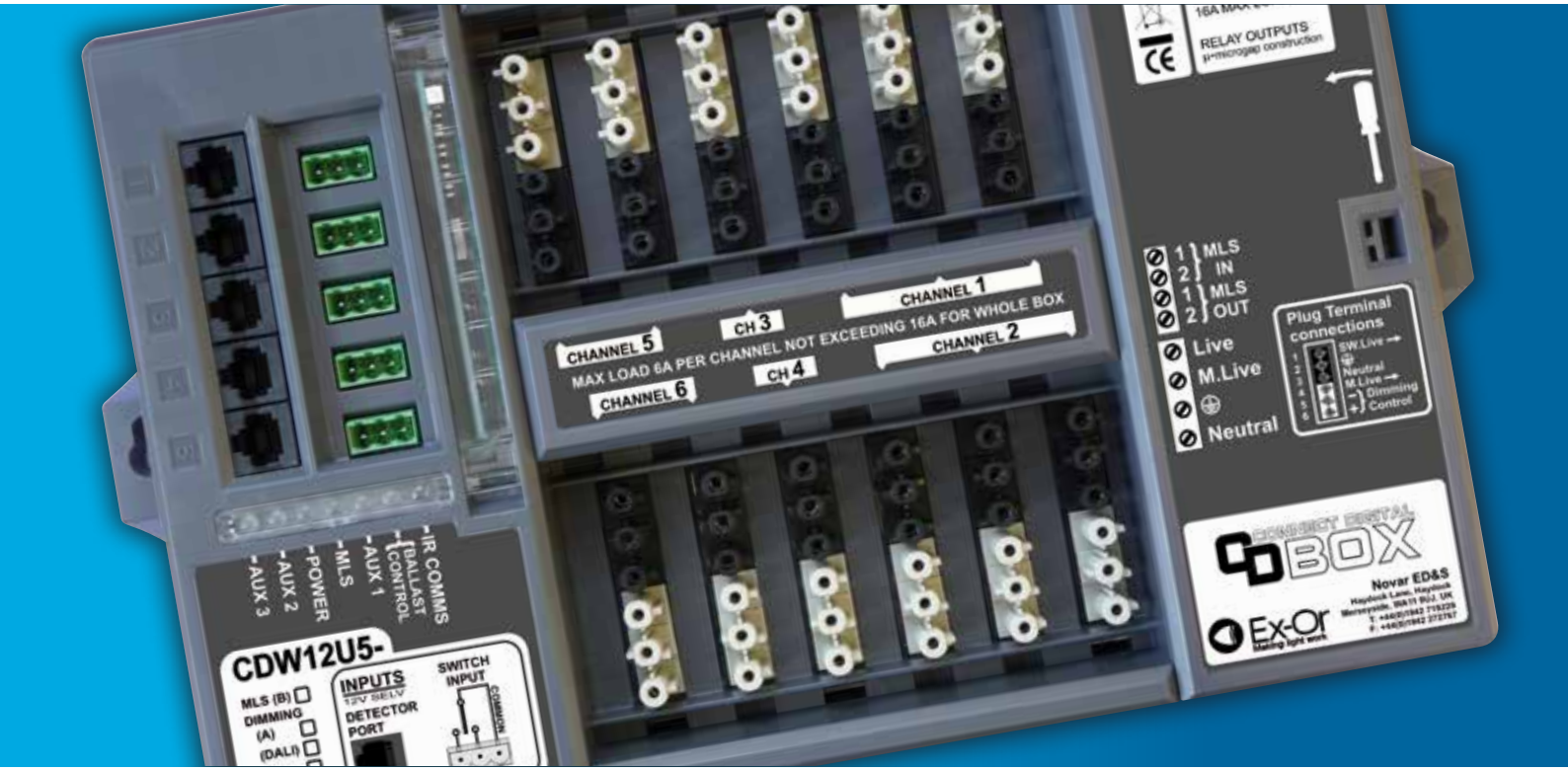
Ex-Or
by Honeywell

CDW12U5 Programmable Connection Centre

CDW12U5 Connect Digital Box



Connect Digital Box

The **CDW12U5 Connect Digital Box** is a highly flexible, configurable and intelligent lighting control module. Designed to change the way lighting controls are incorporated into buildings. Fixed wiring is replaced with plug-in simplicity and soft wiring connections, resulting in the lighting control being part of the lighting installation by default.

Each CD Box offers:

- Quicker and easier installation for time and cost savings;
- Elimination of wiring faults as pre-wired luminaires and detectors are delivered direct to site;
- Greater flexibility as luminaires and detectors can be changed or repositioned without major disruption;
- Programmable switch inputs that can be allocated to control lighting loads as desired.

The CD Box consists of 6 output channels providing control through various protocols (DSI/ DALI and Analogue dimming and conventional switching),
with the capability of connecting motion detectors and volt-free switch inputs.

The CD Box has the ability to convert a simple momentary push-button switch into a sophisticated smart switch, that is, one switch dimming, partitioning, scene selection and more, without the high cost associated with conventional lighting control systems.
The CD Box is completely compatible with the existing and highly successful MLS Digital Managed Lighting System (MLS).

The flexibility of the CD Box enables it to be used in wide range of applications including commercial, industrial, educational and hospital installations.

For example, the CD Box can be installed at the base building stage, when a minimum level of lighting controls with basic switching is required. As a building becomes increasingly occupied, each CD Box can be upgraded to add dimming and motion control to expand the functionality of the lighting control system.

By using soft wiring connections, luminaires can be easily plugged into existing channels or swapped between channels to suit new floor layouts.

