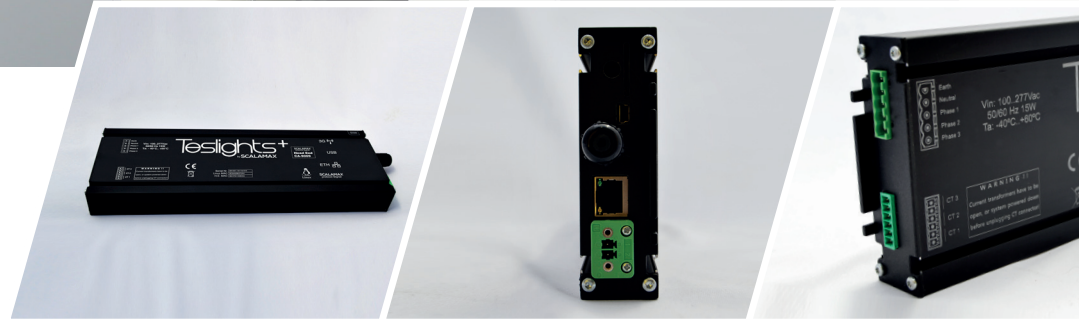




## Teslights Hybrid Lighting Controls B-PLC Solution SCALAMAX Protocol Head End CA-9009



Technical Manual, T0115  
June 2015

Document Number: 853051-2315  
Copyright Teslights, LLC  
2014-2016



## Contents

Warning	2
Disclaimer	2
1. Overview	3
1.1 SCALAMAX Protocol Head End CA-9009	3
1.2 Block Diagram CA-9009	4
2. Electrical Specifications	5
3. Environment	5
4. Dimensions and weight	6
5. Approvals	6
6. Marking and Connection	7
6.1 Installation Guidelines	7
7. Installations, cautions and warnings	8
8. Product Limited Warranty	8
9. Release dates	8



## Warning

This guide is for persons who have received training and are qualified to work with electricity and electrical metering equipment. All applicable national and local electrical codes and standards must be followed. Failure to follow proper procedures may result in serious bodily harm including death.



## Disclaimer

The information in this guide has been compiled with care, but Teslights, LLC makes no warranties as to the accuracy or completeness. Further, the product described herein may be changed or enhanced from time to time. This information does not constitute commitments or representations by Teslights, LLC and is subject to change without notice. Images shown are a representation only. They may not match exactly with the real equipment.

# 1. Overview

## 1.1 SCALAMAX Protocol Head End CA-9009

The Head End is installed in the control panel, from where the electrical circuit supplies power to all luminaire within the same circuit. The Head End is responsible for managing each of the luminaires. It saves the configuration and time schedule of all street lights, manages the network, and verifies the proper working. These communications can be up to 200 MB per second which allow:

- Real time performance.
- Secure transmission.
- Outperforming Modulation Technology (OFDM).
- PnP Installation and Configuration (Plug and Play).
- Standard Base IP Communication.
- Self-Healing Network.

