SETSQUARE LIGHTING CONTROLS

DLCS • SIMPLY INTELLIGENT

daylux DLCS

Daylux Lighting Control System

A flexible modular or standalone range of dimming controls using presence and absence detection for dimmable and non-dimmable loads such as LED Drivers and High Frequency Ballasts to achieve maximum cost, energy and CO^2 savings.

set square
energy saving controls

a division of
MODE LIGHTING

Daylux Lighting Control System for Today and Tomorrow

The Daylux Lighting Control System (DLCS) is intelligent, efficient, cost effective and installer-friendly. Whether it is complying with legislation, saving energy and carbon dioxide, or just controlling the working environment for improving user comfort and productivity, the DLCS has the solution.

Managing lighting is the seamless integration of artificial and natural light which enhances sustainability and conserves energy through presence detection, daylight linking and building management time control.

From a ***standalone*** single room solution to a fully networkable lighting control and management system, the DLCS provides flexibility to meet the changing needs of the buildings' occupants, including additions and changes in use.

This intelligent modular lighting control system is easy and cost effective to install whilst meeting the specific requirement of the client, be it specifier, designer, owner or occupier.

Not only does it provide fully automatic light level control linked with occupancy and manual input from user interfaces such as faceplates and time clocks, but can also be integrated with building management and audio visual systems and controls.

Designed to Meet your Future Needs

The Setsquare DLCS range is an innovative and effective lighting control solution with choices of switching or dimming options, (DALI broadcast, DSI or 1-10) with control from sensors, faceplates, BMS and time based scheduling.

From single to multiple channel outputs, the modular format provides a building block from the smallest installation to a full scale building-wide lighting control system for every application.

With each self-reliant lighting control module, the DLCS will provide not only a benefit in the construction phase due to its unique self configuration, but also a technologically robust solution for years to come.

Using Setsquare's experience and simple solution approach, the DLCS can provide a cost effective whole building solution (up to 127 LCMs) ***without the need for costly area controllers*** or front end PC's with its simple user friendly application software suite.

STANDALONE • **MODULAR** • **NETWORKABLE** • **OCCUPANCY** • **ABSENCE** / **PRESENCE**

DAYLIGHT DIMMING (DALI BROADCAST, DSI OR 1-10) • **OPTIONAL TIMEOUT MODES**

SCENE SET DIMMING MANUAL OR AUTOMATIC • **OUT OF THE BOX FUNCTIONALITY***

ZONED GROUPS • **TIMED SCHEDULING** • **SINGLE AND MULTIPLE CHANNELS**

ENERGY EFFICIENT • **USER FRIENDLY OPERATION** • **COST EFFECTIVE AND EASY TO INSTALL**

EXTERNAL INPUTS BMS / FIRE / AV / SWITCHES • **SYSTEM INTEGRATION**

FULLY SCALABLE LIGHTING MANAGEMENT • **FUTURE PROOFING** • **EMERGENCY LIGHT TESTING**

*Unique out of box functions, include sensor and switch recognition and self configuration, contact Setsquare for full details.

Simple Single Room Solution

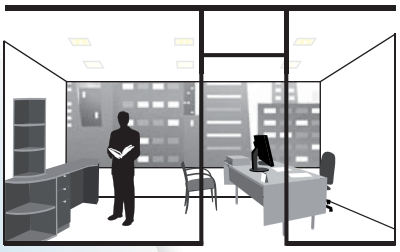
9.00am

The office has just opened and people have come in on a partially bright morning. The window row lights have dimmed to minimum or off and the inner row have remained on but dimmed down so that the total office remains at a fixed lighting level.

7.00pm

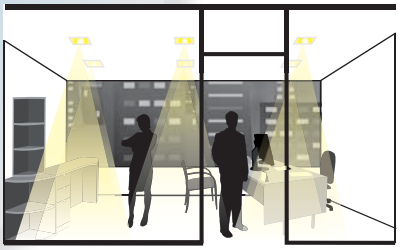
The office has now closed for the day, it is dark outside and the office is not occupied. The system has timed out on a selectable time out option and the lights have gone off automatically.

11.00am



The office is still occupied and the sun is now flooding in so that both the window row and inner row of lights are dimmed to minimum or off.

