

Make Life Easy



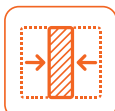
Easy-Mount PID Temperature Controllers

CE EAC

Precise and Efficient Temperature Control with
50 ms High-Speed Sampling and Simultaneous Heating/Cooling Control

Independent Single Display PID Temperature Controllers TR1D Series

The TR1D series independent single display PID temperature controllers feature high-speed sampling cycle rate of 50ms with $\pm 0.3\%$ display-accuracy. The controllers offer high precision temperature control with simultaneous heating and cooling control. The space-saving design with 22.5mm width and DIN rail bracket allows easy installation in limited spaces. The front display can be easily used to set the control status and parameters.



Slim-Size



DIN Rail Mount



High Speed
Sampling



Measurement
Accuracy



Simultaneous
Heating and
Cooling Control



Output Selection



RS485 Communi-
cation (Modbus
RTU/ASCII)



Set Parameters
With PC

www.autonics.com

Autonics

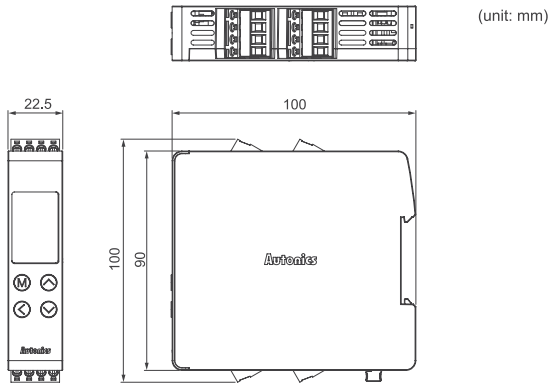
Model

Model	Control output 1	Control output 2	Option output	Extra function
TR1D-14RN ^{※1}	Relay	—	—	—
TR1D-14RR	Relay	Relay↔Alarm	—	CT input, Dual alarm output ^{※2}
TR1D-R4RR	Relay	Relay↔Alarm	Transmission	CT input, Dual alarm output ^{※2}
TR1D-T4RR	Relay	Relay↔Alarm	Communication	CT input, Dual alarm output ^{※2}
TR1D-14CN ^{※1}	Current/SSR	—	—	—
TR1D-14CC	Current/SSR	Current/SSR ↔Transmission	—	CT input
TR1D-R4CC	Current/SSR	Current/SSR ↔Transmission	Transmission	CT input, Dual transmission output
TR1D-T4CC	Current/SSR	Current/SSR ↔Transmission	Communication	CT input

※1. The model does not support terminal for the control output 2 is not available to use heating&cooling control and alarm outputs at the same time.

※2. It is not possible to use dual alarm output and heating&cooling control at the same time.

Dimensions



(unit: mm)

Specifications

Series	TR1D	
Power supply	100-240VAC ~ 50/60Hz	
Allowable voltage range	90 to 110% of rated voltage	
Power consumption	Max. 8VA	
Display method	7-segment (red), 4-digit	
Input type	RTD	DP1100Ω, Cu50, Nickel120Ω (permissible line resistance max. 5Ω)
	Thermocouple	K(CA), J(IC), L(IC), T(CC), R(PR), S(PR)
CT input	RTD	0.0-50.0A (primary heater current reading range), CT ratio: 1/1000
	Thermocouple	· At room temperature (23°C ±5°C): (PV ±0.3% or ±1°C, select the higher one) ±1-digit ^{※2} · Out of room temperature ranges: (PV ±0.5% or ±2°C, select the higher one) ±1-digit ^{※2}
Display accuracy ^{※1}	Relay	±5% F.S. ±1-digit
	SSR	250VAC ~ 3A 1a
	Current	Max. 12VDC = ±3V 20mA
Control output	Relay	DC4-20mA or DC0-20mA selectable (resistance load: Max. 500Ω)
	SSR	AL1, AL2: 250VAC ~ 3A 1a
	Communication	DC4-20mA (load resistance: Max. 500Ω, output accuracy: ±0.3% F.S.)
Option output	Communication	RS485 communication output (Modbus RTU/ASCII method)
Control method	ON/OFF, P, PI, PD, PID control	
Hysteresis	Control output: 1 to 100°C/°F (0.1 to 100.0°C/°F) Alarm output: 1 to 100°C/°F (0.1 to 50.0°C/°F)	
Proportional band (P)	0.1 to 999.9°C	
Integral time (I)	0 to 9999 sec	
Derivative time (D)	0 to 9999 sec	
Control period (T)	Relay output: 0.5 to 120.0 sec, SSR output: 0.5 to 120.0 sec	
Manual reset	0.0 to 100.0%	
Sampling period	50, 100, 250ms	
Dielectric strength	3,000VAC ~ 50/60Hz for 1 min (between the power part and the case)	
Vibration	0.75mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Relay	Mechanical	OUT1/2, AL1/2: min. 5,000,000 operations
Life cycle	Electrical	OUT1/2, AL1/2: min. 100,000 (resistance load: 250VAC ~ 5A)
Insulation resistance	Min. 100MΩ (at 500VDC = megger)	
Insulation type	Double insulation or reinforced insulation (dielectric strength between measuring the power part and the case : 3kV)	
Noise immunity	Square shaped noise by noise simulator (pulse width 1μs) ±2kV R-phase, S-phase	
Memory retention	Approx. 10 years (non-volatile semiconductor memory type)	
Environ	Ambient temp.	-10 to 50°C, storage: -20 to 60°C
-ment	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH
Approval	CE	
Weight ^{※3}	Approx. 194.5g (approx. 123.5g)	

