

PID TEMPERATURE CONTROLLER



INSTRUCTION SHEET

Thank you for selecting INNO for your requirement.

This sheet describes the procedure and precautions required for installing and operating the product.

Kindly read this sheet before operating or installing the product. Store the sheet for future reference.

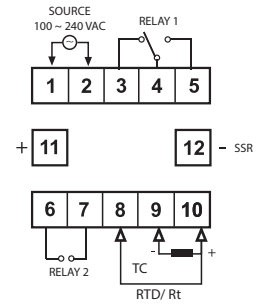
SPECIFICATIONS

*For details on Customized/ Special Models contact Seller

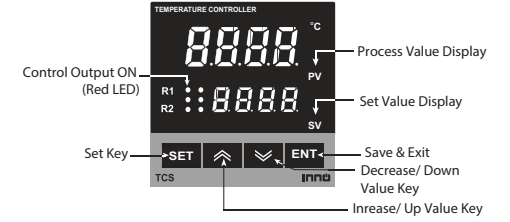
*Models	TCS-U-RS230VAC	
Power Supply	100 ~ 240 VAC	
Power Consumption	30mA at 220 VAC	
Sensor Input	Thermocouple: K, J, RTD: Pt100	
Control Output	Type	Relay + SSR Output
	Specification	Relay: 2 C/O Contact, 230V AC, 5A (Resistive Load) SSR: 12V DC
Control Method	ON/ OFF control or PID control with auto-tuning	
PV Display	4 digit, 7 Segment RED LED; Height: 9mm	
SV Display	4 digit, 7 Segment GREEN LED; Height: 7mm	
Resolution	Thermocouple: J - 0 ~ 600° C / K - 0 ~ 1200° C; RTD: 0 ~ 400° C	
Sampling Time	min. 0.5ms	
Dielectric Strength	At power terminals 2000 VAC, 50Hz, 1 min	
Ambient Temperature	Operation: 0° ~ 50° C; Storage: -10° ~ 60° C (non- freezing; non- condensing)	
Ambient Humidity	Operation: 45 ~ 85% RH; Storage: 25 ~ 85% RH (non- condensing)	
Protection Class	IP20, Front panel IP65	
Weight	Approx. 149 grams	
Material	Front Panel: PU Cladding Housing: ABS or Equiv.	

CONNECTION DIAGRAM

◆ TCS-U-RS230VAC

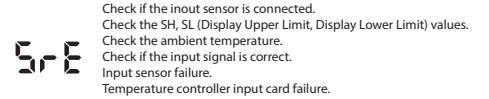


NOMENCLATURE



ERROR INDICATIONS

There is an error condition if the following values are displayed on the Temperature controller.



NOTE: Press and hold the UP key for 6 seconds to Start / Stop PID Auto - Tunning.

CAUTION FOR SAFETY

ⓘ Please keep this sheet for review before use of unit.

ⓘ Please observe the following:

WARNING
Serious injury may occur if instructions are not followed

CAUTION
Product failure or injury can occur if instructions are not followed

WARNING

- This is not a safety product and is not to be used with machinery that requires use of safety control.
- Do not disassemble or modify this unit. It may lead to electric shock/ fire.

Do not connect touch the terminals when power is on.
RISK OF ELECTRIC SHOCK!

CAUTION

- This unit shall not be used outdoors or in places with high sunlight, humidity or other harsh conditions.
- Do not use the unit in places where there is flammable or explosive gas.
- Do not use this unit beyond rated power.
- Please check the unit for wrong wiring before power on.
- Do not use this unit in places where there is vibration or impact.
- Do not use water or oil based detergent for cleaning the unit.
- Do not use unit in places with high EM noise as it may lead to product malfunction.
- Do not use excessive force to tighten the unit and do not hammer the unit.
- Please process it as industrial waste and dispose responsibly.

