Introduction

Benefits of Lighting Control
Modern lighting controls deliver a range of benefits, most of which can be measured in real improvements to the profits of a business. From straightforward energy savings, through reduced maintenance costs to potential increases in productivity, lighting controls have clearly demonstrated their worth.

Over the past 25 years Philips lighting controls have developed a full range of solutions designed to deliver these benefits.

Comfort by personal control
Dimming control enables lighting to be adjusted to suit users’ preferences, changing tasks and different conditions of use. For example in a meeting room the lighting required for showing presentations will be different to that for studying documents or video conferencing. Similarly in an office the optimum levels will very depending on the task (eg PC work or paperwork) or the individuals age or preferences.

Flexibility
Control systems allow the lighting system to deliver customised lighting to every user. Light levels and scenes can be easily re-programmed to suit different preferences.

Adaptability
Sometimes also referred to as flexibility this is how easy it is to change the lighting installation. For example when the layout of offices is changed and partitions are moved lighting controls can avoid uneconomic wiring changes.

Intelligent luminaires or DALI control wiring allow luminaires to be re-grouped into new areas without wiring changes. Wire free remote controls enable lighting systems to be installed and changed without vertical wiring to wall switches.

This also includes, for example, a change from brightly lit showroom to subdued lighting for visual display use.

Energy Saving
No business likes to be seen to be wasteful. Lighting controls ensure that lighting is only provided when and where it is needed. Advanced sensors are used to integrate daylight and to detect occupancy. These solutions have been shown to reduce lighting use by as much as 80%. Result-no obvious waste or compromise of comfort.

Installation Cost Saving
Occupancy sensors and wireless infra-red controls avoid the use of wired switches. Control products compatible with a ‘plug-in’ approach to installation can save up to 70% of the ‘on-site’ labour time. And these savings continue during the life of the building whenever changes are needed.

Comfort
In business today the provision of a comfortable environment for people to learn, work, shop, eat, rest and play is vital for success. With Philips’ controls, the lighting can be set to suit the task, the experience, individual preferences and the required mood – and then readily change them as well.

Lighting Control Functions

Daylight linking/ Constant lux
Continuous automatic adjustment of lighting in response to the changing contribution from natural daylight provides a constant light level on the working surface.

Maintained illuminance
A light sensor is used to monitor the light level and automatically compensate for the gradual loss of light due to lamp lumen depreciation and soiling of optics and surroundings. This avoids the need to overlight initially in the maintenance cycle and allows further energy savings.

Absence/ presence detection by movement detection
Passive infra-red movement detectors are used to ensure that lighting is only on when needed. Depending on the system and programme used the detection of a movement can switch lights on (presence detection) or the absence of movement can be used to switch the lights off (absence detection). The delay before switch off can be adjusted and in some systems switch off or dim options can be chosen when no one is present.

Remote control
Infra-red transmitters allow remote control of the lighting at the press of a button. Wall mounted transmitters can be used to switch and dim lighting in open plan areas or at the entrance to rooms like conventional wall switches eliminating vertical wiring. Handheld transmitters allow individual control from the desk and can be used to recall lighting scenes. Remote control can also be used to commission the lighting installation from the ground.

Preset scenes
When more than one lighting channel or circuit is present (in a conference room or executive office for example) then each circuit can be controlled separately to create a lighting scene. This scene can then be memorised and recalled by pressing a single preset button.

1-10V, “Touch and Dim” and DALI dim Interface
Philips dimming ballasts are available in three versions. Analogue 1-10V and digital “Touch and Dim” and DALI (Digital Addressable Lighting Interface). It is important to ensure that the correct ballast is used with the chosen control system (see selection matrix). The 1-10V system is the most common and has been the industry standard for many years. Dimming is via a control pair and switching is done via the 230V mains.

The DALI system is the industry standard for digital ballasts and differs from 1-10V in two major ways:
- Digital switching via the control pair.
- Addressing, ballasts on the same control pair can be controlled separately by giving them different addresses.

The combination of these two facts means that the control circuits are independent of the 230V supply and can be changed without rewiring. The DALI protocol is the basis of the MultiDim and LumiSense II system. “Touch and Dim” is a simple hassle free dimming solution for manual control applications. It is a hard wired pushbutton solution offering personal light comfort.

Meeting Legislation
Climate change, as well as health and safety are provoking governments into making more and more regulations, standards and legislation. Often lighting alone will not easily meet these demands without the addition of a control solution. In this field, Philips lighting controls has unrivalled knowledge and experience to share.

Maintenance
The easier it is to maintain a lighting installation the lower the cost of ownership. A Philips lighting management solution can extend lamp life, provide regular maintenance schedules and report on the condition of emergency lights. Our lighting management solutions ensure that exit route lighting is maintained during periods of occupancy and emergency lighting is effectively tested and monitored.
# Lighting controls – Key features

## Automatic control

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Movement detection</td>
<td>To control lighting within a specific area, sensing of occupancy by movement detection ensures that lights are activated only when needed.</td>
</tr>
<tr>
<td>2. Daylight linking</td>
<td>Natural light is energy-saving and beneficial to individual users. Light output can respond to daylight conditions, maintaining a constant level of indoor lighting and ensuring comfort at all times.</td>
</tr>
<tr>
<td>3. Time schedule</td>
<td>Daily programming of the management of lighting installations enables the correct lighting levels to be achieved at all times, by changing lighting levels, by switching lights on and off or by adjusting the way control systems respond to other devices.</td>
</tr>
</tbody>
</table>

## Manual control

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Pushbuttons/wall switches</td>
<td>Lighting Control systems can also be operated manually by connecting conventional wall switches or pushbuttons to inputs in the lighting control module.</td>
</tr>
<tr>
<td>5. Infrared remote control</td>
<td>In offices and meeting rooms where the lighting requirements change frequently, wireless infrared control offers the flexibility to set the lighting, and change it at any time.</td>
</tr>
</tbody>
</table>

## Lighting effects

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Maintained illuminance</td>
<td>Set desired light levels and maintain them throughout the life of the lamp to achieve significant cost savings.</td>
</tr>
<tr>
<td>7. Dimming control</td>
<td>As more and more light sources can be economically dimmed, lighting controls need to provide both switching and dimming capabilities.</td>
</tr>
<tr>
<td>8. Scene-setting</td>
<td>To meet the needs of different tasks, events or moods, a selection of lighting scenes can be created, stored and recalled at the touch of a button.</td>
</tr>
<tr>
<td>9. Control of any lighting type</td>
<td>As lighting designs often require multiple types of lamps, Lighting Controls provide the freedom to choose any suitable lamps.</td>
</tr>
<tr>
<td>10. Colour changing</td>
<td>The ability to change the colour temperature of a lighting installation makes it possible to either create a more comfortable working environment or introduce dynamic lighting effects in architecture.</td>
</tr>
</tbody>
</table>
## Lighting controls – System selection matrix

Use the following table to enable you to select the control system which best suits your user's application needs.

