TOS/ TOM/ TOL   Analog Setting Non-Indicating type

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 |

Field	Code	Description
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.**

| (A) Photo electric sensor |
| (B) Fiber optic sensor |
| (C) Door/Area sensor |
| (D) Proximity sensor |
| (E) Pressure sensor |
| (F) Rotary encoder |
| (G) Connector/ Socket |
| **(H) Temp. controller** |
| (I) SSR/ Power controller |
| (J) Counter |
| (K) Timer |
| (L) Panel meter |
| (M) Tacho/ Speed/ Pulse meter |
| (N) Display unit |
| (O) Sensor controller |
| (P) Switching mode power supply |
| (Q) Stepper motor& Driver&Controller |
| (R) Graphic/ Logic panel |
| (S) Field network device |
| (T) Software |
| (U) Other |

TOS/ TOM/ TOL

▣ Temperature range for each sensor

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

Standard scale range (℃): chart showing values 1200, 1000, 800, 600, 400, 200, 100, 0, -100.

J(IC): 200°F, 100℃, 200℃, 400°F, 300℃, 600°F, 400℃, 800°F
K(CA): 100℃, 200℃, 300℃, 600°F, 400℃, 600℃, 800℃, 1200℃
DPt100Ω: 60℃, 100℃, 200℃, 200℃, 400℃
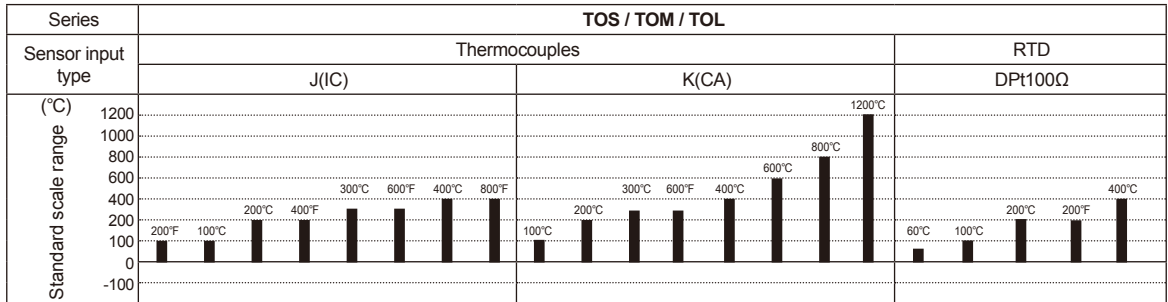
▣ Specifications

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		
Control method — 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		
Vibration — 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		
Shock — Malfunction	100m/s²(approx. 10G) in each of X, Y, Z directions for 3 times		
Relay life cycle — Mechanical	Min. 10,000,000 operations		
Relay life cycle — Electrical	Min. 100,000 operations(250VAC 3A at resistive load)		
Environment — Ambient temperature	-10 to 50℃, storage: -25 to 65℃		
Environment — Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
Approval	$_c\mathbf{\Re}_{us}$	—	—
Unit weight	Approx. 104g	Approx. 419g	Approx. 426g

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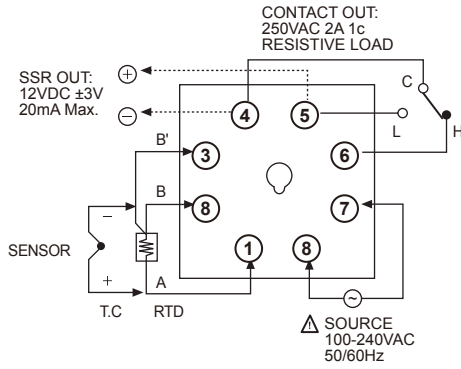 Ex) In case of using temperature is from 0 to 800℃, Full scale is "800".
※Environment resistance is rated at no freezing or condensation.

