T4LP

Dual setting type, High accuracy temperature controller
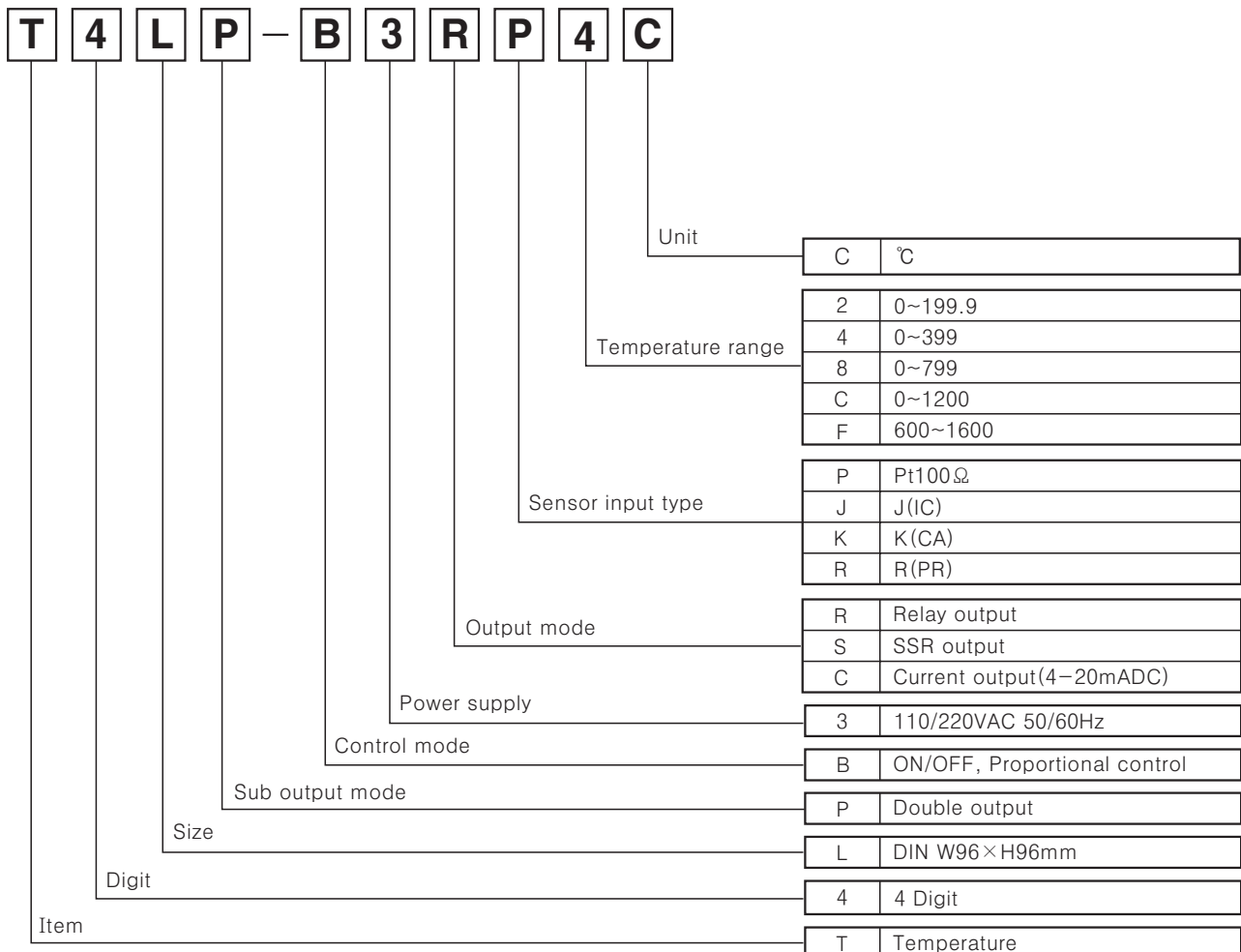
▣Features

- Dual setting type
- High accuracy measuring function : ±0.5%
- Control heater and cooler at once
- It is able to control a heater and a cooler with 1 piece of dual setting temperature controller. The 1st(Low set) output is for a heater control and 2nd(High set) output is for a cooler control.

