Digital switch setting type

▣ Features

- Various size by DIN specification (W48×H48, W48×H96, W72×H72, W96×H96mm)
- Accuracy: F.S. ±0.5%(Except T3S)
- Free 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	℃
	F	℉
Temperature range	0	-99 to 199, -99.9 to 199.9
	1	0 to 99.9
	2	0 to 199
	4	0 to 399
	8	0 to 799
	A	0 to 999
	C	0 to 1200
	F	600 to 1600
Sensor input type	P	DPt100Ω
	J	J(IC)
	K	K(CA)
	R	R(PR)
Control output	R	Relay output
	S	SSR drive voltage output
	C	Current outut(DC4-20mA)
Power supply	3	110/220VAC 50/60Hz
	4	100-240VAC 50/60Hz
Control method	B	ON/OFF, P control
Size	S	DIN W48×H48mm
	H	DIN W48×H96mm
	M	DIN W72×H72mm
	L	DIN W96×H96mm
Digit	3	999(3digit)
	4	9999(4digit)
Item	T	Temperature Controller

※**Refer to the H-89 about sensor temperature range for selection.**

▣ Temperature range for each sensor

Series	T3S			T3H			T4M / T4L			
Sensor input typ	Thermocouples		RTD	Thermocouples		RTD	Thermocouples			RTD
	J(IC)	K(CA)	DPt100Ω	J(IC)	K(CA)	DPt100Ω	J(IC)	K(CA)	R(PR)	DPt100Ω
Standard scale range (℃)	1600 1200 1000 800 600 400 200 100 0 -100									
	199℃ 399℃	399℃ 799℃	99.9℃ 199℃ 399℃	399℃ 800℉	399℃ 799℃ 999℃	99.9℃ 199℃ -99℃ 399℃	399℃	399℃ 799℃ 1200℃	1600℃ 600℃	199.9℃ -99.9℃ 399℃

※In case input sensor is R(PR) type, it is not available to perform correct control under 600℃.

▣ Specifications

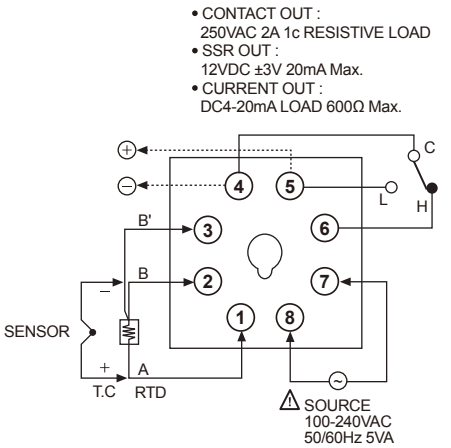
Series		T3S	T3H	T4M	T4L
Power supply		100-240VAC 50/60Hz	110/220VAC 50/60Hz		
Allowable voltage range		90 to 110% of power supply			
Power consumption		Max. 5VA	Max. 3VA		
Display method		7 Segment(red) LED method			
Character size(W×H)		4.0×8.0mm	6.0×10.0mm	7.2×9.8mm	9.5×14.2mm
Display accuracy		F.S. ±1% rdg ±1digit	F.S. ±0.5% rdg ±1digit		
Setting type		Digital setting			
Setting accuracy		F.S. ±1%	F.S. ±0.5%		
Sensor input		Thermocouples: K(CA), J(IC), R(PR) / RTD: DPt100Ω ※There is no R(PR) in T3S, T3H Series.			
Input line resistance		Thermocouples: Max. 100Ω / RTD: Allowable line resistance max. 5Ω per a wire			
Control method	ON/OFF control	Hysteresis: F.S. 0.5% ±0.2% fixed	Hysteresis: F.S. 0.2 to 3% variable		
	P control	Proportional band: F.S. ±3% fixed Period: 20sec. fixed	Proportional band: F.S. 1 to 10% variable, Period: 20sec. fixed		
RESET adjuster range		F.S. ±3% variable(revision of control deviation)			
Control output		• Relay output : 250VAC 2A 1c • SSR drive voltage output : 12VDC ±3V 20mA Max. • Current output : DC4-20mA (load 600Ω Max.)	• Relay output: 250VAC 3A 1c • SSR output: 24VDC ±3V 20mA Max. • Current output: DC4-20mA (load 600Ω Max.)		
Self-diagnosis		Built-in burn out function (cut off output when sensor is disconnected)			
Insulation resistance		Min. 100MΩ (at 500VDC megger)			
Dielectric strength		2,000VAC 50/60Hz for 1 min.			
Noise resistance		±1kV the square wave noise(pulse width: 1μs) by the noise simulator			
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 1 hour			
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 10 min.			
Shock	Mechanical	300m/s²(approx. 30G) in each of X, Y, Z directions for 3 times			
	Malfunction	100m/s²(approx. 10G) in each of X, Y, Z directions for 3 times			
Relay life cycle	Mechanical	Min. 10,000,000 operations			
	Electrical	Min. 100,000 operations(250VAC 3A at resistive load)			
Environ-ment	Ambient temperature	-10 to 50℃, storage:-25 to 65℃			
	Ambient humidity	35 to 85%RH, storage: 35 to 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 to 199.9℃, Full scale is 299.8.
※Environment resistance is rated at no freezing or condensation.

