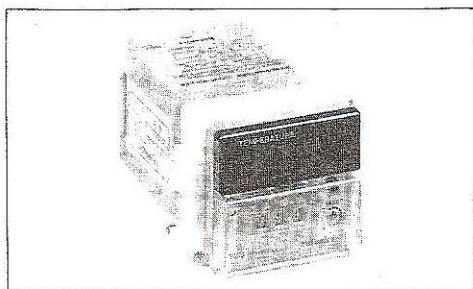


Autonics

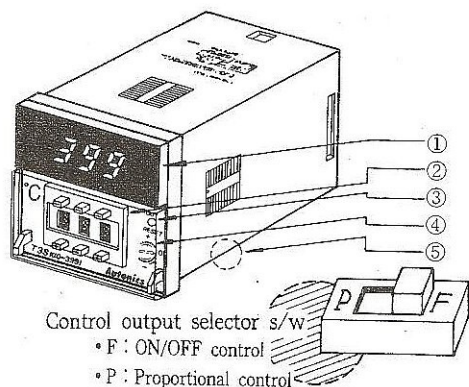
T3S

TEMPERATURE CONTROLLER



Thank you very much for selecting the AUTONICS temperature controller.
Please read this manual carefully before you use this instrument.

DIMENSIONS AND MOUNTING



- ① PV(Display value)
- ② SV(Thumb switch for setting value)
- ③ Control output indicator
- ④ Reset adjustment setting
- ⑤ Control output selector switch

ORDERING INFORMATION

T 3 S - P 2 R 4

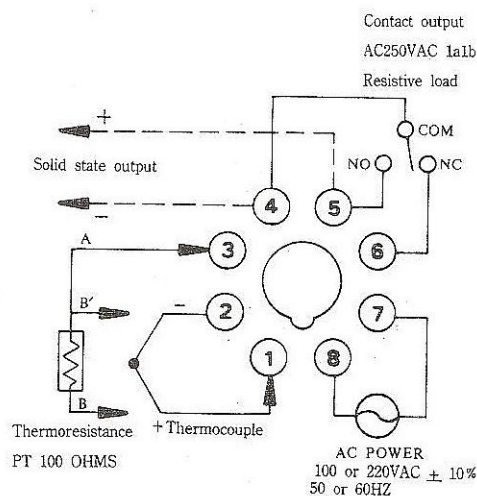
① ② ③ ④ ⑤ ⑥ ⑦

- ① T : Temperature controller
- ② DISPLAY 3 : 3Digit
- S : Series 48mm×48mm
- S : Temperature controller
- SI : Temperature indicator
- ④ Control method N : Non
- F : ON/OFF control
- P : Proportional control
- ⑤ Service power 1 : 100V ± 10% 50 or 60 HZ
- 2 : 220V ± 10% 50 or 60 HZ
- ⑥ Control output N : Non
- R : Contact output
- S : Solid state output
- ⑦ Sensor input type 0 : PT100(0~399°C)
- 1 : PT100(0~99.9°C)
- 2 : PT100(0~199°C)
- 3 : J(0~199°C)
- 4 : J(0~399°C)
- 5 : K(0~399°C)
- 6 : K(0~799°C)

SPECIFICATIONS

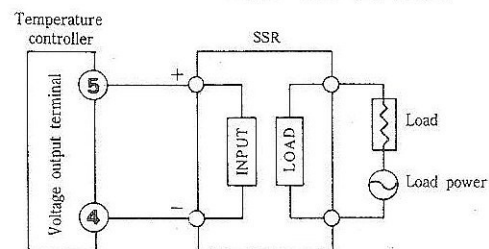
Display method	7 segment LED with red color
Setting method	Thumb switches
Indication accuracy	± 1% of full scale
Setting accuracy	
Sensor input type	Thermocouple : K(CA), J(IC)
	Thermoresistance : PT100 with 3wires
External permissible wire resistance	Thermocouple input : <100
	Thermoresistance input : <10
Control operation	ON/OFF hysteresis 0.2~0.5% of full scale fixed.
	Proportional band : 3% of full scale. fixed.
	Proportional period : 20sec. Fixed.
Reset range adjustment	± 3% of full scale
Control output	Contact output : AC250V 2A resistive load
	Solid state output : Voltage output 8 to 12VDC
Protection	Output "OFF" on sensor failure
Operating temperature	-10°C~50°C
Operating humidity	35~85% RH non-condensing
Supply voltage	AC 100V or 220V ± 10% (50/60HZ)

EXPLAINING FUNCTIONS

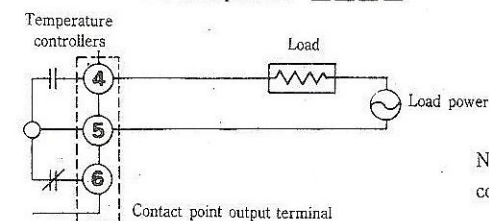


TEMPERATURE CONTROLLER & LOAD CONNECTIONS FOR REVERSING OPERATION

• In case of solid state output : T3S-□□□□



• In case of contact output T3S-□□□□



ON/OFF CONTROL

FIG. 1. Shows the output is 'ON' when the temperature is below the set value. the output turns 'OFF' when temperature is equal or greater than set value.