Simple programming changes are made via an infrared programmer.

By connecting an MLSUCA Control and Communications Interface, each CD Box can be monitored over an internet or Ethernet connection and interact via BACnet protocol to other systems (BMS, HVAC, SECURITY).

System Capabilities

One Box, One Solution

- Upgradable to dimming, MLS Bus and motion control without unit replacement
- Multiple dimming options
  - DSI / DALI / 1-10V
- Multiple detector options
  - PIR 360º
  - Directional Microwave 90º
  - Microwave 360º
  - Integral PIR 360º
- 16A Load capacity
- 6A Switching capacity
- Emergency fittings / maintained live output

Flexibility

- Plug and play
- Interchangeable dimming / MLS Bus cards
  - Upgrade or replacement
- Any Volt free switch input

Labour Saving

- Pre-wired luminaires and Soft Wiring connections
- No termination on detectors or luminaires
  - Reduced installation times
  - Reduced installation costs

Simple Programming

- Simple drop-down programming software - no need to understand or write complex software code
- Ability to be preprogrammed

Interfacing

- Low level interfacing (UBT)
- High level interfacing
- No software licence or fees required

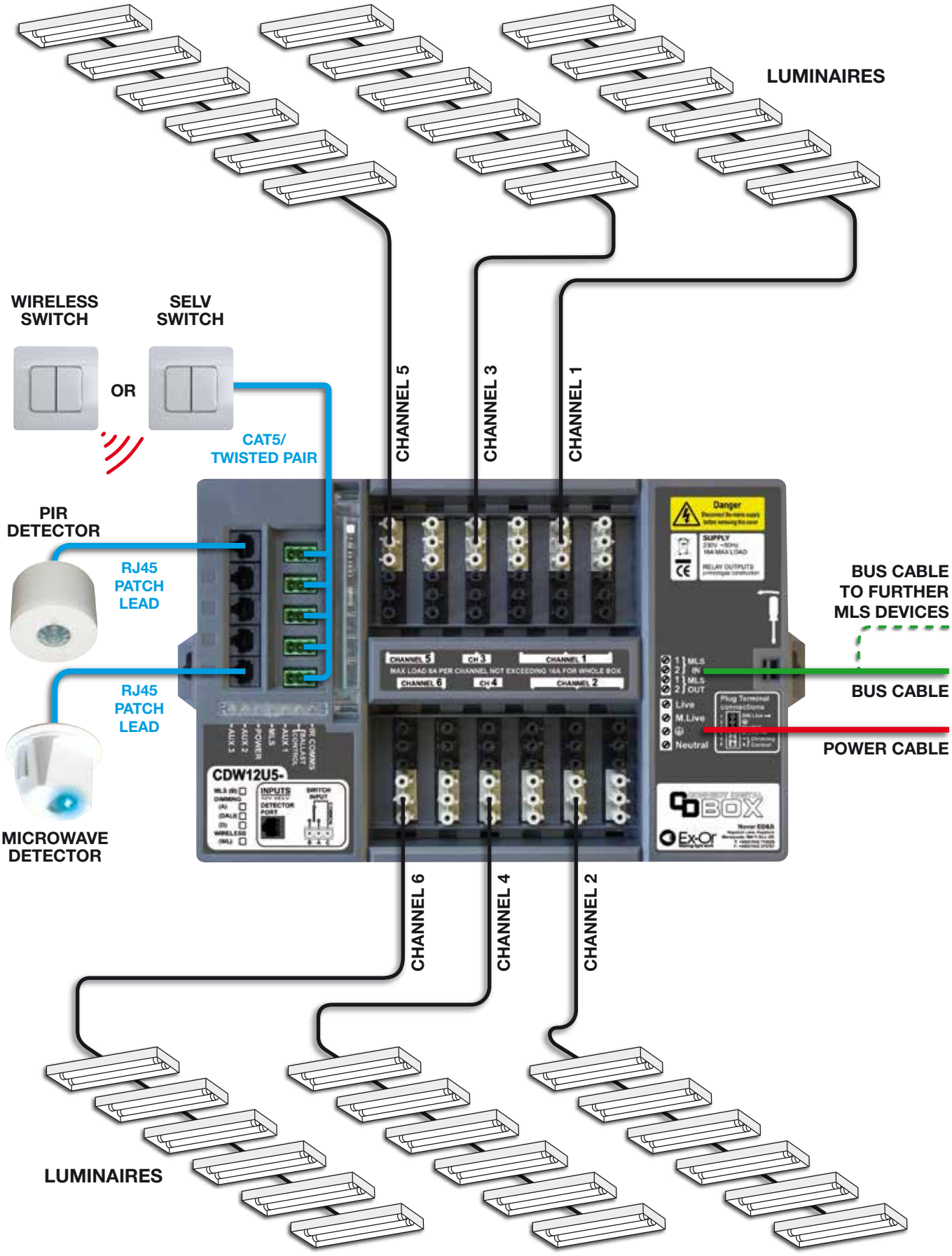
Robust Design

- European designed and constructed
- Screwless design
- Each unit is individually tested, not batch tested

Applications

- Commercial office buildings
- Educational facilities
- Hospitals
- Conference centres
- Hotels
- Apartments
- Warehousing
- Shopping centres

CD Box Connections



Disclaimer: Layout diagram is provided for illustration purposes only.

CD Box Connections

Connect Digital Box (CD Box)

Each CD Box has six channels which can control up to 40 luminaires and be independently switched, dimmed or programmed bound together in any configuration. Connectors include:

Mechanical Locking Plugs & Sockets

Mechanical locking plugs and sockets are used for positive electrical connections to the CD Box.

