

Lighting Control Module



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Energy conservation and the resulting cost savings are key drivers in the increasing demand for lighting controls. This new range of intelligent marshalling boxes and accessories offers a simple and easily configured system with all the components necessary to distribute power, detector inputs and switch commands to the connected luminaires.

The range includes a series of programmable Lighting Control Modules and a choice of PIR and microwave detectors each with photocells for daylight harvesting. Controls enhance any lighting scheme, helping to create a comfortable lit environment as well as optimising energy efficiency.

Lighting controls can provide energy savings in excess of 50%. Where controls are taken into account, they can aid compliance with the energy efficiency requirements of the Building Regulations and energy efficiency incentives such as the Enhanced Capital Allowance scheme.

- Energy saving through occupancy detection and daylight harvesting
- PIR and microwave detector options, all with photocells and absence functionality
- Quick and simple plug and play connection minimising installation time
- 12 luminaire connections, via 6-pole locking connectors, across 6 channels
- The 6 channels can be independently controlled or linked in any configuration
- Compatible with digital DSI or DALI dimming protocol
- Multiple SELV switch and detector inputs
- Commissioning via easy to use PC based software, subsequent operation and parameter changes via infra-red handset

Marshalling Boxes

There are 4 marshalling box variants offering different functionality and compatibility with the range of accessories.

LCMB12W is the switching only variant that offers configurable channel outputs and is ideal for areas where a simple light level offset and time delay provides sufficient control of luminaires.

LCMB12WD is the digital dimming variant, compatible with both DSI and DALI ballasts, this allows daylight harvesting to trigger dimming to regulate the luminaire output relative to the commissioned light level setting.

LCMB12WB has an integrated communication BUS interface to facilitate connection to a BUS loop enabling interaction with a wider lighting control system. (This variant does not have the dimming function) The BUS has mains voltage protection via a replaceable BUS card to prevent damage to the remainder of the box should mains be applied to the BUS loop in error. (The recommended cable for the BUS is 1.5mm² unscreened twisted pair).

LCMB12WDB combines both the dimming functionality and communication BUS interface to produce the most versatile marshalling box option.

If two or more LCMs are to be linked via a BUS loop then a BUS power supply will be needed. For BUS power supply options please refer to page 429.

The marshalling boxes have a modular construction and can be upgraded to add the BUS or Dimming functionality described above if required.

All of the marshalling boxes have the following features:

Construction

Robust VO rated polycarbonate housing finished grey with dedicated mounting points at 240mm centres and numerous cable entry points

Luminaire Connections

12 x 6-pole luminaire connections which are split across 6 different channels as follows:

- 2 channels control 3 luminaire connections each
- 2 channels control 2 luminaire connections each
- 2 channels control 1 luminaire connector each

The maximum recommended load per channel is 6A (with a maximum recommended total load of 16A for the box).

The recommended maximum number of digital dimming ballasts per channel is 8, with a maximum of 20 digital dimming ballasts for the box in total.

Luminaires can be supplied fitted with corresponding 6-pole connectors that will lock to the marshalling box, ensuring positive mechanical connection and prevents accidental disconnection.

Detector Inputs

Each box is fitted with 5 x SELV RJ45 detector input sockets, this allows quick and simple connection of the detectors via RJ45 patch leads (available as separate accessories), minimising install time and removing the chance of incorrect hardwiring. The maximum recommended cable length between a detector and the box is 100m.

Switch Inputs

Each box is fitted with 5 x 3-pole SELV switch input sockets. These connections are a pluggable terminal block with a common and two returns with normally open contacts. The function of each switch input can be attributed to one or more of the luminaire channels. These inputs have the potential to allow up to 10 functions to be attributed to them and could be used to create scene setting functionality.

The recommended cable for use with the SELV switch inputs is 3-core 0.75mm² 300/500V to CMA ref 3183Y (or 3183B for LSOH cable).

The maximum recommended cable length between a switch device and the box is 100m.

Each LCM is supplied with 2 switch input plugs. A pack of 5 is available if more are needed (LCMCP).

Mains supply

The box requires a 230/240V 50Hz electrical supply.