▣ Connections

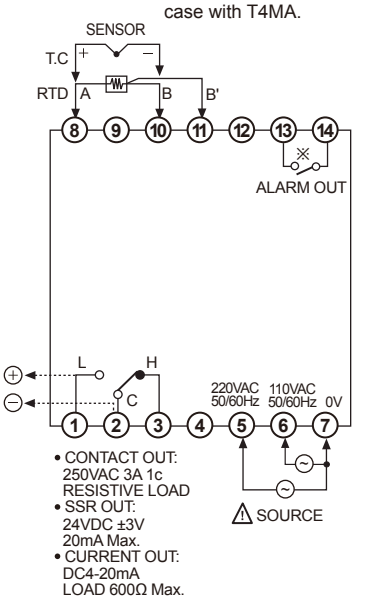
※RTD: DPt100Ω (3-wire type) ※Thermocouple: K, J, R

● T3S

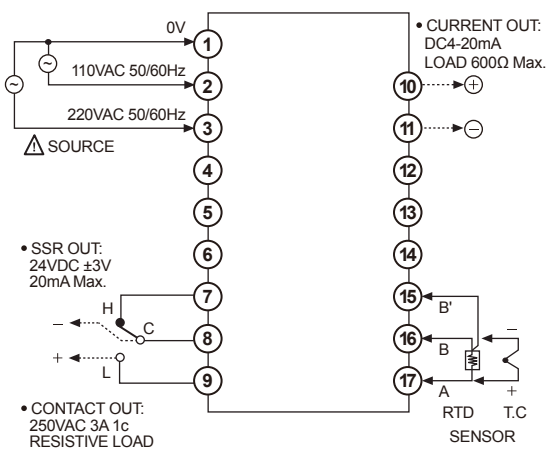


● T4M

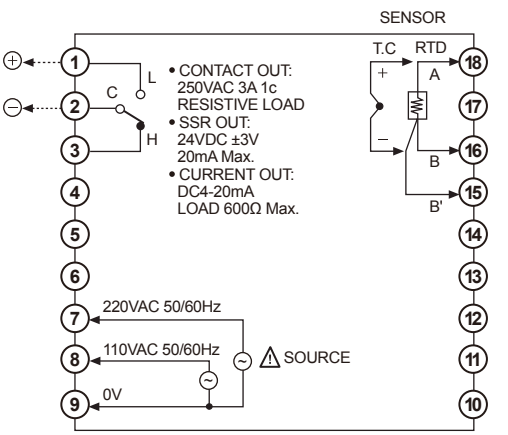
※Although T4M has an alarm terminal, it does not work since it uses the same case with T4MA.



