

## Intelligent street light controller SLC – 02 – 11 t0 70 KVA – GPRS/GSM



Insu Intelligent street light controller is our latest product specially developed for energy saving in conventional street light systems. By using this controller you can save average up to **41 % energy** by rotating staggering systems. Day light power saving scheme can also save some more energy. Apart from energy saving this can also save manpower, operating cost and can reduce manual-operating errors. This controller is programmed on longitude & latitude base for the whole year for sunrise and sunset timings. **Sunrise and sunset time changes on day to day basis and in one month there is a time change of about 30 minutes. For entire year sunrise and sunset time changes by about 190 minutes.** . With these much change of time any

*conventional timer /annual programmable timer/ weekly Timer/Photo Sensor* will not serve the purpose. It can save energy up to **8 %** against conventional / manual operation, Photo sensors or conventional timers. Our controller incorporates a real time clock with in built battery backup for more then power reserve of 45000 hours. There is no need to reprogram the controller even if supply fails for long duration.

### **General Specification:**

- ✚ Advance 32 bit Microcontroller based design.
- ✚ Very easy key board operation.
- ✚ HMI LCD display. 16 character and two line type display. Which help while maintenance and reduce dependability of CMCS. Contentious Scrolling display of events ( Like ON time, Off time, Voltage, Current, Staggering time , Alarm events, Burning hours, etc) on Single HMI LCD display to help the local monitoring of systems. Parameters can be updated from local panel. Log the alarm of last 5 events

- ✚ **Data monitoring through Class 1 type Multi – Function Panel mounted Energy meter** : By using this we measure the individual phase voltage, individual phase load amps, PF, KW, KVA, KVAR, Phase to Phase voltage, Average PF, KWH etc. ( Local display parameter and for remote display in software)
- ✚ Auto / Manual facility by way of contactor / relay operation for faster service mode. From local panel in manual mode it shows individual line / channel current and show no of lamp which is not working which helps to judging the problem in line (by difference of calibration current and existing line current. Judgment is possible for approximately find out no of lamps are not working.
- ✚ Street light ON / OFF on Longitude, Latitude base sunset and sunrise time generation.
- ✚ Door Open information.

## Systems Reliability

- ✚ Real time clock with battery with life of more then 8 years (Manufacturer provided 7 years life for the battery with the accuracy of +/- 60 second per month. **Power reserve of more then 65000 hours and Auto updated from Web.**
- ✚ System parameter data protection with special RAM, which hold the parameter for more then 10 years without any power.
- ✚ Master and user Password Protection. ( As the systems installed at remote location and in open conditions any body can fingered which create problem for street lighting operation)
- ✚ Even in single phase control systems will work. ( In built Protection for energy saving device) Power redundancy for controller even 1 phase 170 V<sub>AC</sub> controller can work.
- ✚ Inbuilt auto recovery systems for power failure which helps in streetlight operation.
- ✚ **Double Inrush current capability of electrical switch gears to support sodium vapor lamp.**

## Remote Monitoring and Controlling Systems

- ✚ **Wire less GSM/GPRS systems With CityLight software for constant monitoring, controlling and logging of switching on time, RTC data, electricity parameters.\ and faults.**
- ✚ Low annual operating cost type **GSM** base are among the most inexpensive wireless technologies available. And Low initial costs of installation As **GSM** wireless, there is no need to establish cable connection and is easily expandable to new areas and cities. Also it required no **government licensing**.
- ✚ Fast detection of errors by feeder pillar and along with **GSM communication** the street lights are always online any fault in street lighting electrical circuits is known to the operator within sort time. Simultaneously User settable Mobil no of supervisor and technician for instantaneous fault reporting.
- ✚ **Unit self generate data massage** like, ON time, Off Time, Power Down time, Auto mode, Manual Mode, Volt Fault, Over Current Fault, Short Circuit Fault, Neutral Fault, RTC Fault, Memory Fault, Low Ampere Fault, Door Open, Relay Fault, Calibration Data, and acknowledge the massage received from master like E Stop, Test Mode, Live Status, E Profile, parameter update, All this massage contain All electrical parameter with real-time clock date and time. it send to **CityLight** software through GSM/GPRS systems.
- ✚ **GPRS/GSM Systems. WEB base systems** for remote monitoring and controlling through WEB base software (Internet) by sitting at any where you can monitoring and controlling from your PC/Mobil etc. ( Monthly Rental will be around Rs. 250/- for 2G and 2 GB data with 600 SMS package)