<table>
<thead>
<tr>
<th>Needs</th>
<th>Multidim</th>
<th>LumiSense II</th>
<th>LuxSense</th>
<th>OccuSwitch</th>
<th>Touch and Dim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal control/ comfort</td>
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<tr>
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</tbody>
</table>

*** = Perfect Fit  
** = Excellent Fit  
* = Good Fit
Philips intelligent luminaires –
The simplest way to lighting control
To increase comfort, energy saving and flexibility in offices, Philips has incorporated miniature lighting controls within the luminaires. Philips Lighting offers a choice of intelligent luminaire solutions that provide a wide range of functions such as daylight linking, movement detection, remote control and scene setting with energy savings of up to 70%. Intelligent luminaires enable lighting control to be applied in a building at any stage of a project. The sensor-controller combination within the luminaire has little impact, or none at all, on the electrical installation.

OccuSwitch – Lighting control the easy way
The OccuSwitch is a very simple occupancy type controller that provides automatic switching of lighting loads of up to 10A. A built-in adjustable time delay allows the lights to remain on after occupancy for a selected period of time. An optional light sensor is also built-in so that if the natural daylight conditions are sufficient the lights will not switch on thus saving more energy.

The OccuSwitch distinguishes itself in design, quality and ease of installation; it is simply positioned in the middle of the room or area, the mains power supply wired directly to it and the luminaire circuit wired from it. Simplicity at its best! OccuSwitch is ideally suited for those areas that are infrequently occupied and where dimming is not required - such as washrooms, stores, lobbies, corridors, cellular offices and meeting rooms.

LuxSense – Daylight-dependent regulation option
Luminaires with this option contain a unobtrusive light sensor, regulating light to the required level depending on the amount of daylight. Energy saving results from both the use of daylight and the compensation of the over-design effect (maintained illuminance). With today’s efficient lamps and optics, the compensation of the over-design is very effective, particularly in retrofit projects. Average energy savings can reach up to 35%. LuxSense is available as a separate product for TL5 and TL-D luminaires. Easy mounting, also for open luminaires.

LumiSense II – All intelligence in one
Primarily designed for cellular and smaller open plan offices, LumiSense II can also be applied in other areas such as meeting rooms, toilets and storage rooms. By using the benefits of digital technology, LumiSense II provides 10 pre-programmed modes to match a variety of applications quickly and easily. Each mode includes various parameters such as delay times and switching behaviour. In addition to daylight regulation and movement detection, infrared remote control enables users to interact with their environment: switch, dim or select preset lighting levels or scenes. LumiSense II functionality can be changed easily so that its behaviour can be adapted to new situations.
Touch and Dim: Simple lighting control at a touch of a button.
Push button dimming ballasts enable simple personal dimming and switching using a simple push-to-make switch from any manufacturer. Several switches may be connected to allow control from several locations in the room. Alternatively a switch may be mounted in an individual luminaire, for example using a pull switch to control a suspended luminaire or a push button in a desk lamp or uplighter. For further information on Touch and Dim ballasts see recommended pages 3.133 and 4.58.
Scene setting and colour mixing with MultiDim

Digital control solution
Philips DALI MultiDim offers today’s most versatile and easy-to-install solution that brings the benefits of digital lighting control to many different application areas. Whether in shops, offices, conference rooms, hotels, restaurants or other applications.

Quick and economic installation
MultiDim consists of an integrated range of DALI-compatible devices that can be combined flexibly to create exactly the desired control functions. The systems addressable digital architecture means that only a single two-core cable is needed to interconnect all units. The possibility to eliminate conventional vertical wall wiring both reduces installation time and cost, and greatly increases the ease with which later changes can be implemented.

Freedom in lighting design
MultiDim offers unbeatable freedom and ease of lighting system design. The MultiDim controllers can be used in combination with DALI-compatible fluorescent lamp ballasts and lamp interface units (both high voltage incandescent lamps and low voltage halogen lamps). Where necessary control functions can be provided by adding the required MultiDim units such as dimmers, control panels, IR remote control units and multi sensors for light levels and room occupancy.

Maximising flexibility with DALI
Thanks to the systems digital addressable control and communication concept, each unit in the DALI network has its own unique address that allows it to be switched and controlled independently. The systems single control line can be used to control different groups of lamps, and up to 63 devices connected to the same physical control wire can be addressed and controlled independently.
Lighting controls
Lighting controls

Definition
The OccuSwitch is a movement detector with a build-in lighting switch. The unit is designed for the automatic switching of light in indoor applications only.

Description
- The detector has dip-switches that enable the end-user or installer to alter its functionality even after installation.
- The sensor has a build-in “day light override” function. This function will prevent the unit from switching on the light when sufficient daylight is present, regardless the detection of movement. The override function can be enabled/disabled by a dipswitch and adjusted by turning the potentiometer or pushing the button.
- The sensor has build in intelligence that adjusts the sensitivity according to the needs of the moment. When the unit detects that somebody is present it increases its sensitivity preventing it from switching off when somebody is present.
- When the unit detects that nobody is present (longer period of time) it decreases the sensitivity preventing the lights to switch on without reason (preventing false triggers).
- The sensor is optimised for recessed ceiling mounting.

Applications
The OccuSwitch operates fully stand alone and does not have an interface to other building systems. It is possible to use a screw terminal or wieland solution.

Properties
Coverage area
- The sensor has a clearly defined circular detection pattern with a footprint diameter of 7 m at a mounting height of 2.7 m
- Switch off delay time 1 to 35 min.

Light sensor range
- The light sensor used has a dynamic daylight-override between 10 and 1000 lux (selectable), factory set at 750 lux.
- Max switching current 10A rms (any load)

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Dimensions in mm

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<tr>
<td>2</td>
<td>116</td>
<td>99</td>
<td>85</td>
<td>79</td>
<td>210</td>
</tr>
</tbody>
</table>
**Technical data**

**Operation conditions**
- Operating temperature: +5°C to +50°C
- Relative humidity: 20% to 85% (non condensing)

**Storing conditions**
- Storage temperature: -25°C to +85°C
- Relative humidity: 10% to 95%

**Connectors**
- Screw connectors 2.5mm²
- Wieland GST 18-3 male/female

**Cable pull relief**
- 60N

**Voltage range**
- 230VAC +/- 10%

**Frequency range**
- 50/60Hz

**Max. switching current**
- 10A rms (any load 2300VA)

**Norms**
- EN/IEC 669-2-1

**Product ID**

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Weight (kg)</th>
<th>EOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRM1050/00 SENSR MOV DET ST</td>
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<td>51725400</td>
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<tr>
<td>LRM1051/00 SENSR MOV DET PLUG</td>
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</tr>
</tbody>
</table>

**Factory settings**
- Factory default
- Delay 15 minutes
- Daylight override active
- Walk test led enabled
- On at power-up
- Override level at 750 lux (± 20%)
Product details
- LuxSense is a DayLight Regulation option (DLR) for luminaires equipped with a Philips HFR ballast. The sensor measures the reflected light coming from the surface below. It dims down the lamp output when the light level exceeds the required light level defined by the light sensor setpoint.
- LuxSense can be installed in the luminaire either clicked to the lamp with a lamp clip or optional clicked to the end lamella of the optic with a bracket.
- LuxSense is available:
  - as a complete set with a sensor and a lamp clip: LRL 1220 TL-D for TLD lamps and LRL 1220 TL5 for T5 lamps.

