Digital switch setting type, temperature controller

▣Features

- ●Various size by DIN specification
- ●Accuracy : F • S ±0.5%
- ●Universal power : T3S Series

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

▣Ordering information

T 3 S – B 4 R P 4 C

Unit	C	℃
Temperature range	0	−99~199, −99.9~199.9
	1	0~99.9
	2	0~199
	4	0~399
	8	0~799
	A	0~999
	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 outut(DC4−20mA)
Power supply	3	110/220VAC 50/60Hz
	4	100−240VAC 50/60Hz
Control output	B	ON/OFF, Proportional control
Size	S	DIN W48×H48mm
	H	DIN W48×H96mm
	M	DIN W72×H72mm
	L	DIN W96×H96mm
Digit	3	3 Digit
	4	4 Digit
Item	T	Temperature

※See C-24 about sensor temperature range for selection.

▣Temperature range for each sensor

Model	T3S			T3H			T4M / T4L			
Sensor input type	Thermocouples		RTD	Thermocouples		RTD	Thermocouples			RTD
	J(IC)	K(CA)	Pt100Ω	J(IC)	K(CA)	Pt100Ω	J(IC)	K(CA)	R(PR)	Pt100Ω
(℃) Standard scale range	1600 1200 1000 800 600 400 200 100 0 −100									
	199℃ 399℃	399℃ 799℃	99.9℃ 199℃ 399℃	399℃	399℃ 399℃ 999℃	99.9℃ 199℃ −99℃ 399℃	399℃	399℃ 799℃ 1200℃	600℃ 1600℃	199.9℃ −99.9℃ 399℃

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

▣Specifications

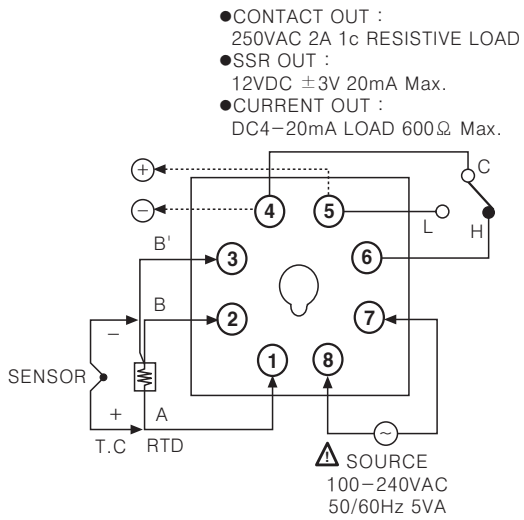
Model		T3S	T3H	T4M	T4L
Power supply		100−240VAC 50/60Hz	110/220VAC 50/60Hz		
Allowable voltage range		90~110% of power supply			
Power consumption		5VA	3VA		
Display method		7 Segment LED Display			
Character size		W4×H8mm	W6×H10mm	W7.2×H9.8mm	W9.5×H14.2mm
Display accuracy		F • S ± 1% rdg ±1digit	F • 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	Hysteresis : F • S 0.2~3%		
	Proportional Control	Proportional band : F • S ±3% fixed, Period : 20sec. fixed	Proportional band : F • S 1~10% variable, Period : 20sec. fixed		
RESET adjuster range		F • S ±3% variable			
Control output		●Relay output : 250VAC 2A 1c ●SSR output : 12VDC ±3V 20mA max. ●Current output : DC4−20mA Load 600Ω max.	●Relay output : 250VAC 3A 1c ●SSR output : 12VDC ±3V 20mA max. ●Current output : DC4−20mA Load 600Ω max.		
Self−diagnosis		Built−in burn out function			
Insulation resistance		Min. 100MΩ (at 500VDC mega)			
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/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. 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℃, Full scale is 299.8.