Luminaire Connections

Luminaires are connected via soft wire connections from the CD Box using the plug and play system to each luminaire.

Presence Detectors

Microwave and passive infrared (PIR) presence detectors (both surface and flush mount) as well as integral PIR detectors are connected via RJ45 patch leads.

Switch Input Plugs

Switches are connected to the CD Box via the three pin input plug.

Dimming Cards

Multiple dimming cards are available for DSI, DALI and 1-10V.

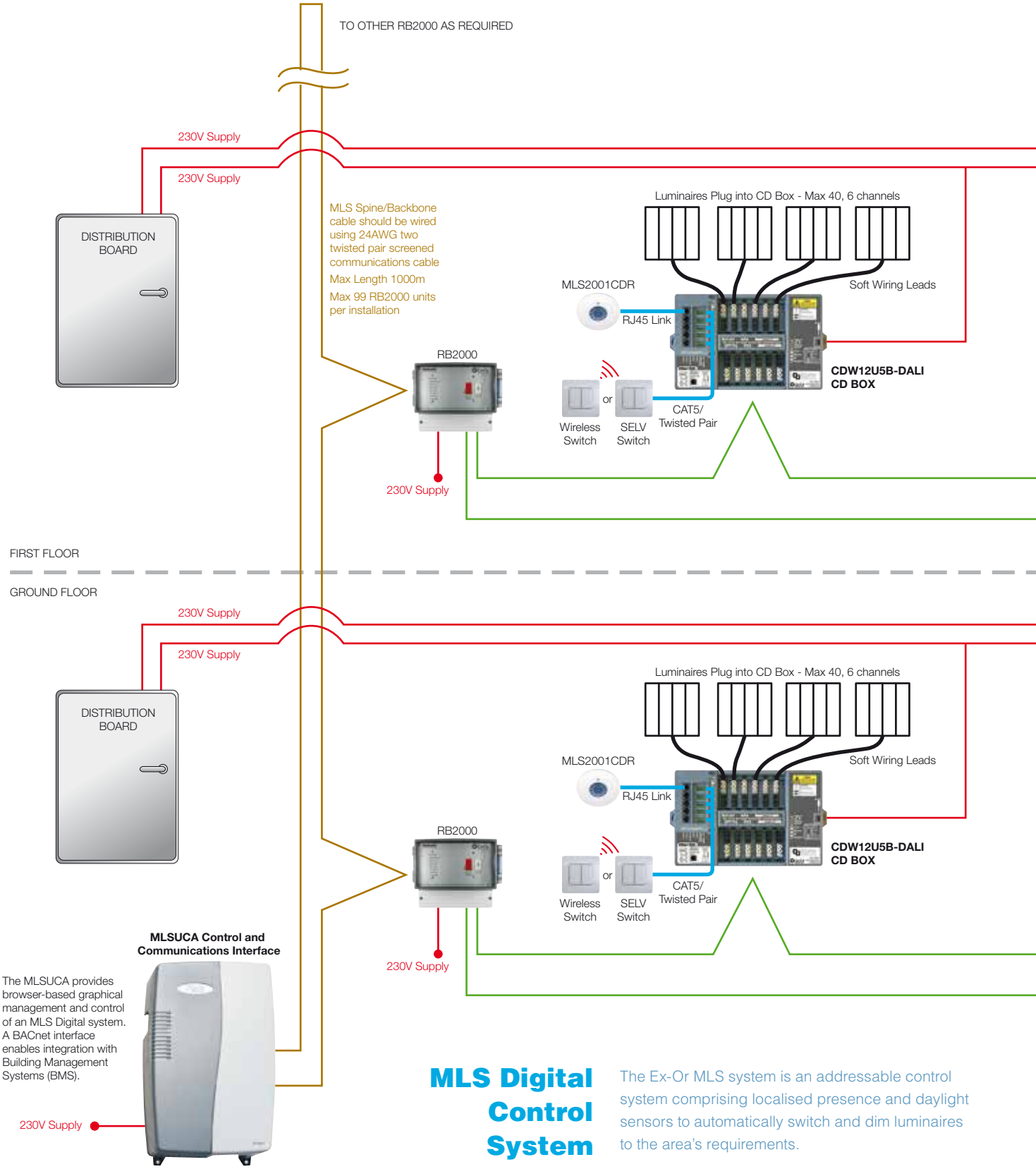
MLS Bus Cards

The MLS Bus link gives the option to communicate between multiple CD Boxes, giving greater flexibility in lighting control.

Programmers

Infrared programming.

