

 ION Electricals Pvt. Ltd.

# OPERATING MANUAL

OF



# C3S2R

## INTELLIGENT TEMPERATURE CONTROLLER

- Make sure you read this operating manual before using the C3S2R.
- Store this operating manual safely so that you can use it in future.

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# 1.GETTING STARTED

THIS SECTION MAKES YOU FAMILIAR WITH OUR **C3S2R – INTELLIGENT TEMPERATURE CONTROLLER.**

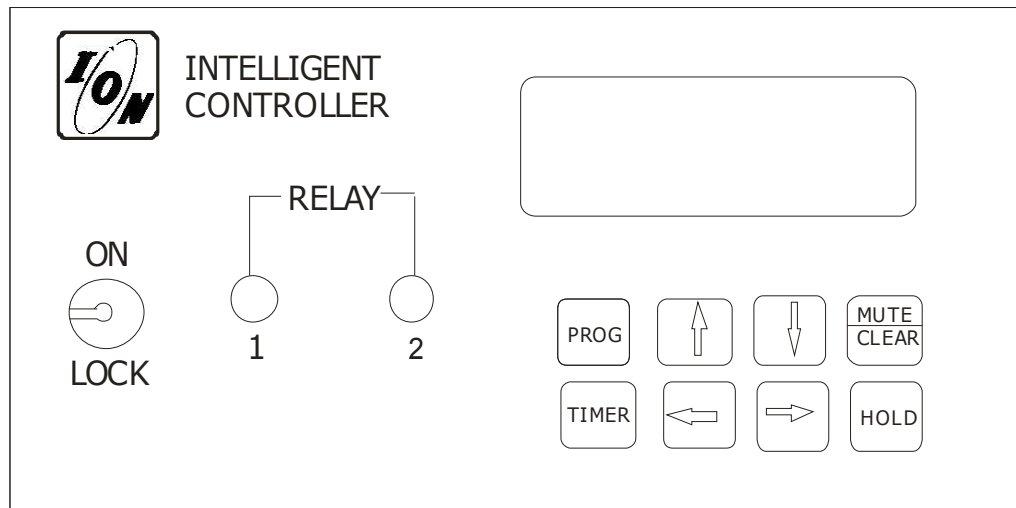


Figure 1: Front panel of C3S2R

## 1.1 KEYBOARD FUNCTIONS

<u>KEYS</u>	<u>FUNCTION</u>
PROG	Program setting is enabled
↑	Increments the flashing number
↓	Decrements the flashing number
MUTE/CLEAR	Clear flashing digit
TIMER	Time setting enabled
←	Go to previous setting
→	Go to next setting
HOLD	To hold the process
LOCKING KEY	To lock or unlock keyboard
RELAY ON LED	These LED lamps glows, when the respective relay is energized

## **1.2 FEATURES**

1. It has 1 to 5 programs & each program has nine steps. Further each step has one Ramp & one Soak.
2. Adjustable Ramp & Soak time.
3. Adjustable differential.
4. Lock is provided for front keypad.
5. LED indication for relay on status.

## **1.3 SPECIFICATION**

1. Input Sensor : PT-100
2. Control Range : 0 to 199.90C or 0 to 4000C
3. Ramp & Soak time : 0 to 99.9 Hours or 0 to 99.9 minutes adjustable
4. Differential : 1 to 0.90C Adjustable.
5. Resolution : 0.10C or 10C
6. Size : 96(H)x 192(W)x 165(D)
7. Cutout : 92 x 188 mm.
8. Relay Output : 4 Relays 5 Amp. Resistive load
9. Power consumption : 10 VA max.

