

T3S/T3H/T4M/T4L

Digital switch setting type, temperature controller

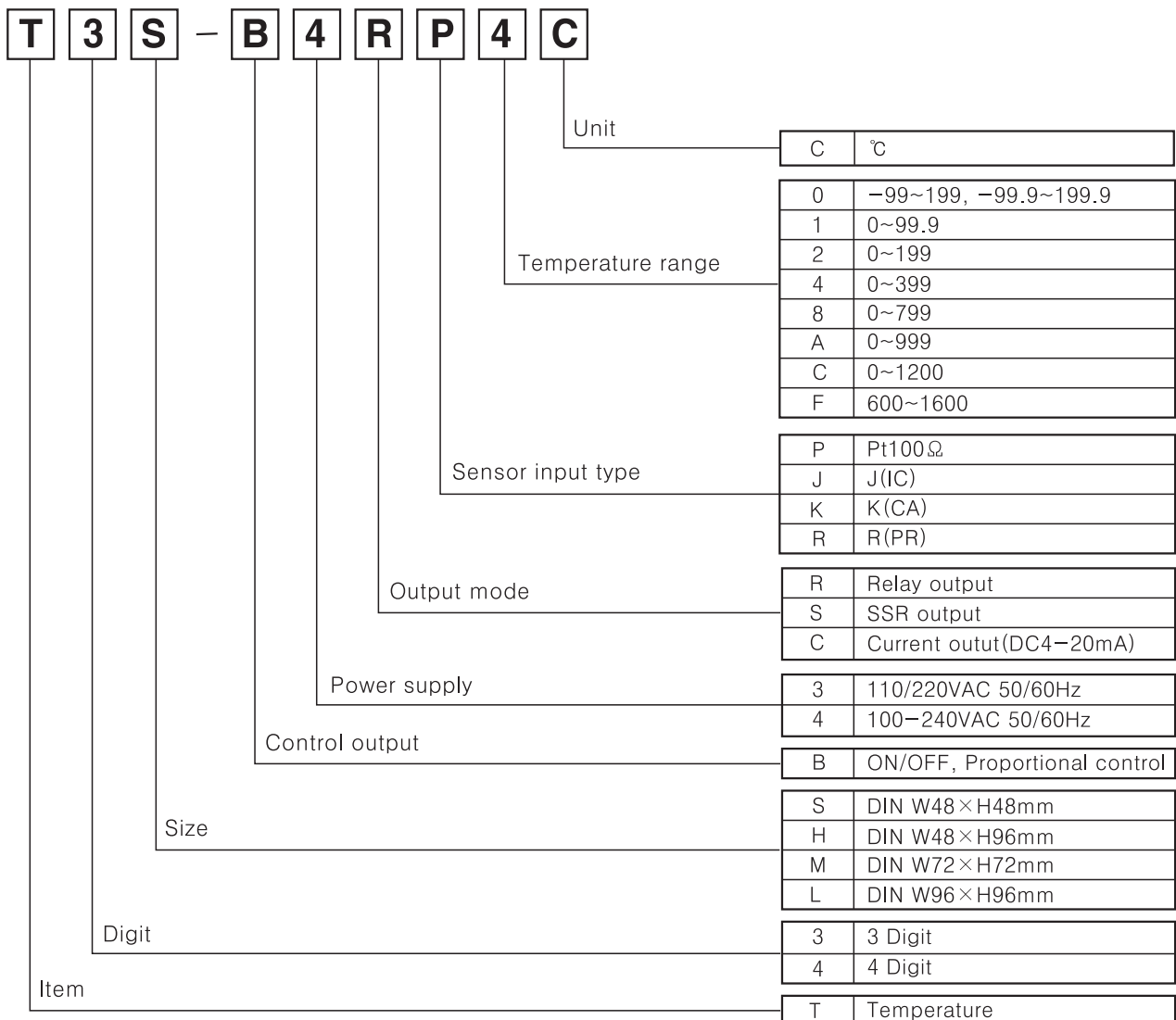
■ Features

- Various size by DIN specification
- Accuracy : F • S $\pm 0.5\%$
- Universal power : T3S Series