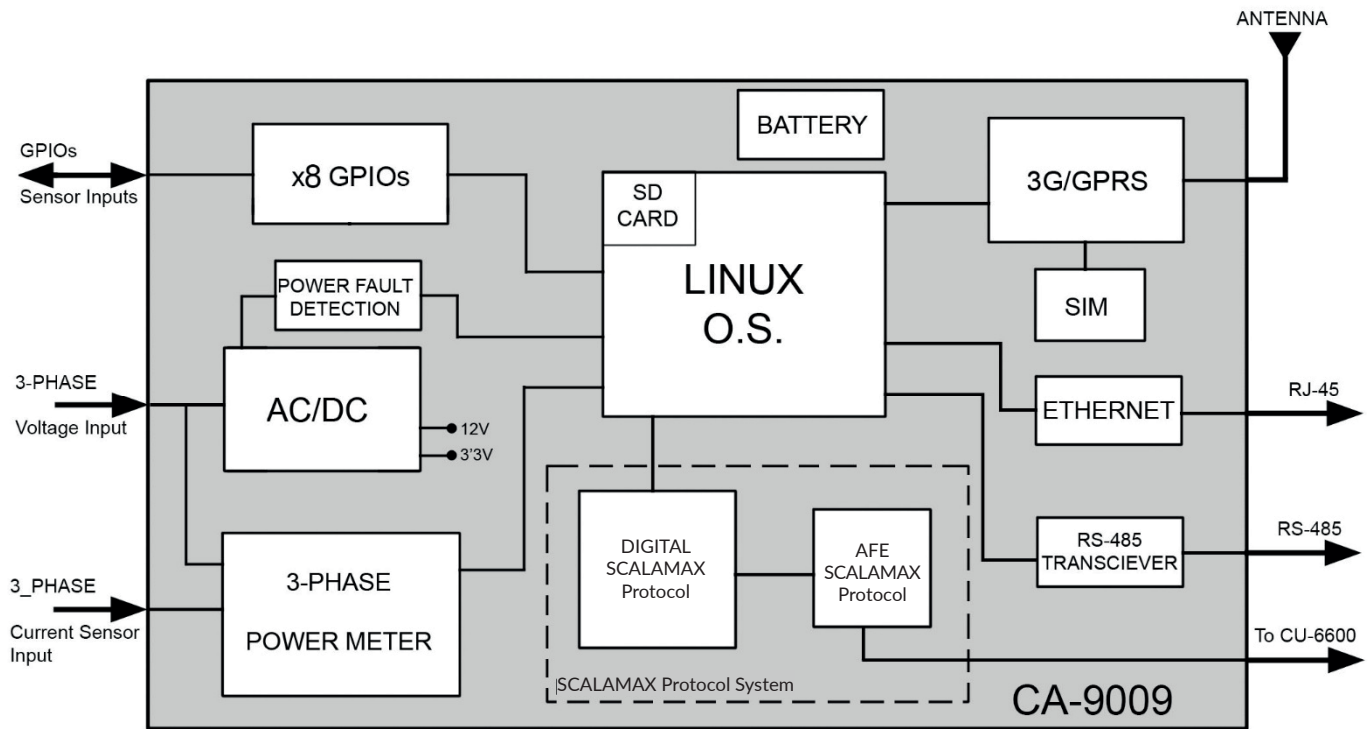
Integrating:

- Optimal Path Selection Protocol: a technology that finds the best rout in terms of attenuation and number of hops to connect a Node to the Head End.
- Node Keep Alive: A procedure used to check the connectivity of a node to the backbone which resets the Node when the connection is lost for a certain time.
- Adaptive Load Balancing: A technology that optimizes channel allocation to maximize the throughput in a network with many Nodes.
- Remote Firmware Upgrade: Capable of installing a new node or application software from a centralized control center.
- SMS / e-mail alert system.
- RS-485 communication port.
- 8 GPIOs ports able to configure different functions (optional).
- Multiple voltage I2C port (3,3V, 5V or 12V) (optional).
- USB (optional).
- WiFi (optional).
- Bluetooth 2.1 + EDR (optional).
- ZigBee (optional).

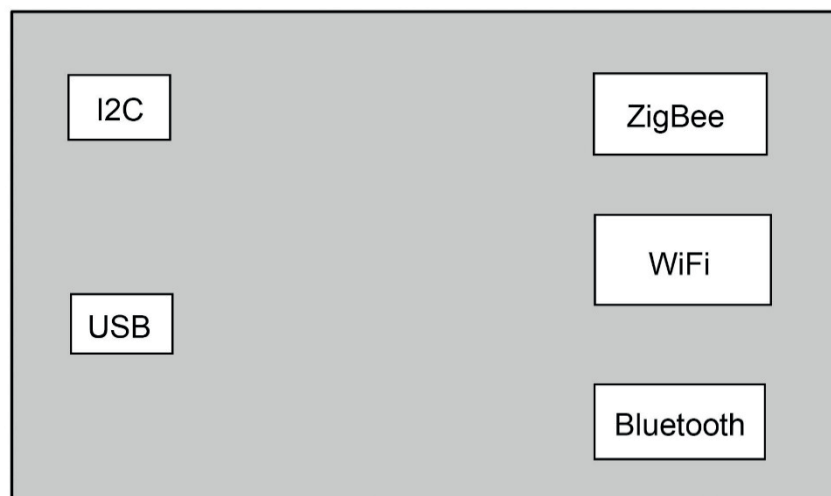
CA-9009 has attached a Capacitive Coupling Unit, CU-6600, completely potted, that allows the user doing the B-PLC signal injection in a safe way.

The CA-9009 is equipped with a 3G/GPRS communication modem, that allows to communicate with the system wherever you are, it also integrates a LINUX Operative System. CA-9009 has an internet synchronized RTC and 3-phase energy meter. This feature allows having a complete analysis of the power supply network.

