

 ION Electricals Pvt. Ltd.

OPERATING MANUAL

OF



SUNRISE TIMER

STREET LIGHT CONTROLLER

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

TABLE OF CONTENTS

1. GETTING STARTED.....	3
1.1 SALIENT FEATURES.....	3
1.2 SPECIFICATION.....	3
2. OPERATING THE SUNRISE TIMER.....	4
2.1 CONNECTION DETAILS.....	4
2.2 OPERATING PROCEDURE.....	5
2.3 PLEASE NOTE.....	7
3. TROUBLE SHOOTING.....	7

LIST OF FIGURES

Figure 1: Front panel of Sunrise Timer.....	4
Figure 2:Connection Diagram for Master Relay & SSR.....	5

1. GETTING STARTED

This is a unique concept of automatic switching “ON” the street lights after sunset & switching them “OFF” on dawn or sunrise.

No need to depend on Watchman’s memory and alertness.

As sunrise and sunset timings changes from city to city depending on their location on longitude, this system automatically adjusts itself with sunrise and sunset as per the city location.

- Can handle many Street Lights (depends on contactor).
- Three built in relays to control three different contactor to distribute load on three phases.
- Phase Failure Detection: Automatic switch on to next phase
- Manual ON facility in case of emergency
- Battery Backup

1.1 SALIENT FEATURES

1. Size: 193mm ,193mm
2. 24 Hours Real Time Clock
3. Twilight Adjustment up to 4 Hours
4. Delay To Twilight up to 8 Hours
5. Date Selection
6. Blackout Selection Actual Time
7. Phase Selection
8. Phase Activation Time
9. Battery Backup for a period of 2 years
10. Phase Manual “ON” switch
11. Three Phase indication LED

1.2 SPECIFICATION

1. Operating voltage: 180 to 230 V AC \pm 15% 50 Hz.
2. Accuracy: Quartz Crystal.
3. Display Time Real time.
4. Relay Output: 5 Amp resistive.