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

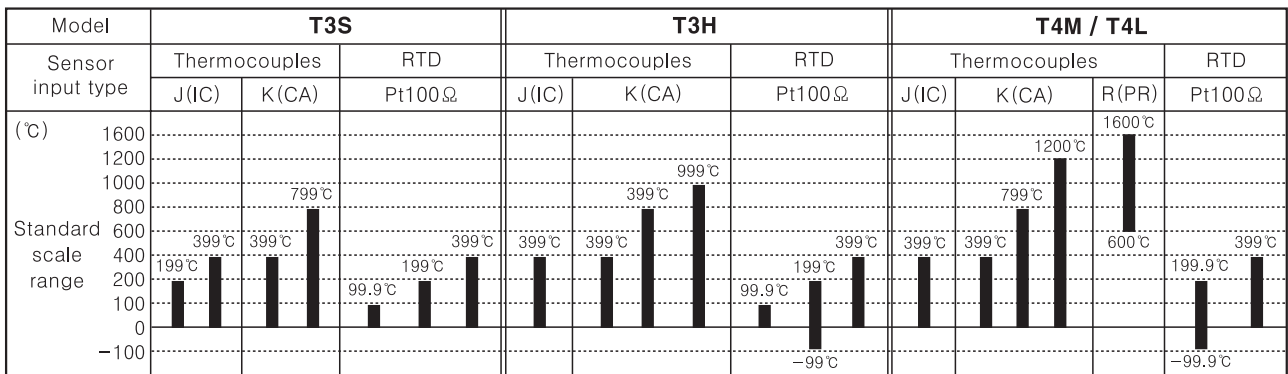
■ Ordering information



※ Please check the range of temperature when selecting model. (Refer to C-24)

Digital Switch Setting Type

Temperature range for each sensor



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

Specifications

Model	T3S	T3H	T4M	T4L
Power supply	100-240VAC 50/60Hz	110/220VAC 50/60Hz		
Allowable voltage range	90~110% of power supply			
Power consumption	5VA	3VA		
Display method	7 Segment LED Display			
Character size	W4×H8mm	W6×H10mm	W7.2×H9.8mm	W9.5×H14.2mm
Display accuracy	F · S ± 1% rdg ± 1digit	F · S ± 0.5% rdg ± 1digit		
Setting type	Digital switch setting			
Setting accuracy	F · S ± 1%	F · S ± 0.5%		
Sensor input	Thermocouples : K(CA), J(IC), R(PR) / RTD : Pt100Ω [There is no R(PR) in T3S, T3H series]			
Input line resistance	Thermocouples : Max. 100Ω / RTD : Max. 5Ω per a wire			
Control	ON/OFF Control	Hysteresis : F · S 0.5% ± 0.2% Fixed <input type="checkbox"/>		
	Proportional Control	Hysteresis : F · S 0.2~3%		
Reset VR range	F · S ± 3% variable			
Control output	<ul style="list-style-type: none"> ●Relay output : 250VAC 2A 1c ●SSR output : 12VDC ± 3V 20mA max. ●Current output : 4-20mADC Load 600Ω max. 	<ul style="list-style-type: none"> ●Relay output : 250VAC 3A 1c ●SSR output : 12VDC ± 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	± 1kV 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/s ² (Approx. 30G) 3 times at X, Y, Z direction		
	Malfunction	100m/s ² (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°C (at non-freezing status)			
Storage temperature	-20 ~ +60°C (at non-freezing status) <input type="checkbox"/>			
Ambient humidity	35~85%RH			
Unit weight	Approx. 196g	Approx. 496g	Approx. 399g	Approx. 468g

※F.S is same with sensor measuring temperature range.

