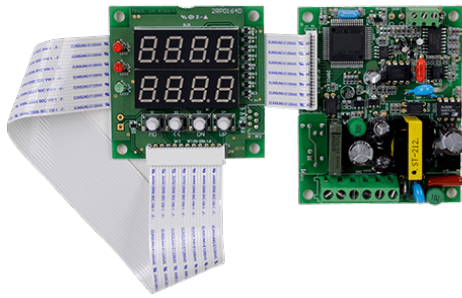


Board Type PID Temperature Controllers



TB42 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

- High performance temperature control at low cost
- Flexible installation in various applications
- Dual-speed PID control
- Timer operation function

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 B 4 2 - 1 4 ①

① Control output

R: Relay
S: SSR drive
C: Current
N: PV Transmission

Product Components

- Product
- Instruction manual
- 20P cable (300 mm)

Specifications

Series		TB42 Series
Power supply		100 - 240 VAC ~ 50/60 Hz
Allowable voltage range		90 to 110% of rated voltage
Power consumption		≤ 5 VA
Sampling period		500 ms
Input specification		Refer to 'Input Type and Using Range'.
Control output	Relay	250 VAC ~ 3A, 30 VDC = 3 A, 1A
	SSR	12 VDC = ± 3 V, ≤ 30 mA
	Current	DC 4-20 mA, Load resistance: ≤ 600 Ω
	PV Transmission	DC 4-20 mA, Load resistance: ≤ 600 Ω, Resolution: 16,000
Option output	Event 1	Relay: 250 VAC ~ 0.5 A 1A (hysteresis: fixed 2 °C) • The PV transmission output model does not support Event 1 output.
	Event 2	OK monitoring display of LED type (hysteresis: fixed 2 °C)
Display type		7 Segment (Green, Red), LED type
Control type		ON/OFF Control, P, PI, PD, PIDF, PIDSD Control
Hysteresis		1 to 100 (0.1 to 100.0) °C/°F
Proportional band (P)		0.0 to 100%
Integral time (I)		0 to 3,600 sec
Derivative time (D)		0 to 3,600 sec
Control cycle (T)		1 to 120.0 sec
Manual reset		0.0 to 100.0%
Relay life cycle	Mechanical	• Main output: ≥ 10,000,000 operations (Load resistance: 250 VAC ~ 3 A) • Option output: ≥ 2,000,000 operations (Load resistance: 250 VAC ~ 0.5 A)
	Electrical	• Main output: ≥ 100,000 operations (Load resistance: 250 VAC ~ 3 A) • Option output: ≥ 200,000 operations (Load resistance: 250 VAC ~ 0.5 A)
Dielectric strength		Between input terminal and power terminal: 2,000 VAC ~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 10 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 by (pulse width 1 μs) noise simulator
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)
Approval		UL EAC
Body weight		≈ 113.5 g

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 ⁰¹⁾	K (CA)	1	ℰℰ℞	-100 to 1,300	-148 to 2,372
	J (IC)	1	ℰℰℰ	0 to 800	32 to 1,472
RTD ⁰²⁾	DPt100 Ω	1	Pℰ.H	0 to 500	32 to 932
		0.1	Pℰ.L	-199.9 to 199.9	-199.9 to 392.0
	JPT100 Ω	1	ℰPℰ.H	0 to 500	32 to 932
		0.1	ℰPℰ.L	-199.9 to 199.9	-199.9 to 392.0

01) Tolerance outer resistance: ≤ 100 Ω

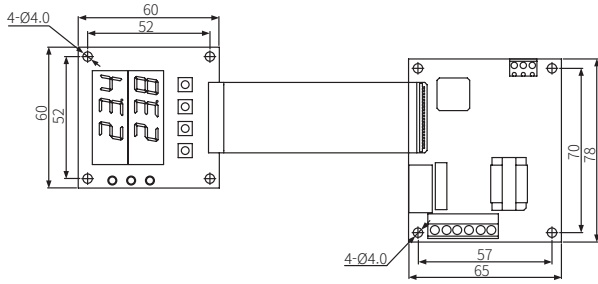
02) Allowable line resistance per a wire: ≤ 5 Ω

■ Display accuracy

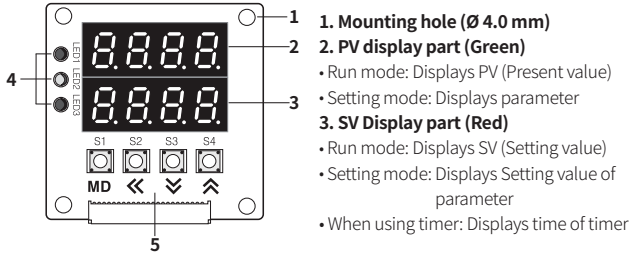
Input type	Using temperature	Display accuracy
Thermocouple	At room temperature (23°C ± 5 °C)	F.S. ± 0.3% or 3°C higher one
RTD	Out of room temperature range	F.S. ± 0.3% or 3°C higher one

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- The size of board is based on user's application. (customizable)



Unit Descriptions



1. Mounting hole (Ø 4.0 mm)
2. PV display part (Green)
 - Run mode: Displays PV (Present value)
 - Setting mode: Displays parameter
3. SV Display part (Red)
 - Run mode: Displays SV (Setting value)
 - Setting mode: Displays Setting value of parameter
 - When using timer: Displays time of timer

4. Indicator

Display	Name	Description	PCB
LED1	Main output	Turns ON when control output is ON • It is not operated when current/PV transmission output is ON	LED 1
LED2	Event 1 output	Turns ON when event 1 alarm output is ON	LED 2
LED3	OK monitor operation	Turns OFF when event 2 alarm output is ON • Flashes during auto tuning	LED 3

5. Input key

Display	Name	PCB
[MD]	Mode key	S1
[←]	Setting value control key	S2
[↓]		S3
[↑]		S4

Sold Separately

- 20P cable (100 mm)