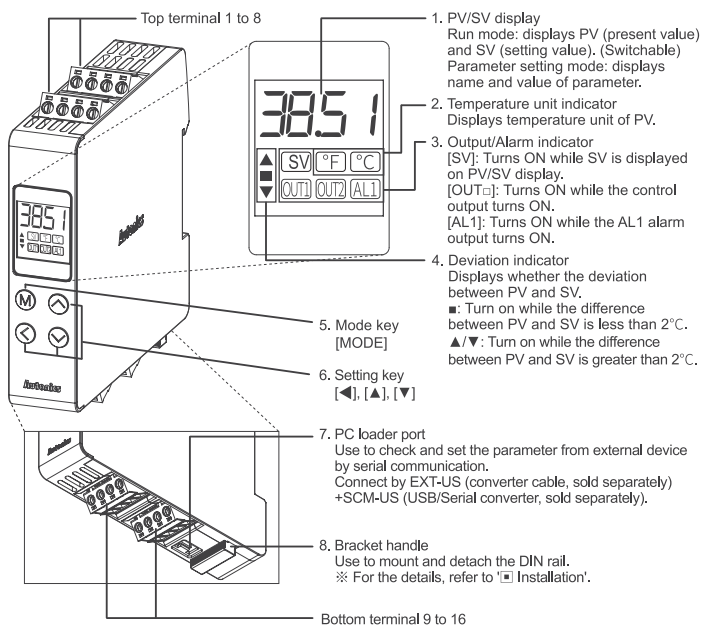
※1. When multiple products (or more) are mounted without separation, ±1°C is added to all accuracy.

※2. · At room temperature range (23°C ±5°C)
Thermocouple R(PR), S(PR), below 200°C: (PV ±0.5% or ±3°C, select the higher one) ±1-digit
over 200°C: (PV ±0.5% or ±2°C, select the higher one) ±1-digit
Thermocouple L(IC), RTD Cu50Ω: (PV ±0.5% or ±2°C, select the higher one) ±1-digit
· Out of room temperature range
Thermocouple R(PR), S(PR): (±1.0% or ±5°C, select the higher one) ±1-digit
Thermocouple L(IC), RTD Cu50Ω: (PV ±0.5% or ±3°C, select the higher one) ±1-digit

※3. The weight includes packaging. The weight in parenthesis is for unit only.

※ The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

Unit Description

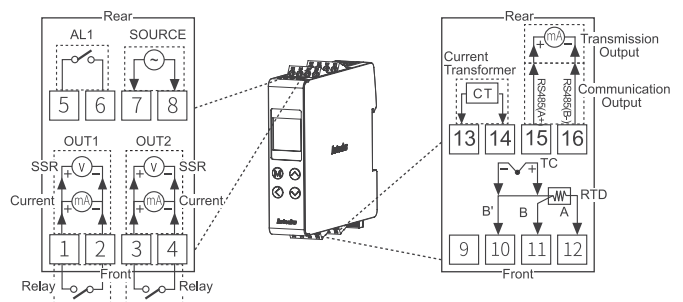


Bottom terminal 9 to 16

※ The above specifications are subject to change and some models may be discontinued without notice.

※ Be sure to follow cautions written in the instruction manual, user manual and the technical descriptions (catalog, website).

Connections



Terminal support

Terminal No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Function	Control output1	Control output2	Alarm output1	Alarm output2	Power supply	—	Sensor input	CT input	Option output	—	—	—	—	—	—	—
TR1D-14RN	Relay	—	Relay	—	O	—	TC	—	—	—	—	—	—	—	—	—
TR1D-14RR	Relay	Relay	Relay	—	O	—	TC	—	O	—	—	—	—	—	—	—
TR1D-R4RR	Relay	Relay	Relay	—	O	—	TC	—	O	—	—	—	—	—	Transmi-ssion	—
TR1D-T4RR	Relay	Relay	Relay	—	O	—	TC	—	O	—	—	—	—	—	Communi-cation	—
TR1D-14CN	Current/SSR	—	—	Relay	O	—	TC	—	—	—	—	—	—	—	—	—
TR1D-14CC	Current/SSR	Current/SSR	—	Relay	O	—	TC	—	O	—	—	—	—	—	—	—
TR1D-R4CC	Current/SSR	Current/SSR	—	Relay	O	—	TC	—	O	—	—	—	—	—	Transmi-ssion	—
TR1D-T4CC	Current/SSR	Current/SSR	—	Relay	O	—	TC	—	O	—	—	—	—	—	Communi-cation	—