Analog and non-indicating type, set temperature by dial

▣ Features

- Non-indicating type
- Setting temperature by Dial
- Includes burn out function
- Universal power : TOS

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

c UL us
(TOS Series only)

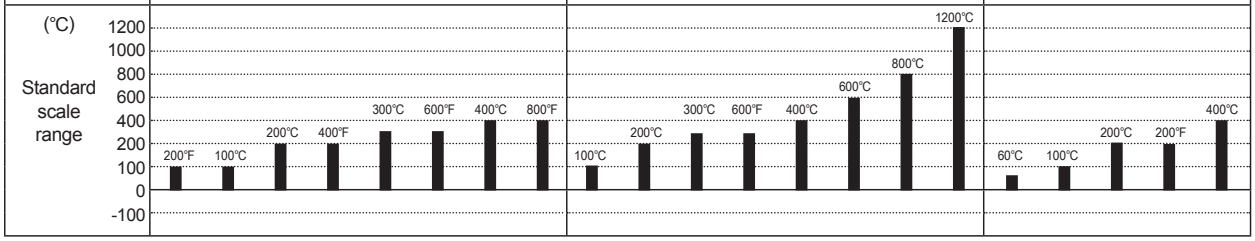
▣ Ordering information

T O S – B 4 R P 4 C

Unit	C	℃
	F	℉
Temperature range	X	0 to 60
	1	0 to 100
	2	0 to 200
	3	0 to 300
	4	0 to 400
	6	0 to 600
	8	0 to 800
	A	0 to 1000
	C	0 to 1200
Sensor input type	P	DPt100Ω
	J	J(IC)
	K	K(CA)
Control output	R	Relay output
	S	SSR drive output
Power supply	3	110/220VAC 50/60Hz
	4	100-240VAC 50/60Hz
Control method	P	Proportional control
	F	ON/OFF control
	B	ON/OFF, P control
Size	S	DIN W48×H48㎜
	M	DIN W72×H72㎜
	L	DIN W96×H96㎜
Digit	O	Non-indicating
Item	T	Temperature Controller

※**Refer to the H-124 about sensor temperature range for selection.**

▣ Temperature range for each sensor

Model	TOS / TOM / TOL		
Sensor input type	Thermocouples		RTD
	J(IC)	K(CA)	DPt100Ω
(℃) Standard scale range			

▣ Specifications

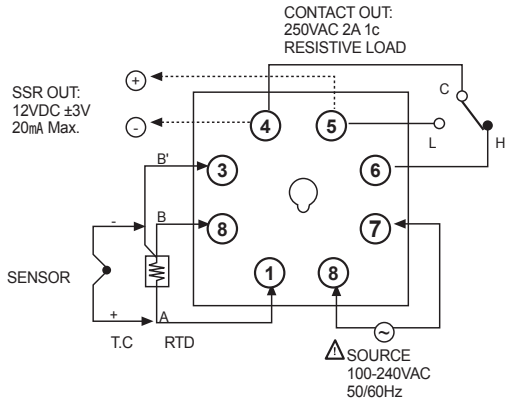
Model		TOS	TOM	TOL
Power supply		110-220VAC 50/60Hz	110/220VAC 50/60Hz	
Allowable voltage range		90 to 110% of rated voltage		
Power consumption		Max. 2.2VA	Max.3VA	
Display method		LED ON	LED ON/OFF	
Setting type		Dial setting		
Setting accuracy		F.S. ±2%		
Sensor input		Thermocouples : K(CA), J(IC) / RTD : DPt100Ω		
Input line resistance		Thermocouples : Max. 100Ω, RTD : Allowable line resistance Max. 5Ω		
Control method	ON/OFF	Hysteresis : F.S. 0.5% ±0.2% fixed		
	Proportional	Proportional band : F.S. 3% fixed, Period : 20sec. fixed		
Control output		•Relay output : 250VAC 2A 1c •SSR drive output : 12VDC ±3V Load 20mA Max.	•Relay output : 250VAC 3A 1c •SSR drive output : 12VDC ±3V 20mA max.	
Self-diagnosis		Built-in burn out function		
Insulation resistance		Min. 100MΩ(at 500VDC megger)		
Dielectric strength		2000VAC 50/60Hz for 1 min.		
Noise strength		±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 minutes		
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: -20 to 60℃		
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
Aproval		c UL us	-	-
Unit weight		Approx. 104g	Approx. 419g	Approx. 426g

※ F.S. is same with sensor measuring temperature range.
Ex) In case of using temperature is from 0 to 800℃, Full scale is "800".
※ Environment resistance is rated at no freezing or condensation.

