Dual setting type, High accuracy temperature controller

▣Features

- ●Dual setting type
- ●High accuracy measuring function : ±0.5%
- ●Control heater and cooler at once
- ●Use dual setting type of temperature when executing low temperature or precision control. In dual setting control type, the single output is operated as reverse, it is used for heater control. The dual output is used to control the operation of cooler normally.
  The dual output is also used for an alarm.

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

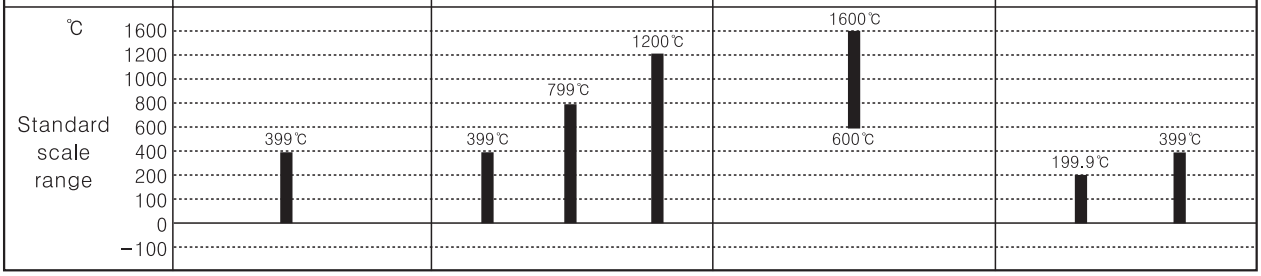
T 4 L P – B 3 R P 4 C

Unit	C	℃
Temperature range	2	0~199.9
	4	0~399
	8	0~799
	C	0~1200
	F	600~1600
Sensor input type	P	Pt100Ω
	J	J(IC)
	K	K(CA)
	R	R(PR)
Output mode	R	Relay output
	S	SSR output
	C	Current output(4-20mADC)
Power supply	3	110/220VAC 50/60Hz
Control mode	B	ON/OFF, Proportional control
Sub output mode	P	Dual output
Size	L	DIN W96×H96mm
Digit	4	4 Digit
Item	T	Temperature

※Please check the range of temperature when selecting model. (Refer to C-34)

▣Temperature range for each sensor

Model	T4LP			
Sensor input type	Thermocouples			RTD
	J(IC)	K(CA)	R(PR)	Pt100Ω



※In case, the sensor is R(PR) type, it is not available to indicate the temperature and control correctly.