Features
- LuxSense is connected to the 1-10Vdc control input of the HFR ballast.
- LuxSense dims light down to the minimum level of the ballast (3% for the Philips HFR ballast).
- LuxSense is calibrated for use in a standard office situation with 600 lux installed and 500 lux required.
- If needed, LuxSense can be manually adjusted by a rotating diaphragm to adjust the setpoint. The sensitivity of the sensor can be changed within a range from 1/3 to 3.
- The new setpoint can be copied for all luxsense luminaires with similar daylight and reflections conditions.
- LuxSense can regulate up to 20 luminaires equipped with Philips HFR ballasts.

Application
- LuxSense is meant to save energy by reducing excessive light due to:
  - over design (e.g., 600 lux installed and 500 lux required)
  - daylight ingress (see savings potential below)
- Energy savings potential is 35% on average:
  ± 10% (window/corridor side)
  ± 5% (summer/winter season)
  ± 5% (south/north side)

Energy saving potential of LuxSense depending on location and season

Assumptions: 600 lux installed, 500 lux required, average European office building luminaire position on 1m resp. 3.5 m from the window, compared to an equivalent installation with electronic non-dimmable ballast (HFP).
- LuxSense is designed for average ceiling heights of 2.5 to 3 m.
- LuxSense can be used alone or in combination with other controls products in order to add the daylight regulation functionality (e.g.: combination of LuxSense with OccuSwitch).

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Lighting controls

**Technical data**

**Environmental conditions**
- Ambient temperature: 5°C to 55°C
- Rel. humidity: 15% to 90%, no condensation
- Max. temperature of clip to lamp contact surface: 70°C

**Operation conditions**
- Ambient temperature: -25°C to 70°C
- Rel. humidity: 5% to 95% at 25°C

**Safety**
- When connected to the control input of a Philips HFR ballast, the sensor has double isolation to mains connected parts.

**Connection**
- 2x0,5mm² flying leads, length 700mm.
- White/grey +, white -.

**Colours coding of cable:**
- When connected wrongly to the ballast dim input, the ballast input is short circuited, resulting in minimum light output.

**Housing**
- Material: ASA
- Colour: Light grey (similar to RAL 7035)
- Weight/dimensions: Approx. 20 grams, 25x21x19mm.

**EMC**
- According to IEC 1547/EN 50082-1
- Control signal input: - operating voltage: +1,5 - +10Vdc
- Operating current sink: 100µA-3mA (sufficient for 20 Philips HFR ballasts)
- Control voltage variation: < 0,5V over current and temp.range
- Default setting: 5Vdc at 37,5 lux/140µA (factory calibration tool)
- Step response: within 2 sec. on 5V after power-up in case of insufficient ambient light
- Maximum input voltage (maximum rating): 15Vdc
- Maximum current sink (maximum rating): 50mA

**Optical characteristics**
- It is assumed that the reflection in a room is such that a light level of 500 lux on a table (0.8 mtr in height) will result in 25 lux seen by the controller at ceiling height (2.5 mtr) under a viewing angle of 45°.
- The opening angle can be adapted by the diafragm control, realizing an attenuation factor between 1/3 and 3.

**LuxSense controls characteristics**
- LuxSense compensates approximately for 50% of the added light (simulated and measured with a fluorescent light source). See graph below. In case of a natural light source, the compensation is higher than 50%.

Please note that LuxSense is not designed for maintaining a constant light level.
Installation

Mount the luminaire with LuxSense daylight Regulation option.

Measure the lux level under the light sensor (with no or negligible daylight contribution).

If needed, turn the diaphragm until the required light level is reached (with no or negligible daylight contribution).

Manual adjustment of the light sensor:

Copy the new setpoint in other rooms in case of similar daylight and reflection conditions below the sensor.

Warning: the required light level should be no more than 30% lower than the average installed light level, without daylight contribution (e.g. 625 lux installed, adjustment down to 430 lux is possible).

Installation warning

Throughlooping LuxSense Master luminaire (M) to slave luminaire (S)
- Up to 19 slave luminaires can be looped through to 1 Master luminaire if all luminaires are equipped with Philips HFR ballasts.
- Slave luminaires should have similar daylight conditions to the Master luminaire

- Through looping shall be done by connecting 1-10V “+ to +” and “− to −”
- Through looping of luminaires shall only be done within the same distribution circuit

- Never loop through 2 Master luminaires!
Installation of LuxSense into the luminaire

- the maximum temperature \( t_a \) should always remain below 70 °C
- the sensitivity opening angle should never be obscured by the optics or any other part of the luminaire
- metal optics shall be properly connected to “earth”

LuxSense can be fixed in the luminaire either with a lamp clip or a special lamella bracket.

a. Mounting on the lamp

- LuxSense mounted with a lamp clip
  - Only for TLD and T5 HE lamps
  - Never with T5 HO lamp
  - LuxSense shall be positioned 7 cm way from the end cap on the (electrical) “cold” side of the TL lamp. This is the side of the lamp that is connected to the terminals of the ballast that allows for the longest wiring to the lamp.

b. Mounting on the end lamella

- As an alternative, the sensor can be mounted to the end lamella with a special bracket provided by the luminaire manufacturer.
- The lamella bracket shall be designed in such a way that \( t_a < 70°C \).
- It is recommended to mount the sensor 7 cm away from the end cap on the (electrical) “cold” side of the TL lamp.

Dimensions for end lamella bracket

- front view: dimensions have to be exactly implemented
- side view: design depending on luminaire optic
## Lighting controls

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<thead>
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<th>Product ID</th>
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<td>LRL 1220/TLD</td>
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<td>ca. 4.5</td>
<td>670126 00</td>
</tr>
<tr>
<td>LRL 1220/TLS</td>
<td>100</td>
<td>ca. 4.5</td>
<td>670102 00</td>
</tr>
</tbody>
</table>
Lighting controls

LPS100/00
Manual rotary potentiometer with microswitch for recessed mounting. In combination with one or more electronic HF light-regulating ballasts, electronic light regulators or 1-10V controllers, it serves to control the light level of fluorescent lamps, halogen lamps or incandescent lamps.

LPS100/01
Manual rotary potentiometer with microswitch for surface mounting. In combination with one or more electronic HF light-regulating ballasts, electronic light regulators or 1-10V controllers, it serves to control the light level of fluorescent lamps, halogen lamps or incandescent lamps.

Applications
- The potentiometers are used in combination with the electronic HF light-regulating ballasts for manually controlling the light level of fluorescent lamps in areas such as offices, meeting rooms, etc.
- The built-in microswitch enables the lights to be switched on and off by means of a separate relay or contactor.
- The potentiometers can also be used for setting the reference level in light sensor controlled installations.

Note: Alternative manual dimming solutions can be made using HF-Regulator “Touch and Dim” in combination with a free choice of retractable pushbutton switch.

