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

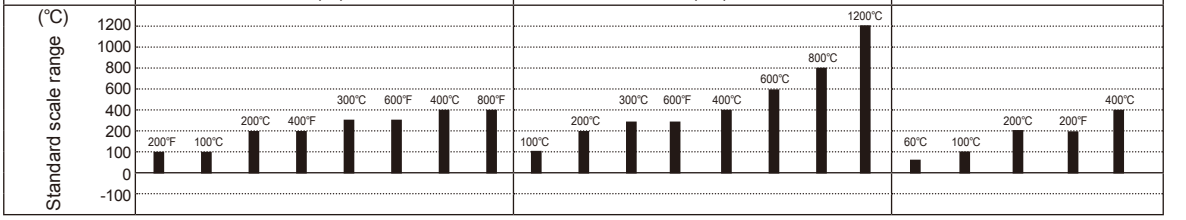
T	O	S	B	4	R	P	4	C

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 voltage 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×H48mm
	M	DIN W72×H72mm
	L	DIN W96×H96mm
Digit	O	Non-indicating
Item	T	Temperature Controller

※**Refer to the H-108 about sensor temperature range for selection.**

▣ Temperature range for each sensor

Series	TOS / TOM / TOL		
Sensor input type	Thermocouples		RTD
	J(IC)	K(CA)	DPt100Ω



▣ Specifications

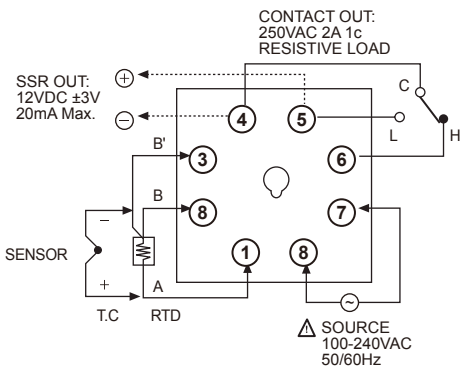
Series		TOS	TOM	TOL
Power supply		100-240VAC 50/60Hz	110/220VAC 50/60Hz	
Allowable voltage range		90 to 110% of rated voltage		
Power consumption		Max. 2.2VA	Max.3VA	
Display method		LED ON	LED ON/OFF	
Setting type		Dial setting		
Setting accuracy		F.S. ±2%		
Sensor input		Thermocouples: K(CA), J(IC) / RTD: DPt100Ω		
Input line resistance		Thermocouples: Max. 100Ω, RTD: Allowable line resistance max. 5Ω per a wire		
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 voltage output : 12VDC ±3V Load 20mA Max.	• Relay output: 250VAC 3A 1c • SSR drive voltage output: 12VDC ±3V 20mA 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)		
Environment	Ambient temperature	-10 to 50℃, storage: -25 to 65℃		
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
Approval		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.

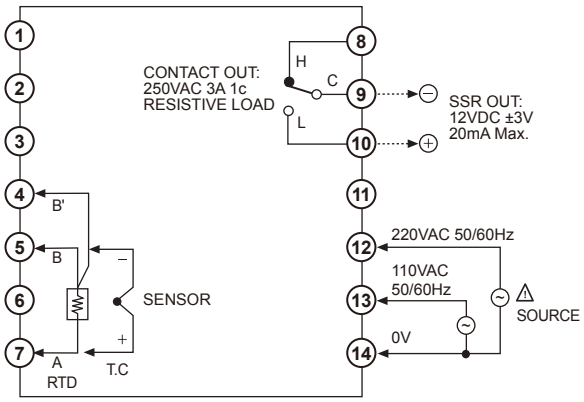
▣ Connections

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

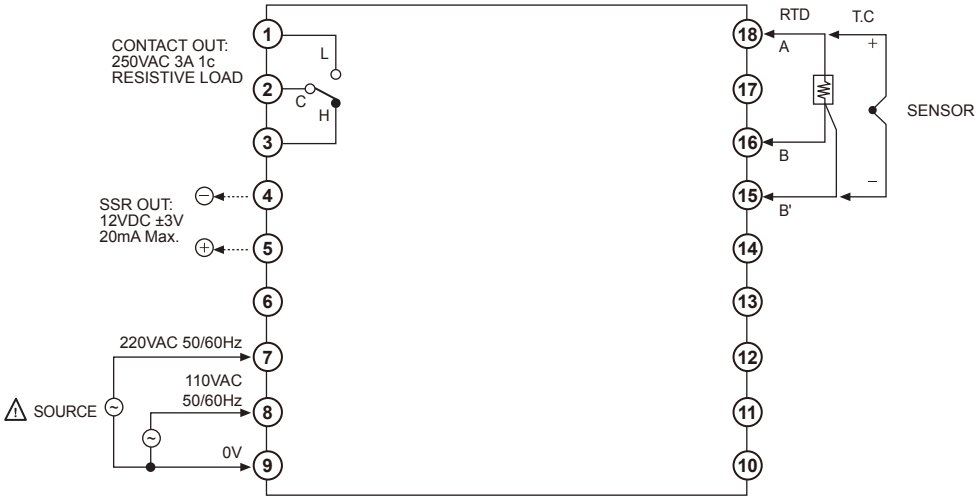
● TOS



● TOM



● TOL



▣ Dimensions

(unit: mm)