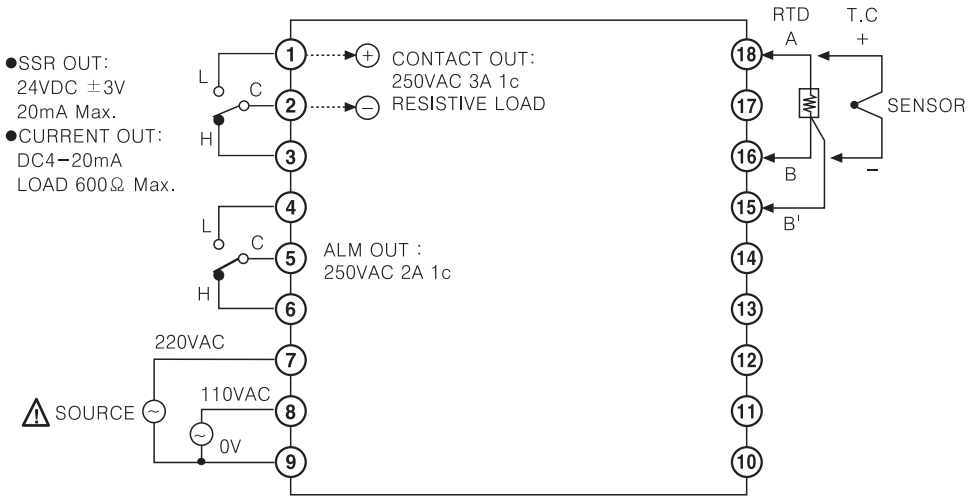
▣Specifications

Model		T4LP
Power supply		110/220VAC 50/60Hz
Allowable voltage range		90 ~ 110% of rated voltage
Power consumption		3VA
Display method		7 Segment LED Display
Character size		W9.5×H14.2mm
Display accuracy		F · S ± 0.5% rdg ±1digit
Setting type		Digital switch setting
Setting accuracy		F · S ± 0.5%
Sensor input		Thermocouples : K(CA), J(IC), R(PR) / RTD : Pt100Ω
Input line resistance		Thermocouples : Max. 100Ω, RTD : Max. 5Ω per a wire
Control	ON/OFF	Hysteresis F · S 0.2 ~ 3%
	Proportional	Proportional band : F · S 1 ~ 10%, Period : 20sec. fixed□
Reset VR range		F · S ±3%(Only for control deviation)
Control output		• Relay output : 1st out : 250VAC 3A 1c, 2nd out : 250VAC 2A 1c • SSR output : 24VDC ±3V 20mA max. • Current output : 4−20mADC Load 600Ω max.
Self−diagnosis		Includes burn out function
Insulation resistance		Min. 100MΩ(at 500VDC)
Dielectric strength		2000VAC 50/60Hz for 1 minute
Noise strength		±2kV the square wave noise(pulse width:1μs) by the noise simulator
Vibration	Mechanical	0.75mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 1 hour
	Malfunction	0.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical	300m/s² (Approx. 30G) 3 times at X, Y, Z direction
	Malfunction	100m/s² (Approx. 10G) 3 times at X, Y, Z direction
Relay life cycle	Mechanical	Min. 10,000,000 times
	Electrical	Min. 100,000 times(250VAC 3A at resistive load)
Ambient temperature		−10 ~ +50℃(at non−freezing status)
Storage temperature		−20 ~ +60℃(at non−freezing status)□
Ambient humidity		35 ~ 85%RH
Unit weight		Approx. 487g

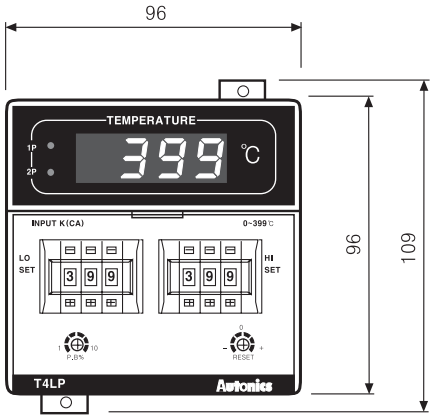
※**(Note)** F.S is same with sensor measuring temperature range.
Ex) In case of using temperature is from −99.9 ~ 199.9℃, Full scale is 299.8.

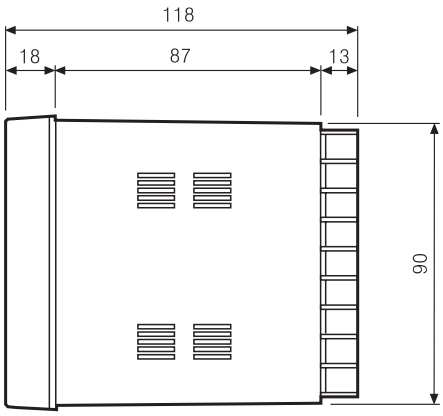
▣Connections

※RTD(Resistance Temperature Detector) : Pt 100Ω(3-wire type)　※Thermocouple : K, J, R

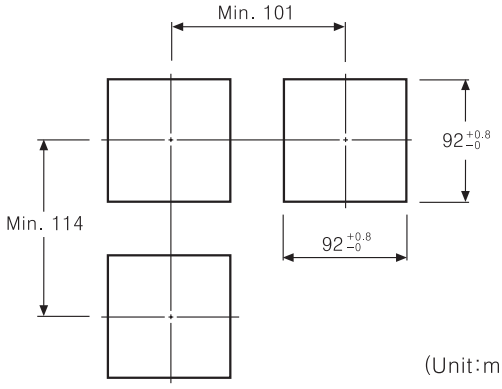


▣Dimensions





●Panel cut-out



(Unit:mm)

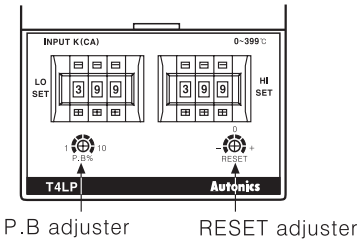
▣Proper usage

◎Operation

This controller has two outputs operated separately. In other words, it is able to set the values separately. Front Low Set runs with reverse operation as other common controllers and High Set runs by normal operation. It is able to control heater and cooler.