- ✚ Option with wireless gateway for monitoring and controlling of Individual lamp for ON/OFF/DIM etc



## Power saving systems

- ✚ Controller operates 365 days on real-time based clock with auto calculate sunrise and sunset times as per geographic location. **365 days time zone systems.** Month wise civil twilight timings (Day light power saving) which helps precise ON / OFF time in all weathers (Advantage of Sunlight before sunrise and Sunlight after sunset). **By this way we can saving the power in range of 4 to 7 % against any programmable timer, 7 zone time table systems, motorized timer, and Quartz weekly timer.**
- ✚ Settable time power staggering line facility to switch OFF the line at late night and again restore in morning. (Save energy when no traffics) **It can program from CMS.** Individual Phase can be staggered at different time. Also it is incorporate with rotation one line staggering facility for equal burning hours of lamp.
- ✚ Eight Date range programming facility to disable staggering mode for festival and special occa
- ✚ Night staggering and intelligent control reduces burn hours and increases the lifespan of lamps with 30-40%.
  
- ✚ No harmonics generation while power saving.

## Protection

- ✚ Auto Calibration of Systems for monitoring Load current for protection.
- ✚ Over and under voltage cut off user settable. Saves lamps and energy. Auto reset type over voltage and under voltage cut off.
- ✚ Electronic sort circuit protection.
- ✚ Over current trip in % is user settable. It has special function to store load current of each line & channel in memory. When over load will be detected it will trip that particular phase after define retries. Dynamic Short circuit protection by considering multiple sampling rate and trip the systems
- ✚ Output MCB protection
- ✚ Settable incoming Neutral open alarm for specially when unbalance load. (Optional for protection Which protect lamps against high voltage.)

## Input output Termination

- ✚ Input Bus bar Melamine and output Close Melamine terminal of 35 / 50 sq mm.
- ✚ 3 Phase 2 to 5 line output as per requirements. Standard panel with 2 line output

## Electrical Parts

- ✚ All electrical parts used in panel are Standard make only like, MCB, Isolator. Power wiring of feeder pillar with fire retardant cable. Systems with inbuilt spikes and surge protections

## Certifications

- ✚ Since 2008 we are an ISO 9001/2008 Company. We have taken ISO specially for energy saving and automation in streetlight.
- ✚ Our product of **20 KVA 3 Phase** has been tested at E R D A for type test for following category
  - 1) **Radio Frequency Common Mode** as per standard  
IEC 60000-6-2 : 2005  
IEC 61000-4-6 © IEC 2008
  - 2) **Fast Transient Immunity** Test as per 4.5 of Table of  
IEC 61000-6-2 © IEC: 2005  
IEC 61000-4-4 © IEC: 2004 Amend. 1 © IEC 2010
  - 3) **EUT** Test as per procedure followed as per Clause No 6.2.1.3 of Table 2  
(Class A equipments limit-Group1) as per standard  
IEC : 2009 + A1 : 2010 as per table1- Emission of  
61000-6-4: 2001
  - 4) **Electrostatic Discharge** Test as per 1.5, Table 1 of  
EN 61000-6-2 :2005  
EN 61000-4-2 © IEC : 2008

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ISO 9001: 2008 certified

Web : [www.insuenergyconservation.com](http://www.insuenergyconservation.com), [www.insuindia.com](http://www.insuindia.com), [www.insuindia.co.in](http://www.insuindia.co.in)