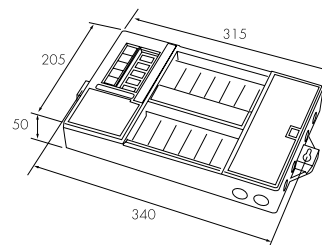
The mains input terminal is 4-pole with cable capacity of 2 x 2.5mm² or 1 x 4.0mm² per termination.

The box is supplied with a link between the permanent and switched live terminals, this can be removed where a permanent live supply is to be connected for emergency luminaires.

The permanent live input is common to all channels so a single key switch will drop the permanent supply to all 6 channels.

Dimensions

Depth	50mm (108mm with 6-pole plug and lead fitted)
Length	315mm (361mm including fixing feet)
Width	205mm
Weight	1.85kg
Fixing centres	340mm



Sensors

There are 3 different detectors available for direct connection to the marshalling box. Up to five detectors in total can be connected to the box via the RJ45 patch leads, available separately. The maximum recommended patch lead length is 100m. Identify which sensors are to provide the daylight signal on each channel to avoid any conflict of 2 photocells on one channel trying to compete with each other.



LCMBMS is a corner mount microwave occupancy detector with integrated photocell.

This device is supplied with surface or semi recessing bezels and is designed to sit below the ceiling line and detect occupancy across a room when ideally sited in the opposite corner to the point of entry to the room.

At maximum sensitivity the detection range extends 20m from the flat face of the detector.

This type of detector is ideal in open areas benefiting from its large detection range.



LCMBMF is a 360° ceiling mount microwave occupancy detector with integrated photocell.

This device is designed to be mounted in the plane of the ceiling and has a conical detection pattern vertically below the detector. The detection cone diameter at the floor is 2.8 x the mounting height.



LCMBPIRF is a 360° ceiling mount PIR occupancy detector with integrated photocell.

This device is designed to be mounted in the plane of the ceiling and has a conical detection pattern vertically below the detector. The detection cone diameter at the floor is 2.4 x the mounting height.

Care should be taken with the fixing and location of the microwave detectors to ensure the detection pattern is not blocked by solid obstructions or may perhaps detect movement in an adjacent room through windows or lightly constructed partitions. Note vibration or moving machinery may also trigger the microwave.

Accessories

To complete the Lighting Control Module system there are a number of wiring accessories to make connection and integration quick and easy saving valuable time.



Patch leads to link the sensors to the box are available in 3m and 5m lengths, these are supplied fitted with an RJ45 termination at each end.



Luminaire connection leads can be supplied pre fitted to the majority of the Eaton luminaire ranges, allowing simple out-of-the-box connection of the luminaires directly to the chosen marshalling box. This makes specification of the full lighting system quick and easy.

These are available in 6-pole 3m and 6-pole 5m length options using the G63 and G65 luminaire suffix codes respectively. Alternatively the latching connectors can be purchased as separate accessories.



