Timeline Astro + *Timeline* Pro

Product Overview:

Street Light Timer is a microcontroller based smart product to switch ON/OFF load depending upon the geographical location of the device. **Astronomical Timer Mode** keeps track of each days sunrise/sunset time and takes the smart control of light depending upon sunrise and sunset times and saves power. **Timer *Pro* Mode** is for the pre settable times to switch ON/OFF the load. **Night Out Mode** is for keeping the street lights, hoardings OFF at the night duration for a given period by user to save the power. It is very useful to save power and manpower to switch the load.

Features:	Applications:
Astronomical Timer Mode (*Astro* Mode) **Pre Settable Timer Mode (*Pro* Mode)** **Night Out Mode** to power OFF the loads at night for given duration to save power. **Time Offset** available for ON and OFF times. - User friendly & intuitive user interface design. **Bypass Mode** available for manual switch ON-OFF control. - Bi-colour panel LED to indicate load on or off. - Saves power by punctually maintaining on-off timings of the load.	- Street Lights auto ON/OFF depending upon accurate sunrise and sunset times for given location. - Lights on construction site auto ON/OFF. - Corridors Lights auto ON/OFF. - Parking lots Lights auto ON/OFF. - Staircase Lights, Street lights auto ON/OFF.

Specifications:	Compliant to following IEC Standards:
- Input voltage range: 130V to 350V A.C, 50/60 Hz - Max. contact rating: 5KW@ 230V A.C - Bright backlit LCD display to show status - Power failure memory backup - User friendly operations - Designed & Mfd. In India to suit Indian power conditions - Dimensions (mm) : 73 (H) x 118(w) x 63 (D)	- IEC 61000-4-4 - IEC 61000-4-5 - IEC 61000-4-11 - IEC 61000-4-14 - IEC 61000-4-28

Astro Mode Parameters:

In "*Astro* Mode" ON time and OFF time gets automatically selected by the software depending upon GPS coordinates, Date-Month and GMT offset.

1. **GPS Coordinates:**
   Search GPS coordinates on the internet for location and edit for the same.
   Please refer coordinate settings.

2. **OFF Set Time (+ve And –ve offsets):**
   - **ON offset time** will add or subtract the selected minutes from astronomical ON time (sunset time).
   - **OFF offset time** will add or subtract the selected minutes from astronomical OFF time (sunrise time).
   - Both offset times are in minutes (1 min to 59 minutes).
   - **Offset time can be applied by pressing and holding "SET" key for 6 seconds in normal run mode. And same operation for removing the offset times.**
   - ⇓ Symbol in normal mode indicates that time offsets are applied.

3. **Night Out Mode (Black out duration at night):**
   - In Night Out Mode, it is possible to set the blackout window for only duration from ON time to OFF time. This way for pre-set duration in the night, user can turn off the load. This mode is available in '*Astro* Mode' only.
   - To switch OFF the load at night select the OFF time i.e. HH:MM
   - To switch ON the load again before sunrise select the ON time i.e. HH:MM
   - For selected OFF time to ON time the load will be OFF.

Pro Mode Parameters:

In "*Pro* Mode", ON time and OFF time is independently programmable.

- Switching of load happens every day as per pre-set timings.
- Timer powers ON/OFF the load at preset timings irrespective of changes in calendar months or seasons.
- This timer can be set to turn ON/OFF the load at any time of the day.

Operating Instructions:

1. Timer Mode Selection Settings:

Step	Operation	Key	Display
1	To select Timer Mode: 1. Astronomical Timer Mode (*Astro* Mode) 2. Pre settable Timer Mode. (*Pro* Mode)	• Press and hold **UP key and Power ON the unit .**	Timer Mode: ASTRO ➡ PRO
2	To select the desired mode	• Press **NEXT** key it will go to the selected modes setting**.**	A. If *Astro* Mode selected-> GPS coordinate settings. B. If *Pro* Mode selected-> ON time / OFF time settings.
	A. If *Astro* Mode is selected, follow point no.2-"*Astro* Mode Settings". B. If *Pro* Mode is selected, follow point no.3-"*Pro* Mode Settings".		

2. *Astro* Mode Settings:

Step	Operation	Key	Display
1	To edit GPS coordinates.	• As per point no 1, step 2. If *Astro* Mode selected then press **NEXT** key.	GPS coordinates are displayed. (First Latitude coordinates are displayed).
	Latitude: `0` `1` `2` `.` `9` `6` `6` `7` `N` N-North / S-South		
2	To change the value of blinking field.	• Press **UP** key.	Value corresponding to blinking field increases.
3	To move the cursor to next field.	• Press **NEXT** key once.	Next field flashes.