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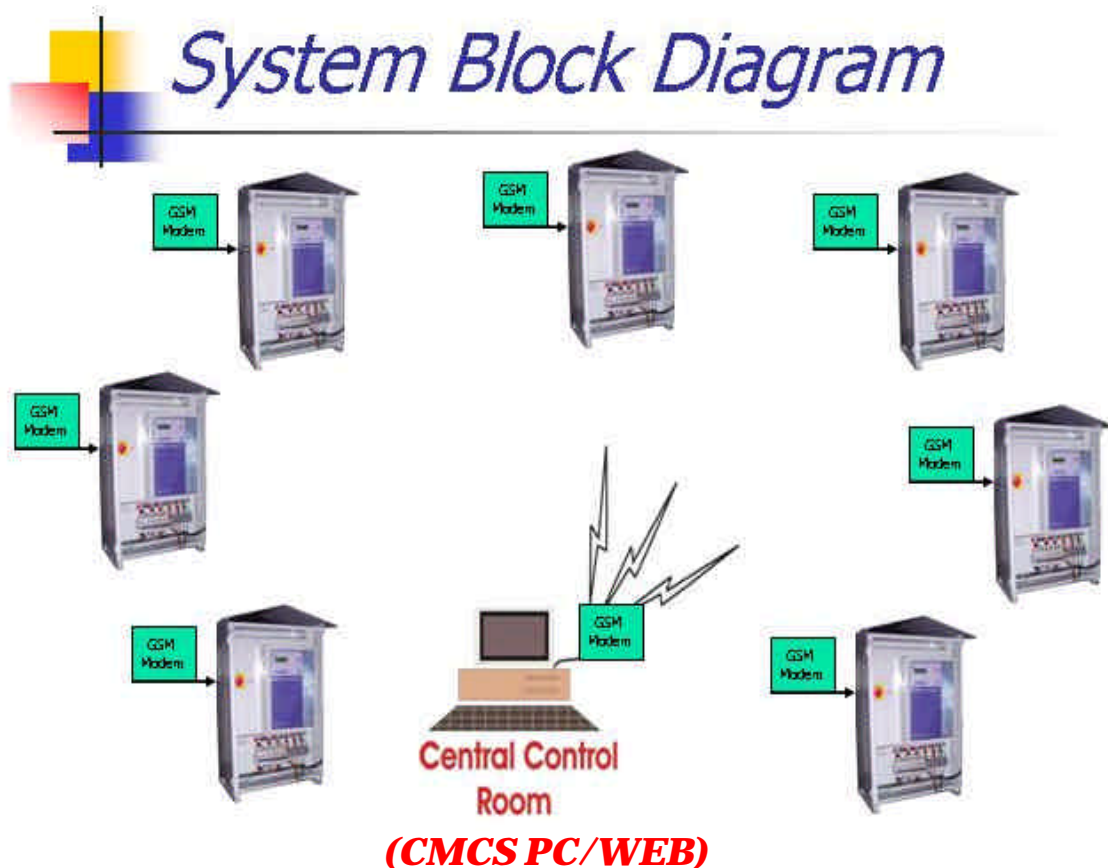
**Energy conserved is Energy produced**



## Citylight 1.0

SCADA software named *Citylight* is based on advanced use of global technologies such as GPRS / GSM & real time embedded systems. *Citylight software* designed base on *client and server systems*. By installing you can monitor and controlling of the entire unit which is connected with this software. PC/WEB based *Citylight* management software which controlled on line / off line street light operation, parameter updating, maintenance management and emergency on / off street light with GSM/GPRS base technology.

**Central monitoring and controlling station with no of unit**



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## **Citylight software Features**

- ✚ **Citylight** replaces visual inspections of individual street lighting with sitting at Central monitoring and controlling station (**CMCS/WEB** ). Also by fault alarm and monitoring of data user can judge the fault status and severity of fault.
- ✚ **Remote switching through Citylight software** to override local controller from (**CMCS/WEB**).
- ✚ User can demand any time live status of feeder pillar for current electrical and real time parameters from (**CMCS/WEB** ).
- ✚ Emergency Stop / Manual ON / Manual OFF / Test Mode of feeder pillar From (**CMCS/WEB** ).
- ✚ User can monitoring and change all settable parameter setting and clock time setting From (**CMCS/WEB** ).
- ✚ Control at any level of individually Street lights. Generate electrical profile of any individual feeder pillar form (**CMCS/WEB** ).
- ✚ **Citylight software** received the self generated data message from individual Feeder Pillar SLC – 02 – 25 – GSM like, ON time, Off time, Power Down time, Auto mode / Manual Mode, Volt Fault, Over Current Fault, Short Cercuit Fault, Neutral Fault, RTC Fault, ADC Fault, Memory Fault, Low Ampere Fault, Door Open, Relay Fault, Calibration Data and acknowledgement of message demand by **CMCS/WEB** of Parameter writing, E Stop, Test Mode, E Profile, All this message contain All electrical parameter with real-time clock date and time.
- ✚ **Citylight software** generate report of any date or any date range for fault and message of individual unit or all the units. **Citylight** also generate Range Report for fault, Massage, Voltage graph, Current Graph, Streetlight On time, VA Consumption, ETC.
- ✚ All the data collected by **Citylight** software can be export to work sheet format for further analysis as per requirement. You can generate graph and report as per requirements.

