ALARM, SUB output type

▣Features

- ●Alarm, SUB output type
- ●High accuracy measurement : ±0.5
- ●Various size available

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

▣Ordering information

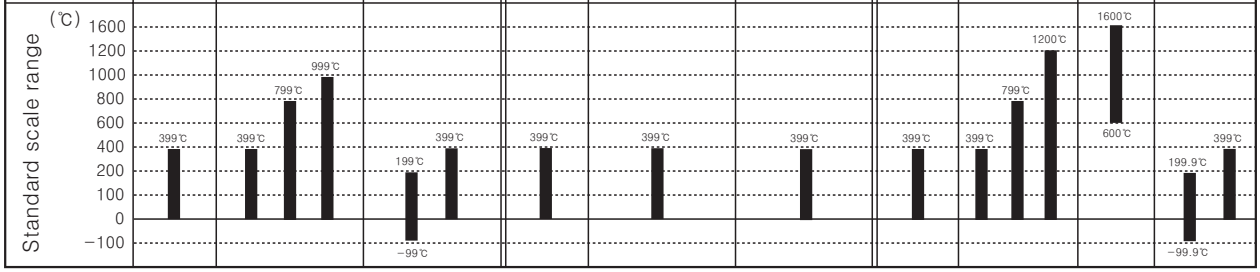
T 3 H A - B 3 R P 4 C

Unit	C	℃
Temperature range	0	−99~199, −99.9~199.9
	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 output(4−20mADC)
Power supply	3	110/220VAC 50/60Hz
Control mode	B	ON/OFF, Proportional control
Alarm/Sub output mode	A	Alarm output(High • Low)
	S	SUB output
Size	H	DIN Size W48×H96mm
	M	DIN Size W72×H72mm
	L	DIN Size W96×H96mm
Digit	3	3 Digit
	4	4 Digit
Item	T	Temperature

※Please check the range of temperature when select model. (Please see C-27 page)

▣Temperature range for each sensor

Model	T3HA			T3HS			T4MA / T4LA			
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



▣Specifications

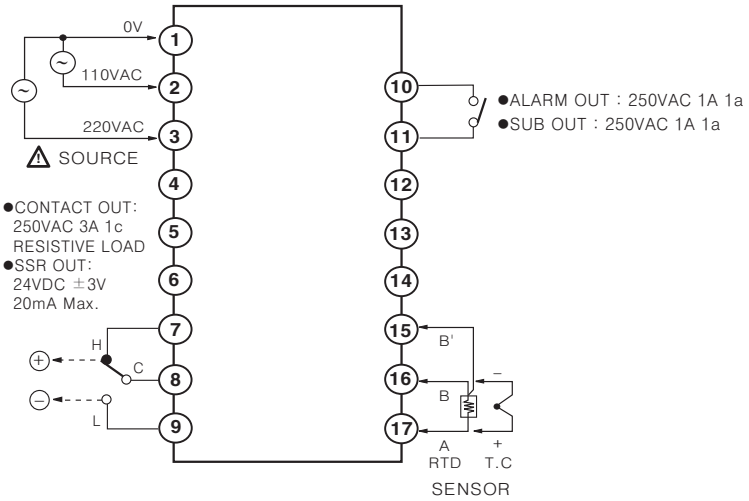
Model		T3HA	T3HS	T4MA	T4LA
Power supply		110/220VAC 50/60Hz			
Allowable voltage range		90 ~ 110% of rated voltage			
Power consumption		3VA			
Display method		7Segment LED Display			
Character size		W6×H10mm		W7.2×H9.8mm	W9.5×H14.2mm
Display accuracy		F · S ± 0.5% rdg ±1digit			
Setting type		Digital 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% Variable, Period : 20sec. fixed□			
Alarm output	SUB	SUB : 0 ~ −50℃			
	Alarm	**(Note)** ALARM : F · S 0 ~ 10%			
Reset VR range		F · S ±3%(Only for control deviation)			
Control output		●Relay contact output : 250VAC 3A 1c ●SSR output : 24VDC ±3V 20mA Max. ●Current output : 4−20mADC Load 600Ω Max.			
		ALARM OUT : 250VAC 1A 1a	SUB OUT : 250VAC 1A 1a	ALARM OUT : 250VAC 1A 1a	ALARM OUT : 250VAC 1A 1c
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:1㎲) 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		−25 ~ +65℃(at non−freezing status)□			
Ambient humidity		35 ~ 85%RH			
Weight		Approx. 514g	Approx. 517g	Approx. 425g	Approx. 484g