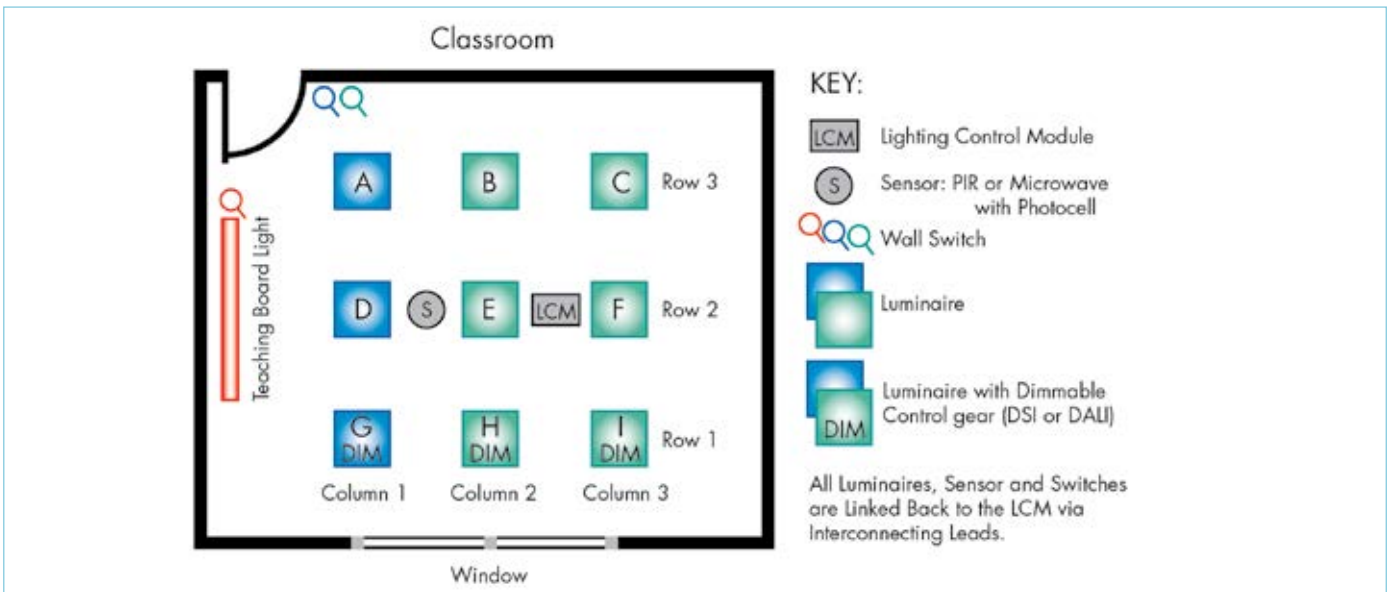
LCM commissioning is via PC based software. Commissioning is a service Eaton offer for the LCM. Please contact us for further details.

Subsequent simple parameter changes can then be achieved with the hand held master programmer (LCSQSP).

Refer to page 434 and 441 for handset details.

Typical Room Configuration

The following example shows a typical classroom scenario, demonstrating the application of the marshalling box and accessories.



9 luminaires are used for the main space with an additional task luminaire over the teaching board.

These luminaires are connected to the following channels on the box to enable the necessary functions to be assigned to those channels:

- Channel 1 has C and F connected
- Channel 2 has H and I connected
- Channel 3 has the teaching board light connected
- Channel 4 has G connected
- Channel 5 has A and D connected
- Channel 6 has B and E connected

3 independent wall switches, each connected to a separate SELV switch input on the box are assigned to the relevant channels on commissioning to operate the following luminaires:

- a. The teaching board light
- b. Luminaires A, D and G closest to the board, enables them to be switched off for projected presentations etc
- c. Luminaires B, C, E, F, H and I to the rear of the room

Catalogue Numbers

Cat No	Description
Lighting Control Module	
LCMB12W	LCM 12 way 6 channel Switching only
LCMB12WD	LCM 12 way 6 channel Digital Dimming
LCMB12WB	LCM 12 way 6 channel Switching and BUS connection
LCMB12WDB	LCM 12 way 6 channel Digital Dimming and BUS connection

A combined PIR with integrated photocell (LCMBPIRF), shown positioned between Luminaires D and E, is connected via a patch lead to one of the RJ45 SELV sensor inputs on the box. All channels are assigned on commissioning to act on occupancy detected by the sensor.

Luminaires G, H and I forming the window row are dimmable and channels 2 and 4 used for these luminaires are assigned on commissioning to act on the photocell for daylight harvesting.

In absence mode the luminaires will not come on until manually switched even if occupancy is detected.

In presence mode all the luminaires will come on as soon as occupancy is detected, with the window row regulating according to the detected natural light.

Luminaires will automatically turn off after the commissioned time delay following the last detected occupancy (default is 20 minutes).

For further information contact our technical support and application department on 01302 303240 or email LightingTechnicalUK@Eaton.com

Cat No	Description
Sensors for the LCM	
LCMBMS	Microwave detector and Photocell surface/semi-recessed mount
LCMBMF	Microwave detector and Photocell flush mount
LCMBPIRF	PIR detector and Photocell flush mount
LCM Accessories	
LCMPL3RJ45	Patch Lead 3m CAT5 c/w RJ45 connectors
LCMPL5RJ45	Patch Lead 5m CAT5 c/w RJ45 connectors
LCM6PGL	6-Pole Black/Grey GST latching Male connector
LCMCP	LCM switch input connectors - pack of 5