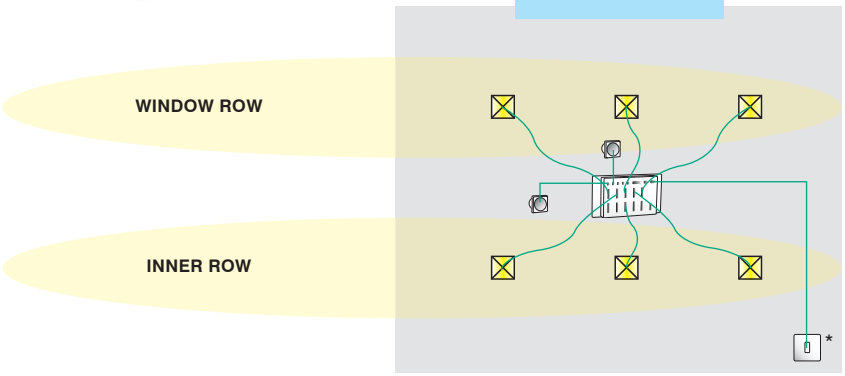
4.00pm



The office remains occupied but the clouds have rolled across and it is darker outside. Both window and inner row of lights have brightened to a high level with the inner row brighter than the window row to maintain a constant working light throughout the office.

Components Required for a Single Room

If a traditional wiring solution is required or if a suspended track lighting system is being used then the DLCS product range has hard wired lighting control modules to meet your requirements.



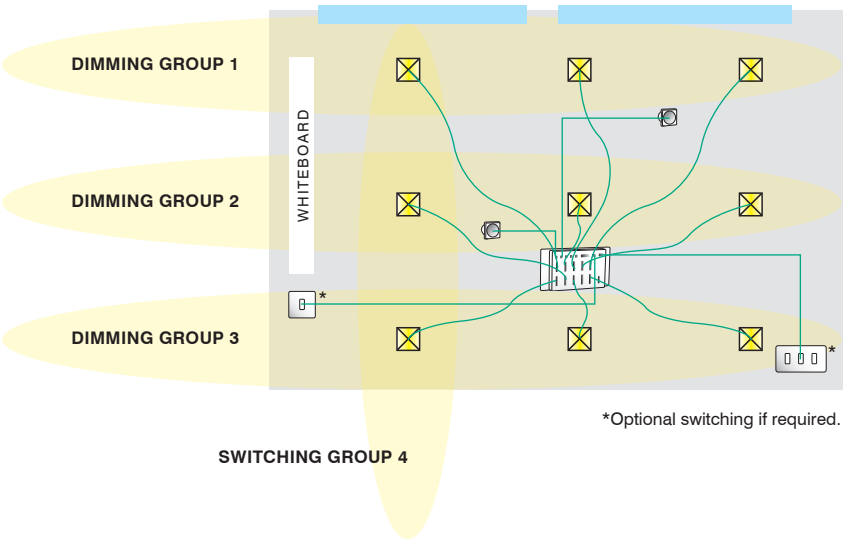
*Optional switching if required.

DLCS as Standalone

Simple Classroom Application

A simple plug and play typical classroom application providing true absence detection with passive infrared occupancy and daylight linking dimming photocells, complete with standard wall mounted switches providing independent control of luminaires in rows and/or groups.

The SET-DLCM5 provides control of up to 5 independent groups and 10 luminaires with 5 sensor inputs and 5 switch inputs, giving simple but flexible control for most typical applications.



*Optional switching if required.

NOTE: This system can also be achieved using the SET-DDC hard wired solution.

DLCS Modular **Standalone to Fully Networkable**

The DLCS functionality enables fully automatic presence and absence-based occupancy detection; manual switching and dimming; daylight switching and daylight linking dimming; corridor hold; scene set dimming for Conference Rooms and Reception; time and event based control; BMS and audio system integration through to front end PC graphics and emergency light testing.

Using the DLCS modular building block approach, the system can be adapted from a simple solution through to a fully integrated networked complex lighting control management solution (up to 127 LCM's without the need for area controllers).