● T3H



● T4L

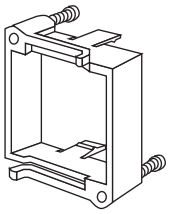


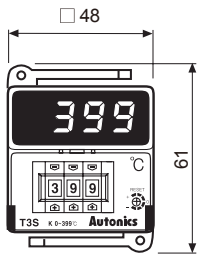
▣ Dimensions

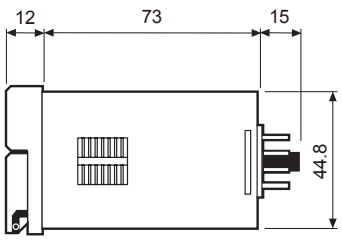
(unit: mm)

● T3S

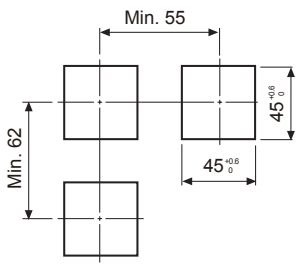
<Bracket>





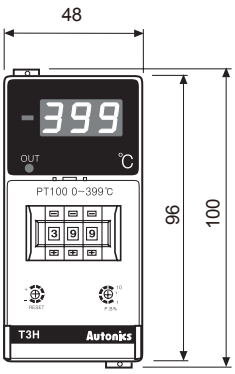


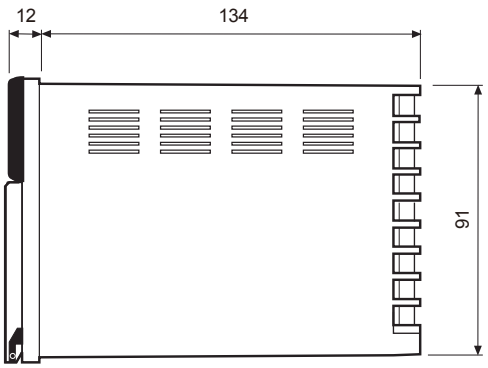
●Panel cut-out



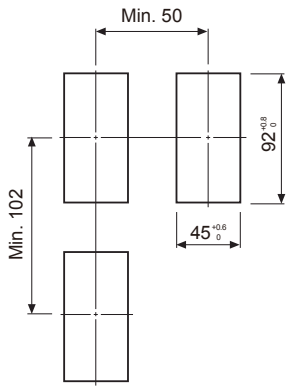
※Socket: PG-08, PS-08(sold separately)