Step	Operation	Key	Display
4	To save current GPS Latitude settings.	• Press **NEXT** key till blinking cursor is at the last field and press **NEXT** key one more time.	Longitude coordinates are displayed.
	Longitude: `0` `7` `7` `.` `5` `6` `6` `7` `E` **E-East** **W- West**		
5	To change the value of blinking field.	• Press **UP** key.	Value corresponding to blinking field increases.
6	To save current GPS Longitude settings.	• Press **NEXT** key till blinking cursor is at the last field. • Press **NEXT** key one more time.	"ONTIME OFFSET" + 00 min.
7	Edit ON time offset.	• To change the **+ /-** Offset press **UP** key**.** • Press **NEXT** key. • Press **UP** key to edit the ON time.	Selected and edited field value blinks.
8	Edit OFF time offset.	• Press **NEXT** key. • To change the + /- Offset press **UP** key. • Press **NEXT** key. • Press **UP** key to edit the OFF time.	Selected and edited field value blinks.
9	To select the Night Out Mode	• Press **NEXT** key. • To choose the Night Out Mode ON/OFF press **UP** key. • Press **NEXT** key for changing the night Mode OFF-ON time. **Night Out Mode time settings (OFF time-ON time) settings only displayed if Night Out Mode –'ON' is selected.**	**ON/OFF** blinks depending upon selection. Time value changes as per increments and the current edit field blinks.
10	To Edit Night Mode OFF time _ ON Time	• Use **UP** key to edit the blinking field value. • Use **NEXT** key to change the field i.e. HH:MM. • Press **NEXT** key again to save the settings.	Field value blinks depending upon selection. At the end "SETTINGS SAVED" Is displayed and timer comes in normal run mode.

Applying/Removing Time OFFSET in *Astro* Timer Mode:

- In normal runtime press **SET** key for 5-6 seconds, the offset times set in the *Astro* Mode configuration will be applied to the astronomical ON time and OFF time and message is displayed as "**APPLYING TIME OFFSETS**". For Removing the OFFSETS press **SET** key for 5-6 seconds, message is displayed as "**REMOVING TIME OFFSETS**".

- ↓ Symbol in running display indicates offsets are applied. If symbol is absent then offsets are not applied.

Astro Mode Display Indications:

"*" Indicates "Night Out Mode" is enabled

ON time=Sunset time +/- ON time offset
OFF time=Sunrise time +/- OFF time offset
Load will be OFF during Night Out Period, if "*" is displayed.

Indicates time offsets are applied.

3. *Pro* Mode Settings:

Select *Pro* mode as stated in mode selection and go for the following:

- **ON/OFF time settings:**

Step	Operation	Key	Display
1	To go to ON/OFF time edit settings.	• Press **SET** key for 2 seconds	'HH' field of ON time blinks(**HH**:MM)
2	To edit the value of blinking field.	• Press **UP** key	Value corresponding to blinking field increases.

ON time in HH:MM format		OFF time in HH:MM format

| 3 | To move the cursor to next field. | • Press **NEXT** key. | Next field blinks. |
| 4 | To save and exit On/Off time settings. | • Press **NEXT** key till blinking cursor moves to last field and press **NEXT** key one more time. | '**SETTINGS SAVED**' message flashes. |

Common Settings for *Pro* mode And *Astro* Mode:

4. Current Date and time settings:

Step	Operation	Key	Display
1	To select date and time edit settings.	• Press **(SET+UP+NEXT)** keys for 2 seconds.	'Date' field of current date blinks(**DD**:MM:YY)
2	To edit the value of blinking field.	• Press **UP** key.	Value corresponding to blinking field increases.
	Current date in DD/MM/YY format	CURRENT DATE 07/02/15	
3	To move the cursor to next field	• Press **NEXT** key.	Next field flashes.
4	To move to time settings.	• Press **NEXT** key when last field is blinking.	Time settings are displayed.
5	To edit the value of blinking field.	• Press **UP** key.	Value corresponding to blinking field increases.
	Current time in HH:MM format	CURRENT TIME 16:40	
6	To save and exits current date/time settings.	• Press **NEXT** key till blinking cursor is at the last field and press **NEXT** key one more time.	'**SETTINGS SAVED**' message flashes.