PRECAUTION FOR SAFE USE

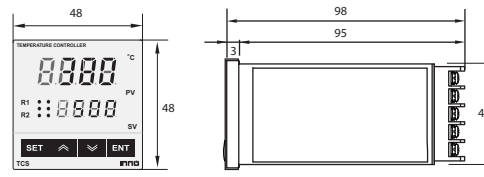
- Provide sufficient space around the unit to allow for heat dissipation.
- If several units are mounted side by side or vertically, the heat dissipation will cause the internal temperature of the products to rise. Compensate for the same by provide a cooling fan.
- Install the product horizontally.
- Mount to a panel with 1~8mm thickness only.
- In order to prevent inductive noise, wire the lines connected to the product separately from the power lines.
- Allow the product to operate without load for atleast 15 minutes.
- Do not connect anything to the unused terminals.
- Install an external circuit breaker or switch that confirms to IEC60947-1 and IEC60947-3 requirements and label them clearly so that the operator can quickly turn OFF power.
- Use specified size of crimp terminals: M3, width: 5.8mm max.
- Avoid use of bare wire for connection. If used length of exposed wire is to be between 6 ~8mm.

CAUTION FOR SAFETY

CAUTION

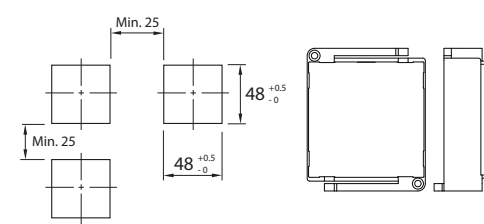
- Do not allow pieces of metal, wire clippings or metal shavings from installation to enter the product. Doing so may result in product failure.
- Do not disassemble the unit when connected to power supply.
- Do not use the equipment for measurements within measurement categories II, III, IV (according to IEC61010-1). Doing so may result in unexpected operation and may cause damage to equipment/ personal.
- Tighten the screws on the terminal block securely using the correct amount of torque. Loose screws may cause improper operation.
Terminal Block Screws Tightening Torque = 0.43 ~ 0.58 Nm

DIMENSIONS



① Panel Cut-out

② Panel Adapter



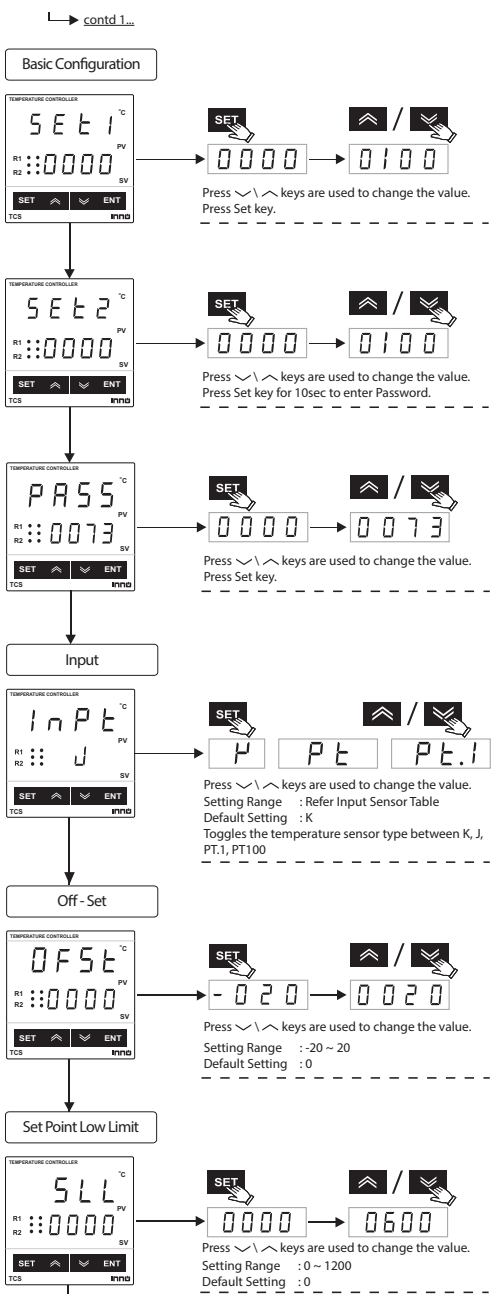
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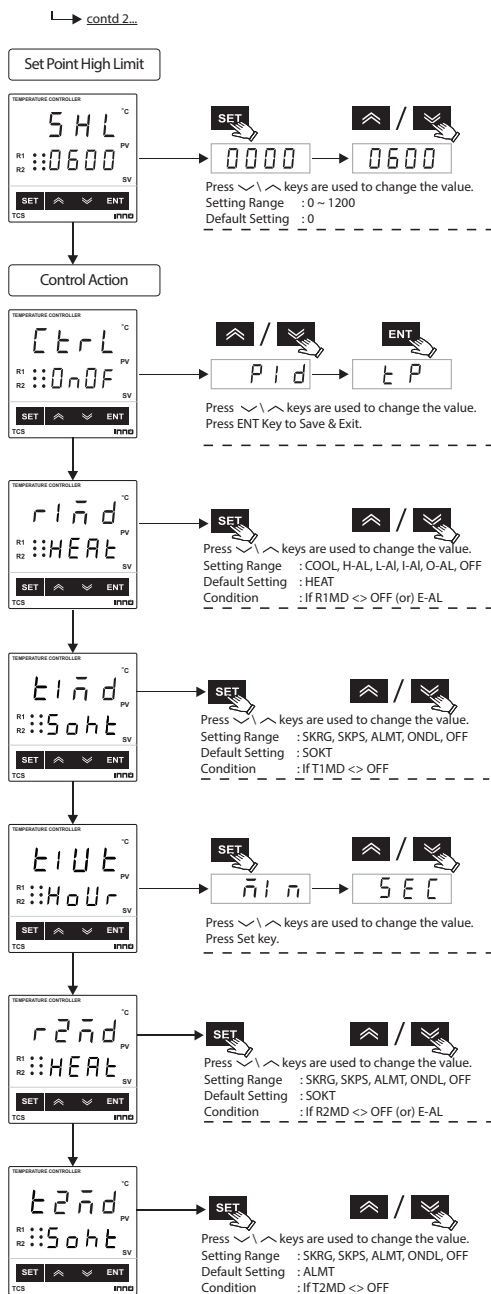