※**(Note)** The range of Alarm full scale (F.S) is from 0° ~ maximum using temperature.
Ex) In case of using temperature is from −99 ~ 199℃, Full scale is 199℃.

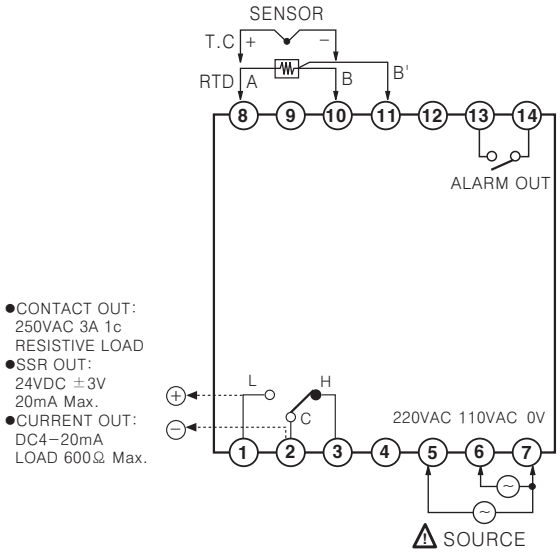
▣Connections

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

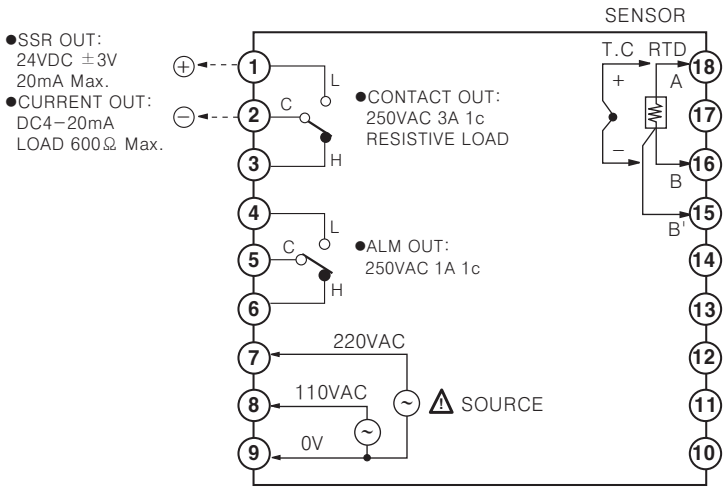
●T3HA, T3HS



●T4MA

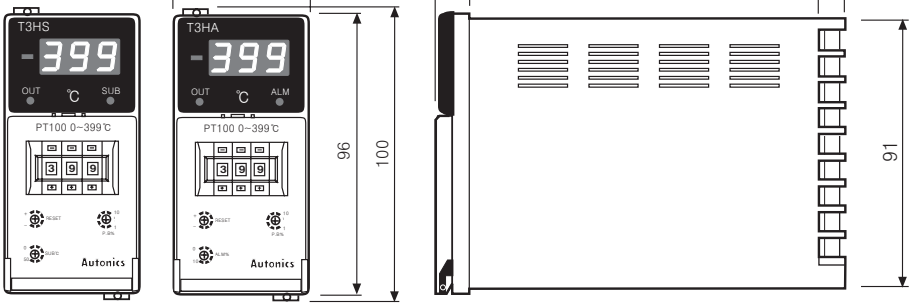


●T4LA

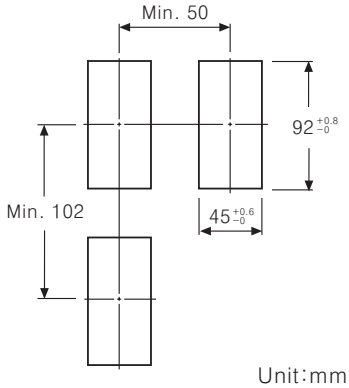


▣Dimensions

●T3HA, T3HS

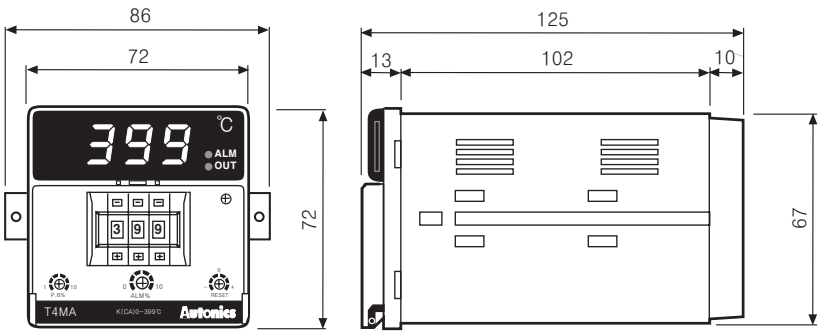


●Panel cut-out

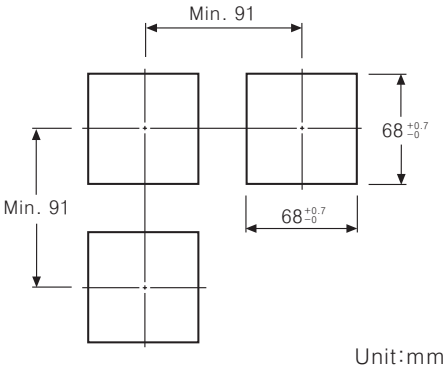


Unit:mm

●T4MA

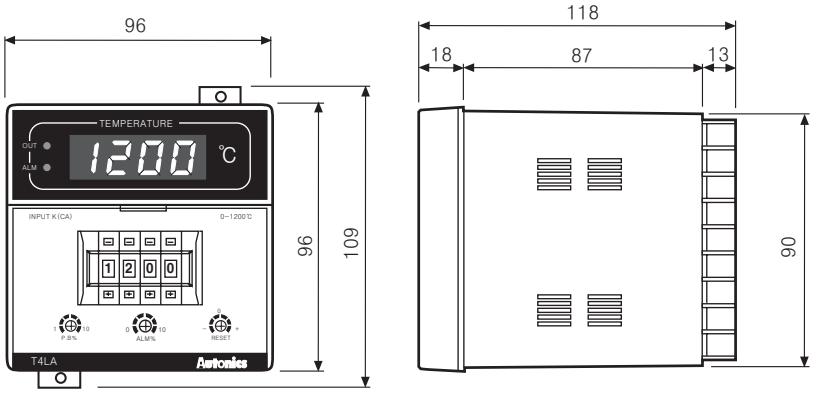


●Panel cut-out

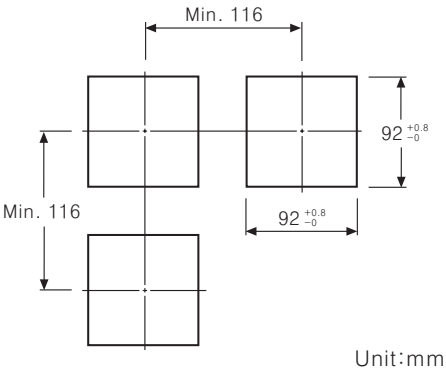


Unit:mm

●T4LA



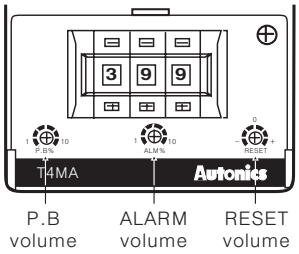
●Panel cut-out



Unit:mm

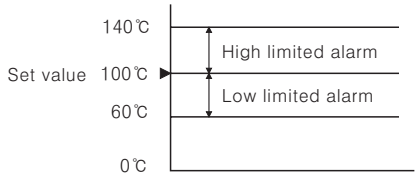
▣Proper usage

◎Using front volume