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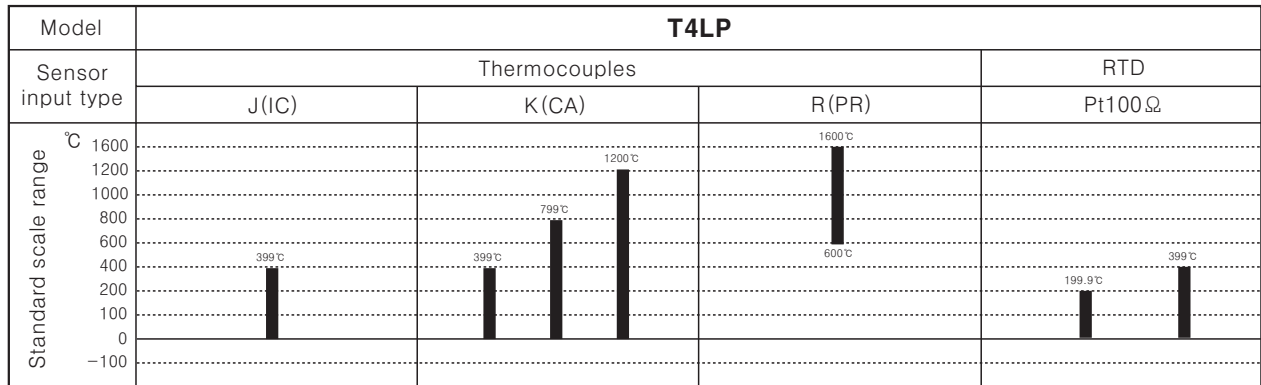
▣Ordering information

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	Double output

Size	L	DIN W96×H96mm

Digit	4	4 Digit

Item	T	Temperature

※**Please check the range of temperature when select model. (Please see C-32 page)**

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▣ Temperature range for each sensor

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

▣ Specifations

Model	T4LP
Power supply	110/220VAC 50/60Hz
Allowable voltage range	90 ~ 110% of rated voltage
Power consumption	3VA
Display method	7Segment 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	Hysterisis F·S 0.2 ~ ±3%
Control — 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	Built−in 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
Vibration — 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
Shock — Malfunction	100m/s² (Approx. 10G) 3 times at X, Y, Z direction
Relay life cycle — Mechanical	Min.10,000,000 times
Relay life cycle — Electrical	Min.100,000 times(250VAC 3A at resistive load)
Ambient temperature	−10 ~ +50℃(at non−freezing status)
Storage temperature	−25 ~ +65℃(at non−freezing status)□
Ambient humidity	35 ~ 85%RH
Weight	Approx. 487g

(A) Counter
(B) Timer
(C) Temp. controller
(D) Power controller
(E) Panel meter
(F) Tacho/ Speed/ Pulse meter
(G) Display unit
(H) Sensor controller
(I) Proximity sensor
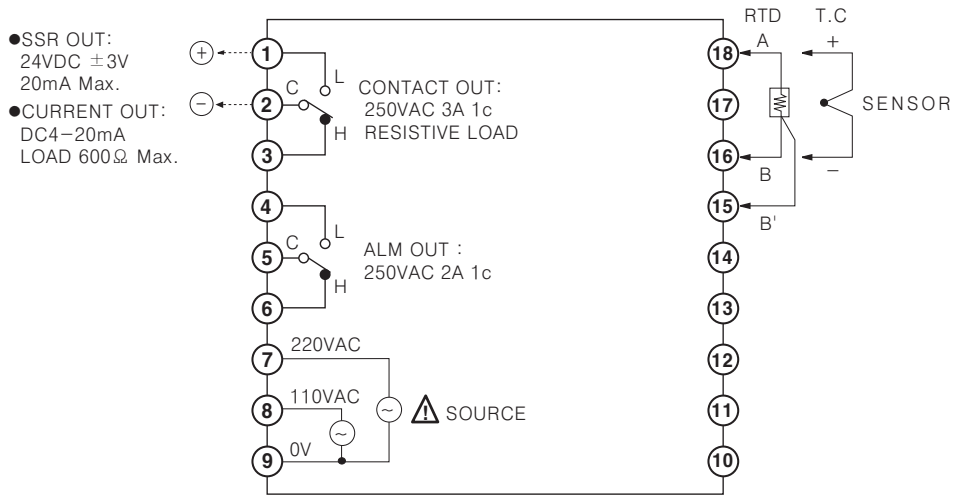(J) Photo electric sensor
(K) Pressure sensor
(L) Rotary encoder
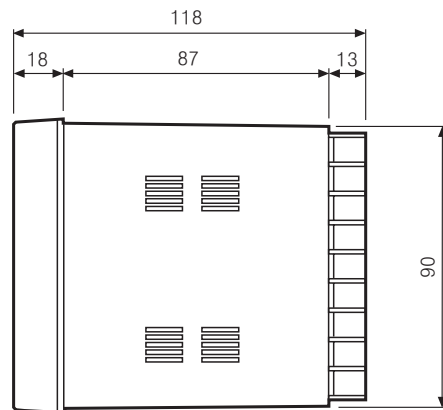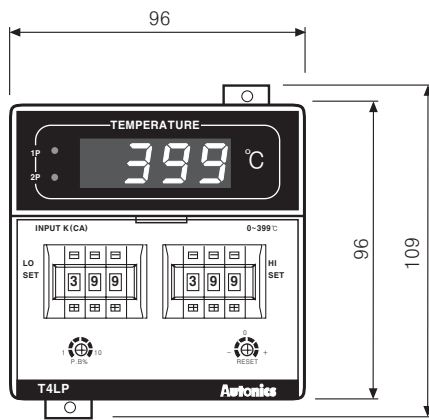(M) 5−Phase stepping motor & Driver & Controller