## **Technical Specification 3 Phase**

Supply	: 3 Phase 230 VAC/ph + / - 25 %, R Y B N
Controller Operative Range	: 160 Vac/ph to 300 Vac/phase
Power Consumption	: 3 W (Stand by) 10 to 20 W (on full load)
Controller	: 8 Bit micro controller
I/O	: 7 Analog I/p+24 DI/DO+RS 232 +RS 485+ GPRS Modem
Programming function	: Switching on Longitude & Latitude base
Real Time Clock	: Accuracy of +/- 1 minute / month. With Inbuilt Battery, with Battery life of more then 5 years
Key board	: 4 + 2 Keys user friendly keyboard systems
Display	: 16 characters and 2 lines LCD display with backlight.
Wireless systems	: GSM / GPRS base
Parameter data protection	: With special device which hold the data for more then 10 years without any power and Password protected.
Redundancy	: Operates up to single phase 170 V Ac
Power Capacity	: 11 to 70 KVA
Max Amp Capacity	: <b>50 Amps to 100 Amps / Phase</b>
Over Load Protection	: 3 Phase 1 to 4 line output with MCB of 25 Amps : Settable Over current trip in % of Load
Short circuit protection	: Max 100 Line (Hard core protection for Device)
Voltage Protection	: Settable Over and under protection
By pass	: Provision to by pass by way of Auto / manual switch
Input Isolator	: 63 to 125 Amps 4 Pole TPN isolation Provision
Operating Temperature	: 2 to 55' centigrade and humidity 90 % non-condensing
Installation	: Outdoor type. Floor Mounted. IP 54
Weight	: 56 Kg Approximate.
Dimension	: 800 (h) x 600 (w) x 200 (d) mm. Aprox.
Material of construction	: 16/18 gauge M S with industrial exterior powder coated PP. with seven tank process RAL 7035.

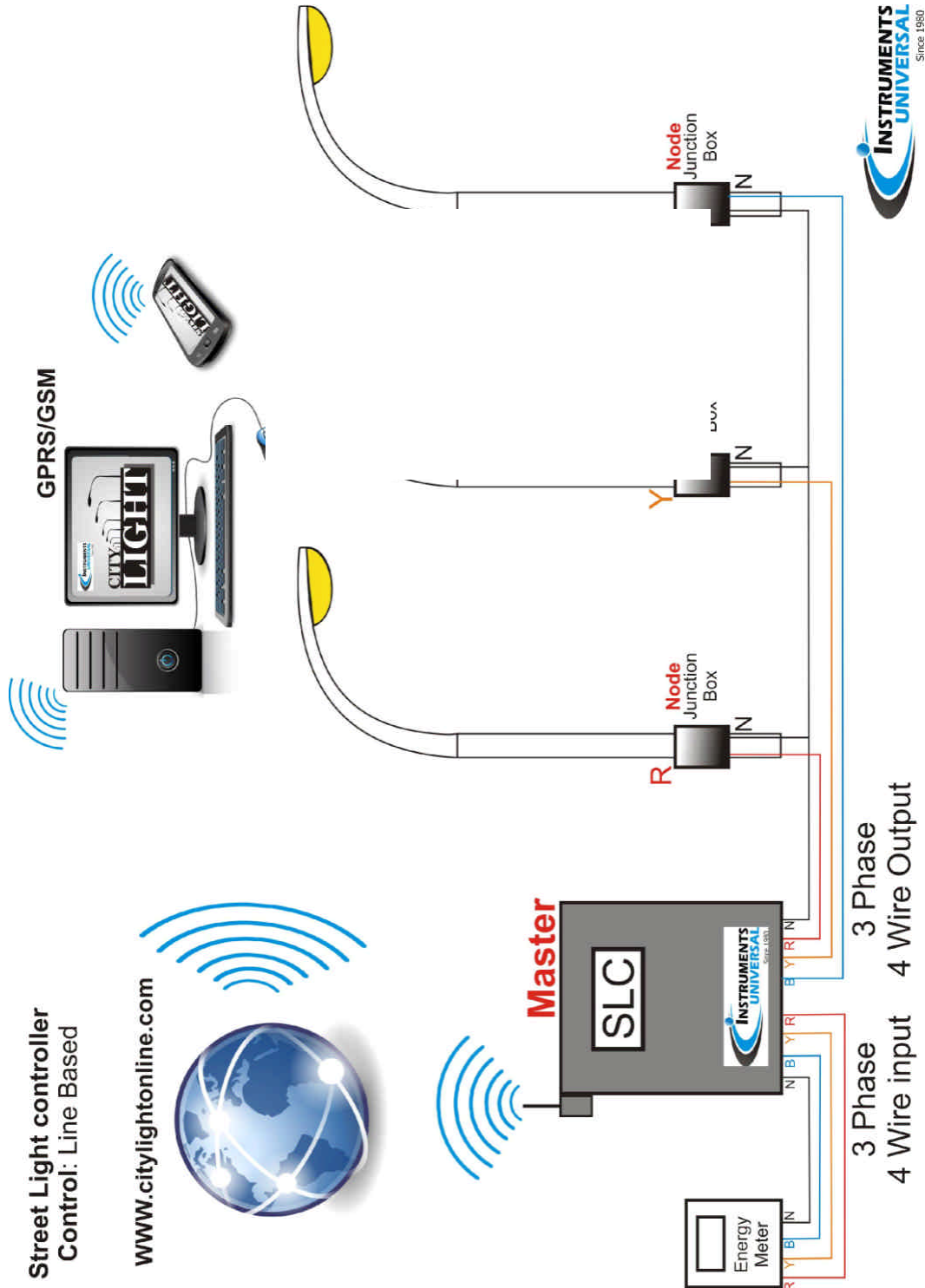
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## Generalized schematics diagram