● T3H

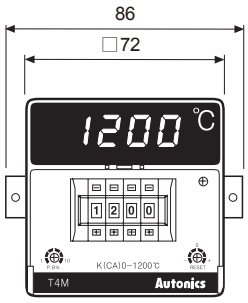


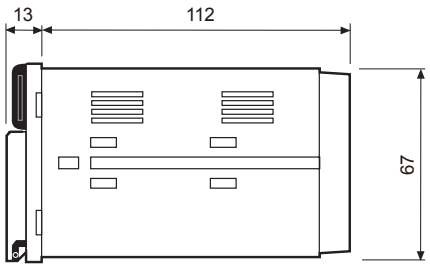


●Panel cut-out

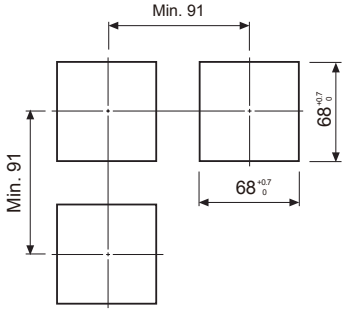


● T4M

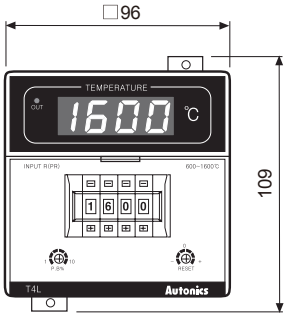


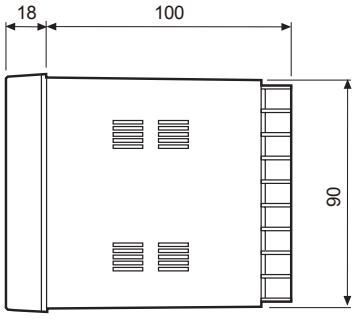


●Panel cut-out

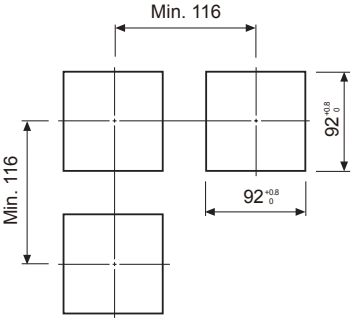


● T4L



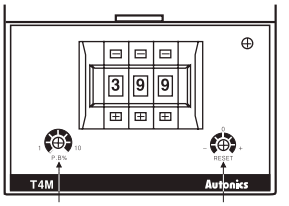


●Panel cut-out



▣ Proper usage

◎ Using front adjuster



● P.B adjuster

In case of ON/OFF control, set variable F.S. 0.2 to 3% of hysteresis and in case of P control, set variable F.S. 1 to 10% of hysteresis. However, hysteresis(F.S. 0.5% ±0.2%) and proportional band(F.S. ±3%) are fixed in T3S.

● Reset adjuster

It corrects offset can be occurred by P control and has F.S. ±3% of adjustable range. Do not operate the adjuster when it is used as 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

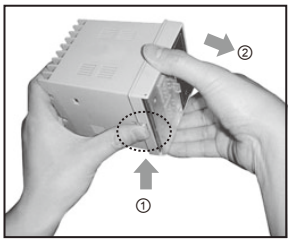
Reverse operation executes to output ON when process value is lower than setting value and it is used for heating. Normal operation runs conversely and is executed for cooling. (This item runs as a reverse operation)

◎ How to select control mode

Factory specification is P control. When using ON/OFF control, transfer the switch of control method 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 method.

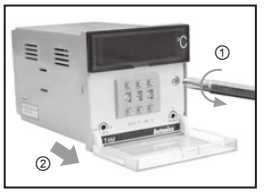
◎ Case detachment

● T4/T3H



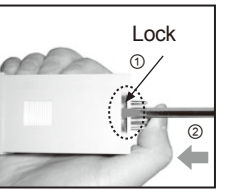
Pressing the front guide of Lock toward ① and squeeze and pull toward ②, it is detached.

● T4M



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

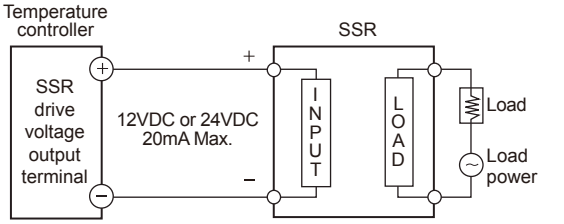
● T3S



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

◎ Application of temperature controller and load connection

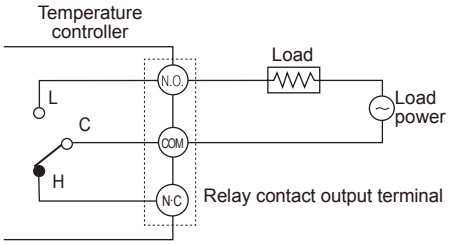
● SSR drive voltage output connection



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

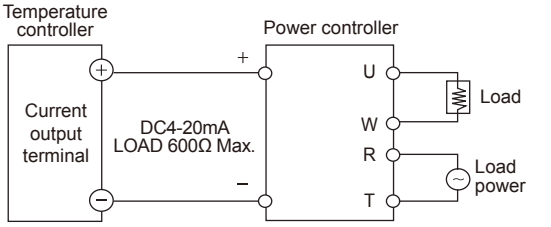
※Please aware that each Series has different voltage(for driving SSR).

● Relay output connection



※Be aware that each model has different contact capacity of relay. 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.

※Refer to the H-141 page for caution for using and simple error diagnosis.