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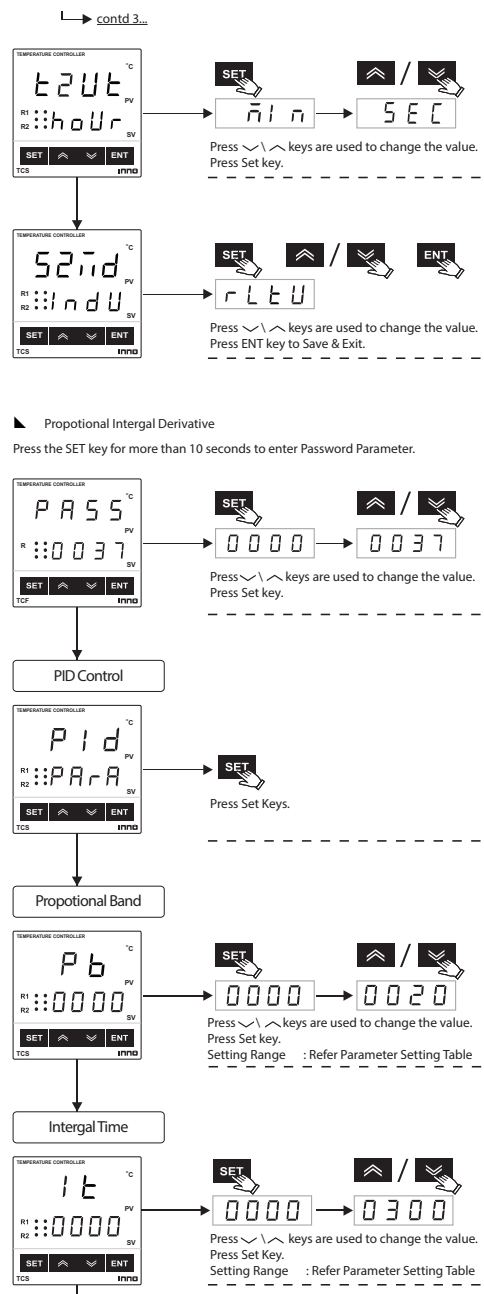
SETTING MODE (Contd 1...)