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Dimensions in mm

<table>
<thead>
<tr>
<th>Dim. no.</th>
<th>A (min)</th>
<th>B (max)</th>
<th>C (min)</th>
<th>D (max)</th>
<th>E (max)</th>
<th>F (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ø 53</td>
<td></td>
<td>32</td>
<td>24</td>
<td>Ø 81</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>65</td>
<td></td>
<td></td>
<td>Ø 85</td>
<td>46</td>
</tr>
</tbody>
</table>
### Packing data

<table>
<thead>
<tr>
<th>Type</th>
<th>Output voltage</th>
<th>Current (max)</th>
<th>Microswitch max. voltage</th>
<th>Switching capacity</th>
<th>Ballast type</th>
<th>Max. allowed load</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPS 100/00</td>
<td>1-10V dc</td>
<td>max. 50mA</td>
<td>250Vac</td>
<td>HF-R 118</td>
<td>6 ballasts</td>
<td></td>
</tr>
<tr>
<td>LPS 100/01</td>
<td>(current sinking)</td>
<td></td>
<td></td>
<td>HF-R 218</td>
<td>5 ballasts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HF-R 136</td>
<td>4 ballasts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HF-R 236</td>
<td>3 ballasts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HF-R 158</td>
<td>4 ballasts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HF-R 258</td>
<td>2 ballasts</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical connections

- **LPS 100/00**
  - 1-10V dc to HF reg. ballasts or controller
  - 2 microswitches
  - 3 microswitches
  - 4 microswitches

- **LPS 100/01**
  - 1-10V dc to HF reg. ballasts or controller
  - 2 microswitches
  - 3 microswitches
  - 4 microswitches

### Related documentation

- Installation instruction

### Miscellaneous

The outgoing low-voltage leads and the mains voltage leads should be kept separate from each other.

- Housing material ABS, colour white
- Screw type terminals for solid wire cross section 2.5mm²

### Remarks

If more than the allowed number of ballasts have to be switched, an external contactor must be used (see wiring diagram on this page). For electronic ballasts the in-rush current is the limiting factor.

### Packing data

<table>
<thead>
<tr>
<th>Type</th>
<th>Box dimensions (mm)</th>
<th>Qty.</th>
<th>Material</th>
<th>Weight (Kg) net</th>
<th>Gross</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPS 100/00</td>
<td>96 x 88 x 75</td>
<td>1</td>
<td>cardboard</td>
<td>0.088</td>
<td>0.120</td>
</tr>
<tr>
<td>Outer box</td>
<td>588 x 383 x 221</td>
<td>60</td>
<td>cardboard</td>
<td>5.280</td>
<td>8.100</td>
</tr>
<tr>
<td>LPS 100/01</td>
<td>96 x 88 x 75</td>
<td>1</td>
<td>cardboard</td>
<td>0.142</td>
<td>0.175</td>
</tr>
<tr>
<td>Outer box</td>
<td>588 x 383 x 221</td>
<td>60</td>
<td>cardboard</td>
<td>8.520</td>
<td>11.300</td>
</tr>
</tbody>
</table>

### Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity (Pcs)</th>
<th>Weight (Kg)</th>
<th>EOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPS 100/00</td>
<td>60</td>
<td>ca. 8.1</td>
<td>746542.00</td>
</tr>
<tr>
<td>LPS 100/01</td>
<td>60</td>
<td>ca. 11.3</td>
<td>746559.00</td>
</tr>
</tbody>
</table>
**Product details**
- The LumiSense II and the accompanying power pack are designed for integration into luminaires thus adding control functions to the luminaire without consequences for the electrical installation.
- The LumiSense II gives luminaires control functions with ease of installation and commissioning, energy savings up to 80%, personal light and perfect control.
- The light sensor is sensitive for visible radiation (matching the eye) providing the best savings with daylight depending regulation without visible discomfort for the user.
- The movement detector is very sensitive for human movements and is combined with self learning delays to provide optimal functionality in an office environment.
- A full range of remote controls can be used in combination with the LumiSense II to provide personal light.
- The LumiSense II combines three state of the art miniature sensors with 10 pre-programmed controls regimes (modes), defined specifically for most office applications.
- The LumiSense II is very versatile, and it's functions can easily be changed using a dedicated low-cost commissioning tool.
- The sensor/controller and power-pack combination can drive up to 8 HF-R DALI ballasts, making it possible to use one master luminaire with LumiSense II and up to 7 slave luminaires.
- The master and slave luminaires can be divided into 4 different groups maximum that can be controlled separate from each other. An additional fifth group can be defined for slave daylight regulation, providing the perfect regulation for window and corridor side in an office.

**Applications**
- The LumiSense II is designed for all office applications, from open plan to cell offices, lobby to toilet, corridor to small meeting rooms.
- 10 modes of operation are available to match the control regime to the application and can be selected with the commissioning tool.
- In the LumiSense II modes include the following functions:
  - Maintaining a (lower) light level when the area is not occupied, avoiding dark areas in an open plan office.
  - Several modes to comply to building regulations.
  - Manual or automated control.
- Next to the modes the following functions can be changed independently:
  - Power up behavior.
  - Remote control group.
  - Groups.
  - Default light level.

**Related equipment**
- Two-key wall transmitter IRT 8050.
- Two-key hand held transmitter IRT 8010.
- 4 preset hand held transmitter IRT 8030.
- Programming tool IRT 8099.

**Dimensions in mm**

<table>
<thead>
<tr>
<th>Dim.</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>LumiSense II</td>
<td>87</td>
<td>25</td>
<td>31</td>
</tr>
</tbody>
</table>

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Compliances

Safety
EN61347-1
EN61347-2-11
RF < 30MHz
EN55015
RF > 30MHz
EN55022A
Immunity
EN61547
Approval marks
ENEC
CE

Technical data

Environmental conditions
Operating conditions
Ambient temperature
+5°C to 55°C
(sensor/controller & power pack)
Rel. humidity
20% to 85%, no condensation
Tcase
84°C (power pack)

Storage conditions
Ambient temperature
-25°C to +85°C
Rel. humidity
10% to 95%
Mains input (power pack)
230Vac +/- 10%; 50/60Hz
Mains power (system)
1,3 .. 1,55 W.
DALI output (system)
Max. 8 ballast (16mA.)

Connections
Mains in
IDC 0,5 mm
Push wire insert, 0,5-2,5 mm²
DALI out (2 times)
IDC 0,5 mm
Push wire insert, 0,5-2,5 mm²

Sensor
RJ-10 4-pole
Fixed to LRI 1662, 70 cm cable

Sensors
Infrared receiver
RC5 signal, 4 presets, 7 IR groups
+ general, 5 groups maximum
Minimum range 20 m²
Light sensor
Ambient light monitoring,
25 .... 350 lux at sensor
Lighting area 6 m²
Movement detector
Passive Infra Red (PIR), Detection area:
4 x 4 m. (small movements)
8 x 6 m. (large movements)

Mounting
LRI 1662
LLC 1661
Bracket (not included)
2 notches, 2 fixation holes 4.2 .. 4.5 mm
Distance 78 mm.

Housing
Material
Polycarbonate UL94 V-0
Except for diaphragm
Polycarbonate NOT UL listed V-2
Glow wire test
850 °C / 5s
Safety
Insulation sensor part
the regulating output has basic insulation
(2kV) towards mains

The controller is released for Philips HFR-DALI ballast range.
**Lighting controls**

**LumiSense II modes**
The LumiSense II has 10 application modes. With the aid of the IRT 8099 commissioning tool these modes can be selected. Once selected (as with the other programmed parameters) this mode is stored in non-volatile memory. Even when the luminaires are switched off for a longer period, stored parameters are kept.