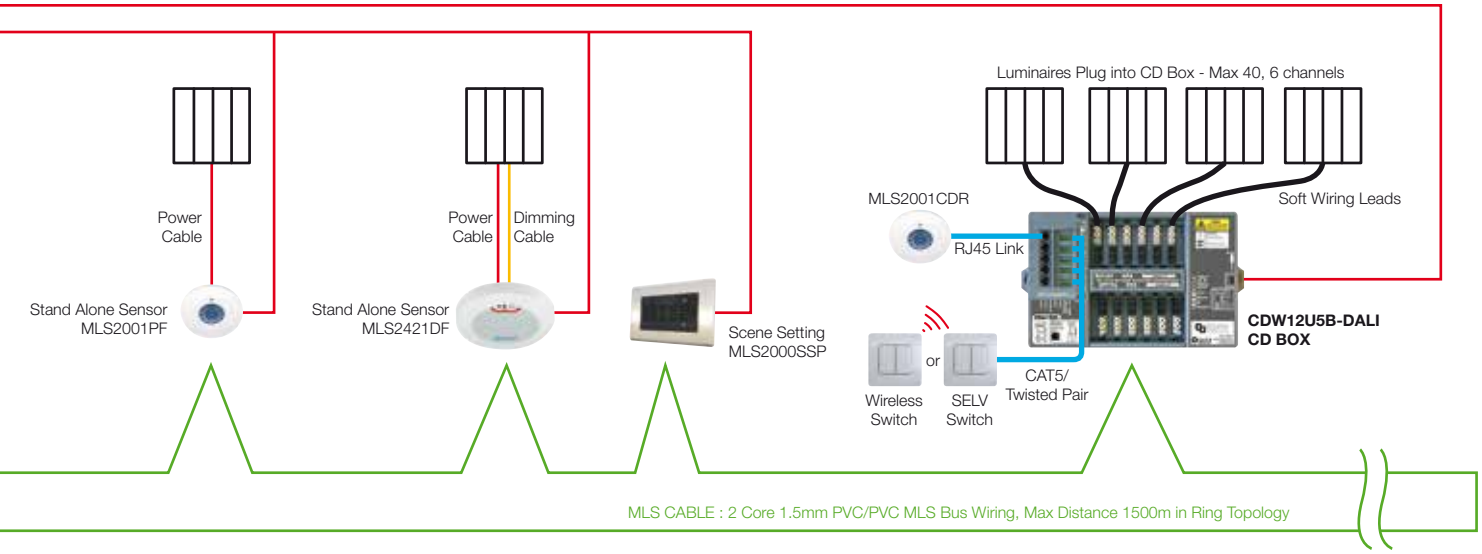
CD Box System Overview

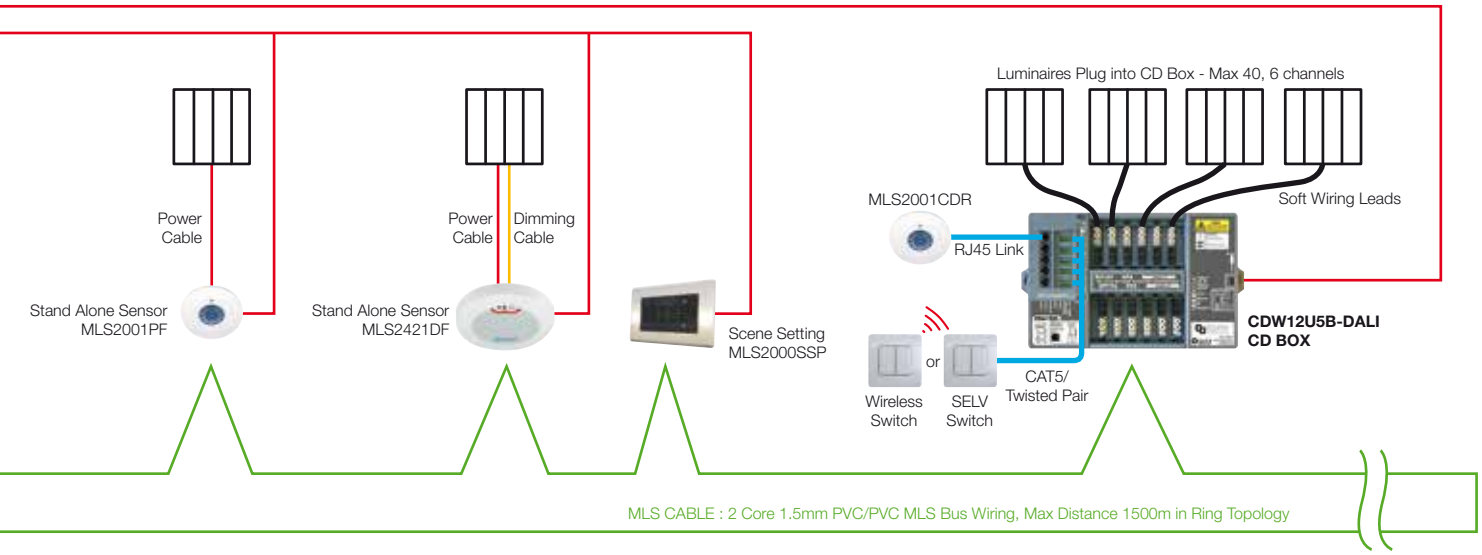


MLS Digital Control System

The Ex-Or MLS system is an addressable control system comprising localised presence and daylight sensors to automatically switch and dim luminaires to the area's requirements.

Each sensor is self-intelligent and holds its own data and communicates across the MLS bus network with other sensors to provide the local settings. Sensors can be manually overridden with local switches and/or scene set plates.





The sensors also communicate with other building-wide sensors to achieve common and building zones. For example, adjacent corridors (common zone) can be illuminated when surrounding rooms are occupied, and the reception area (building zone) can also be luminated if any area in the building is in use.

The system has the ability to share occupancy information and communicate to the BMS through a high-level interface (MLSUCA) via BACnet communication.

The system can control time scheduling, provide real-time monitoring and manual control of the lighting zones. The MLSUCA communicates to all the sensors via the MLS Bus Power Supply units which are located throughout the building.

CD Box Components

Presence Detectors

The following SELV detectors are designed to interface to the CD Box:

MLS2500CDR
Corner-mount Microwave presence detector with photocell, semi-flush mounted. Available surface mounted (SM suffix).

MLS2401CDR
360° Microwave presence detector with photocell, flush mounted. Available surface mounted (SM suffix).