KEY

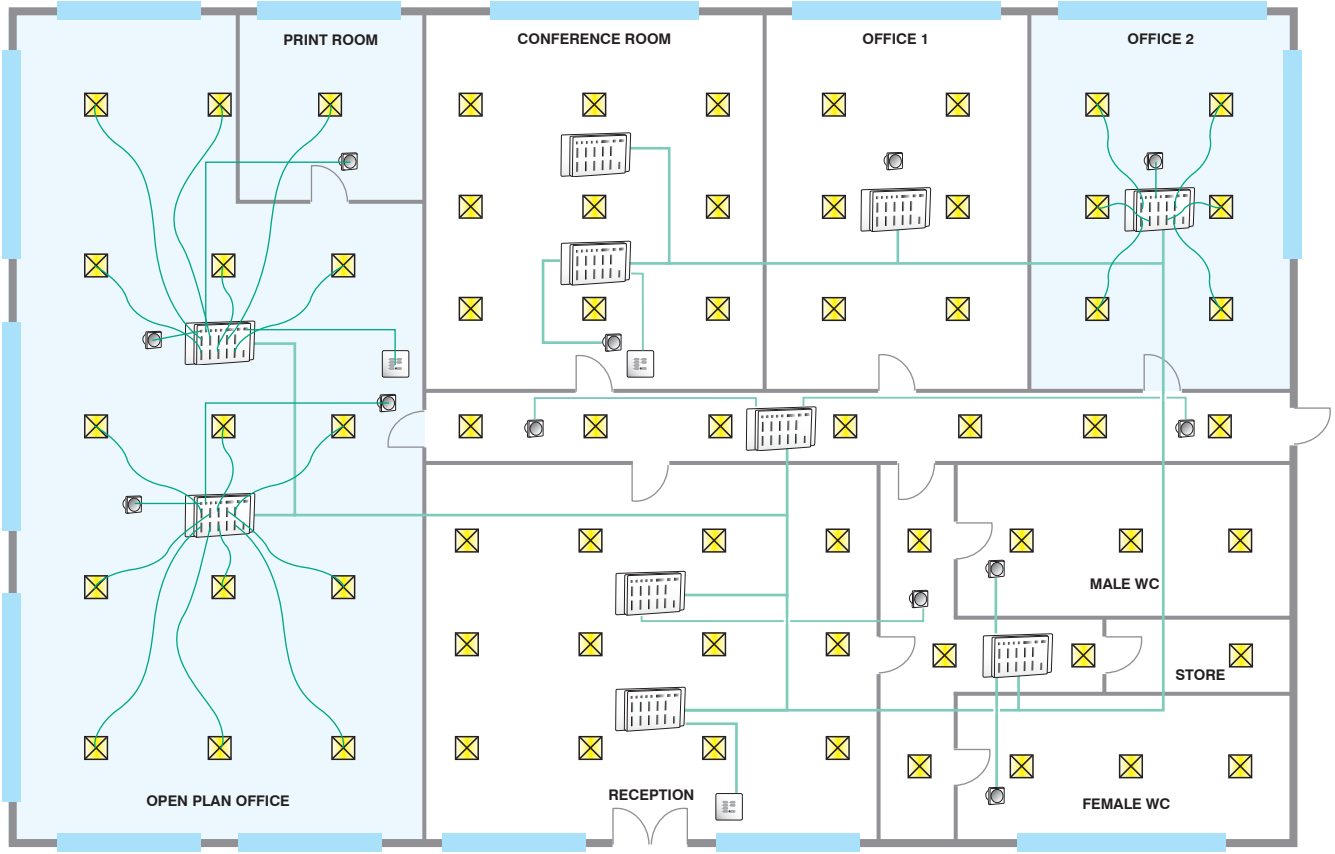
Lights

Sensor

Faceplate

Marshalling Box and Connection

Rooms showing Light, Sensor and Faceplate Connection