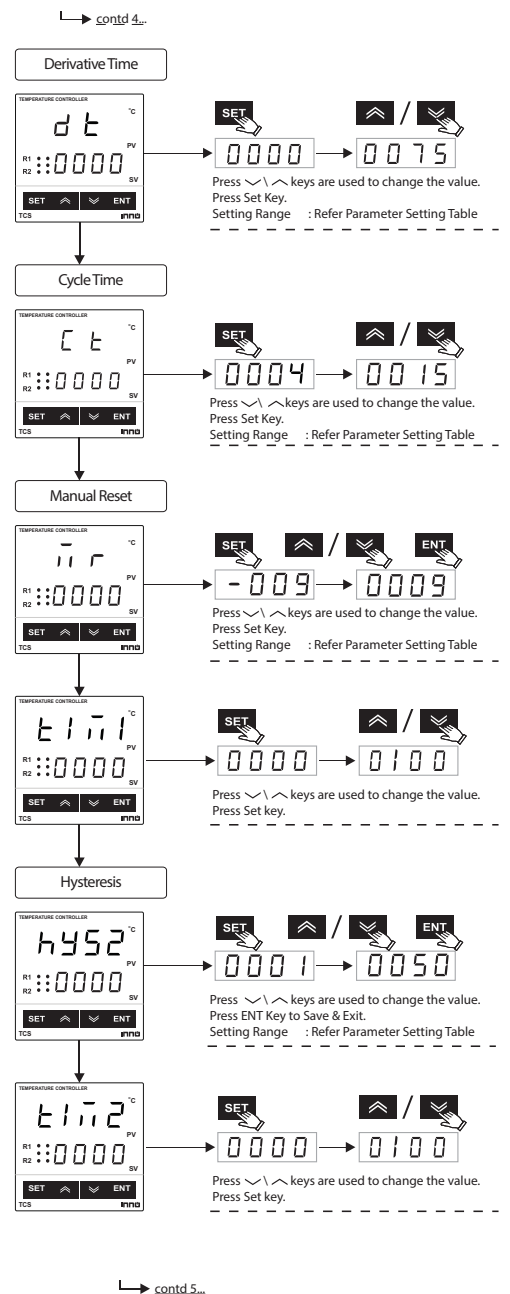
SETTING MODE (Contd 2...)



SETTING MODE (Contd 3...)



SETTING MODE (Contd 4...)



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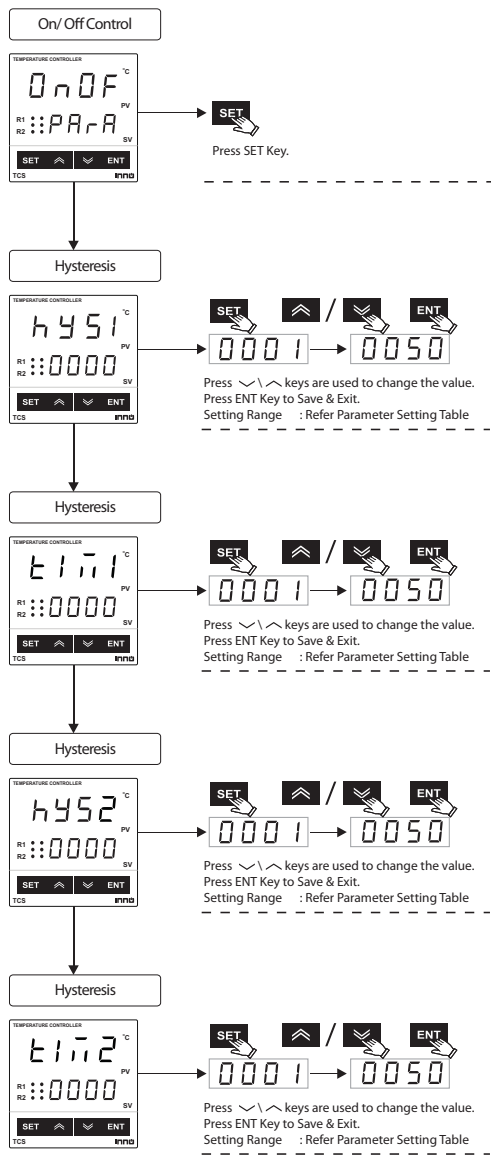
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SETTING MODE (Contd 4...)