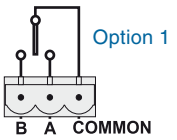
MLS2001CDRSM
360° Passive Infrared (PIR) presence detector with photocell, surface mounted. Available flush mounted.

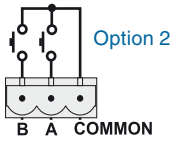
MLSM2002CDR
Controller for a 360° Passive Infrared (PIR) detector with photocell. Used with the DHS or DHW mini-head to form an integral luminaire-mounted unit.

All connect to the CD Box by means of an Ethernet-style RJ45 connector terminated patch lead which are available ready-made in various lengths. Up to five detectors may be connected to a CD Box box. The maximum allowable cable length from the CD Box to
a detector is 100m.

Connecting Switches

The CD Box is equipped to take a set of five two-way, or ten single, SELV switches. The logical function of a switch can be configured from a wide range of options and its action can be associated with any combination of channels. The switch connection consists of a 3-pole pluggable terminal block comprising a common and two returns from normally open contacts. Two plugs are provided with each CD Box.





The maximum allowable cable length between the switch mechanism and the CD Box switch terminal block is 100m.

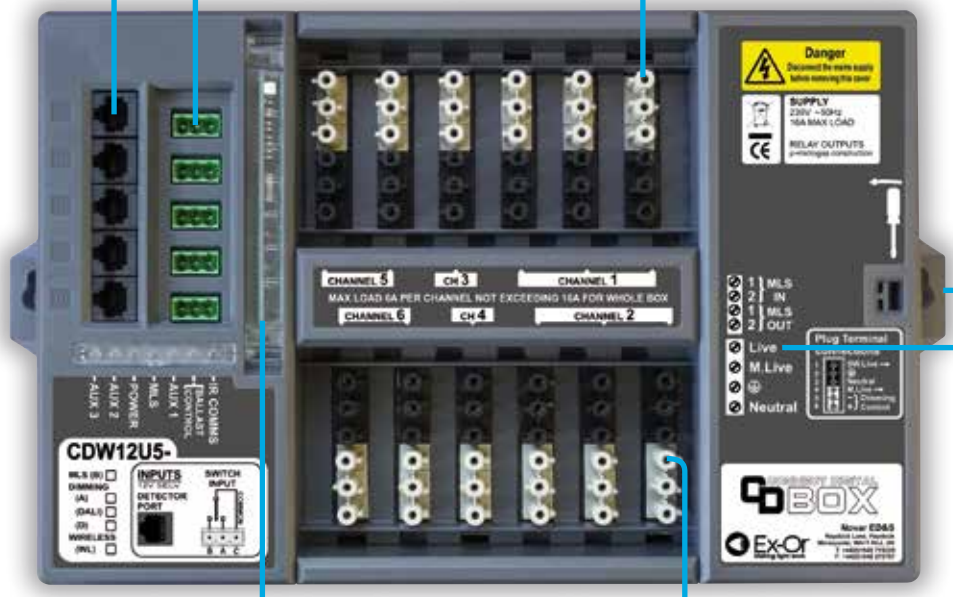
NOTE: Three separate singles cables should not be used.

Recommended part numbers - from MK's Grid Plus range:
Option 1 – K4900
Option 2 – K4910

5 x SELV Detector Inputs

5 x SELV Switch Inputs

Luminaire Sockets



Dimming Control

Dimming Control

- Separate versions of the CD Box are provided to control DSI, DALI and 1-10V Ballasts.
- 10 x DSI/DALI ballasts maximum per channel.
- 40 x DSI/DALI ballasts maximum per box.
- 1-10V Dimming Ballasts per Channel: 20mA SINKING only (worst case - 10 ballasts, but for e.g. Philips HF-R series - 20 ballasts). Observe the Switched Live Load limits above.

Note: Ballast types CANNOT BE MIXED on a single CD Box.

Emergency Lighting

Each socket has one dedicated maintained live connection for connection of emergency light fittings.

The supply to the maintained live connection can be from the supply to the CD Box (3-wire mains input via internal link) or a dedicated circuit by removing the internal link (4-wire mains connection).

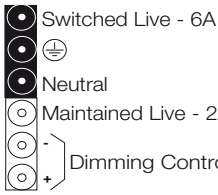
Connecting the Luminaires

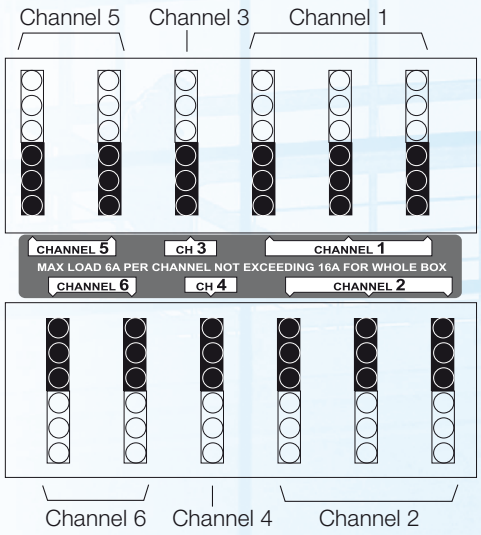
The CD Box is equipped with twelve GST 18/6 sockets for the connection of individual luminaires. These connections are equipped to take Ex-Or's Latching Plug Shells. Alternatively non-latching "Wieland style" plugs with hoods of up to 21mm depth may be fitted. The luminaire sockets are grouped into six channels, each capable of independent control, as follows:

2 channels each controlling 3 luminaire sockets,
2 channels each controlling 2 luminaire sockets,
2 channels each controlling a single luminaire socket.

