67.5	≥ 90	≥ 90	$68^{+0.7}_{0}$	$68^{+0.7}_{0}$
TCN4H	48	96	6	64.5	91.5	≥ 65	≥ 115	$45^{+0.6}_{0}$	$92^{+0.8}_{0}$
TCN4L	96	96	6	64.5	91.5	≥ 115	≥ 115	$92^{+0.8}_{0}$	$92^{+0.8}_{0}$

■ Bracket

TCN4S

Other series

Unit Descriptions

1. PV Display part (red)
• RUN mode: Displays PV (Present value)
• Setting mode: Displays parameter name

2. SV Display part (green)
• RUN mode: Displays SV (Setting value)
• Setting mode: Displays parameter setting value

3. Indicator

Display	Name	Description
AL1/2	Alarm output	Turns ON when the alarm output is ON.
OUT	Control output	Turns ON when control output is ON • CYCLE/PHASE control of SSR drive output: Turns ON when MV is over 3.0% [AC power model]
AT	Auto tuning	Flashes during auto tuning every 1 sec
°C, %, °F	Unit	Displays selected unit (parameter).

4. Input key

Display	Name
[MODE]	Mode key
[◄], [▼], [▲]	Setting value control key

Sold Separately

• Terminal protection cover: RSA / RMA / RHA / RLA Cover