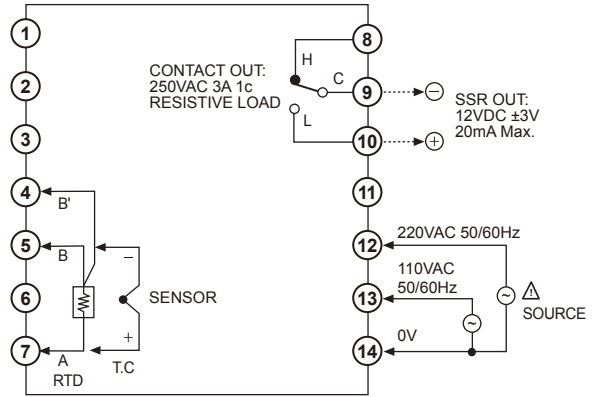Autonics

Analog Setting Non-Indicating type

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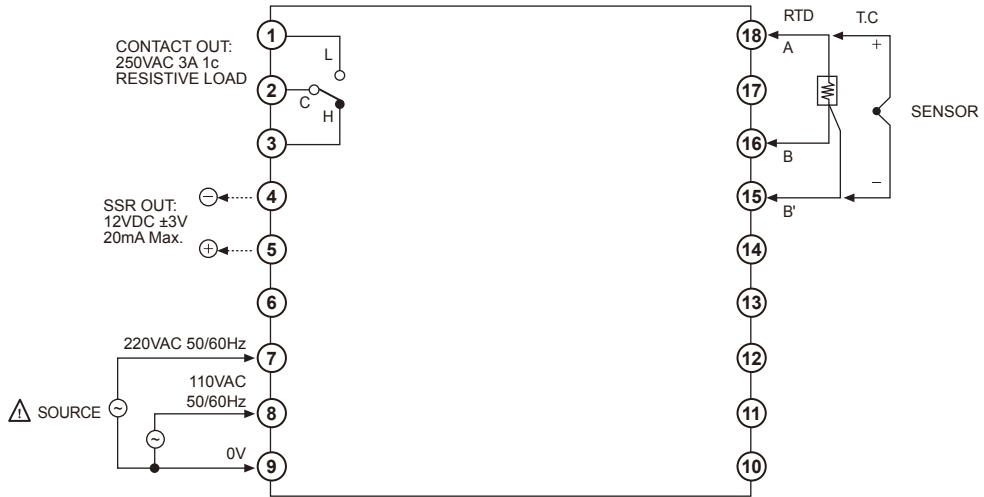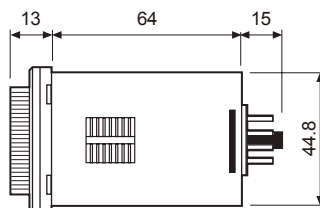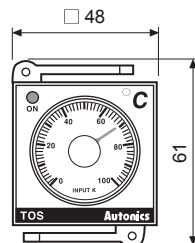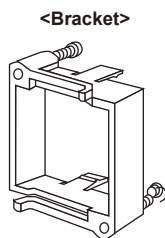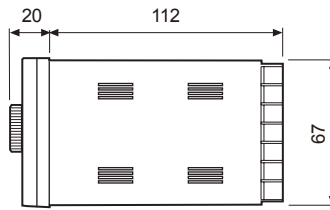
※RTD: DPt100Ω(3-wire type)   ※Thermocouple: K, J

● **TOS**

CONTACT OUT:
250VAC 2A 1c
RESISTIVE LOAD

SSR OUT:
12VDC ±3V
20mA Max.

SENSOR

T.C   RTD

SOURCE
100-240VAC
50/60Hz

● **TOM**

CONTACT OUT:
250VAC 3A 1c
RESISTIVE LOAD

SSR OUT:
12VDC ±3V
20mA Max.

SENSOR

220VAC 50/60Hz

110VAC 50/60Hz

0V

SOURCE

RTD   T.C

● **TOL**

CONTACT OUT:
250VAC 3A 1c
RESISTIVE LOAD

SSR OUT:
12VDC ±3V
20mA Max.