The CD Box may be commissioned with configurations which allow two or more of the six channels to act together, in any combination required.

Connections Available on each Luminaire Socket





Quick & Easy Installation

- 2 fixing points
- Easy access to terminals
- Up to 4mm cable connections
- Completely screwless entry
- Multiple side, end and bottom cable knock-outs
- Plug and play

Programming & Commissioning

The CD Box is commissioned from a dedicated programme running on a laptop computer.

Communication from the PC can be by means of a USB Infrared Transceiver which can signal directly to the CD Box's on-board Infrared port over a short range or via any attached detector over longer ranges. Alternatively a specialised wired serial link can be established with the CD Box itself.

The programming parameters via the Microsoft Office based Windows program allows for simple user interface of drop down text to assign one or more detectors, PE Cells and switches to one or more channel outputs.

Each simple Volt free switch input can be assigned an intelligent duty, that is, one switch dimming, scene selection, partitioning and AV interaction to control any channel output of 1-10V, DSI, DALI and ON/OFF.

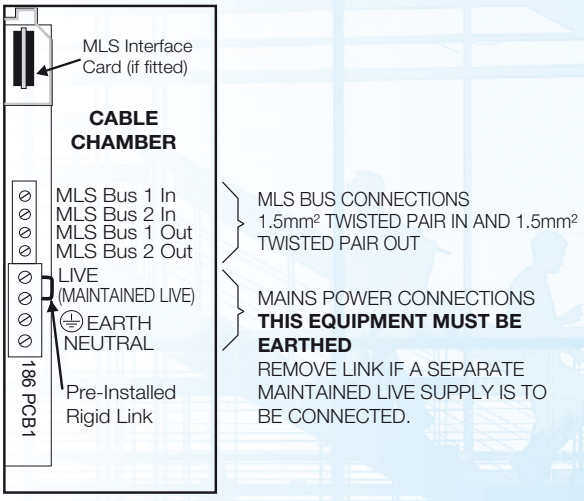
Programming of individual addresses for each output is as simple as selecting a number from a drop down list.

Electrical Connection

- Multiple cable knock-outs means supply cable can enter from 4 entry points.
- The cable chamber can be easily accessed by lifting off with a flat-bladed screw driver.
- Cables can be fixed by installing 20mm bushes or glands.
- A dedicated lighting circuit should be allocated to each CD Box.
- Supply cable and circuit protection should be sized to handle full load of CD Box.

MLS Bus Connection

- Dual terminals for easy IN/OUT connections to other devices.
- Additional cable knock-outs allow for separation of Mains and MLS Bus.

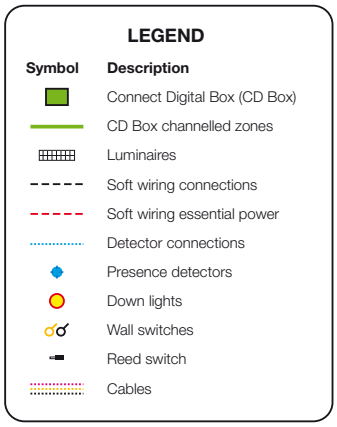


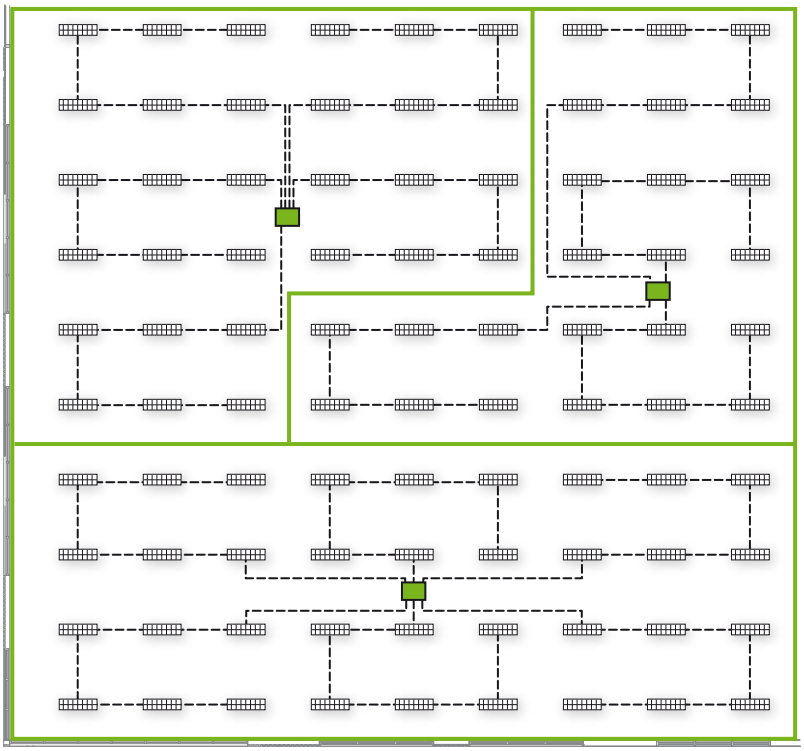
Typical Installations, Technical Data & Dimensions

Commercial Open Plan

In a typical commercial base building **open plan** fitout, as illustrated below, each CD Box can have up to 40 dimmable DSI/DALI fittings or a maximum of 16Amps per CD Box.

In this example, six luminaires have been allocated per channel. Switches are located at the entry points of the base building fitout, and are assigned an intelligent duty.