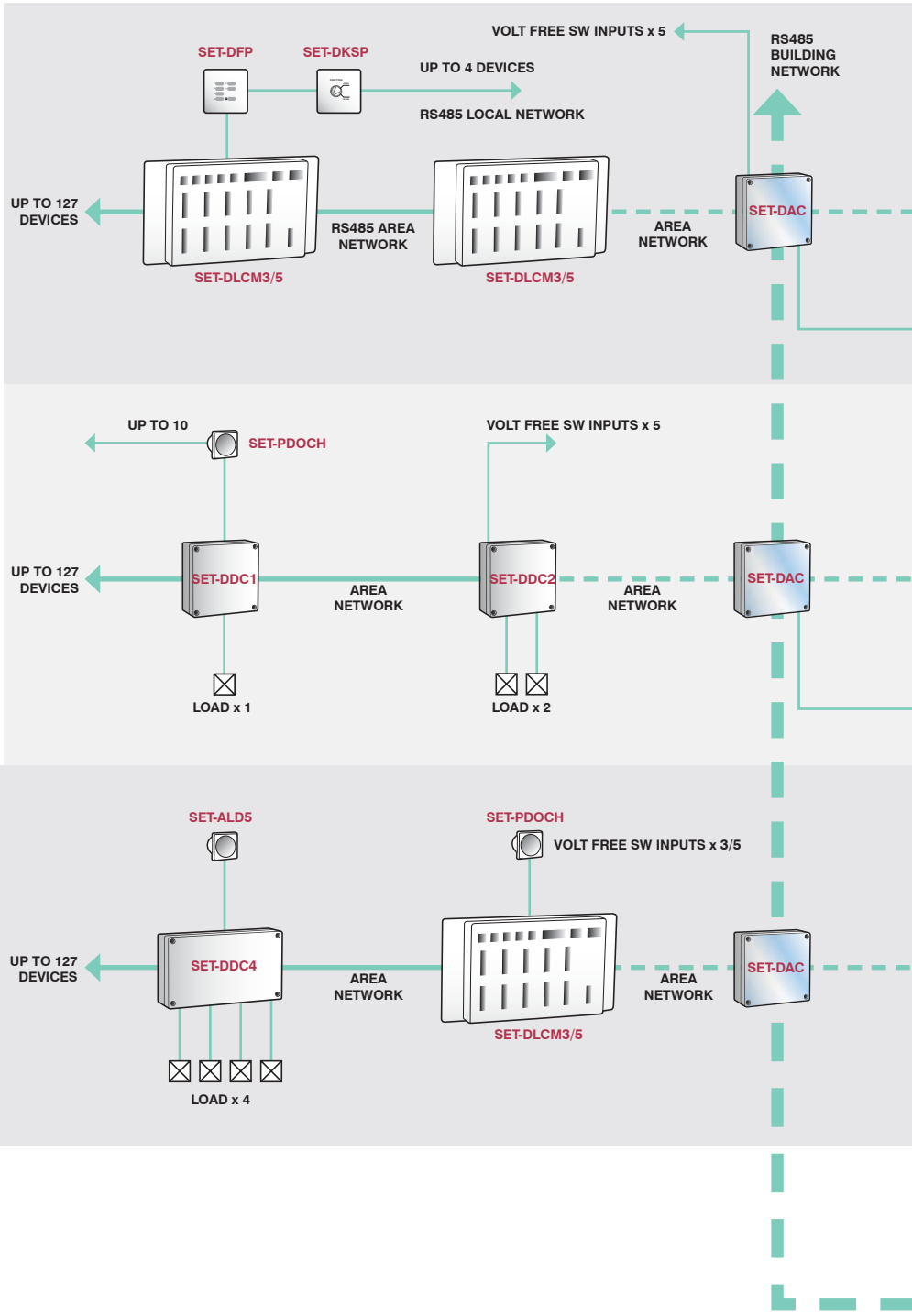
NOTE: Wiring shown for indicative purposes only and may not be a true representation.