## 1.2 Block Diagram CA-9009



Optional features:



## 2. Electrical Specifications

### Input

Monophasic Input voltage range (VAC):	100 ~ 277 VAC
Triphasic Input voltage range (VAC):	100 ~ 277 VAC
Input frequency:	50 ~ 60Hz
Power factor:	> 0.80
Maximum power:	15W

## 3. Environment

Usage for open type applications:

- IEC<sup>1</sup> 60529, IP-54
- Nema<sup>2</sup>, Type-1

Environment working temperature:	-25 °C ~ 60°C.
Environment storage temperature:	-25 °C ~ 85°C.
TC:	65 °C.



1. International Electrotechnical Commission, 3 Rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
2. National Electrical Manufacturers Association, 1300 North 17th Street, Rosslyn, VA 22209



## 4. Dimensions and weight

- 105mm H x 316mm W x 30mm D.
- 1100 g.



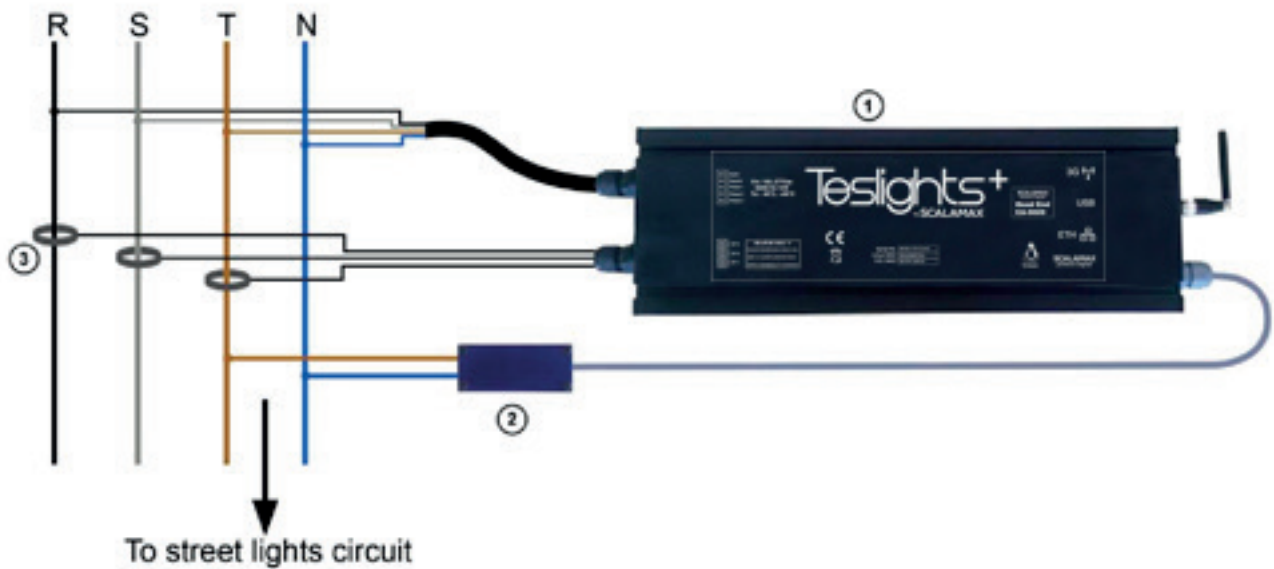
## 5. Approvals

2006/95/CE	EN60950-1: 2006+A11: 2009 EN60529_1991+A1: 2000
2004/108/CE	EN55022:2006+A1:2007 EN55024: 1998+A1:2001+A2:2003 EN61000-3-2:2006 EN61000-3-3: 2008 EN61547: 1995+A1: 2000 TGN17