▣Connections

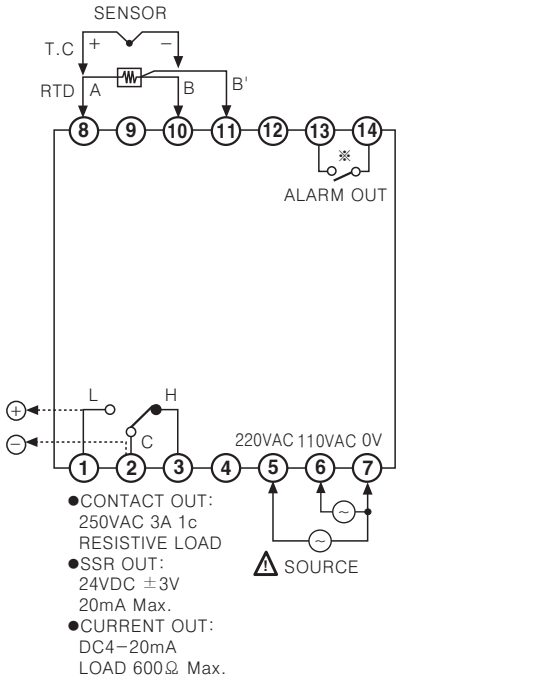
※RTD(Resistance temperature detector) : Pt 100Ω(3-wire type) ※Thermocouple : K, J, R

●T3S

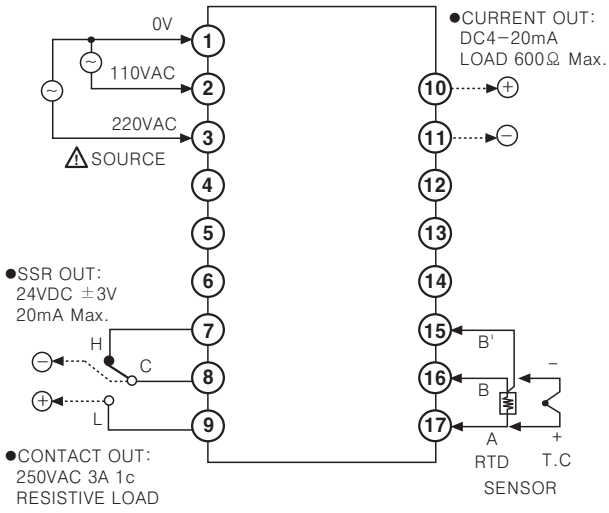


●T4M

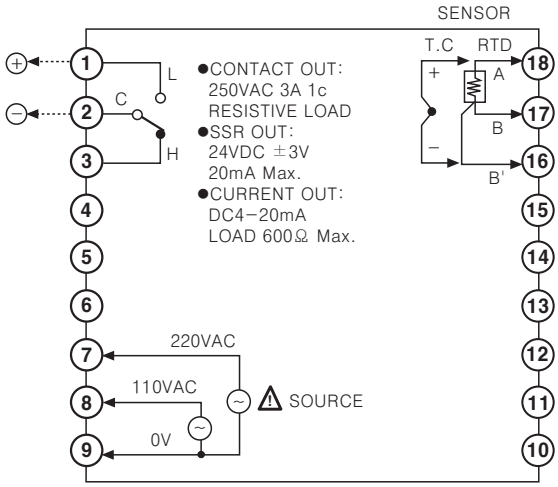
※Although T4M has an alarm terminal, it does not work since it uses the same case with T4MA.