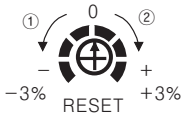
●P.B volume
:In case of ON/OFF control, set variable F.S 0.2~3% of hysteresis, and in case of proportional control, set variable F.S 1~10% of hysteresis.

●ALARM volume
:It adjusts alarm range(F.S 0~10%), and having 1:1 range for upper and lower limited range by set value.
Ex) In case the full scale of temperature controller is 400℃, if setting alarm range is maximum, the value is 400℃ × 0.1 =40℃. And the alarm range is high-limit 40℃ and lower-limit 40℃.



(Note) Full scale(F.S) of the alarm is from 0℃ up to max. temperature.
Ex) In case of using temperature is from -99 ~ 199℃, Full scale is 199℃.

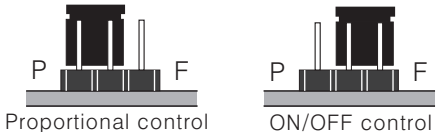
●RESET volume
:Adjusting the offset generated by using proportional control. Adjusting range of reset volume is F.S ± 3%. Do not change the reset volume when using ON/OFF control.



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

◎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.

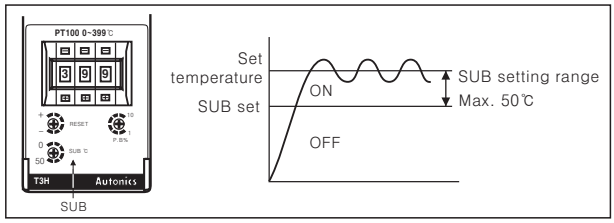


◎Normal/Reverse operation

Reverse operation 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)

◎SUB function(T3HS)

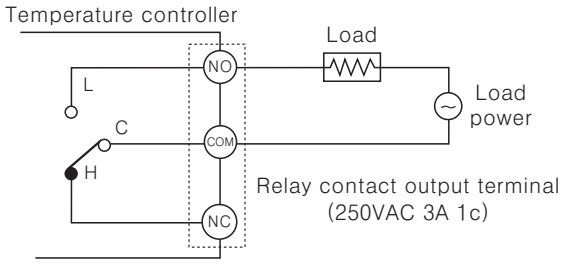
SUB output is for alarm used as injectior, etc.
If the temperature of controlled material riches to SUB setting value, the SUB output runs and keeps ON continuously.



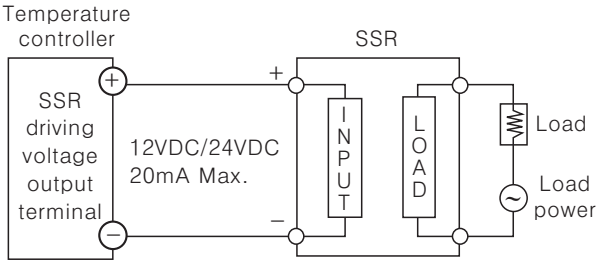
※SUB function is included only in T3H series.
※SUB range can be set up to 50℃ lower than setting value.

◎Application of temperature controller and load connection

●Relay output



●SSR output



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

●Current output