DLCS Lighting Control System Architecture

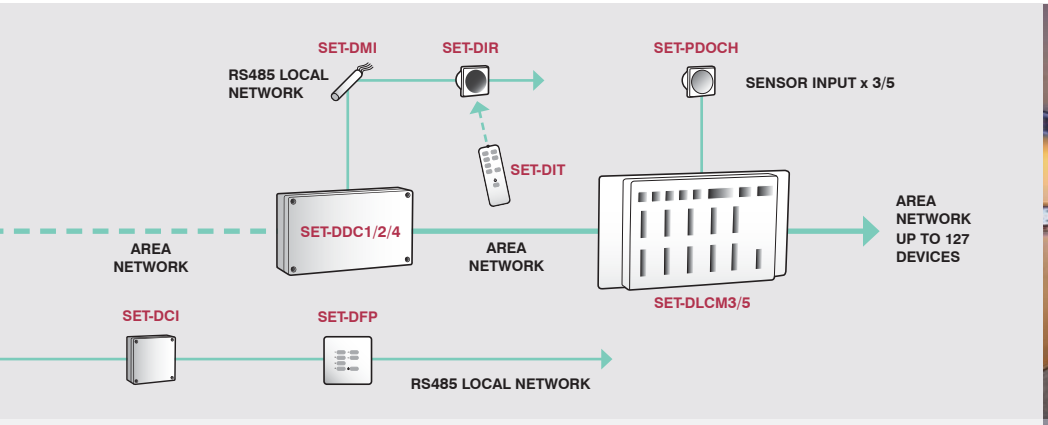
The DLCS Lighting System is fully versatile to suit your requirements.

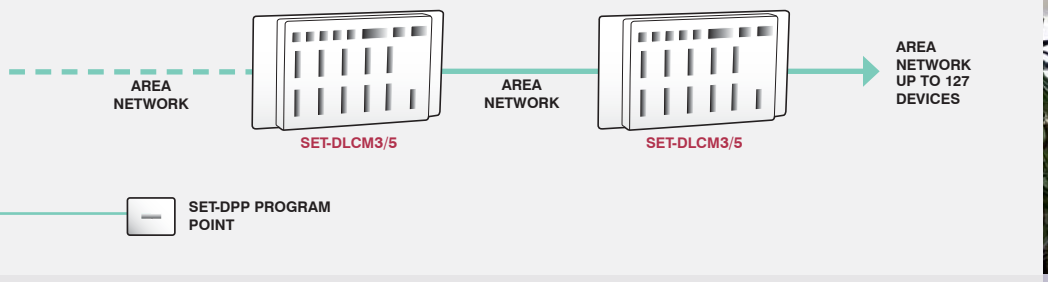
DLCS FEATURES

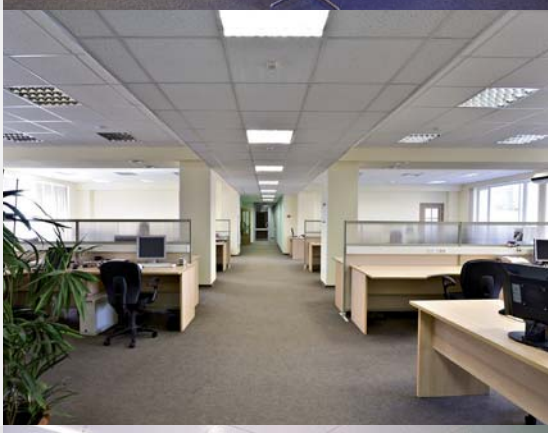
- Up to 4 networked input devices per output device (4 x SET-DFP's to 1 x SET-DLCM and/or DDC).
- Up to 127 networked output devices (127 x SET-DLCM's or combination of SET-DDC's and SET-DLCM's) without the need for a SET-DAC (area controller).
- Up to 127 networked output devices per SET-DAC (area controller).
- Up to 4 networks per SET-DAC (127 x 4) (area controller).
- Fully scalable network using SET-DAC's (area controller).
- Up to 65,535 system groups (made up of input and output devices).