Ex) In case of measurement temperature range is from -99.9 ~ 199.9°C, Full scale is 299.8.

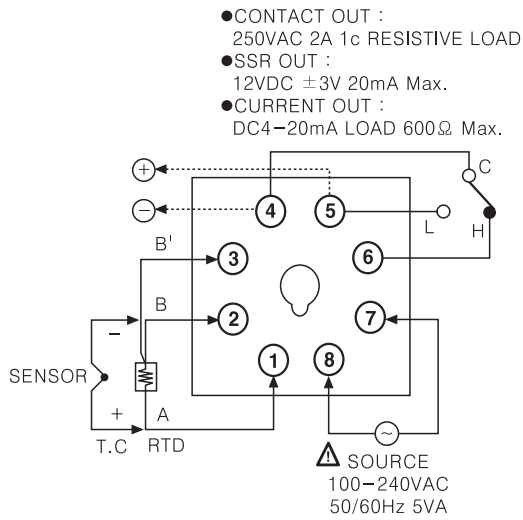
- (A) Counter
- (B) Timer
- (C) Temp. controller
- (D) Power controller
- (E) Panel meter
- (F) Tacho/Speed/Pulse meter
- (G) Display unit
- (H) Sensor controller
- (I) Switching power supply
- (J) Proximity sensor
- (K) Photo electric sensor
- (L) Pressure sensor
- (M) Rotary encoder
- (N) Stepping motor & Driver & Controller
- (O) Graphic panel
- (P) Production stoppage models & replacement

T3S/T3H/T4M/T4L

Connections

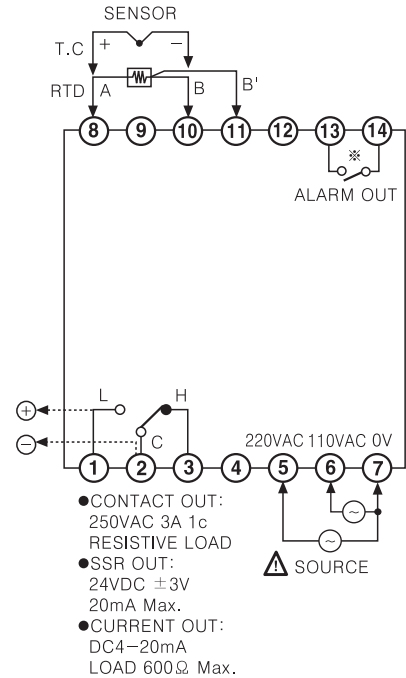
※RTD(Resistance temperature detector) : Pt 100Ω (3-wire type) ※Thermocouple : K, J, R