● TOS

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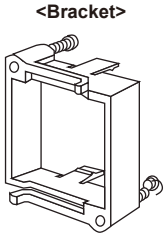
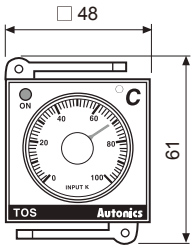
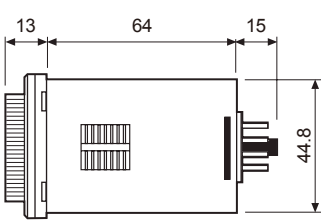
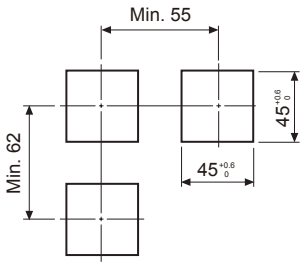






●Panel cut-out

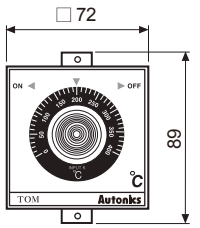


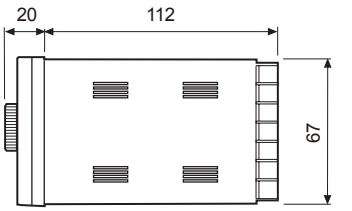
※Socket: PG-08, PS-08(sold separately)

▣ Dimensions

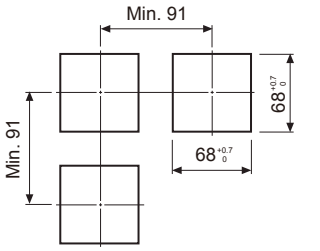
(unit: mm)

● **TOM**

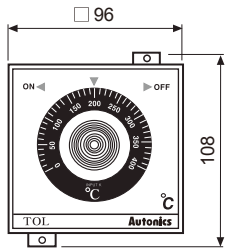


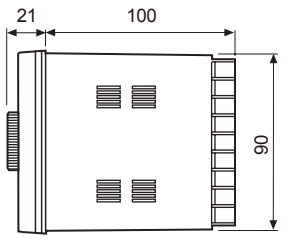


●**Panel cut-out**

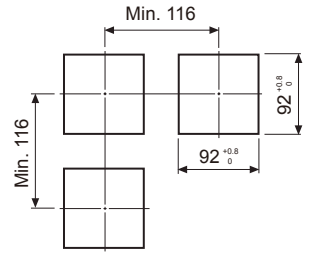


● **TOL**





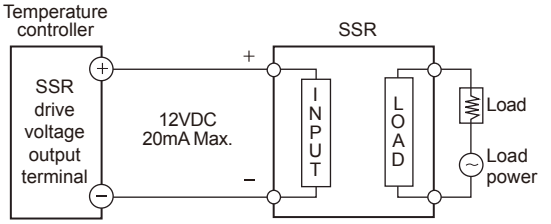
●**Panel cut-out**



▣ Proper usage

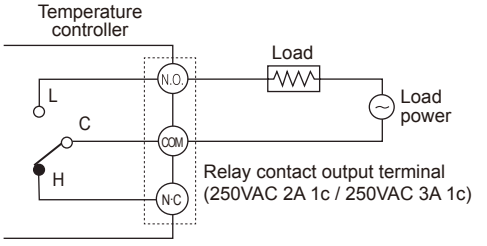
◎ Application of temperature controller and load connection

● **SSR drive voltage output connection**



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

● **Relay output connection**



◎ Normal/Reverse operation

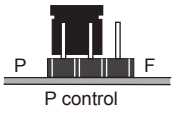
Reverse operation executes to output ON when processing value is lower than setting value, and it is used for heating.

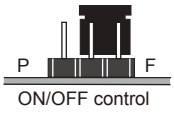
Normal operation is executed conversely and used for cooling. (This item runs as a reverse operation.)

◎ How to select 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.

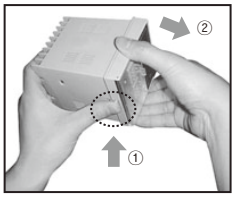
Note)Several models require to change control method by jump line or solder.





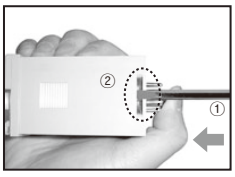
◎ Case detachment

● **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-141 page for caution for using and simple error diagnosis.