T4LP

▣Connections

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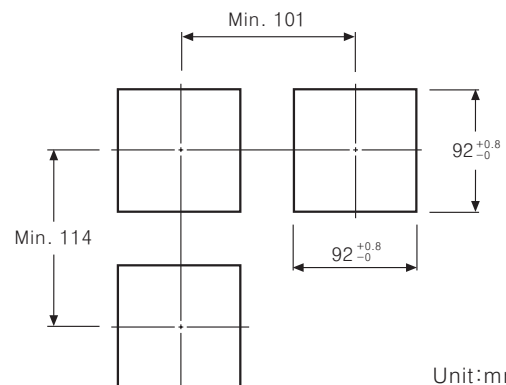

- ●SSR OUT:
  24VDC ±3V
  20mA Max.
- ●CURRENT OUT:
  DC4−20mA
  LOAD 600Ω Max.

(+) ···· 1 L
(−) ···· 2 C
3 H

CONTACT OUT:
250VAC 3A 1c
RESISTIVE LOAD

4 L
5 C
6 H

ALM OUT :
250VAC 2A 1c

7 220VAC
8 110VAC
9 0V

~ ⚠ SOURCE

RTD T.C
18 A +
17
16 SENSOR
15 B B' −
14
13
12
11
10

▣Dimensions

TEMPERATURE
1P 2P
399 ℃

INPUT K(CA)　　0~399℃

LO SET　399　　399　HI SET

P.B%　　RESET

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96
96
109

118
18　87　13
90

●Panel cut−out

Min. 101
Min. 114
92 +0.8 −0
92 +0.8 −0

Unit：mm

▣Proper usage

◎Operation

This controller has two outputs operating separately. In other words, setting the values separately is available. Front Low set runs with reverse operation as other common controllers and High set runs by normal operation. Using these control types makes that controlling heater and cooler is available.

Heater control   Cooler control

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

◎Using front volume

P.B volume   RESET volume
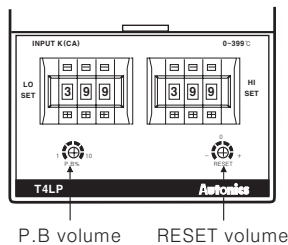
● P.B volume

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.

However, hysteresis(F.S 0.5%) and proportional band(F.S 3%) are fixed in T3S.

● RESET volume

Adjusting the offset generated by using proportional control.

Adjusting range of reset volume is F.S ± 3%.

Do not change the reset volume when using ON/OFF control.
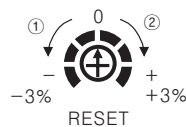
①Turn left when offset value is higher than set value. (Direction ①)

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

◎Normal·Reverse operation

Reverse operation outputs ON when processing value is lower than setting value, and it is used with reverse operation when heated.

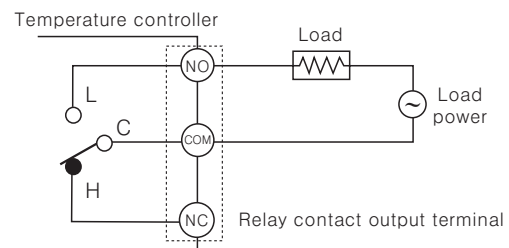On the contrary, normal operation runs conversely and used for cooling. (This item runs as a reverse operation)

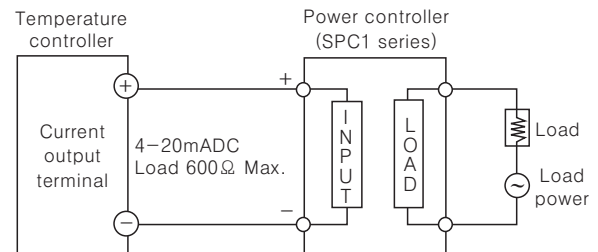### ◎Application of temperature controller and load connection

● SSR output
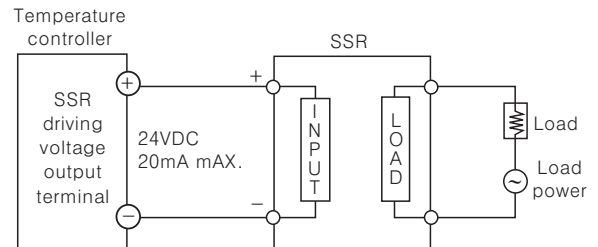
※When using SSR driving voltage in the other purposes, do not over the range of rated current.

● Relay output

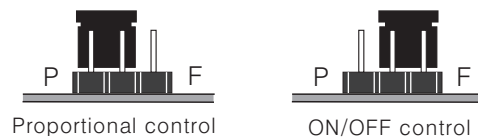| Output	Relay contact capacity
1st OUT	250VAC 2A
2nd OUT	250VAC 3A

● Current output

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

◎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.

Proportional control   ON/OFF control