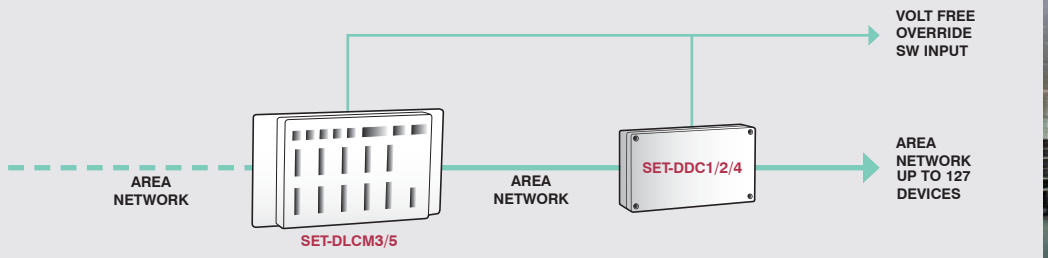


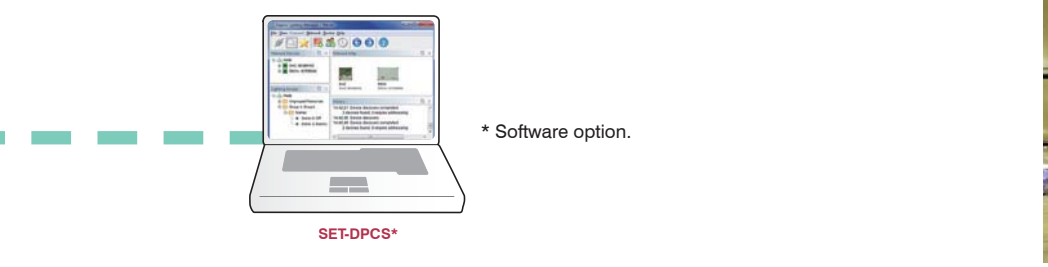
DLCS Lighting Control System Architecture











* Software option.

DLCS Output Devices

SET-DDC1

- Hardwired networked addressable LCM.
- Switched and dimmable DALI broadcast, DSI, 1-10.
- 1 x DALI Broadcast universe (1 Channel).
- 1 x 64 Digital Dimmable Ballasts or LED Drivers.
- 1 x 9 Amps or 9 HF Ballasts or LED Drivers, Non-Dimmable / Switched.
- 1 sensor input for up to 1 DOL, 10 SET-PDOCH, 1 SET-ALD5 per controller.
- 5 dry contact closure switch inputs.
- 2 RS485 network ports.
- LCD display.
- Dimensions 180mm x 180mm x 75mm.

SET-DDC2

- Hardwired networked addressable LCM.
- Switched and dimmable DALI broadcast, DSI, 1-10.
- 2 x DALI Broadcast universe (2 Channel).
- 2 x 64 Digital Dimmable Ballasts or LED Drivers.
- 2 x 9 Amps or 9 HF Ballasts or LED Drivers, Non-Dimmable / Switched.
- 2 sensor inputs for up to 2 DOL, 20 SET-PDOCH, 2 SET-ALD5 per controller.
- 5 dry contact closure switch inputs.
- 2 RS485 network ports.
- LCD display.
- Dimensions 180mm x 180mm x 75mm.

SET-DDC4

- Hardwired networked addressable LCM.
- Switched and dimmable DALI broadcast, DSI, 1-10.
- 4 x DALI Broadcast universe (4 Channel).
- 4 x 64 Digital Dimmable Ballasts or LED Drivers.
- 4 x 9 Amps or 9 HF Ballasts or LED Drivers, Non-Dimmable / Switched.
- 4 sensor inputs for up to 4 DOL, 40 SET-PDOCH, 4 SET-ALD5 per controller.
- 10 dry contact closure switch inputs.
- 2 RS485 network ports.
- LCD display.
- Dimensions 255mm x 180mm x 75mm.

SET-DLCM3

- 10 way pluggable and networked addressable LCM.
- Switched and dimmable DALI broadcast, DSI, 1-10.
- 3 independent channels (4,4,2).
- 5 RJ12 sensor inputs.
- 5 dry contact closure switch inputs.
- 2 RS485 network ports.
- Emergency light test facility.
- Alarm override switch input.
- LED operation indicators.
- Dimensions 435mm x 235mm x 54mm.

SET-DLCM5

- 10 way pluggable and networked addressable LCM.
- Switched and dimmable DALI broadcast, DSI, 1-10.
- 5 independent channels (2,2,2,2,2).
- 5 RJ12 sensor inputs.
- 5 dry contact closure switch inputs.
- 2 RS485 network ports.
- Emergency light test facility.
- Alarm override switch input.
- LED operation indicators.
- Dimensions 435mm x 235mm x 54mm.