<table>
<thead>
<tr>
<th>Mode 1: Open Plan &amp; Cell Office Mode</th>
<th>10min</th>
<th>30min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 2: Open Plan Mode</th>
<th>20min</th>
<th>120min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Diagram" /></td>
<td><img src="image5.png" alt="Diagram" /></td>
<td><img src="image6.png" alt="Diagram" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 3: Cell Office Mode Max Savings („Absence“)</th>
<th>10min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Diagram" /></td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 4: Cell Office Mode Max Savings („Presence“)</th>
<th>10min</th>
<th>15min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image9.png" alt="Diagram" /></td>
<td><img src="image10.png" alt="Diagram" /></td>
<td><img src="image11.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 5: Toilets/Restrooms</th>
<th>10min</th>
<th>20min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image12.png" alt="Diagram" /></td>
<td><img src="image13.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 6: Meeting rooms</th>
<th>20min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image14.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 7: Cell Office, comfort mode</th>
<th>20min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image15.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 8: Open Plan, central switch</th>
<th>10min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image16.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 9: Open Plan, central switch Comfort mode</th>
<th>20min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image17.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode 10: Open Plan, central switch Comfort mode</th>
<th>20min</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image18.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

- **Presence**
  - Area is occupied.

- **Absence**
  - „Light stays on“ (internal timer is activated to clock absence time)
  - „Light dim down to minimum level“ (internal timer is activated to clock absence time)
  - „Lights switched off“

- **Comfort mode**

---

In case of enough daylight available, lights will NOT switch on automatically when entering the room.

When enough daylight (measured over 15 min) is available, light will automatically switch off.

Lights need to be switched-off manually.

In modes 3 and 4 lights will switch off when sufficient daylight is detected for more than 15 minutes.
Lighting controls

LumiSense II Sensor/Controller Unit, Power Pack

Dimensions in mm

<table>
<thead>
<tr>
<th>Dim.</th>
<th>A1</th>
<th>B1</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Pack</td>
<td>794</td>
<td>30</td>
<td>22</td>
</tr>
</tbody>
</table>

Ordering data

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Qty (Pcs)</th>
<th>Weight (kg)</th>
<th>EOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRI 1662/00 LumiSense II/controller unit</td>
<td>1</td>
<td>0.26</td>
<td>51912800</td>
</tr>
<tr>
<td>LRI 1661/00 Power Pack</td>
<td>1</td>
<td>0.30</td>
<td>51894800</td>
</tr>
</tbody>
</table>
Lighting controls

IRT8010/00
Hand-held two-key transmitter, for infrared control of various lighting control systems. LumiSense II can also dim the lights (by pressing a button >0.5 sec). The unit is supplied with batteries. A wall holder is separately available.

LRH8010/00
Wall holder for the IRT8010 hand-held two-key transmitter.

IRT8050/00
Two-key infrared remote control transmitter for wall mounting and table-top use. The unit can be used in LumiSense II. The actual function of the two large keys can be selected with a dip switch in the battery compartment. A dip switch is also used to select the group address.

IRT8030/00
Four-preset hand-held transmitter, suitable for infrared control of LumiSense II applications. It has 4 keys for presets and one key for “all off”. Keys for individual control and preset programming are located under a hinged cover at the bottom of the transmitter. The group address selector switch is contained in the battery compartment. The unit is supplied complete with wall holder and batteries.

---

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Weight (kg)</th>
<th>EOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRT8010/00 TRANSM IR POINT</td>
<td>0.06</td>
<td>51749000</td>
</tr>
<tr>
<td>LRH8010/00 MOUNT IR POINT</td>
<td>0.03</td>
<td>51797100</td>
</tr>
<tr>
<td>IRT8050/00 TRANSM IR 2KEY WALL</td>
<td>0.12</td>
<td>51707000</td>
</tr>
<tr>
<td>IRT8030/00 TRANSM IR TRIOS</td>
<td>0.22</td>
<td>51763600</td>
</tr>
</tbody>
</table>
**8.24**  
**LIGHTING CONTROLS**  

**Lighting controls**

**IRT8099**  
Commissioning tool for LumiSense II luminaires. Easy to use and inexpensive tool to adjust light levels and to switch between functionality modes. Batteries are included.

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Weight (kg)</th>
<th>European Order Code (EOC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRT8099/00 COMMISSIONING TOOL</td>
<td>0.22</td>
<td>51889300</td>
</tr>
</tbody>
</table>
Product Features and Benefits

MultiDim consists of an integrated range of DALI-compatible devices that can be combined flexibly to provide exactly the desired control functions. The system’s addressable digital architecture means that only a single two-core cable is needed to interconnect all units. The possibility to eliminate conventional vertical wall wiring both reduces installation time and cost, and greatly increases the ease with which later changes can be implemented.

The MultiDim controllers can be used in combination with DALI-compatible fluorescent lamp ballasts and lamp interface units (both mains voltage incandescent lamps and low voltage halogen lamps). Where necessary control functions can be extended by adding the required MultiDim units such as dimmers, control panels, IR remote control units and multi sensors for light levels and room occupancy.

Thanks to the system’s digital addressable control and communication concept, each unit in the DALI network has its own unique address that allows it to be switched and controlled independently. The system’s single two core cable can be used to control different groups of lamps. Up to 63 devices (DALI luminaires and controllers) connected to the same physical control wire can be addressed and controlled independently.

Summary of the main DALI features
• Individual control of lamps.
• A single control cable can be used to control several different groups of lamps.
• No mains switching required.
• All system units are interconnected using a simple two-core cable.
• In MultiDim up to 63 devices can be connected with a maximum cable length of 300 metres.
• The operation of the system can be reconfigured quickly without modification of the hardware.
• If the lighting system needs to be enlarged, new components can be added anywhere on the DALI cable.

Applications

MultiDim is scene-setting lighting control range that covers a wide range of applications. Light scenes can simply be activated at the touch of a button. With an easy-to-use remote control different preset scenes can be programmed and selected, changing the mood of the space in seconds.

Philips DALI MultiDim offers today’s most versatile and easy-to-install solution to bring the benefits of digital lighting control to many different application areas. Whether in shops, offices, conference rooms, hotels, restaurants, cafes, lecture theatres, show rooms or other applications. MultiDim offers unbeatable freedom and ease of lighting system design.

With its capacity to control up to 16 different lighting groups, MultiDim is suitable for applications using different types of luminaires including incandescent, halogen and fluorescent (HF-DALI) lamps. In addition MultiDim can also be used to switch on projectors, lower projection screens or close window blinds at just the touch of a button.
**About MultiDim Systems**

**DALI Compatibility and Compliance**
The MultiDim controllers can be used with any DALI compatible ballast or Lamp Interface Unit.

In addition, all MultiDim Lamp Interface Units (such as the 800 Watt Dimmer) can be used in conjunction with other manufacturer’s DALI compatible control systems.

However, it may not be possible (and is not recommended) to use MultiDim controllers on the same system as other types of DALI controller.