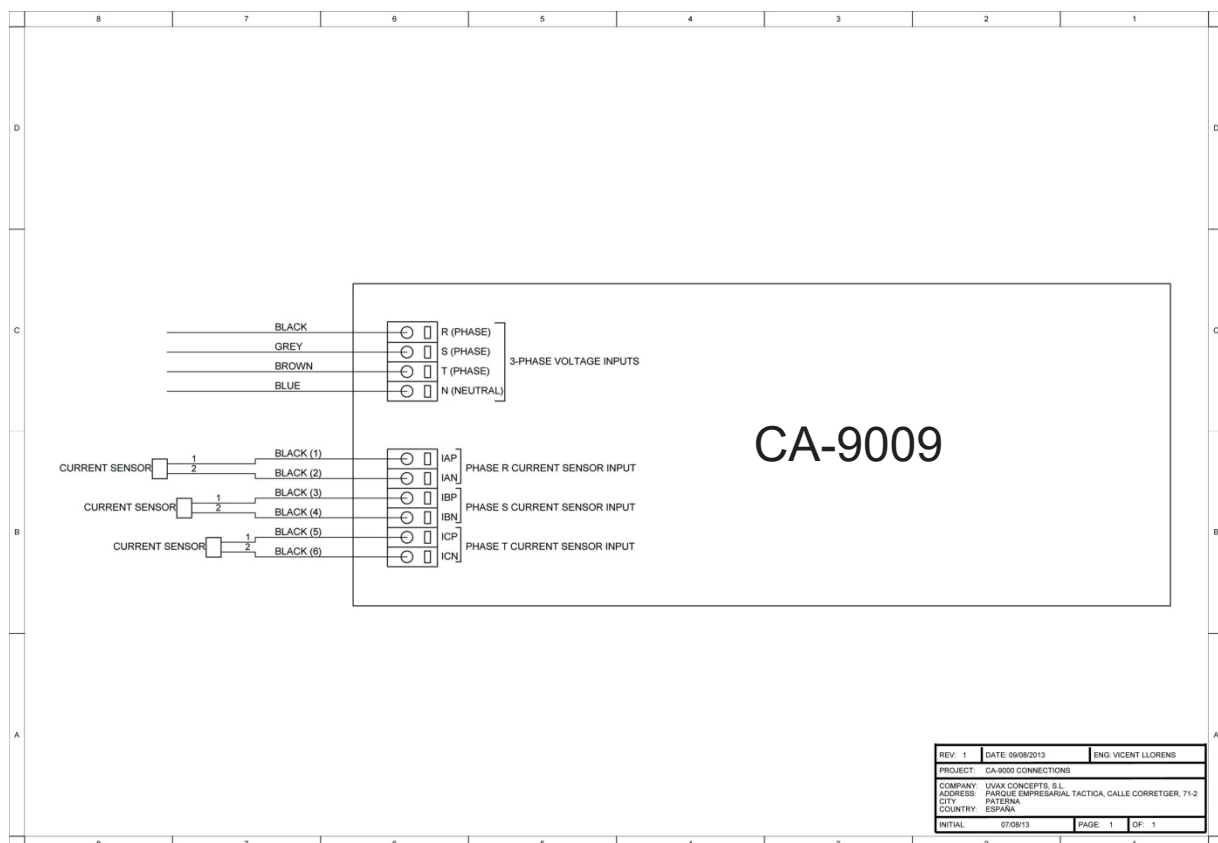
## 6. Marking and Connection

### 6.1 Installation Guidelines

This is an installation example diagram for the PLC Head End CA-9000 with Triphasic connection and 3-phase power measurement.



- ① SCALAMAX Protocol Head End, CA-9009.
- ② BPLC Coupling Unit, CU-6600.
- ③ Current sensors.





## 7. Installations, cautions and warnings

- Do not install if the device is damaged. Inspect the box for obvious defects such as cracks in the housing.
- This device doesn't have replaceable or interchangeable elements, so it mustn't be manipulated.
- If the device is installed or used in a manner not specified by the accompanying documents, the safety of the device may be impaired.
- If the device functions abnormally, proceed with caution. The safety of the device may be impaired.
- Do not install around combustible gas or gas vapor.
- Do not install in an electrical service with current or voltage outside of the specified limit of the device.
- Do not operate this device with the cover removed.
- Beware of working around this device when the voltage is live. There is a risk of electric shock.
- Check that all connections are reliable and correct before connecting the device to the voltage line.
- See instructions for connection diagrams.



## 8. Product Limited Warranty

Teslights, LLC warrants its equipment for 2 years from the ship date against defects in material or workmanship when installed in accordance with manufacturer's instructions by qualified personnel.

This warranty does not cover installation, removal, reinstallation or labor costs and excludes normal wear and tear. The warranty does not cover product which has been altered from its original manufactured condition due to faulty installation, tampering, accident, neglect, abuse, force majeure or abnormal conditions of operation.

Obligation under this warranty is limited to repair and/or replacement, at Teslights, LLC's option, of the manufactured product and in no event shall Teslights, LLC be liable for consequential or incidental damages.



## 9. Release dates

Model	Revision No.	Release Date (dd/mm/yyyy)
CA-9009	R1914	10/11/2014
CA-9009	R5014	16/12/2014
CA-9009	R1415	27/03/2015
CA-9009	R2315	01/06/2015