

PID Temperature Controller

TCW



SALIENT FEATURES

- ◆ Auto-tuning
- ◆ PV, SV display
- ◆ TC/ RTD Input
- ◆ MODBUS Via RS-485
- ◆ Bright White LED Display
- ◆ 100-240 VAC/ 24VDC
- ◆ Relay/ SSR Output

Model Number Legend

TCW- - -

1 2 3 4 5 6 7

1. Series

TCW

2. Size

S: Standard 48 x 48 Cutout Size

3. Display

1: Single Display

2: Dual Display

4. Input

U: Universal Input - TC (J&K) / RTD (PT 100)

5. Auxiliary Output

A: Alarm Output

6. Output

R1: Relay Output

R2: Relay (or) SSR Output (Field Selectable)

MR2: Relay (or) SSR Output (Field Selectable) + RS-485 Communication

7. Power Supply

230 AC: 230V AC Supply Voltage

24 DC: 24V DC Supply Voltage

#. Accessories included

Panel Mounting Kit : 1 Set

Example:

TCW - S2 - UAR2 - 230AC

TCW Series - Dual Display - Universal Input, Alarm, Relay (or) SSR Output - 230 VAC Supply Voltage

NOTE: Contact us for models not shown in catalogue.

- Sensing
- Digital Panel Meters
- Temperature Controllers
- Timers & Counters
- Level Controllers
- Convertors & Amplifiers
- Weighing
- Automation
- Components

Product Highlights

◆ Auto-tuning

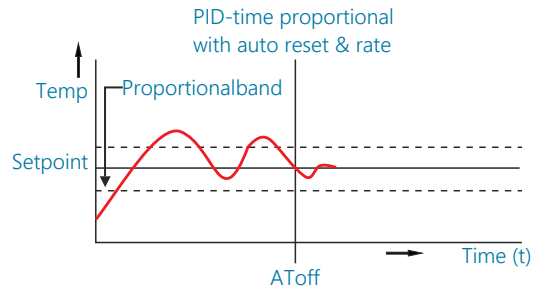
The Auto-tuning function automatically computes and sets the proportional band (P), Integral time (I), Derivative time (D) as per process characteristics.

While Auto-tune is in progress "Auto" LED will turn ON. After Auto-tuning is complete the "Auto" LED will turn OFF.

If Auto-tuning is not complete after 3 - 4 cycles, it is suspected to fail. In this case, check the wiring & parameters such as the control action, input type.

Carry out the Auto-tuning again, if there is a change in setpoint or process parameters.

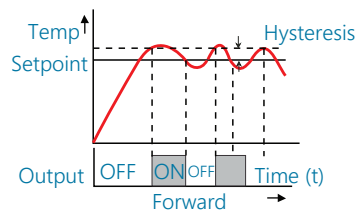
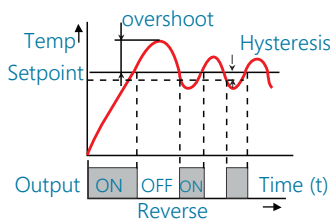
NOTE: If Auto Tuning running time, user cannot change the parameter value.



◆ ON/OFF Control Action (For Reverse Mode)

The relay is 'ON' up to the set temperature and cuts "OFF" above the set temperature. As the temperature of the system drops, the relay is switched 'ON' at temperature slightly lower than the set point.

HYSTERESIS: The difference between the temperature at which relay switches 'OFF' is the hysteresis or dead band.

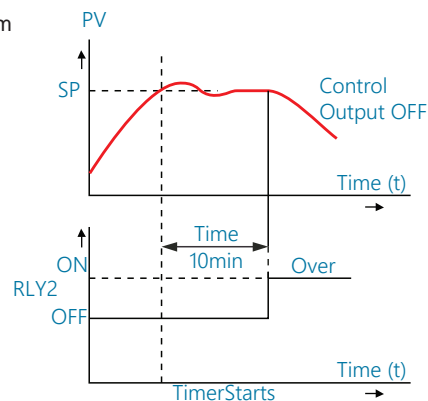


◆ Dwell Timer (Only for TCW-S2)