●T3S

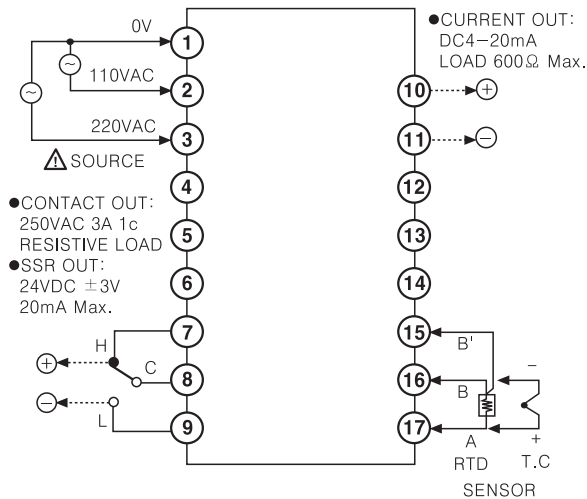


●T4M

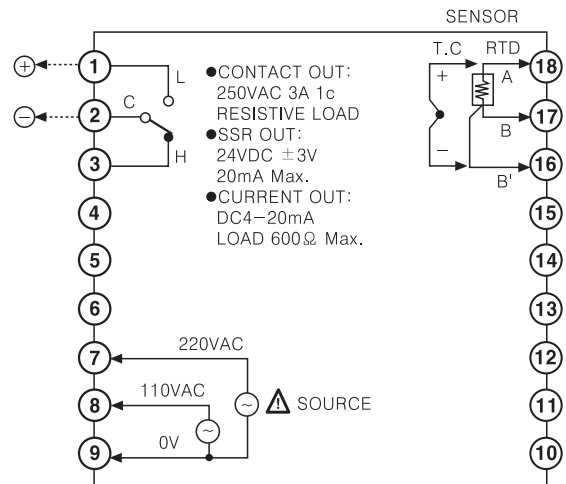
※ Although T4M has an alarm terminal, it does not work since it uses the same case with T4MA.



●T3H



●T4L

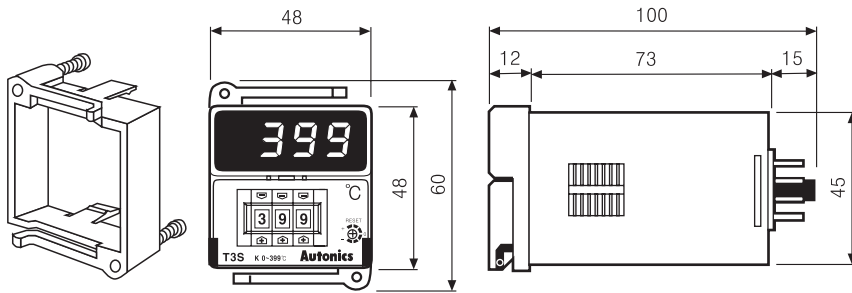


Digital Switch Setting Type

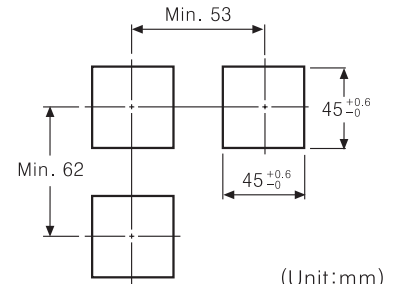
Dimensions

○T3S

●Bracket



●Panel cut-out



(Unit:mm)

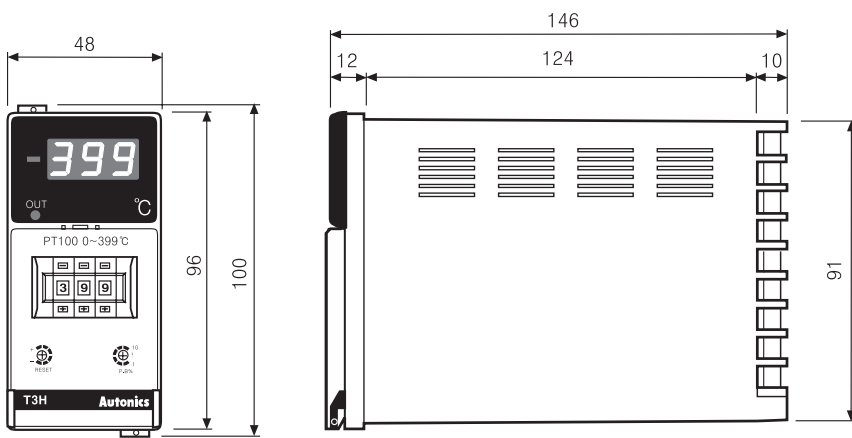
(A) Counter

(B) Timer

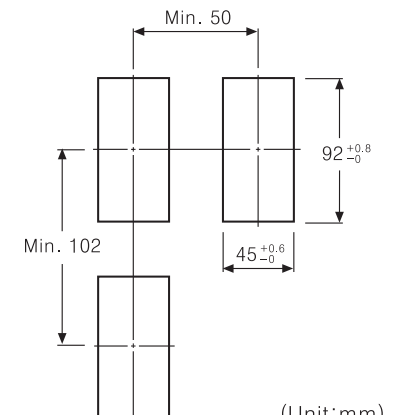
(C) Temp. controller

(D) Power controller

○T3H



●Panel cut-out



(Unit:mm)