2. OPERATING THE SUNRISE TIMER

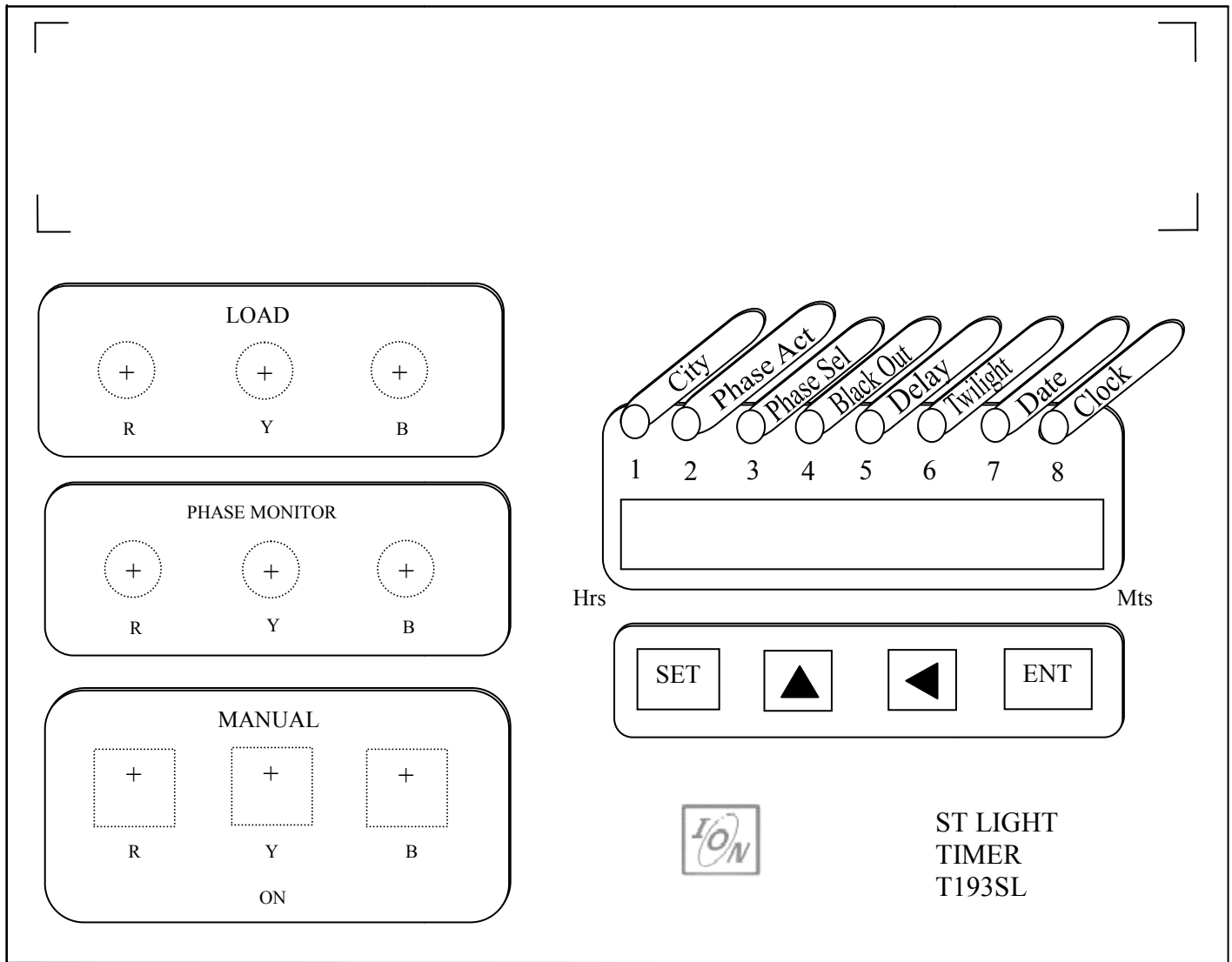


Figure 1: Front panel of Sunrise Timer.

2.1 CONNECTION DETAILS

On the top there are two connectors; one is for three phase connection & second for common of all three phase relays.

Refer the figure given below.

- Connect “r-phase” to “r”, connect “y-phase” to “y” & connect “b-phase” to “b”.connect “neutral” to “n” point & “earth” to “e” point.
- Connect “r-phase” load to “rr”, “y-phase” load to “ry” & “b-phase” load to “rb” point.

Check all the connections & switch on the mains supply.

- Now display is showing real time in (hh:mm).Three leds on the left of the display are showing that all three phases are active. Three more leds on the top are given to indicate the relay ON status. Three switches are given for relay on.

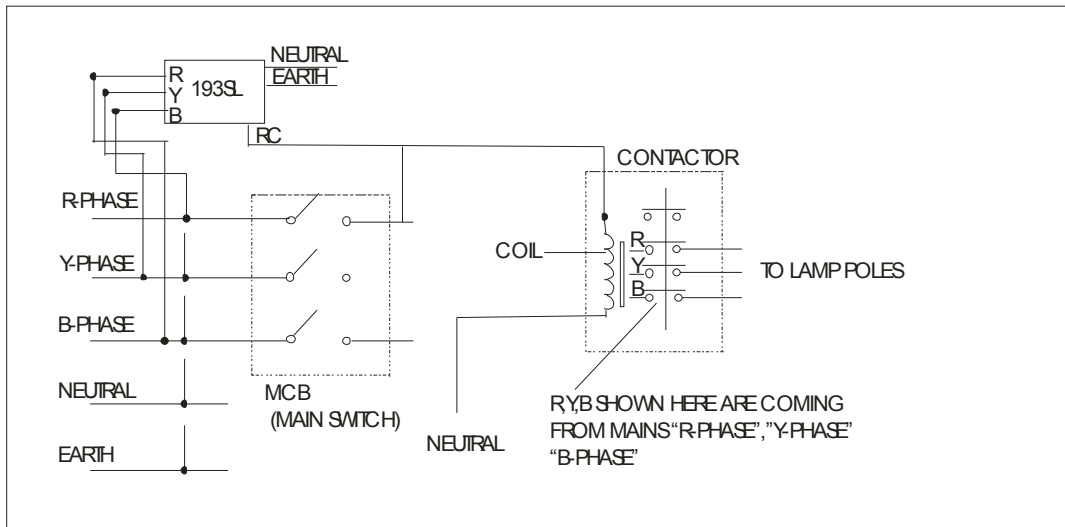


Figure 2: Connection Diagram for Master Relay & SSR

2.2 OPERATING PROCEDURE

❖ Clock setting

- Push the “SET” key.
- Clock led will glow & display will disappear.
- Push the “ENT” key now.
- The display will show previously set clock (time) & thousand place digit will start flashing. One can set only flashing digit from (0 to 9) by ▲ (up arrow) key.
- Push ◀ (left arrow) key, now the hundredth place digit will flash. Set this digit by “up” key from (0 to 9). Again push “left arrow” key to go to next digit.
- Thus one can set the real time by following the above procedure.
- Push “ENT” key to store the new time & to go to the normal mode where display shows the real time.