A dwell timer is used to control a process at a fixed temperature for a defined period. Once the process reaches the setpoint, dwell timer starts to count from zero until time out. After the time is completed, Control output goes OFF and auxiliary output energizes. As an alarm

NOTE: (only for TCW-S2)

1. DWL icon LED blinking indicates that dwell timer is in progress. It switches to continuous 'ON' when dwell timer overs.
2. Dwell time programmed as 'OFF' will disable the dwell timer.
3. When soak in progress & dwell time modified. New dwell time is applicable.
4. The dwell period can be reduced or increased when the timer is running. If it is reduced to meet the time elapsed, the timer will change to the end state.
5. Once the timer output was energized it can be reset with the Reset Key.

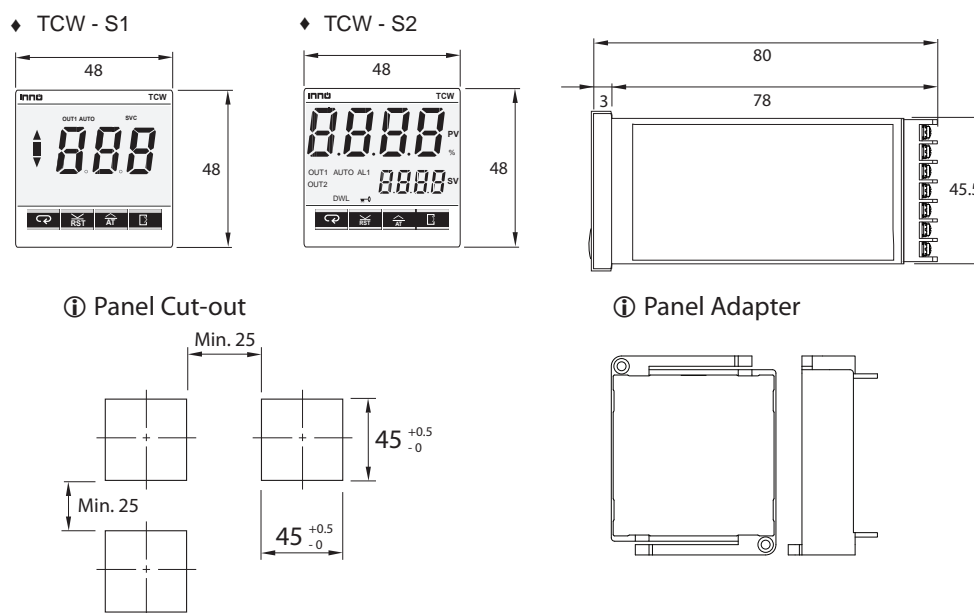


Settings
 $Ent2 = dVEL$
 $dVEL = 10min$

Display Type	Single Display	Dual Display	Dual Display with RS-485 Communication
Models	TCW-S1-UR2-230AC	TCW-S2-UAR2-230AC	TCW-S2-UAMR2-230AC
	TCW-S1-UAR2-24DC	TCW-S2-UAR2-24DC	TCW-S2-UAMR2-24DC
Power Supply	230 Vac $\pm 15\%$, 50-60Hz Standard 85 to 265VAC, 12/24VDC on request		
Power Consumption	30mA at 220 VAC		
Sensor Input	Thermocouple: K, J; RTD: Pt100		Thermocouple: K, J; RTD: Pt100, 4-20mA
Control Output	Type	Relay + SSR Output (Field Selectable)	
	Specification	Relay : 10A, 230V AC or SSR : 10V DC, 30mA	Relay : 5A, 230V AC or SSR : 10V DC, 30mA
Alarm Output	Type	-	Auxiliary Relay Output + RS-485 Communication
	Specification	-	Relay : 5A, 230V AC
Control Method	ON/ OFF control or 2 - PID control with auto-tuning		
PV Display	3 digit, 7 Segment WHITE LED; Height: 20mm	4 digit, 7 Segment WHITE LED; Height: 17mm	
SV Display	-	4 digit, 7 Segment GREEN LED; Height: 8mm	
Resolution	0.1 C / 1 C for RTD (Pt100) input 10C for Thermocouple (J, K) input	0.1 C / 1 C for RTD (Pt100) input 1 C for Thermocouple (J, K) input 1 C/0.1 C/0.01 C/ 0.001 C for Analog Input	
Sampling Period	min. 1s		
Display Accuracy	RTD : 0.1% of F.S +/- 1 C Thermocouple : 0.3% of F.S (20 min of settling time for TC)	RTD : 0.1% of F.S +/- 1 C Thermocouple : 0.25% of F.S +/- 1°C (20 min of settling time for TC)	RTD : 0.1% of F.S +/- 1 C Thermocouple : 0.25% of F.S +/- 1°C Analog : 0.3% of F.S (20 min of settling time for TC)
Ambient Temperature	Operation: 0° ~ 60°C; Storage: -25° ~ 60°C (non- condensing)		
Ambient Humidity	Operation: 20 ~ 85% RH; Storage: 20 ~ 85% RH (non- condensing)		
Protection Class	IP65, Front panel IP65		
Weight	approx. 150 grams		
Housing	Polycarbonate Plastic		

