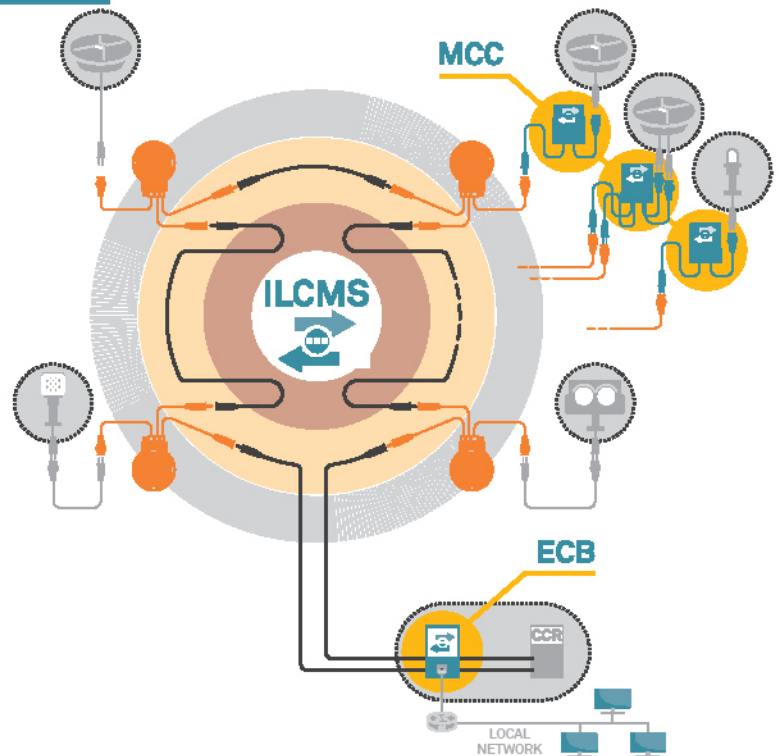


## Individual Light Control and Monitoring System



**DESIGNED TO INCREASE  
THE OPERATING  
PERFORMANCE AND  
SAFETY LEVEL**

**EASY INSTALLATION  
AND MAINTENANCE**

Individual Light Control and Monitoring System powered by regulators with a constant current and composed of an ECB central unit and of MCC fixture interface devices. ICAO-compliant system (Annex 14 Vol 1), to the Doc 947 ICAO Manual of Surface Movement Guidance and Control Systems (SMGCS) and to the Doc 9830 ICAO Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual.

The ILCMS provides continuous supervision and control of lighting systems and sections by means of a powerline communication system.

It allows the switching on and off, of lighting systems, such as interlocked stop bars with their associated traffic route axes, or the alternate flight directions of the runway.



### Central unit - ECB

#### Communication Equipment for series circuit

The central unit (master), placed in the electrical building (vault) and connected to the respective regulator unit, communicates continuously with the derived devices (slave) eventually installed on the series circuit, exchanging different information:

- Failure status of a light
- Requesting information on fixture light status
- Individual control of the light
- Group control of the lights
- Global control of the lights

Each unit can control up to 100 single or dual light addressed modules, for a maximum of 200 lights.

The unit can be connected to the Airfield Lighting Control and Monitoring System (ALCMS) through ModBus RTU protocol (on RS-232, RS-485) or using a TCP network adapter card (optional)

### Construction detail

The equipment is made up of a zinc-coated steel enclosure, painted with thermosetting coating powders containing epoxy resins (RAL 7032 colour). Internal segregation is realized by using polycarbonate sheets which can be removed only if all the safety indications for the operator are respected (as indicated on the warning sign).

The cable entry for the series circuit line(s) and for the signal feeding line(s) is provided through the bottom of the unit, using dedicated cable glands. The protective conductor (not less than 10 mm<sup>2</sup>) should be connected using the appropriate ring terminal to the M8 single stud connection block, available on the outside of the enclosure.

