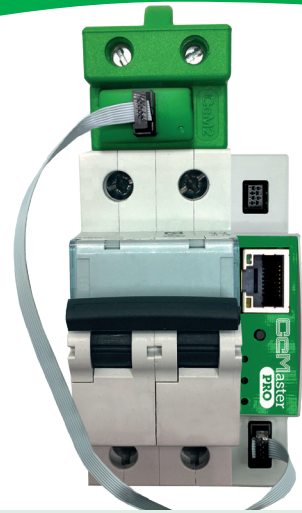


## ENERGY CCM SOLUTION FOR PUBLIC LIGHTING

The control, management, maintenance and implementation of energy efficiency policies in public lighting installations is one of the many practical applications of the Energy CcM system thanks to the simplicity, versatility and ease of installation of our devices and the communication resources available.

The Energy CcM devices that form part of the **Solution for Public Lighting**, supervision and control of consumption as well as **control panel operations** are:



### CcMaster



**Communication and operations**

### PRINCIPAL CCMS

CcM2



CcM4



**Grid analysers**

### CCM DEVICES INSTALLATION

Our intelligent CcMaster device is a communications (WiFi and GPRS), actuation and data acquisition device that is self-powered from our Principal CcM grid analysers. They complement each other in a compact and autonomous solution that is easy to install without requiring many space.

#### CCMASTER DATALOGGER

Reading of meters, CcM devices and any device using Modbus protocol

NB/2G, WiFi, Ethernet, RS-485, RS-232

Modbus, IEC, DLMS protocols

2 digital outputs

1 adjustable output 0-10 V

1 DIN rail only

#### CCM2 (SINGLE-PHASE)/CCM4 (THREE-PHASE) GRID ANALYSERS

Direct measurement data collection (Global patent)

Category B2 precision (1% error)

Measurement of active, reactive and apparent energy and power, and total and phase power factor

Hourly, minutely or secondary data

Overvoltage Category III

Easy installation without modifying the electrical boxes, placed on circuit breakers or fuse bases

### Why use CcM devices in a solution for consumption measurement and control of luminaires in control panels?

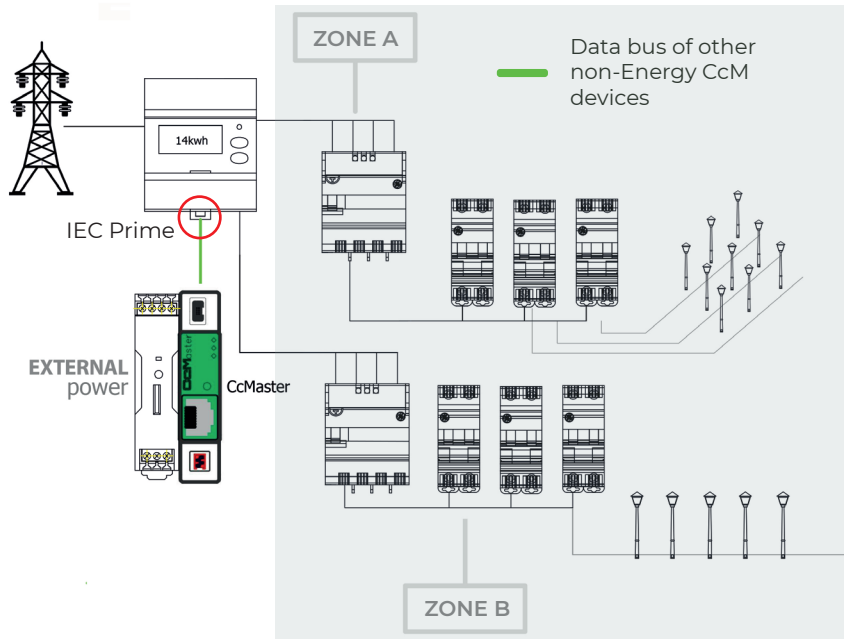
- **High measurement accuracy on principal devices** (B2 certification), which replaces the need to interrogate the tax accountant meter.
- The CcMaster device allows the reading of meters with IEC and DLMS protocols (Prime and Cervantes).
- Implementation of **energy efficiency policies and alarms on energy consumption, reactive or power in real time.**
- **Easy installation**, without modifying the existing panel or adding additional modules.
- Power supply and communications **autonomy.**
- **Versatility and scalability** of native solutions or external devices.
- **Compatibility with any other equipment using Modbus protocol.**
- **Software tool** to control consumption, program alarms, generate reports and facilitate switching on and off.
- **Monitoring of the entire installation through a single CcMaster datalogger.**
- **Reading and sending data in real time.**