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*Various Photograph of Panel for different clients as per there requirements*

**1) GE ( Manipur Project phase 1 and Phase 2**



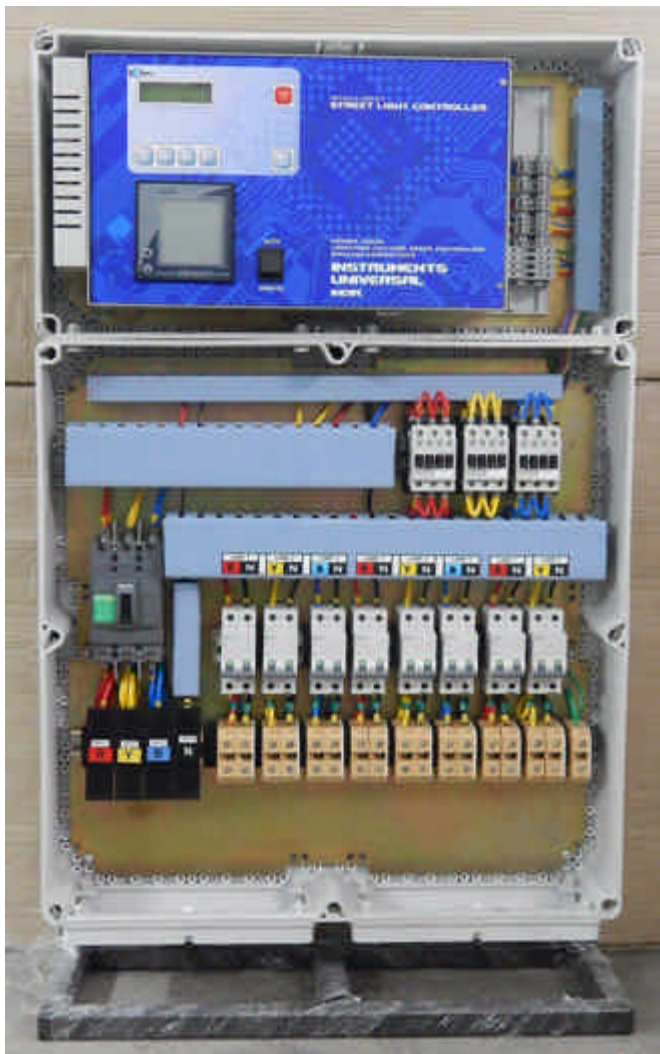
**2) GE ( Punjab Project )**



**3) Standard Panel IP 55 2 3 phase 2 line output**



**4) Standard Panel IP 65 as per client requirement**



**7) Standard Panel IP 54 as per client requirement**



**8) Standard Panel IP 55 as per client requirement**





8) Advance Dali Control Panel IP 55 as per client requirement