Note: The IP65 protection rating is valid only if the meter is fixed on the panel with the requisite rubber gasket

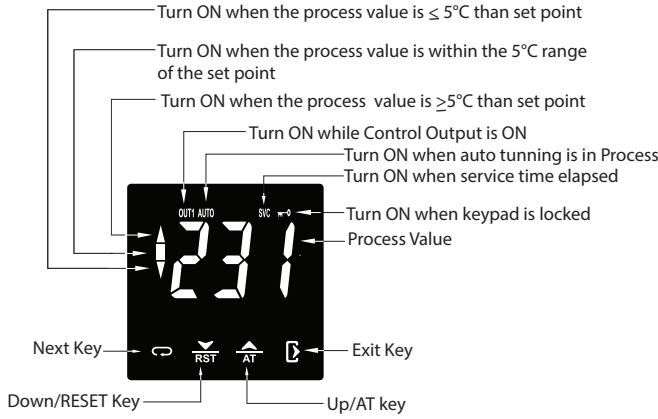
Dimension Drawing



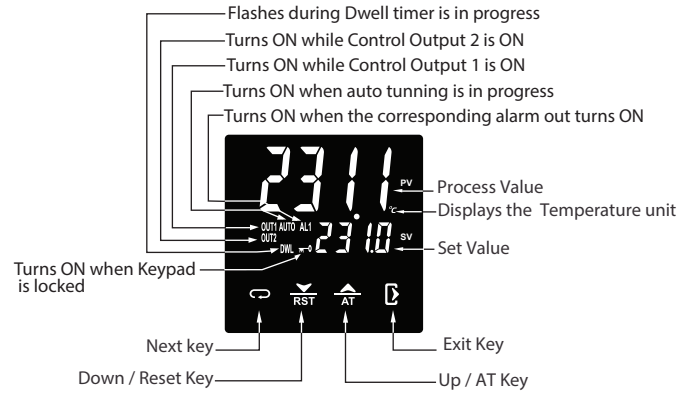
All dimensions are in mm

Component Names and Function

◆ TCW-S1

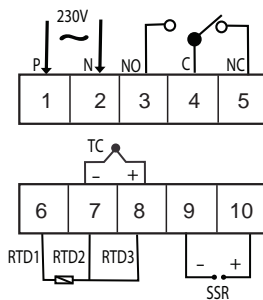


◆ TCW-S2

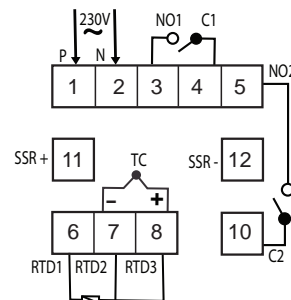


Connections

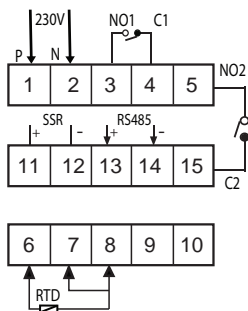
◆ TCW-S1



◆ TCW-S2



◆ TCW-S2-MR2



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