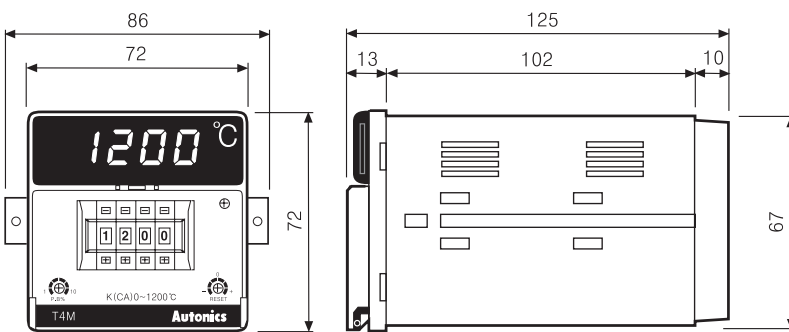
(E) Panel meter

(F) Tacho/ Speed/ Pulse meter

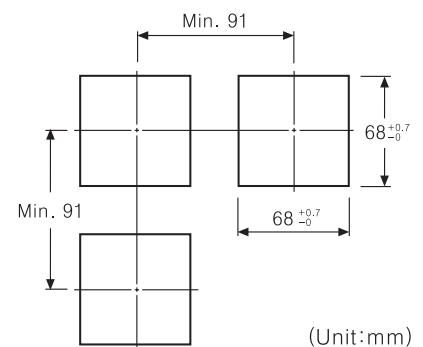
(G) Display unit

(H) Sensor controller

○T4M



●Panel cut-out



(Unit:mm)

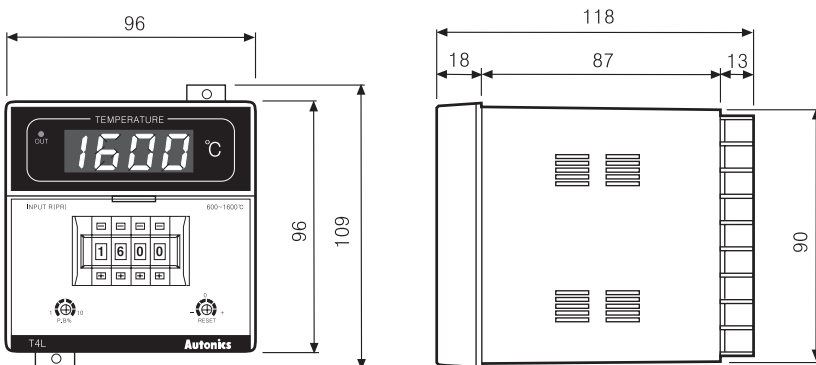
(I) Switching power supply

(J) Proximity sensor

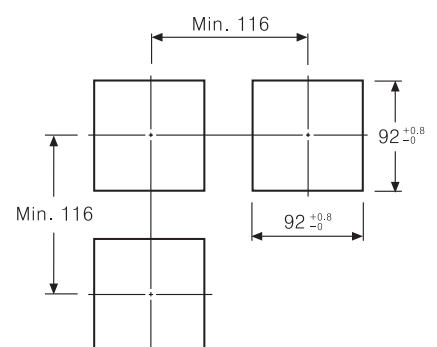
(K) Photo electric sensor

(L) Pressure sensor

○T4L



●Panel cut-out



(Unit:mm)

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

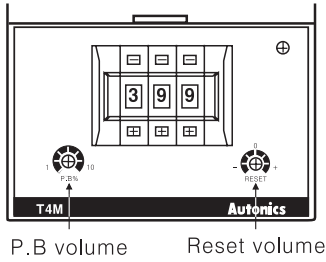
(O) Graphic panel

(P) Production stoppage models & replacement

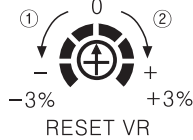
T3S/T3H/T4M/T4L

■ Proper usage

◎ Using front 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 $\pm 3\%$. Do not change the reset volume when using ON/OFF control.