**Cable Choice**
The electrical specification for DALI systems provides a great deal of flexibility in both the choice of cable used and how it is installed. The basic requirements are:
- The cable should be mains rated
- 2 wire, 0.5–1.5mm²
- The maximum voltage drop on the DALI cable must not exceed 2Volts (for standard cables, this means that the total length of connecting cable can be up to 300 metres)

This means that standard mains cable can be used successfully - particularly useful where a system is being retrofitted to an existing installation.

**Cable Topology**
As you can see from the layout diagram on the following page, there are few restrictions on the cable topology.

No special terminations are required, and there are no complex rules about how the nodes should be connected together.

Ring configurations should be avoided, but otherwise the only requirements are that the cable be continuous throughout, and that each node be connected to the cable at some point.

Nodes can be daisy chained together in series and spurs be added at any point. The cable topology can be optimised to either simplify testing or to minimise cable use.

**DALI Connections**
All MultiDim units are fitted with removable connectors with paired terminals for the DALI connection. These provide a simple means of linking through.

**Power Supply Requirements**
MultiDim Controllers without a direct mains connection must be provided with power via the DALI control cable. This has the advantage that no additional power cabling is required, but it does mean that you have to ensure that an adequate power supply is available on the system.

This supply must be designed for DALI use and be capable of providing sufficient power to supply the controllers connected to the system. In addition, to maintain signalling integrity, it must not be capable of providing more than 250mA to the system.

See DCMD400, DCMD401 for details of the dedicated MultiDim Power Supply Units.

**Configuration**
All MultiDim units are fully configurable. They are supplied pre-configured with factory default settings that ensure that a system will be functional as soon as the power is applied.

This has the advantage that a newly installed system will provide basic operation from the moment the power is first applied. For simple systems, this may be all that is required. But for systems that are more complex (and to gain access to advanced MultiDim functions) the system must be reconfigured using one of three different methods:

- **Configuration Using Button Controllers.** Seven, eight and five button MultiDim panel controllers provide some limited configuration features from the control buttons. These include the ability to store four pre-set light levels and the ability to customise those levels.

- **Configuration Using the IR Remote Control Unit.** The MultiDim IR remote control unit can be used to configure a number of advanced system functions. For more details see DCMD303 of this datasheet.

- **Configuration Using MultiDim User Software.** The MultiDim User Software (DCMD502) is a Windows based software configuration tool, designed to make setting up a complex system as simple as possible. See: [www.dimming.philips.com](http://www.dimming.philips.com) for more details.
The MultiDim system can be used with any DALI compliant electronic ballast for fluorescent lamps.

Power for the controllers can be supplied by the DCMD401 (illustrated) or the DCMD400 DIN rail mounted power supply or any main connected MultiDim unit such as the DCMD450 Dimmer.

Low cost cable can be used to interconnect all of the system components. The recommended total length of the cable is 300m.

The MultiDim MultiSensor provides IR, light-level and occupancy sensor, which can be used independently or in combined to provide energy saving functions such as automatic operation and constant light level.

The MultiDim DCMD450 800 Watt dimmer is a fully compliant DALI LIU for use with incandescent lamps and low voltage electronic transformers.

MultiDim control panels are modular in construction. Sliders, rotary controls and five different button panels are available.

The double gang panels can contain up to three controller modules. The modules are completely interchangeable within the panel, and custom panels can be created as desired.

The MultiDim IR remote control unit provides both means of controlling individual units and a simple configuration tool. All of the modular controllers and the MultiSensor are fitted with IR sensor and can be used with the remote control.
MultiDim modular control panels
MultiDim control modules can be inserted into frames that can either hold 1 or 3 modules. The modular construction offers maximum flexibility and allows many different panel configurations to be constructed. All control modules are fitted with a LED indicator and an IR receiver. Note: MultiDim control modules and MultiDim frames (as pictured below) are not supplied together; thus need to be ordered separately.

DCMD100
MultiDim rotary module providing dimming functionality.

DCMD110
MultiDim control module with single slider providing dimming functionality.

DCMD111
MultiDim control module with twin sliders both providing dimming functionality.
DCMD121
MultiDim 2-button control module providing ON and OFF functionality.

DCMD122
MultiDim 2-button control module providing raise and lower functionality.

DCMD124
MultiDim 5-button control module providing 4 scene buttons and OFF button.

DCMD125
MultiDim 7-button control module providing 4 scene buttons, 2 raise / lower buttons and OFF button.
Lighting Controls

**DCMD126**
MultiDim 8-button control module providing 7 scene buttons and OFF button.

**DCMD150**
MultiDim single blank module used to cover an empty module position in a frame.

**DCMD170**
This MultiDim module provides IR receiver functionality only.

**DCMD180**
This MultiDim module provides a hardware programming point for a PC or laptop computer to be connected to the MultiDim system via a dedicated serial interface cable.
DCMD200D
White MultiDim frame that can hold up to 3 MultiDim control modules.

DCMD200S
White MultiDim frame that holds a single MultiDim control module.

DCMD302
This ceiling-mounted multi-sensor contains an IR receiver, a constant light sensor that measures reflected light from below the device, and a PIR occupancy sensor. The multi-sensor is provided with a 40º angle restrictor for the light sensor. Timer of the PIR occupancy sensor can be set between 1 and 85 minutes.

DCMD303
MultiDim 7 button IR transmitter. The IR remote control provides basic functions such as on/off, up/down and a selection of four preset light scenes. It can also be used as a basic system configuration tool.
**DCMD400**
MultiDim DIN rail mounted power supply to feed the DALI-wire. The power supply is capable of a maximum load of 250 mA.

**DCMD401**
MultiDim ceiling mounted power supply to feed the DALI-wire. The power supply is capable of a maximum load of 250 mA.

**DCMD444**
This MultiDim pushbutton interface allows the user to connect their own button panels to be connected to the MultiDim system. For retractive (push to make) buttons only.

**DCMD450**
The 800 W transistor dimmer (trailing edge) is a DIN rail-mounted unit that can control a maximum load of up to 800 W. It can be connected to mains-voltage (incandescent) lamps directly, or to low-voltage (halogen) lamps via an electronic transformer.
Lighting Controls

DCMD494
This MultiDim relay unit features 4 outputs capable of handling loads of up to 8A per output.

DCMD502
MultiDim PC programming kit comprises configuration software, a serial interface cable and a programming point.
**Lighting Controls**

**Introduction**
A range of DALI compatible manual control panels that can be configured to suit almost any control requirement. The range includes pushbutton, rotary, and slider control modules, all of which can be inserted into either single or double gang fascia panels. The modular construction provides flexibility and allows many different panel configurations to be constructed.

All of the control modules are fitted with indicator LEDs and an IR receiver that allows the module to operate with the MultiDim IR remote control unit.

**Configuration**
Each control is supplied pre-configured with immediately usable default settings, but can be easily re-configured to suit a particular application using either the MultiDim IR Remote, or MultiDim User Software. Eight, seven and five button controllers also provide limited configuration features via the control buttons.
**Module Dimensions**
The chassis plates and fascia panels are designed to fit both DIN and UK standard backboxes with a minimum depth of 35mm.