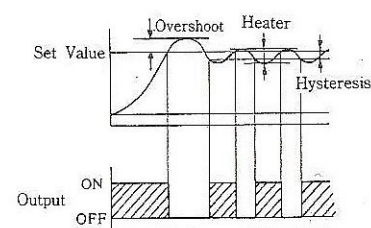


FIG.1

Note : Temperature will overshoot with ON/OFF control

■ RESET VOLUME CONTROL

FIG. 3. Shows reset range adjustment.
offset is determined by the amount of adjustment.

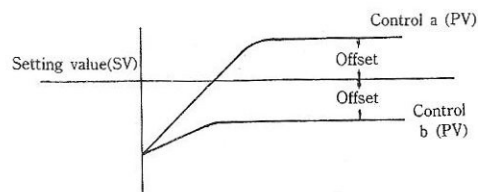


FIG. 3.

• $SV > PV$

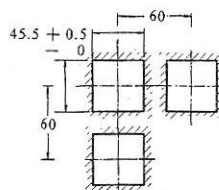
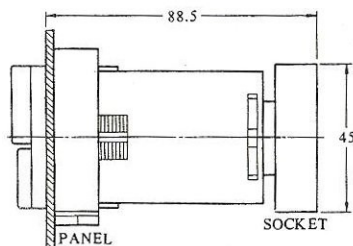
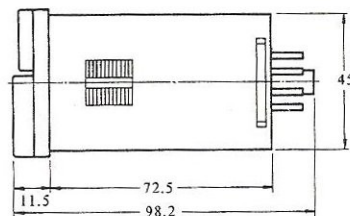
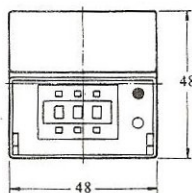


Set value is lower
than control value



Set value is higher
than control value

■ DIMENSIONS AND MOUNTING



■ FUNCTION INFORMATIONS

• BURN OUT FUNCTION

The output of the temperature controller is off when the thermocouple short-circuits or breaks.

• VOLTAGE OUTPUT

For operating an external SSR, the voltage output of the temperature controller is between 8 to 12 VDC.

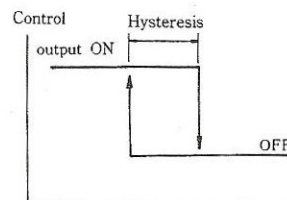
• REVERSE OPERATION

The output of temperature controller is on when the display value is lower than setting value. T3S is outputted subject to reversing operation.

■ HYSTERESIS

Making ON/OFF on one point may be easily affected by chattering or noise. Hence as below chart there is hysteresis in ON/OFF.

In order to prevent chattering of the output in the ON/OFF mode, hysteresis is essential.



Example :

A temperature controller with a full scale of 400 deg. C 0.5% hysteresis and temperature setting of 300 deg. C operates as follows :

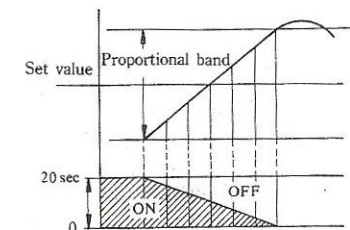
0.5% of 400 deg. C is 2 deg. C. The output will turn "OFF" at 301 deg. C and come back "ON" at 299 deg. C.

■ INSTALLATION PRECAUTIONS.

- Use compensated wire to connect thermo couples.
- Wires to rtd should have low resistance.
- Separate low voltage output wires from power wires.
- Avoid installation near high frequency generating devices.
- Do not install where vibration high temperature corrosive gasses, or moisture is present.

■ PROPORTIONAL CONTROL

FIG. 2. Shows the operation output of a proportional controller.



The "ON" time gets shorter as the temperature reaches the set point. when the temperature is at set point "ON" and "OFF" is usually divided(50% "ON" 50% "OFF").

If the temperature is higher than the set value "ON" time will be reduced.

■ APPLICATIONS

The temperature controller can be used in many applications, from injection molding machines, extruders packaging machines to heat-treat furnaces, just to name a few.

If you have a particular application, please do not hesitate to contact your autonics representative.

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Specifications and dimensions contained in this manual may change without notice.