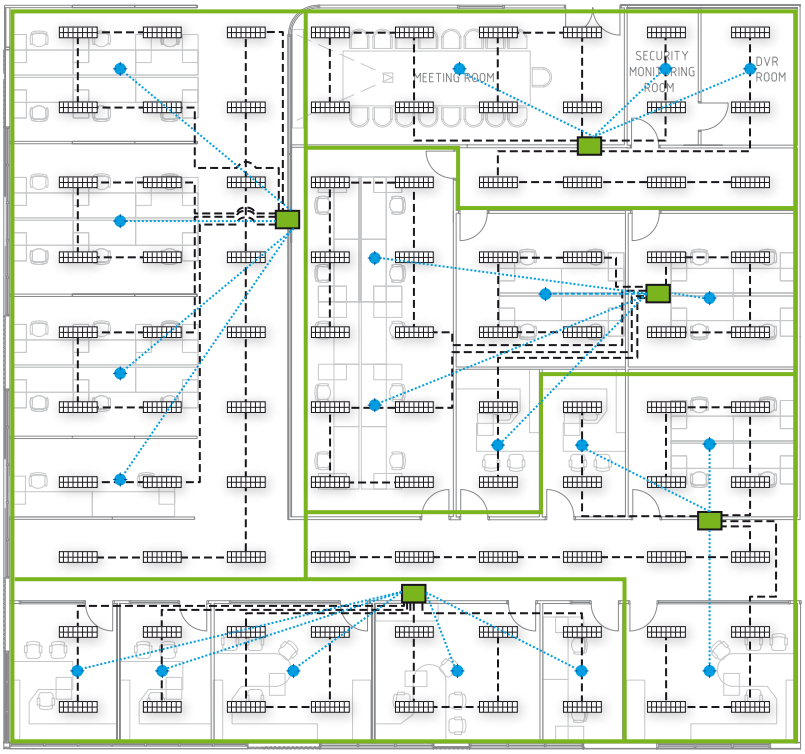




Commercial Tenancy Fitout

In a typical commercial **tenancy fitout,** as illustrated below, all luminaires, detectors and switches have been replugged and repatched to suit a changed tenancy layout.

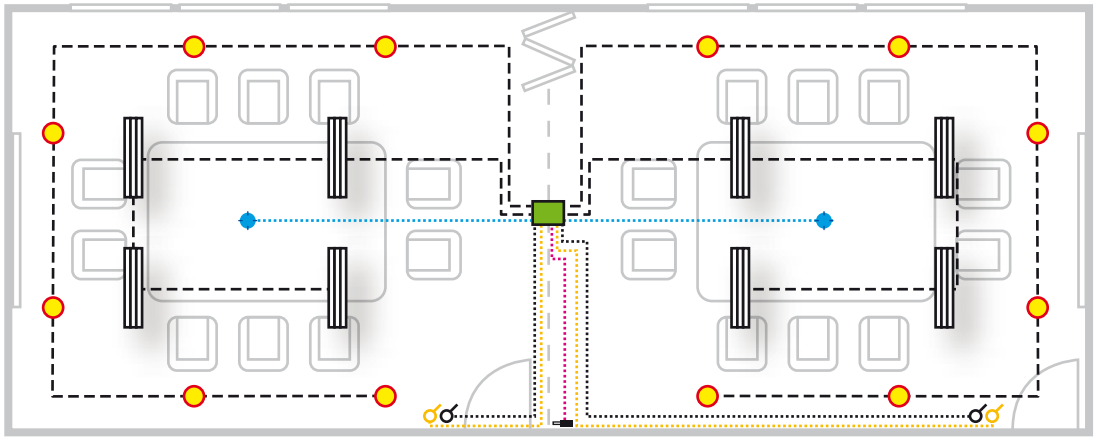
Each zoned section (marked with a green solid line) highlights the area covered by its respective CD Box, with extra CD Boxes connected to cover a greater number of switched areas.



Meeting Room
Classroom
Boardroom

Below is an illustration of typical **meeting room / classroom / boardroom** where a partitioning door may separate two areas, allowing for individual lighting control of each area.

The wall switches are programmed as scene controls with manual overrides that can control both areas together if the partition is open. The presence detectors ensure the luminaires switch off when the room is vacant.

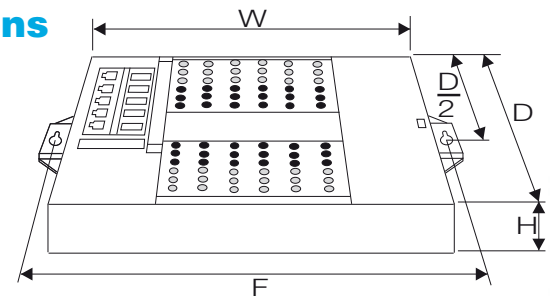


Technical Data

Operational Supply
230V ~ 50Hz
Power Consumption
18W maximum
Product Rating &
Recommended Circuit Protection
16A
Maximum Switched Live Load
per Channel
6A
Maximum Total Switched Live Load
16A
Digital Dimming Ballasts per Channel
10 maximum
Digital Dimming Ballasts per CD Box
40 maximum

Maintained Live Output
2A total per CD Box
Mains Supply Terminal Capacity
1 x 2.5mm² or 1 x 4.0mm²
Override Switch Input Connector
2.5mm²
MLS Bus Connector
2.5mm²
MLS Bus Cable
1.5mm² 2 Core PVC/PVC
Case Material
Polycarbonate
Case Finish
Lightly textured gunmetal grey