![Module Dimensions Diagram](image)

**Mechanical Data**
The modular controllers are available in satin white plastic finish. The various control panel combinations can be constructed from the following separately packaged components:

- The Control Modules (see opposite for variations).
- Single gang chassis plate and fascia panel, designed for use with a standard, single gang backbox. This provides a mounting for a single module.
- Double gang chassis plate and fascia panel, designed for use with a standard, double gang backbox. This provides a mounting for up to three modules.

**DALI Cable Connection**
Standard MultiDim removable connectors with paired terminals. A connection between the SC terminal and a local earth is required for EMC protection.

**Module Power Supply Requirements**
Supplied via DALI network cables. 13 to 19 V, 10 mA

**Conformity & Standards**

- **EMC**
  - Emission: EN 55 015
  - Immunity: EN 61 547

- **Safety**
  - Safety: EN 60 669-1, IEC 60 669-2-1
  - Isolation: 4kV
  - IP rating: 30

**Environmental Requirements**
- Ambient temperature: 0°C to 35°C
- Storage temperature: -10°C to +70°C
- Relative humidity: 90% maximum, non-condensing
Introduction
A ceiling mounted module, containing the sensors required for an automated DALI lighting control system. The MultiSensor contains an Infra-Red receiver for use with the MultiDim IR Remote, a constant light sensor (which measures reflected light from below the device), and a PIR occupancy sensor with a range of up to 4.5 metres.

PIR Operation
The PIR sensor can be used on its own to provide automatic control of lighting depending on the room’s occupancy. The operation and timing of the PIR is fully configurable and includes the ability to set the unit to provide “off only” operation and an adjustable “PIR transition time” that can improve the life-span of fluorescent tubes used in corridor applications.

Local Switch
The MultiSensor is provided with terminal connectors for a local wall switch. This provides a manual dimming function if required.

Configuration
The MultiSensor is supplied pre-configured with immediately usable default settings. However, it can be easily re-configured using either the IR Remote, or MultiDim User Software.

In addition, the MultiSensor is fitted with five rear mounted DIL switches that will allow some of the main functions to be pre-configured. The DIL switch settings are applied when power is first applied but can be overridden using the MultiDim IR Remote, or MultiDim DCMD502 User Software.

Constant Light Operation
The PIR and constant light sensors operate together to provide automatic constant light control of the surrounding lamps. For effective constant light operation, careful positioning of the MultiSensor is essential. In particular, it is important to ensure that the sensor is not exposed to direct light, and that it is positioned in such a way that most of the light that it receives is under its control. Mount the MultiSensor away from direct light entering through windows. See the installation instructions for more details.

The constant light feature is disabled by default and must be enabled using the MultiDim IR Remote Control or MultiDim User Software, or by flipping the corresponding DIL switch on the back of the multisensor.
Fixing Data
The MultiSensor’s housing is designed for push fit mounting into a ceiling, or inside a luminaire casing. Its spring-loaded mounting system will allow it to be fitted into a wide range of fixing materials, including sheet metal and fibrous ceiling tiles. For thin materials, a slightly smaller mounting hole is required.

DALI Cable Connection
Standard MultiDim removable connectors with paired terminals.

Module Power Supply
Supplied via DALI network cables 13 to 19 V, 15 mA

Constant Light Sensor
Viewing Angle 100° (40° with viewing angle restrictor)
Range 5 to 5000 lux.
SW1 Switch Functions
On Set level to nominal value
Off Defaults to maximum

IR Receiver
Operation Omni-directional
Frequency 36kHz
SW2 Switch Functions
On Receives all remote control commands
Off Ignores remote control commands (except configuration commands)

PIR Sensor
Operation Omni-directional pyro-electric
SW3 Switch Functions
On Last level recall
Off PIR response ignored
SW4 (PIR Test) Switch Functions
On Timeout reduced to 10 seconds - use for testing
Off Normal PIR function (default 20 minute time-out)

Local Switch
Operation Single mechanical switch connected as shown provides “touch dimmer” style operation
SW5 Switch Functions
On Local Switch enabled
Off Local Switch disabled

Conformity and Standards (EMC)
Emission EN 55015
Immunity EN 61547
Safety IEC 60950
Isolation 4kV
IP rating 30

Operating Conditions
Ambient temp 0°C to +50°C
Storage temp -10°C to +70°C
Relative Humidity 90% maximum, non-condensing
Introduction
The MultiDim Infra-red remote control is designed to work in conjunction with all Philips MultiDim products fitted with an IR receiver, including the Philips MultiDim control panels and MultiSensor.

The IR Remote is a dual function device. Its main purpose is to provide a simple and intuitive remote control for MultiDim control systems.

When used as such, it provides a number of basic functions, including On/Off, Raise/Lower, and selecting from four predefined Scenes.

However, the IR Remote can also be used as a basic configuration tool for simple systems where the use of MultiDim User Software and its associated Programming Point is inconvenient.

In this case, the control buttons are used in combination to provide basic configuration functions. This includes, creating and adding to groups of lamps, setting pre-set scenes and disabling or enabling IR receivers. The IR Remote will allow the settings to be locked to prevent the user from accidentally making changes to the configuration.

Basic Control Functions
- On/Off
- Recall Scene 1-4
- Raise/Lower lamp levels
- Store Scene

Configuration Functions
- Set default Preset Levels (1=100%, 2=75%, 3=50%, 4=25%)
- Creating Group
- Add to Group
- Creating Scene
- Restrict the IR Control signal to Specific Groups
- Disable/Enable IR sensors on specific controllers
- Configuration Lock (prevents users inadvertently changing the settings)

Technical Data
- Power 2 x IEC, LR03/AAA, 1.5 V Battery
- Weight 50 g
- Operating Frequency 36 kHz
- Size 120mm x 57mm x 24mm
Introduction

Power for MultiDim devices can be supplied from a number of different sources. Some mains connected MultiDim units (such as the 800 Watt Dimmer) are provided with an internal DALI power supply. If the system contains one of these, it will provide an ideal source of power. Alternatively, a dedicated MultiDim power supply unit (DCMD400 or DCMD401) can be used. Both of these units have similar output capabilities and can supply the maximum of 250 mA permitted for a DALI system. However, the DCMD400 is designed for DIN rail mounting in a control cabinet and the DCMD401 for mounting in a ceiling void.

Technical Data

Mains Supply

- DCMD400: 230VAC (nom), 197-264VAC (abs); 50Hz (nom), 48-62Hz (abs)
- DCMD401: 230VAC -10%/+6%, 50-60Hz

DALI Supply

- Power Output: 250 mA (nom)

Operating Conditions

- Ambient Temperature:
  - DCMD400: 0° to 50°C
  - DCMD401: 0° to 40°C
- Relative Humidity: 90% max, non-condensing
- IP rating: 30

Mechanical Data

- DCMD400: DIN Rail case 70mm (4M)
- DCMD401: Standard MultiDim removable connectors with paired terminals

Mains Cable

- DCMD400: <4mm solid core, <2.5mm stranded
- DCMD401: 1m, 2x0.75mm stranded, 1.5m, 2x0.75mm stranded

Installation Notes

1. The external supply must be protected. It is recommended that a 2 A MCB is used.
2. All cabling must be 230V mains rated.
3. The DCMD400 is for installation in a restricted access location only.
**Introduction**

The MultiDim Push-button Interface is a small, pre-wired, encapsulated printed circuit board containing all of the electronic components of a fully DALI compatible controller. It provides a simple method of adding custom designed switches to a MultiDim lighting control system.