❖ Date setting

- Push the “SET” key in the normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key. Now date led will glow.
- Push “ENT” key to set date. Here, the year will be displayed first & thousand place digit will start flashing. Again set this display with “up” key from (0 to 9).
- To go to the next digit push the “left arrow” key & set it by the “up” key from (0 to 9). Repeat the same procedure to set the next two digits.
- Push “ENT” key. Now the display will show date & month. First set date as per above procedure & then month.
- Push “ENT” key to save these values. Display will now go to the normal mode.

❖ **Twilight setting**

- Push “SET” key in the normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key twice. Now twilight led will glow.
- Push “ENT” key. Thousand place digit will flash. Do not set this digit, just skip it.
- Push “left arrow” key. Now hundred place digit will flash. Set it by “up” key from (0 to 9).
- This time is settable up to 4 hours & 00 mins .Set the next digits by following above procedure.
- If one has set twilight to (00:30) then lights will be ON 30 mins after sunset & will be OFF 30 mins before sunrise.

❖ **Delay setting**

- Push “SET” key in normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key thrice. Now delay led will glow.
- Push “ENT” key. Thousand place digit will flash. Do not set this digit, just skip it.
- Push “left arrow” key. Now hundred place digit will flash. Set it by “up” key from (0 to 9).
- This time is settable upto 8 hours & 00 mins. Set the next digits by following the above procedure.
- If one has to set a delay of (01:00) then lights will be ON 1.00 hour after twilight time after sunset & will be OFF as per sunrise time or before set twilight time.

❖ **Blackout setting**

- This time is to switch off all relays connected to each phase after a particular set time. This is a real time based setting.
- Push “SET” key in normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key four times. Now blackout led will glow.
- Push “ENT” key. Thousands place digit will flash. Set this display with “up” key from (0 to 9).
- Push “left arrow key” now hundreds place digit will flash. Set it by “up” key from (0 to 9).This time is settable in real time format. Set next digits by following the above procedure.

❖ **Phase sel**

- Here one can deactivate phase from “r” , “y” ,”b” after the set time
- Push the “SET” key in normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key five times.Now phase sel led will glow.
- Push “ENT” key .Now previously set phase will flash on the display.
- One can change the phase setting by “up” key.
- If one has set “r” phase then on 1st of Jan, this phase will be off after the phase deactivation time. “y” phase will be off on 2nd Jan & “b” phase will be off on 3rd jan after the set time. Again on 4th Jan “r” phase will be off. This cycle will continue for the year.

❖ Phase dact

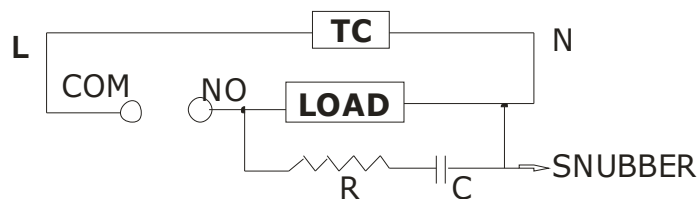
- This setting is in real time mode. To switch off the phase after particular time, this setting is applicable.
- Push “SET” key in normal mode.
- Clock led will glow & display will disappear.
- Push “left arrow” key six times. Now phase dact led will glow.
- Push “ENT” key. Thousandplace digit will flash . Set it by “up” key from (0 to 9).
- Push “left arrow key”. Now hundred place digit will flash. Set it by “up” key from (0 to 9). Set the next digits by following the above procedure.
- If one has to set phase dact time as (00:30) then one phase will be off 30 mins after 00:00.

To disable any of the above setting, set those set points to 00:00.

Display will go to normal mode from set mode after 20 seconds ,if no key is pressed in set mode.

2.3 PLEASE NOTE

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



R=56 OHMS / 2 WATT.

C=0.1 MFD / 250 V AC

TC=TEMPERATURE CONTROLLER

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.