●T3H



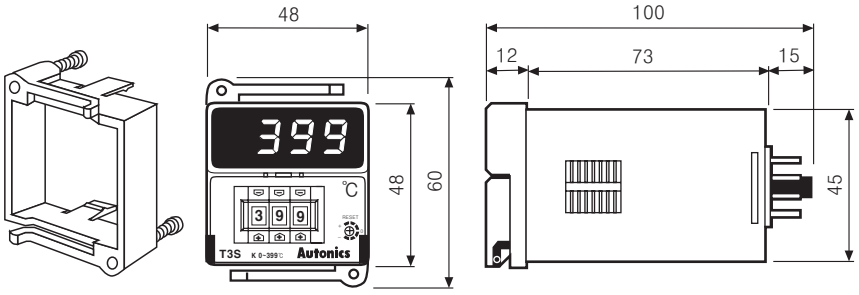
●T4L



▣Dimensions

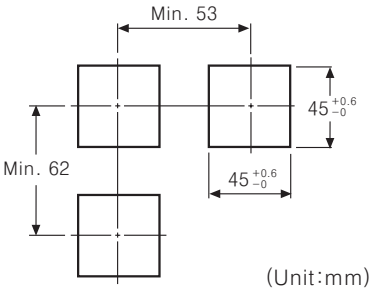
◎T3S

●Bracket



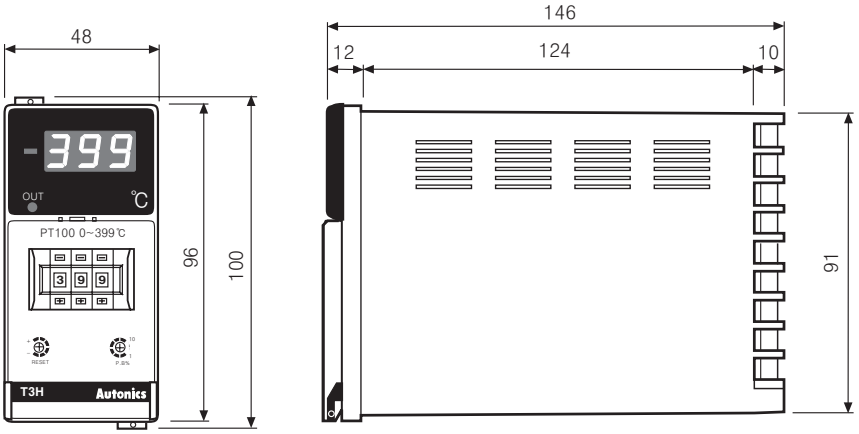
※Socket : PG-08, PS-08(Sold separately)

●Panel cut-out

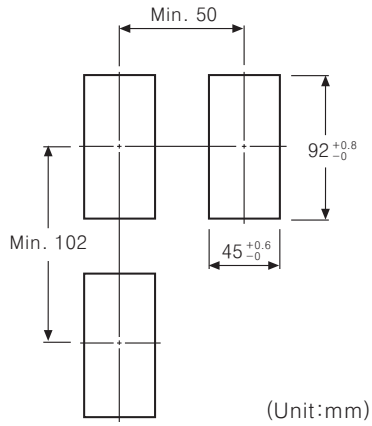


(Unit:mm)

◎T3H

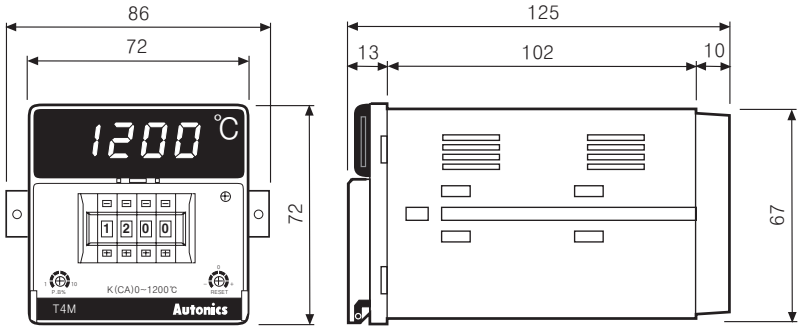


●Panel cut-out

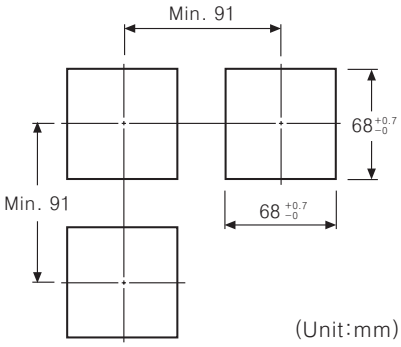


(Unit:mm)

◎T4M

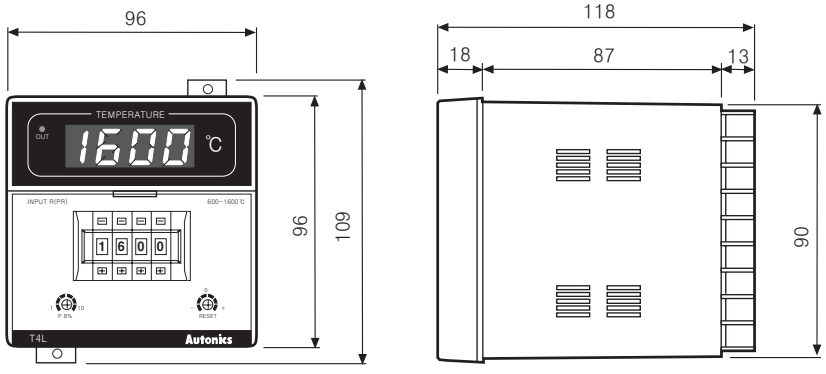


●Panel cut-out

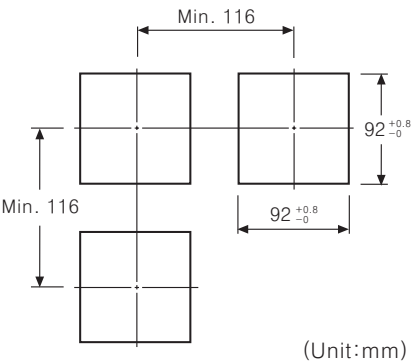


(Unit:mm)