The unit can be easily installed on the wall by using the appropriate fastening system, made up of wall plugs and screws (not provided).

### Addressed unit – MCC

#### Power and Control Module

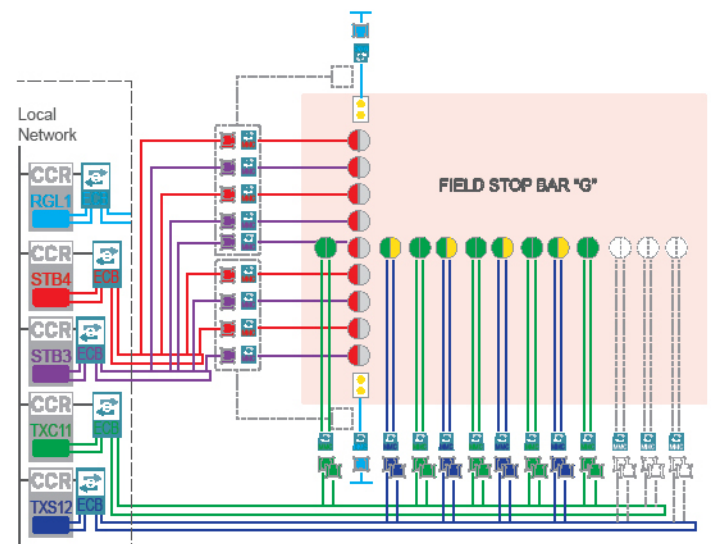
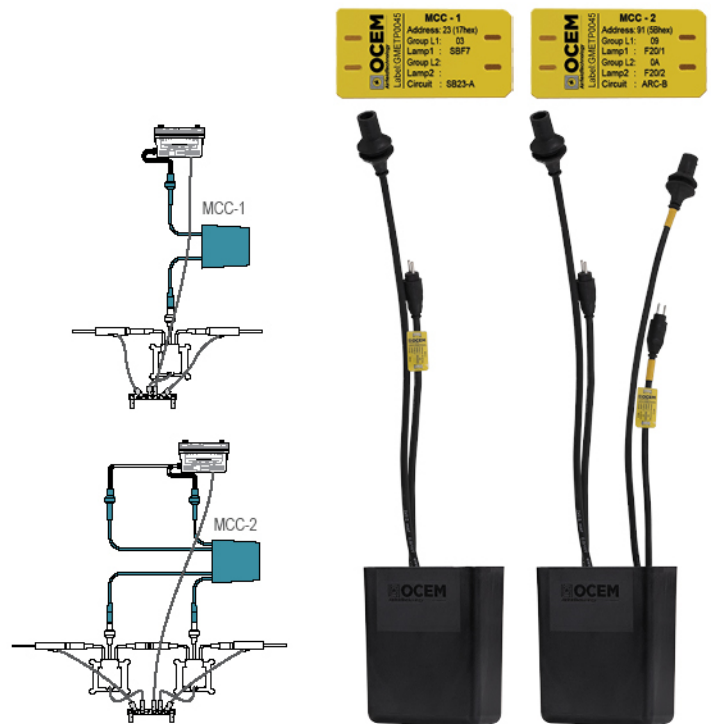
The derived devices (slave) are addressed units and can be easily installed on the (existing) secondary circuit feeding the fixtures. Each device should be placed between the isolation transformer and the fixture, using standard connectors FAA L-823 style 1 and style 8 (the socket has to be connected to the fixture, and then the plug to the transformer).

The units are programmable and are supplied already configured to the production with a unique IP address and can be associated to a group address. The power and control device only responds to commands actually attributable to him: intended for individual address, group address or global system.

The power and control module type MCC1 can control a single light fixture and it is equipped with a single pair of cables; the module type MCC2 can control two different lights at the same time and it is equipped with two different pairs of cables, each one properly identified.