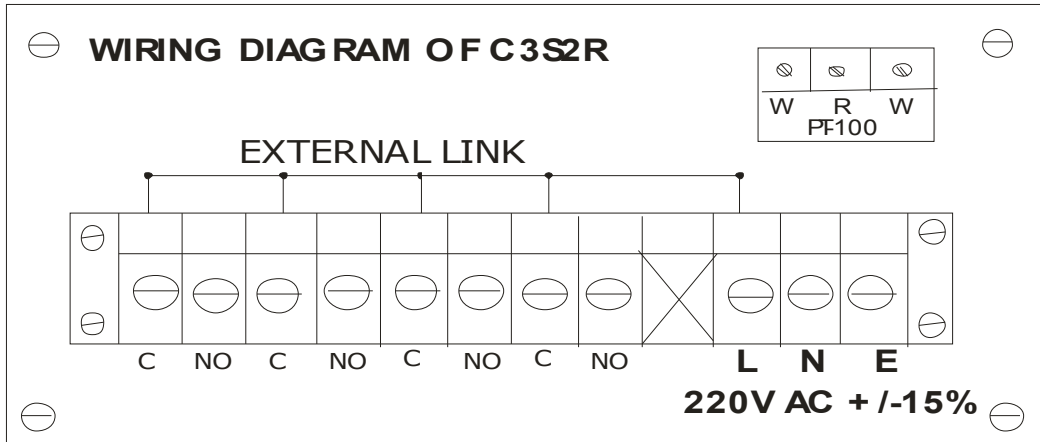


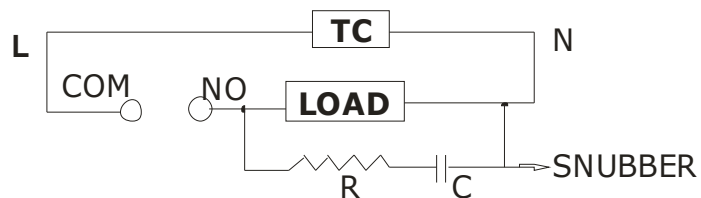
Figure 2: Back view of C3S2R

### 1.4 TERMINAL CONNECTION

L	LIVE (SUPPLY)
N	NEUTRAL (SUPPLY)
E	EARTH
C	COMMON OF RELAY
NO	NORMALLY OPEN OF RELAY
W	WHITE/BLACK WIRE OF 3 WIRE PT-100 SENSOR OF CABINET/CASCADE
R	RED WIRE OF 3 WIRE PT-100 SENSOR OF CABINET/CASCADE
W	WHITE/BLACK WIRE OF 3 WIRE PT-100 SENSOR OF CABINET/CASCADE

### 1.5 NOTE

**If load is inductive,  
connect snubber across load**



R=56 OHMS / 2 WATT.  
C=0.1 MFD / 250 V AC  
TC=TEMPERATURE CONTROLLER

## 2. LEARNING TO OPERATE

### 2.1 INTRODUCTION

This controller can be used for gradual rise in temperature.

It has 1 to 5 programs & each program has 9 steps.

Further each step has one Ramp & one Soak.

The Ramp & Soak time is settable up to 99.9Hrs. or 99.9 Min.

The differential can be set from 1 to 9.90C.

### 2.2 PROGRAMMING

- Check all connections & switch on the mains supply. Turn Locking key clockwise to unlock keyboard.
- Push “PROG” key, any number will be displayed. Set it to “77” by pushing up or down arrow key. After setting “77” push “PROG” key.
- Now the program is in setting mode. “a” is flashed on display. Push right arrow key. This key is used for shifting parameter.
- Now program number is displayed. Program number is settable from a1 to a9. Set it to “1”. Push right arrow key.
- Now “t” temperature setting is displayed. Set the required temperature by using up & down arrow keys. Push right arrow key.
- Now rate in hours ( 99.9 max ) is displayed. Set the desired value using up & down arrow keys. Push right arrow key.
- Now temperature differential setting “d 1” (1 to 9 deg for r3 ) is displayed. Set it to required value. Push right arrow key.
- Now temperature differential setting “d 2” (1 to 9 deg for r3 ) is displayed. Set it to required value. Push right arrow key.
- Now flat time “f” (soak) is displayed. Set it from 0.1 to 99.9 hour using up & down arrow keys. Push right arrow key.
- Now “a” is displayed. Push right arrow key.
- Now “a1” is displayed. If “a” is displayed along with “a1 ---” indicates that “a1” is disabled. Push “PROG” to enable it, “---” indication will vanish. To disable it again push “clear”, “---” mark will appear.
- To set next program set “a1” to “a9” & b1 to b9.
- Repeat the above procedure. After completing program setting, push “timer” key to go to normal mode. (Out of program mode ).

### 2.3 STARTING THE CONTROLLER

- If controller is in stop mode, “end” & “process” temperature is displayed along with alarm noise. Push right & left arrow keys simultaneously.
- Now “a” & cabinet temperature is displayed. Push right & left arrow keys again to start the program. Program will start with current cabinet temperature.
- Push “timer” to see remaining rate. Push “mute” to mute the alarm & to see current set point.
- If the program has to be stopped in between then push “up & down” arrow keys simultaneously. “end” is displayed.
- Push “timer” to see soak time after completions of rate. soak time will flash when it starts.

**Note:** After finishing “a1” program it will go to program no “a2” automatically. After completion of all programs it will go to stop mode automatically & **end** is displayed.

## 3. TROUBLE SHOOTING

1. **Sensor open indication:** Display shows “**Err1**” for cabinet & “**Err2**” for cascade
2. **Sensor reverse:** If the RTD is not connected as per connection diagram then it will show erratic temperature.
3. **Not showing proper temp:** Loose connection on terminal or calibration problem.
4. **Problem in relay operation:** Check connection as per wiring diagram given.