※Terminal block ①, ②, ③ are for Low set output and terminal block ④, ⑤, ⑥ are for High set output.

◎Using front adjuster

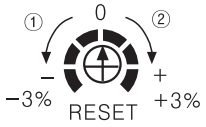


●P.B adjuster

In case of ON/OFF control, set variable F.S 0.2~3% of hysteresis, and in case of proportional control, set variable F.S 1~10% of hysteresis.

●RESET adjuster

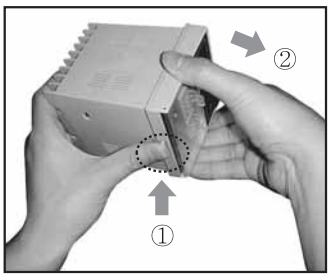
Adjusting the offset generated by using proportional control. Adjusting range of reset adjuster is F.S ± 3%. Do not change the reset adjuster when using ON/OFF control.



①Turn left when offset value is higher than set value. (Direction ①)

②Turn right when offset value is lower than set value. (Direction ②)

◎Case detachment



Pressing the front guide of Lock toward ① and squeeze and pull toward ②, it is detached.

◎How to select ON/OFF or proportional by plug pin

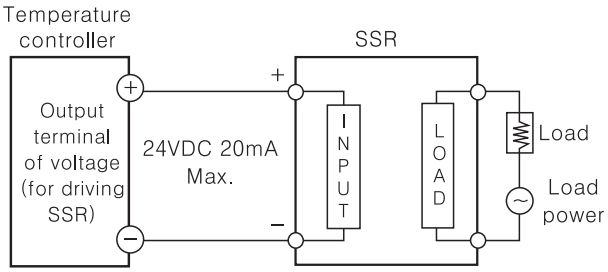
Factory specification is proportional control.
When using ON/OFF control, transfer the switch of control mode from P to F after detaching the case from its body.

◎Normal/Reverse operation

Reverse operation executes to output ON when process value is lower than setting value, and it is used for heating.
Normal operation is executed conversely and used for cooling. (This item runs as a reverse operation)

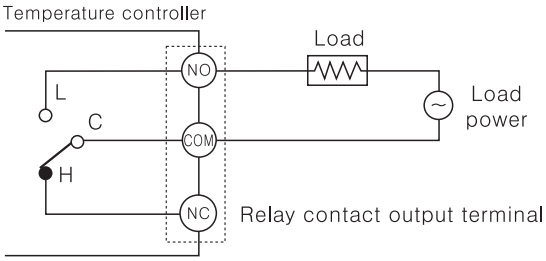
◎Application of temperature controller and load connection

●SSR output



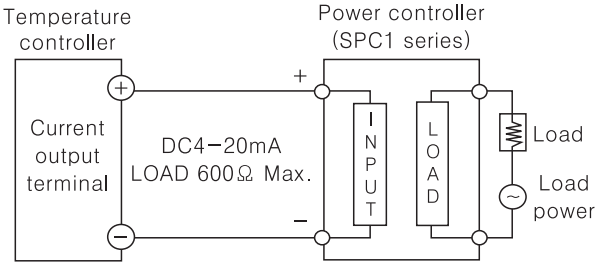
※When using voltage(for driving SSR) in the other purposes, do not exceed the range of the rated current.

●Relay output



Output	Relay contact capacity
1st OUT	250VAC 2A
2nd OUT	250VAC 3A

●Current output



※The current value of 4−20mADC is available at lower than 600Ω of resistive load.