The Push-button Interface can be used with switches, sensors, time clocks, or other on/off control devices and is small enough to fit into a standard size back boxes. Despite its small size, it provides almost all of the capabilities of a standard MultiDim modular controller.

**Key Features**

- Pre-configured with three scene recall and one touch dimmer inputs
- Fits into all standard size back boxes and architrave style back boxes
- Touch dimming with a momentary push switch
- Can be used with momentary or latching switches
- Fully programmable using MultiDim User Software

**Technical Data**

**Voltage-free Switched Inputs**

| Connections | 1-4 Inputs (active low) COM Input Ground |
| Voltage Pins | 5 V nominal with switch open, must be less than 0.3V switch closed |
| Overload Protection | ±7 V |
| Short-circuit Current | 0.5 mA maximum |
| Debounce Period | 50 ms |

**Connections**

- DALI: Ribbon cable terminated with 1.2 mm² Ferrules
- Switch: Ribbon cable terminated with 1.2 mm² Ferrules

**Power**

- DALI Supply Output: None (Use external DALI power supply)
- DALI Consumption: 10 mA

**Operating Conditions**

- Ambient Temperature: 0°C to 40°C
- Relative Humidity: 90% max, non-condensing
- Storage Temp: -10°C to +70°C

**Mechanical Data**

- Housing: Encapsulated printed circuit board
- Weight: 10 g

**Conformity & Standards**

**EMC**

- Emission: EN 55015
- Immunity: EN 61547

**Safety**

- Safety: EN 60950
- IP Rating: 20
- Isolation: 1.5 kV

**Default Functions**

- IP1 (Red): Store/Recall Scene 1
- IP2 (Orange): Store/Recall Scene 2
- IP3 (Yellow): Store/Recall Scene 3
- IP4 (Green): Touch Switch Control

**Note.** The default functions can be re-configured using MultiDim User Software.

**Installation Notes**

1. All switches and cables must be mains rated.
2. To avoid interference problems the pre-wired leads should not be increased in length.
Introduction
The MultiDim 800 Watt Transistor Dimmer is a fully DALI compatible Lamp Interface Unit, designed to allow incandescent lamps to be incorporated into a DALI controlled lighting system.
The dimmer is a DIN-rail mounted unit that can control a maximum load of up to 800W. It can be connected to mains voltage lamps directly, or to low voltage lamps via an electronic transformer designed for both capacitive and resistive loads.
The dimmer is provided with local switch terminals, an indicator LED, a physical selection switch and a built-in DALI power supply.
The local switch terminals will allow a momentary push button switch to provide local “touch dimmer” style control. The indicator LED provides status and fault indications, and the physical selection switch is used to identify the device during system configuration.
The DALI power supply is switch activated, and will provide up to the maximum of 250mA, 18V to the DALI system.

Additional DALI Functions
• Min/Max levels, Scenes, Groups
• Lamp status report
• Dimmer status report

Connection
DALI
Standard MultiDim removable connectors with paired terminals
Mains supply
<4mm² solid core
<2.5mm² stranded

Power
Mains Supply
220 to 240VAC, 50Hz
DALI supply output
250 mA

Operating Conditions
Ambient Temperature
0°C to 35°C
Relative Humidity
90% max, non-condensing.

Mechanical data
DIN-rail case 88mm wide (5M)

Conformity & Standards (EMC)
Emission
EN 55015
Immunity
EN 61547

Safety
Safety
EN 60950
IP rating
30
Isolation
4kV, Mains to dimmer unit (Basic, Dimmer internal isolation to DALI terminals)

Installation Notes
1. The dimmer is for use with incandescent lamps and low voltage electronic transformers. It is not suitable for use with fluorescent ballasts or conventional transformers.
2. The external supply must be protected. It is recommended that a 6 A MCB is used.
3. All cabling must be 230V mains rated.
4. For installation in a restricted access location only.
Lighting Controls

Introduction
The relay unit is a DIN-rail mounted unit containing four individually programmable relays. The relays are volt free and their Normally Open contacts can switch up to 10 A directly.
The unit is fitted with a status LED, four relay state indicator LEDs and a physical selection switch. The status LED provides status and fault indications. The relay state LEDs illuminate when the respective relay is closed.
The switch is used to identify the device during system configuration, but can also be used as a manual override switch.

Note: This unit does not contain a DALI power supply and therefore one must be incorporated elsewhere in the system.

Technical Data
Relay Loads (Max) 10A resistive, 8A incandescent, 5A HID (cos \(\pi \geq 0.9\))
12 Philips HF ballasts

Connections
DALI Standard MultiDim removable connectors with paired terminals 0.5mm\(^2\) to 2.5mm\(^2\) stranded or solid core
Mains Up to 4mm\(^2\) solid core or up to 2.5mm\(^2\) stranded

Note: If equipment is used in an electrically noisy environment, the DALI cable should be screened and connected to the earth.

Power
Mains Supply 220 to 240 VAC, 50-60 Hz
DALI Supply Output None
DALI Consumption 2 mA

Operating Conditions
Ambient Temperature 0°C to 40°C
Relative Humidity 90% max, non-condensing
Storage Temperature -10°C to +70°C

Mechanical Data
Housing DIN-rail case 88 mm wide
Weight 188g

Conformity & Standards
EMC
Emission EN 55015
Immunity EN 61547

Safety
Safety EN 60950
IP Rating 30
Isolation 4 kV

Installation Notes
1. The relay unit is for use with non-dimmable loads up to 10 A resistive and must be derated for other load types, see Technical Data for full details.

2. The external mains supply to the unit must be protected. It is recommended that a 4 A MCB is used.

3. All cabling must be 230 V mains rated.
Lighting Controls

DCMD502 MultiDim User Software

Introduction
The MultiDim Programming Kit contains a licensed copy of the MultiDim User Software, a Programming Point module, and an adapter cable which will allow the system to be connected directly to a PC.

The MultiDim User Software is a Windows based software configuration tool, designed to make setting up a MultiDim system as simple and intuitive as possible. It has an Explorer style interface that allows the most common operations to be carried out through drag and drop operations. Beneath this is a system of menus and dialogue boxes that provide access to every aspect of a MultiDim system.

To use the software as a configuration tool, the computer must be connected to the system via the special adapter cable that is provided with the kit. This cable must be inserted into a system programming point module that must be installed as part of the MultiDim system.

Demonstration Version
A free demonstration version of the software is available for download from: http://www.dimming.philips.com. This version is fully working, with the exception that it cannot be used in the online mode required for system configuration.

Recommended System
An IBM PC compatible computer running:
• Microsoft® Windows XP to 95 (with Internet Explorer V3.02)
• Intel Pentium™ based computer
• 32MB RAM Minimum
• Mouse or other pointing device
• CD-ROM drive

Programming Kit Contents
• MultiDim User Software
• Programming Point Panel
• Adapter Cable
## Ordering and Packing Data

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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* MultiDim order code's are quantity per piece.