The module is able to manage the communications with the central unit realizing a switch-on, switch-off and monitoring system for the light(s), and it can transmit information to the ECB unit. The module monitors the status of the light(s) and transmits information about the fixture status changes to the ECB unit. The module can autonomously activate safety procedures, if necessary.

In case of fault of the light, it short-circuits the respective secondary circuit of the isolation transformer.

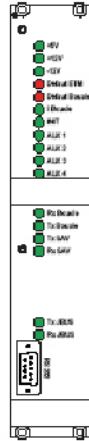


## Communication interface

The ECB device is equipped with an interface ETM card that allows the connection to:

- The control system of the ground light of the airport (ALCMS) through the door JBUS (RS 232);
- The control staff through the front RS 232 door.

A set of LEDs on the ETM interface board indicates the current status of the device.



Thanks to the communication between the ECB central unit and the MCC devices, it is possible to implement:

- Timely monitoring for maintenance and categorisation of the light section (contiguity of burnt lights with pre-alarms and alarms);
- On/off control of light systems/sections;
- On/off control of light segments;
- Off control of a RETIL system in case of fault of one of the light.

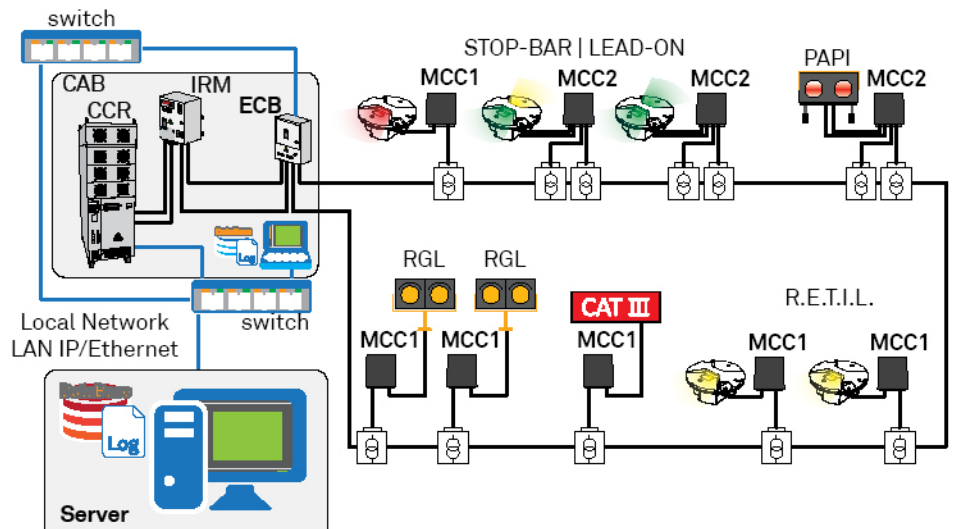
## Applications

The ILCMS system can be used for different applications:

- 1 or 2 light(s) fixtures;
- Signalling and Take-off Holding Lights;
- Rapid Exit Taxiway Indicator Light;
- Signalling systems;
- Precision Approach Path Indicator (PAPI) system;
- Static (routing) and dynamic (follow the green) guidance system for low visibility taxiing.

The supervision software must be installed on a PC that communicates with the ECB monitoring/control devices through Ethernet connection interface to the LAN.

The MCC devices installed on the series circuit communicates with the ECB unit by means of a powerline communication system (PLC).



Each series circuit subject to monitoring must be connected to an ECB unit.  
Each fixture subject to monitoring must be equipped with an MCC module..

## Software for monitoring and control

All the ILCMS systems installed in each electrical buildings (vaults) transfer the measurement data to the central database. The supervision software focuses on managing the communication and on providing a graphic interface to the operator, with authentication system. Through the software interface it is possible to monitor the status of each fixture and control the lights.

## Advantages of the ILCMS system

The MCC modules can be easily installed in the existing fixtures, allowing for a greater flexibility, and they are practically compatible with all light-signalling fixtures equipped with fail-open type FAA compliant devices (which, in case of fault, show the open circuit condition on the secondary of the isolation transformer).