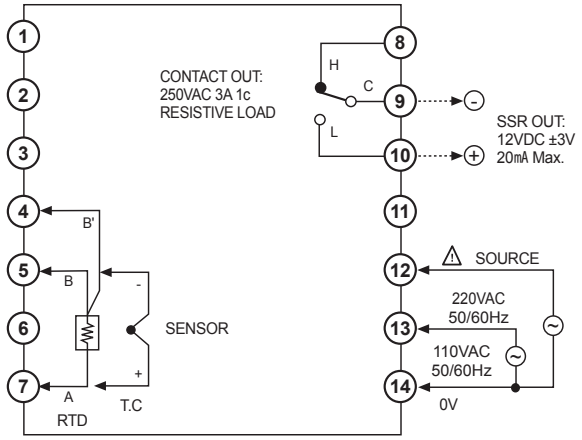
▣ Connections

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

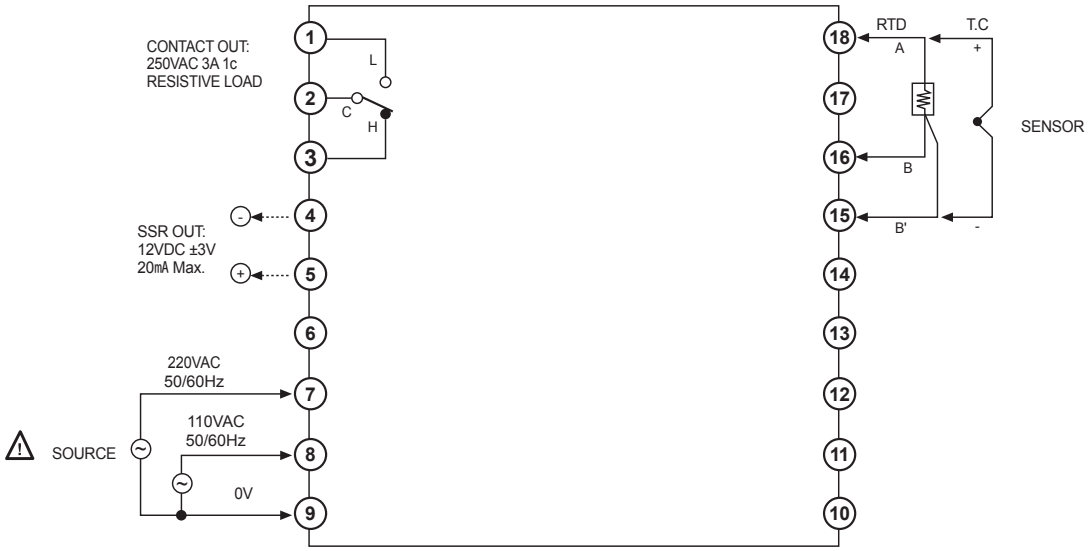
◎ TOS



◎ TOM



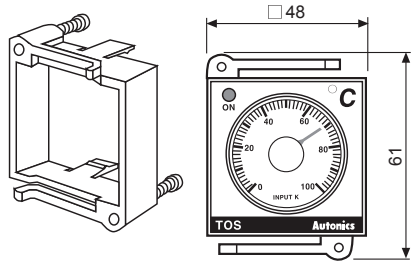
◎ TOL

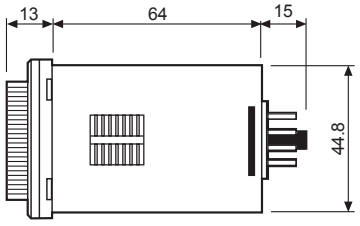


▣ Dimensions

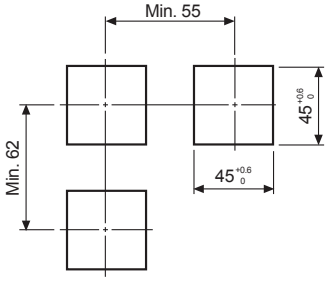
◎ TOS

● Bracket





● **Panel cut-out**

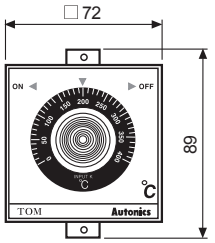


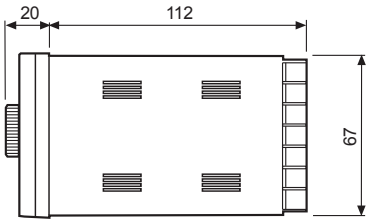
(unit: mm)

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

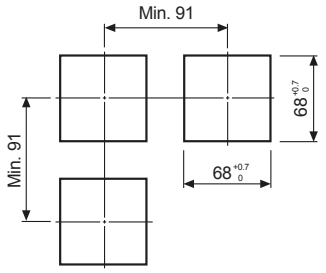
▣ Dimensions

◎ TOM

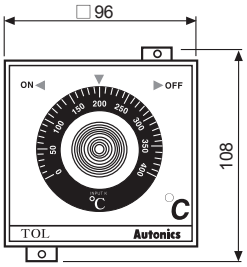


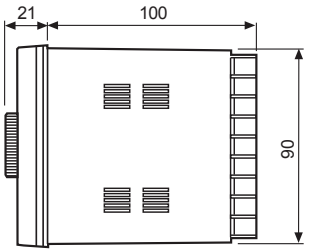


● **Panel cut-out** (unit: mm)

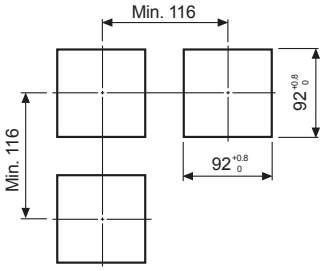


◎ TOL





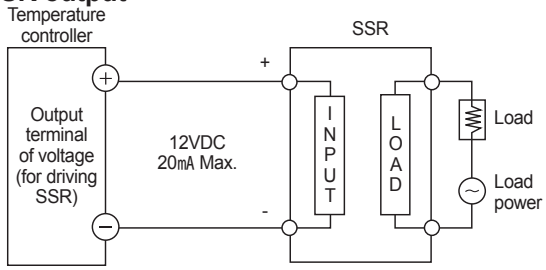
● **Panel cut-out** (unit: mm)



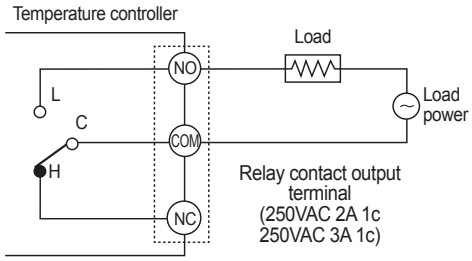
▣ Proper usage

◎ Application of temperature controller and load connection

● **SSR output**



● **Relay output**

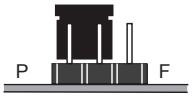


◎ Normal/Reverse operation

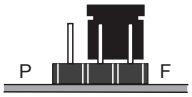
Reverse operation executes to output ON when processing value is lower than setting value, and it is used for heating.
Normal operation is executed conversely and used for cooling.
(This item runs as a reverse operation.)

◎ 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 method from P to F after detaching the case from its body.
Note)Several models require to change control method by jump line or solder.



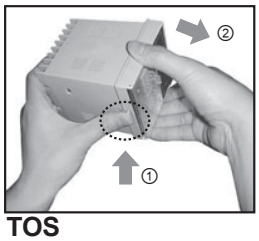
P control



ON/OFF control

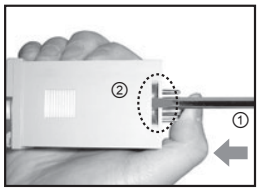
◎ Case detachment

● **TOM, TOL**



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

● **TOS**



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

※Refer to the H-158 page for caution for using and simple error diagnosis.