220VAC 50/60Hz

110VAC 50/60Hz

SOURCE

0V

RTD   T.C

SENSOR

▣ Dimensions

(unit: mm)

● **TOS**

<Bracket>

□ 48

61

ON

C

INPUT K

TOS   Autonics

13   64   15

44.8

● **Panel cut-out**

Min. 55

Min. 62

$45^{+0.6}_{0}$

$45^{+0.6}_{0}$
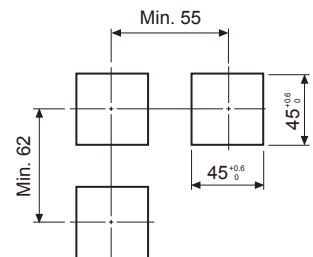
※Socket: PG-08, PS-08(sold separately)

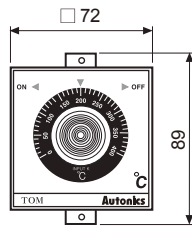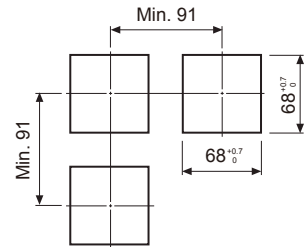| (A) Photo electric sensor |
| (B) Fiber optic sensor |
| (C) Door/Area sensor |
| (D) Proximity sensor |
| (E) Pressure sensor |
| (F) Rotary encoder |
| (G) Connector/ Socket |
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| (O) Sensor controller |
| (P) Switching mode power supply |
| (Q) Stepper motor& Driver&Controller |
| (R) Graphic/ Logic panel |
| (S) Field network device |
| (T) Software |
| (U) Other |

TOS/ TOM/ TOL

◼ Dimensions

● TOM

□ 72

89

20 112

67

●Panel cut-out

Min. 91

Min. 91

68 $^{+0.7}_{0}$

68 $^{+0.7}_{0}$

● TOL

□ 96

108

21 100

90

●Panel cut-out

Min. 116

Min. 116

92 $^{+0.8}_{0}$

92 $^{+0.8}_{0}$
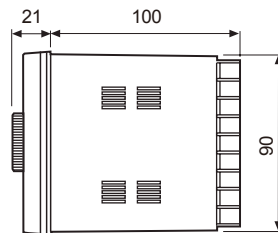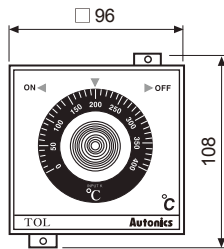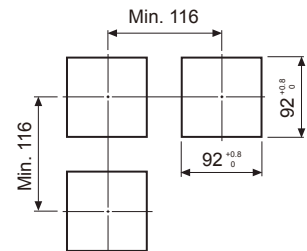
◼ Proper usage

◎ Application of temperature controller and load connection

● SSR drive voltage output connection

Temperature controller

SSR drive voltage output terminal

12VDC 20mA Max.

SSR

INPUT

LOAD

Load

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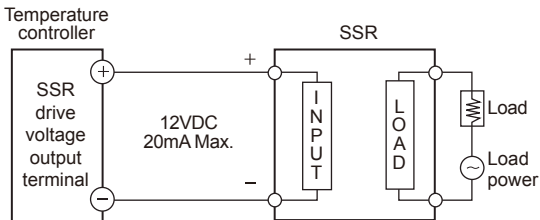
※When using voltage(for driving SSR) in the other purposes, do not over the range of the rated current.

● Relay output connection

Temperature controller

L

C

H

N.O.

COM

N.C

Load

Load power

Relay contact output terminal (250VAC 2A 1c / 250VAC 3A 1c)
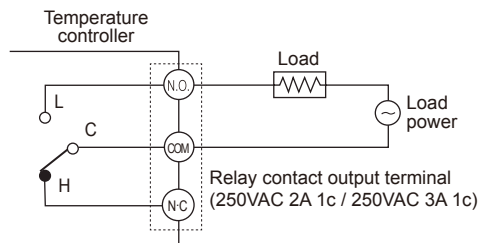
◎ Normal/Reverse operation

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.)
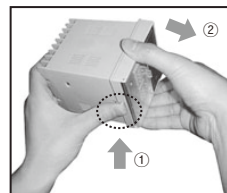
◎ How to select control mode

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.

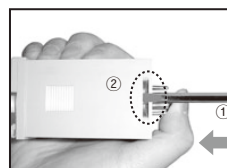Note)Several models require to change control method by jump line or solder.

P   F
P control

P   F
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-141 page for caution for using and simple error diagnosis.

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