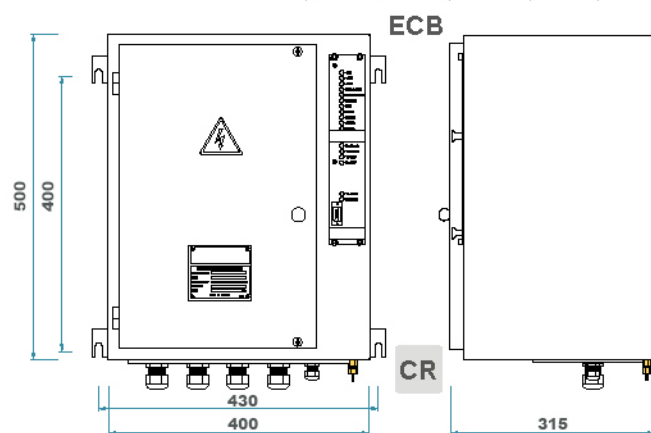
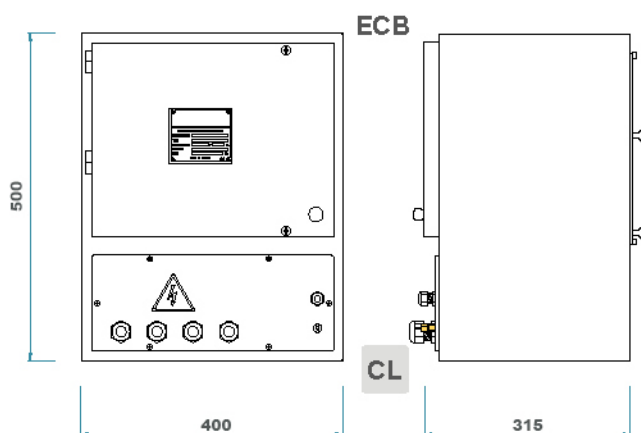
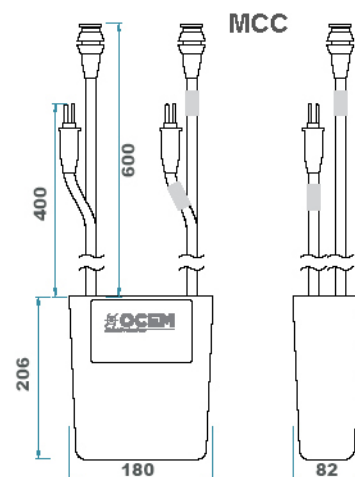
The data interface is fully compatible with the ALCMS platform (based on ModBus protocol).

The ILCMS system can be easily implemented regardless of the current configuration, and it is delivered already configured for easy commissioning. All maintenance operations are simplified by the system architecture.

ILCMS systems provided are compliant with the latest state-of-the-art technologies, and full interoperability of the device with previous monitoring and control systems is guaranteed.

## HOW TO ORDER

| Description                                              | Code      |
|----------------------------------------------------------|-----------|
| <b>ECB monitoring unit</b>                               |           |
| ECB-CL-232 (earth mounting - above CCR with accessories) | ...       |
| ECB-CR-232 (wall mounting)                               | ...       |
| <b>Interface accessories</b>                             |           |
| Monitoring device ECB Ethernet AGLC                      | PATCD0002 |
| <b>Mounting accessories</b>                              |           |
| Acc. Kit Mounting ECB on DIAM 4100                       | PAACK0047 |
| Acc. Kit Mounting ECB on DIAM 4200                       | PAACK0048 |
| Acc. Kit Mounting ECB on UR-Zain. Small                  | PAACK0049 |
| Acc. Kit Mounting ECB on UR-Zain. Big                    | PAACK0050 |
| <b>Device MCC</b>                                        |           |
| MCC-1 IP68                                               | 202.0077  |
| MCC-2+IP68                                               | 202.0079  |