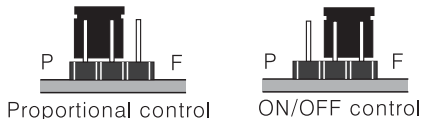
- ① Turn left when offset value is higher than setting value. (Direction ①)
- ② Turn right when offset value is lower than setting value. (Direction ②)

◎ 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 runs conversely and is executed for cooling. (This item runs as a reverse operation)

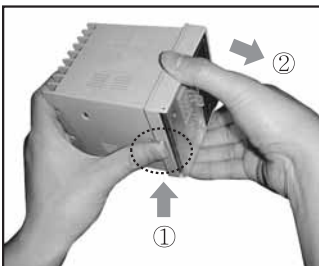
◎ How to select ON/OFF or proportional by plug pin

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. When control output is current output, P control is fixed, there is no switch Pin of control mode.



◎ Case detachment

● T4L/T3H

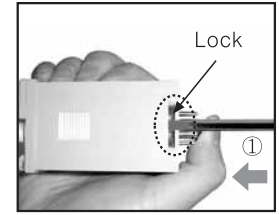


Pressing the front guide of Lock toward ① and squeeze and pull toward ②, it is detached.

● T4L/T3H



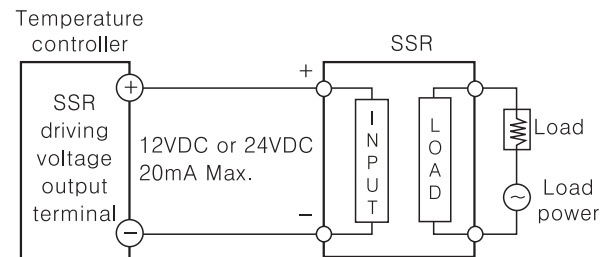
Open the front guide, turn it toward ① and pull toward ②, it is detached.



Pressing pin plug ①, raise it up with a driver as ② and it is detached.

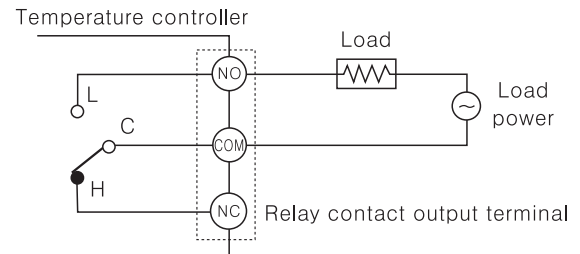
◎ Application of temperature controller and load connection

● SSR output connection



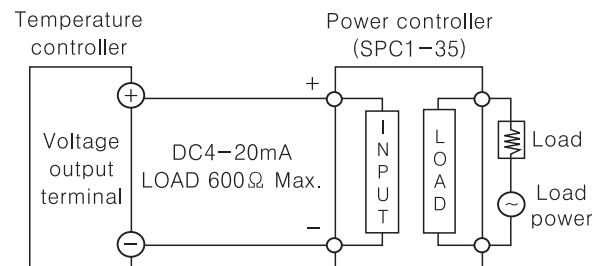
- ※ When using voltage (for driving SSR) in the other purposes, do not over the range of thd rating current.
- ※ Please aware that each series has different voltage (for driving SSR).

● Relay output connection



- ※ Be aware that each model has different contact capacity of RY. When load capacity is high, please use sub relay, which has high contact capacity.

● Current output connection



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