Note: If **NEXT** key is not pressed, whatever setting done so far will automatically get saved after 10 seconds and setting mode exits
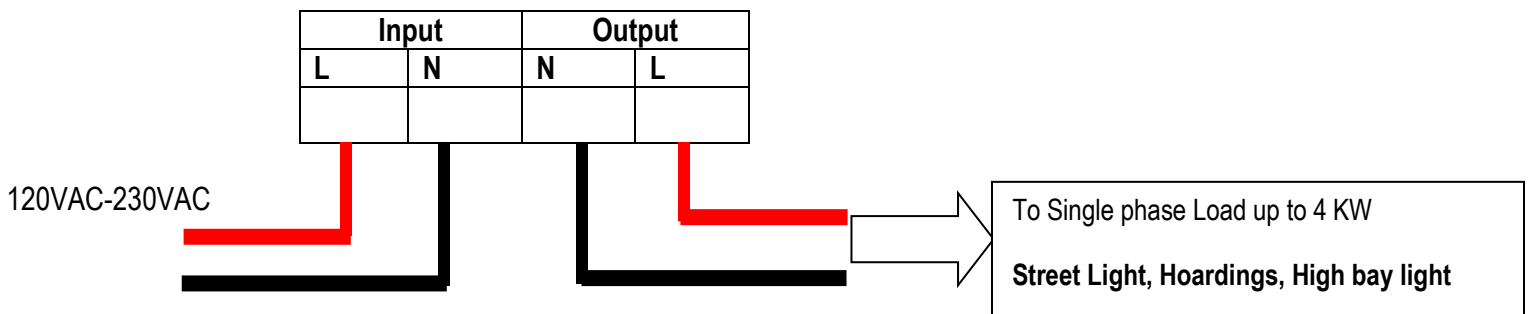
5. Select Bypass Mode:

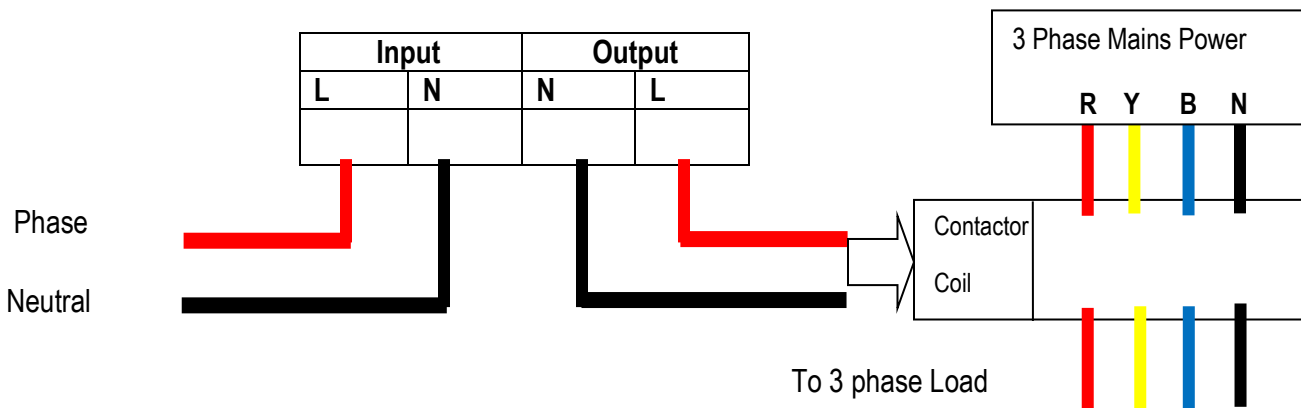| Step	Operation	Key	Display
1	To Select Bypass Mode.	• Press **(SET+UP)** Keys for 2 seconds.	'**BYPASS MODE**' is displayed
2	To exit from Bypass Mode.	• Press **(SET+UP)** Keys for 2 seconds.	Displays ON-OFF time and Current Date-time
	Bypass Mode: In this mode, you can manually switch ON the load during OFF TIME. Similarly, during ON TIME, you can switch OFF the load if bypass mode is selected. When internal relay is in OFF condition, it turns ON if Bypass Mode is selected. While the same relay is in ON condition, it turns OFF if Bypass Mode is selected.		

Note: If **no** key is pressed for longtime, whatever setting done so far will automatically get saved after 10 seconds and setting mode exits

Wiring Guide:

- Terminal Connections for Single phase load up To 4.5KW

Input		Output	
L	**N**	**N**	**L**

120VAC-230VAC

To Single phase Load up to 4 KW

Street Light, Hoardings, High bay light

- Terminal Connections for 3 Phase Load or Load more than 4 KW

Input		Output	
L	**N**	**N**	**L**

Phase

Neutral

3 Phase Mains Power

R Y B N

Contactor Coil

To 3 phase Load

Replacing Battery used for Clock backup:

This Product contains in-built 3V CR2032 Lithium cell for power failure memory backup purpose. Expected battery life is 3 to 4 years.

When the baterry is drained, '**Battery Low!!!**' is seen on the LCD display.

To change the battery :

CR2032 3V Button cell

1. **Remove battery as shown in figure below:**

Open the top cover and locate the Battery placed below LCD.

Press the battery lock with the help of a small screw driver and pluck out the battery with the help of a pointed object or tweezer.

2. **Replace battery with the same type cell i.e. 3V CR2032 with positive terminal of battery facing upwards.**
   *Note: After replacing the battery, time and date settings are lost and needs to be done again.