# ENERGY CCM BASIC SOLUTIONS FOR LUMINAIRE MONITORING

## 1) Direct reading of the electricity company meter

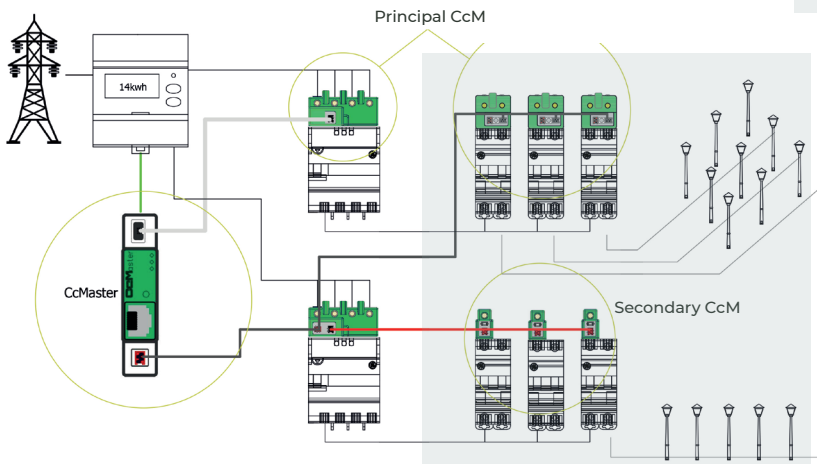
Only with our CcMaster it is possible to read the meter and send the instantaneous data or the load curve. It can also send information from other devices via GPRS or WiFi (Gateway function) and be used as an intelligent PLC, to switch on, switch off or regulate LED lights.

\*Depending on the combination of functionalities, it may be necessary to include an external 12V power supply.



## 2) Acquiring and sending all the electrical variables in real time with the same precision as the fiscal meter, being able to obtain its load curve and compare the measurement data obtained every second with the same precision.

Typical solution composed by our CcMaster and our meters CcM2/CcM4. The native interaction of the devices allows for self-powering, the acquisition and sending of data from complementary equipment, the programming and management of alarms and on/off switching in real time, process automation, regulation of luminaires and fast and effective maintenance of incidents.

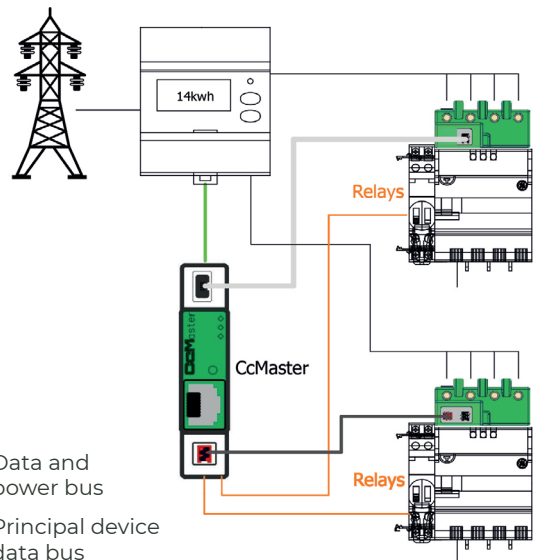


- Data and power bus
- Principal device data bus
- Power and secondary device data bus
- Data bus of other non-Energy CcM devices (RS-485/232)

### OPTIONAL

- Individual measurement of each of the consumption lines or streets.
- Using principal devices, detection of abnormal consumption and failures by luminaires.
- Using secondary devices, detection of anomalous consumption.

## Control: On and off. Voltage regulation (0-10 V):



- Data and power bus
- Principal device data bus
- Data bus of other non-Energy CcM devices (RS-485/232)

### In addition:

- Due to its simplicity and design, it allows savings in installation and maintenance costs.
- Due to their adaptability, the CcM2/CcM4 meters can be connected to an intelligent system already existing in the control panel (Modbus communication) to obtain electrical consumption without additional installations and without the need to include an external source.
- Due to their versatility, information can be obtained from any other device located on the control panel to send the information in a unique way and in real time.
- Due to their scalability, they allow a complete solution by introducing a greater number of grid analysers or current meters to apply energy efficiency policies and to monitor the total consumption per line in a simple and economic way.