◎T4L



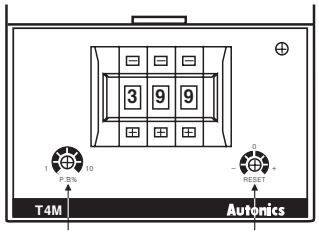
●Panel cut-out



(Unit:mm)

▣Proper usage

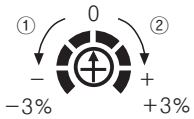
◎Using front adjuster



P.B adjuster　　RESET 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. However, hysteresis(F · S 0.5%) and proportional band(F · S 3%) are fixed in T3S.

●RESET adjuster : It corrects offset can be occurred by proportional control and has F · S ±3% of adjustable range. Do not operate the adjuster when it is used as ON/OFF control.



RESET adjuster

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

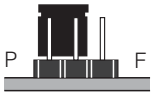
②Turn right when offset value is lower than setting value. (Direction ②)

◎Normal/Reverse operation

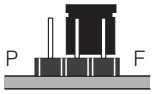
Reverse operation executes to output ON when process value is lower than setting value and it is used for heating. Normal operation runs conversely and is executed for cooling. (This item runs as a reverse operation)

◎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.



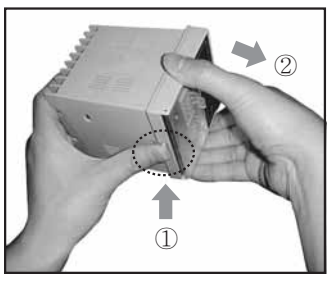
Proportional control



ON/OFF control

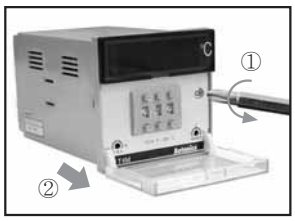
◎Case detachment

●T4L/T3H

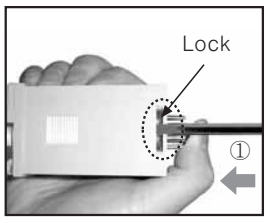


Pressing the front guide of Lock toward ① and squeeze and pull toward ②, it is detached.

●T4L/T3H



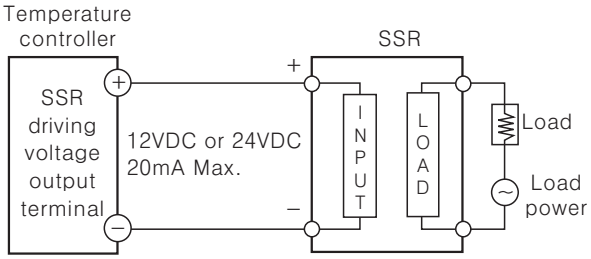
Open the front guide, turn it toward ① and pull toward ②, it is detached.



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

◎Application of temperature controller and load connection

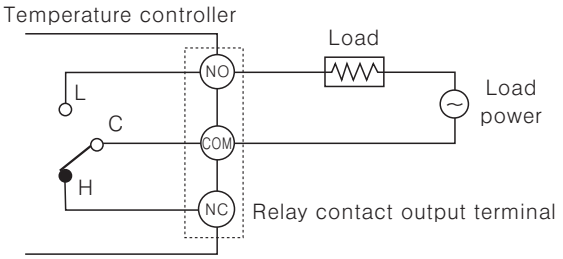
●SSR output connection



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

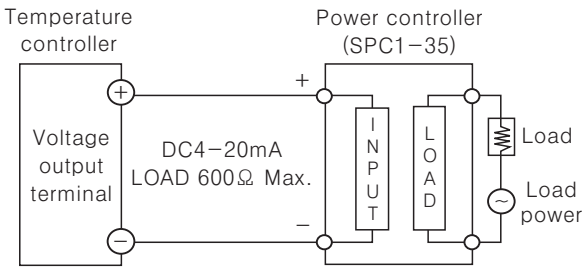
※Please aware that each series has different voltage(for driving SSR).

●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 DC4−20mA is available at lower than 600Ω of resistive load.