Dimensions



Height (H)
50mm (108mm including plug and lead)
Width (W)
315mm (361mm including mounting feet)
Depth (D)
205mm
Fixing Centres (F)
340mm
Weight
1.85kg

MLS Connect Digital Part Numbers

Connection Centres

CDW12U5	12 luminaire output sockets, 5 detector sockets and 5 override input sockets
CDW12U5-B	12 luminaire output sockets, 5 detector sockets, 5 override input sockets and MLS Bus operation card
CDW12U5-A	12 luminaire output sockets, 5 detector sockets, 5 override input sockets and digital dimming card - for analogue 1-10V ballasts
CDW12U5-BA	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card and MLS Bus operation card - for analogue 1-10V ballasts
CDW12U5-BAWL	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card, MLS Bus operation card and wireless switch card - for analogue 1-10V ballasts
CDW12U5-DALI	12 luminaire output sockets, 5 detector sockets, 5 override input sockets and digital dimming card - for DALI ballasts
CDW12U5-BDALI	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card and MLS Bus operation card - for DALI ballasts
CDW12U5-BDALIWL	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card, MLS Bus operation card and wireless switch card - for DALI ballasts
CDW12U5-D	12 luminaire output sockets, 5 detector sockets, 5 override input sockets and digital dimming card - for DSI ballasts
CDW12U5-BD	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card and MLS Bus operation card - for DSI ballasts
CDW12U5-BDWL	12 luminaire output sockets, 5 detector sockets, 5 override input sockets, digital dimming card, MLS Bus operation card and wireless switch card - for DSI ballasts

Note: Luminaire plugs not included with CDW12U5 Connection Centres above

Detectors for use with CDW12U5

MLS2001CDR	360° PIR Detector with photocell - flush mount
MLS2001CDRSM	360° PIR Detector with photocell - surface mount
MLS2401CDR	360° Microwave Detector with photocell - flush mount
MLS2401CDRSM	360° Microwave Detector with photocell - surface mount
MLS2500CDR	Directional Microwave Detector with photocell - flush mount
MLS2500CDRSM	Directional Microwave Detector with photocell - surface mount
MLSM2002CDR	Integral Digital Control Module for use with the CDW12U5
DHS	Mini Detector for use with MLSM2002CDR - silver bezel
DHW	Mini Detector for use with MLSM2002CDR - white bezel
DHFK-B	Flush-mounting Kit for use with Mini Detector - Black
DHFK-S	Flush-mounting Kit for use with Mini Detector - Silver
DHFK-W	Flush-mounting Kit for use with Mini Detector - White

Leads, plugs and ancillary items

CDWIP	Pack of 5 input plugs for CDW12U5 (additional - 2 supplied with every box)
CDWBC	Replacement MLS Bus card for CDW12U5
CDWDC	Plug-in digital dimming card for CDW12U5
CDWAC	Plug-in analogue dimming card for CDW12U5
CDWWLC	Plug-in wireless card for CDW12U5
CPWL6	GST-6 plug with Ex-Or locking mechanism (complete)
CPWL6S	GST-6 Ex-Or plug-locking mechanism (shell only)
CPWL633	3m Luminaire Lead - 6-pole, 3-core GST 18/6 plug with Ex-Or locking mechanism
CPWL635	5m Luminaire Lead - 6-pole, 3-core GST 18/6 plug with Ex-Or locking mechanism
CPWL643	3m Emergency Luminaire Connector - 6-pole/4-core with Ex-Or locking mechanism
CPWL645	5m Emergency Luminaire Connector - 6-pole/4-core with Ex-Or locking mechanism
CPWL653	3m Luminaire Lead - 6-pole, 5-core GST 18/6 plug with Ex-Or locking mechanism
CPWL655	5m Luminaire Lead - 6-pole, 5-core GST 18/6 plug with Ex-Or locking mechanism
CPWL663	3m Emergency Luminaire Connector - 6-pole/6-core with Ex-Or locking mechanism
CPWL665	5m Emergency Luminaire Connector - 6-pole/6-core with Ex-Or locking mechanism
CPWL663MF	3m Luminaire Extension Cable - 6-pole, 6-core male/female GST 18/6 with Ex-Or locking mechanism
BT5E020GY	Patch Lead - 2m
BT5E030GY	Patch Lead - 3m
BT5E050GY	Patch Lead - 5m
BT5E100GY	Patch Lead - 10m

Wireless batteryless switches for WL versions of CDW12U5

K23476 BSS W	1-gang switch - brushed stainless steel
K23476 WHI W	1-gang switch - white
K23477 BSS W	2-gang switch - brushed stainless steel
K23477 WHI W	2-gang switch - white

System Components

UBT2000	Universal Bus Transceiver
UBT2000DIN	Universal Bus Transceiver - DIN Rail Mount
RB2000	MLS Digital Bus Power Supply
RB2000LT	MLS Digital Bus Power Supply 'Lite'
MLS2000SSP	MLS Digital Scene Control Panel (requires cover plate)
MSSPBSS	Cover Plate for MLS2000SSP - brushed stainless steel
MSSPPBR	Cover Plate for MLS2000SSP - polished brass
MSSPPOC	Cover Plate for MLS2000SSP - polished chrome
MSSPWHI	Cover Plate for MLS2000SSP - white

Ex-Or
UK
Novar ED&S Limited
Haydock Lane, Haydock, Merseyside,
WA11 9UJ
United Kingdom
Customer Service Tel +44 (0)1942 719229
Customer Service Fax +44 (0)1942 508753
E-mail enquiries.ex-or@honeywell.com

Technical
E-mail technicalsales.ex-or@honeywell.com

www.ex-or.com

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