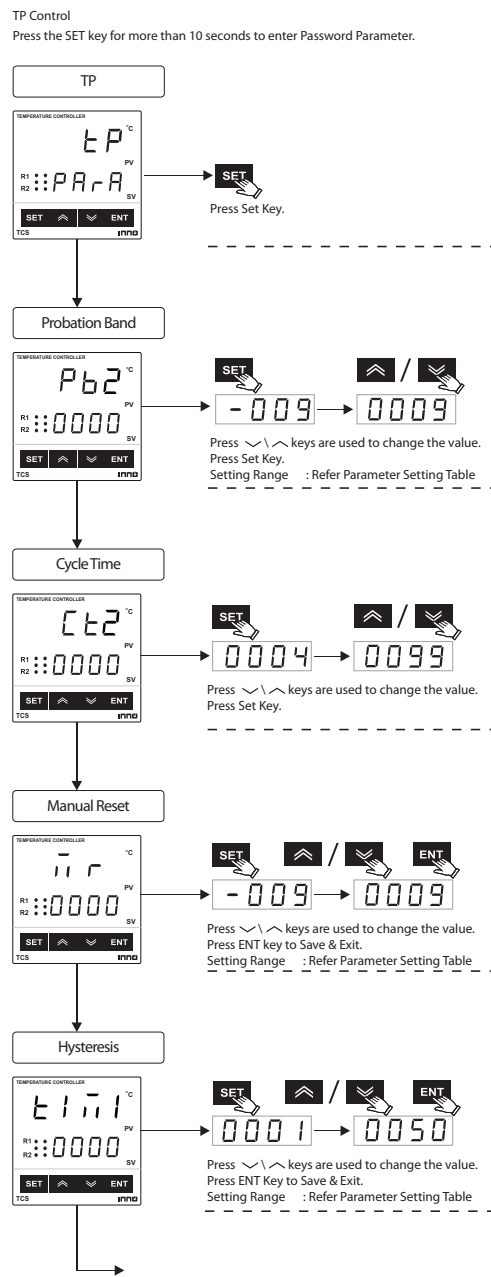
On / Off Control



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SETTING MODE (Contd 5...)

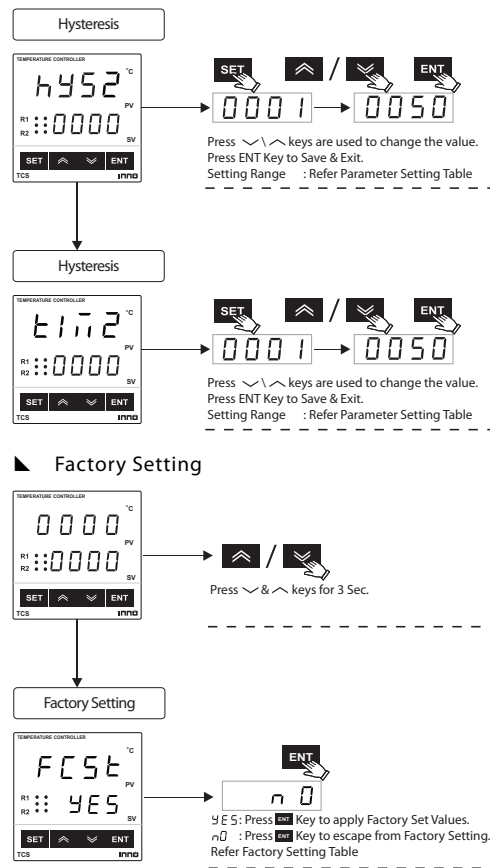
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contd.6...

SETTING MODE (Contd 6...)

contd.6...



INPUT SENSOR TABLE

Available Sensor types and their measuring range is given in the below table

Input Code	Input Type	Measuring Range	Resolution
ℓ	K type	-0 ~ 1200°C	1°C
ℓ	J Type	-0 ~ 600°C	1°C
Pt:100	PT 100	-99 ~ 400°C	0.1°C
Pt:1	PT.1	-99.0 ~ 400.0°C	0.1°C

Parameters Setting Table

Available Sensor types and their measuring range is given in the below table

Parameter	Range for J, K, PT100	Range for PT.100	Factory Setting
PB	0000 ~ 9999	00.00 ~ 99.99	20
IT	0000 ~ 9999	0.000 ~ 9.999	300
DT	0 ~ 9999	0 ~ 9999	75
CT	4sec ~ 99sec	4sec ~ 99sec	15sec
CT2	2 ~ 20	2.0 ~ 20.0	8sec
MR	-9 ~ +9	-9.0 ~ +9.0	0°C
PB2	2 ~ 20	2.0 ~ 20.0	5°C
Hystersis	1°C ~ 50°C	0.1°C ~ 50.0°C	-
Hystersis - 1	-	-	3°C
Hystersis - 2	-	-	3°C
Time - 1	-	-	6sec
Time - 2	-	-	6sec
Off-set Correction	-20°C ~ 20°C	-20.0°C ~ 20.0°C	0°C

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