|                           |                                                     | ECB                                                                                                                   | MCC                                                                                |
|---------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Ambient conditions        | Ambient temperature                                 | MIN: 0 [°C]<br>MAX: +55 [°C]                                                                                          | MIN: -40 [°C]<br>MAX: +55 [°C]                                                     |
|                           | Relative humidity (at 20°C)                         | 90 [%] non-condensing                                                                                                 | 100 [%]                                                                            |
|                           | Altitude asl                                        | 2000 [m]                                                                                                              | 2000 [m]                                                                           |
| Electrical specifications | $V_N$ – Rated voltage                               | 90 ÷ 264 [V <sub>AC</sub> ]                                                                                           | ---                                                                                |
|                           | $F_N$ – Rated frequency                             | 47 ÷ 440 [Hz]                                                                                                         | ---                                                                                |
|                           | $P_{MAX}$ – Maximum power absorbed                  | 15 W                                                                                                                  | 15 W (from the series circuit)                                                     |
|                           | Maximum power admitted (on primary circuit)         | 30 kVA                                                                                                                | ---                                                                                |
|                           | Maximum power disconnectable (on secondary circuit) | ---                                                                                                                   | MAX: 150 W<br>(MCC1: $P_{CH} \leq 150W$ ; MCC2: $P_{CH1}+P_{CH2} \leq 150+150 W$ ) |
|                           | Series circuit                                      |                                                                                                                       |                                                                                    |
| Mechanical specifications | $V_{MAX}$ – Maximum Rated voltage                   | 5000 [V <sub>AC</sub> ]                                                                                               | 5000 [V <sub>AC</sub> ]                                                            |
|                           | $I_{MIN}$ – Minimum Rated current                   | 1.8 [A] RMS                                                                                                           | 1.8 [A] RMS                                                                        |
|                           | $I_{MAX}$ – Maximum Rated current                   | 6.9 [A] RMS                                                                                                           | 6.9 [A] RMS                                                                        |
|                           | Degree of protection (EN 60529)                     | INTERNAL: IP20<br>EXTERNAL: IP20                                                                                      | IP68<br>(NEMA 6P)                                                                  |
|                           | Strength degree/shock-resistance (EN 62262)         | IK10                                                                                                                  | ---                                                                                |
|                           | Access                                              | Blind door (openable with tool)                                                                                       | inaccessible                                                                       |
|                           | Materials                                           | STRUCTURE: painted galvanized steel sheet                                                                             | BODY: plastic material                                                             |
|                           | Painting                                            | standard: RAL 7032                                                                                                    | ---                                                                                |
| Installation              | Plastic components                                  | Halogen-free, CFC-free                                                                                                | non-flame retarded grade                                                           |
|                           | Dimensions WxLxH                                    | 400x315x500 [mm]                                                                                                      | 180x82x206 [mm]                                                                    |
|                           | Weight                                              | 29.0 [kg]                                                                                                             | 0.56 [kg]                                                                          |
|                           | Characteristics of supply line entry                | Cable gland PG16                                                                                                      | ---                                                                                |
|                           | Characteristics of series circuit line entry        | IN: 2 x Cable gland PG21<br>OUT: 2 x Cable gland PG21                                                                 | IN: FAA L-823 Style 1<br>OUT: FAA L-823 Style 8                                    |
|                           | Protective conductor                                | M8 (min. 10 mm <sup>2</sup> )                                                                                         | ---                                                                                |
|                           | Characteristics of series circuit line              | FAA L-824 Screened<br>ATTENTION: the mechanical and electrical continuity of the shielding must always be guaranteed) |                                                                                    |
|                           | Connectable devices                                 | MAX: 100 MCC (slave)<br>for each ECB (master)                                                                         | MCC1: 1 light<br>MCC2: 2 lights                                                    |

The Manufacturer reserves the right to modify or update the technical parameters at any time without prior notice to Customer.