SET-DAC

- Networked addressable area controlller.
- 4 RS485 network ports.
- 5 dry contact closure switch inputs.
- LCD display.
- Alarm override switch input.
- Dimensions 180mm x 180mm x 75mm.
- Internal Time Clock.
- Calendar based timed events and scheduling.

DLCS Input Devices

SET-DOL

- Ceiling mounted extra low voltage (12v) combined 360° high sensitivity PIR and light level sensor.
- RJ12 variant for use with SET-DLCMs.
- Hardwired variant for use with SET-DDCs.

SET-PDOCH

- Ceiling mounted extra low voltage (12v) 360° high sensitivity PIR occupancy sensor.
- RJ12 variant for use with SET-DLCMs.
- Hardwired variant for use with SET-DDCs.

SET-ALD5

- Ceiling mounted photocell for use with daylight linking or switching, extra low voltage 12v.
- RJ12 variant for use with SET-DLCMs.
- Hardwired variant for use with SET-DDCs.

SET-DFPN

- RS485 networked and addressable.
- Scene setting wall mounted faceplates.
- LED backlight with “tell back” facility.
- Available in 2,3,5,7,8 button single plates. Other custom configurations available.
- Stainless steel and white as standard. Other custom finishes available.
- Key switches can be incorporated into a dual gang plate. Isolation or partition override.
- Fully configuable and programmable via SET-DPCS software.

SET-DKSI / DKSP

- RS485 networked and addressable.
- Wall mounted key switches either for isolation or partition.
- Stainless steel and white as standard. Other custom finishes available.
- Key switches can be incorporated into a dual gang plate. Isolation or partition override.
- Fully configurable and programmable via SET-DPCS software.

SET-DCI

- Volt free RS485 networked and addressable volt free input unit.
- 8 dry contact closure switch inputs.
- LED “tell back” facility.
- Fully configurable and programmable via DPCS software.
- For integration with 3rd party switching devices such as retractable switches, BMS or AV systems.
- Dimensions 130mm x 130mm x 60mm.

SET-DMI

- Volt free RS485 networked and addressable mini input unit.
- 4 dry contact closure switch inputs.
- LED “tell back” facility.
- For integration with 3rd party switching devices such as retractable switches, BMS or AV systems.

SET-DIR / DIT

- RS485 networked and addressable.
- Infrared ceiling mounted receiver unit.
- Hand held transmitter provides remote scene selection.

Programming Devices

SET-DPCS

- PC software suite.

SET-DAV

- RS232 commands, Interface unit.
- For system integration of other audio visual systems.

SET-DHHP

- Hand held programming tool.
- Either remote IR access through the DIR or hardwired via RS485 networked connection.
- Simple system configuration.

SET-DPP

- Wall mounted programming point.

Faceplate Options

SET-DFPN2PW

SET-DFPN3SS

SET-DFPN4SS

SET-DFPN7SS

SET-DFPN8PB

SET-DFPN7SS TWIN

SET-DFPN7, 7, PW

SET-DFPN7SS –DKS

SET-DFPN7, 7, 7, 7, PW

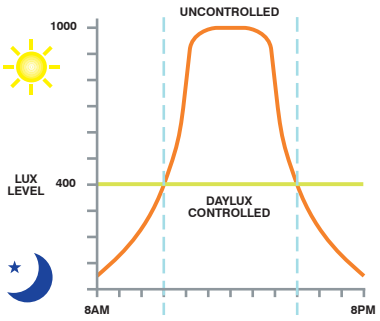
- Fits into standard UK single, double or quad recessed switch boxes.
- As standard available in PW, SS, PB (other finishes available on request).
- Above are a selection of standard faceplate configurations (custom layouts on request).
- Custom engraving available.

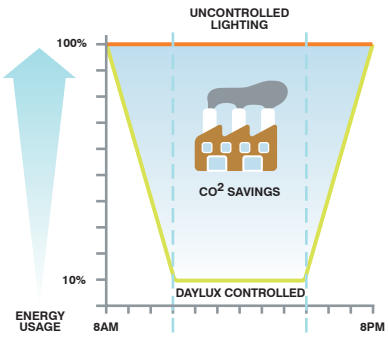
Energy and Conservation

According to DTI figures, artificial lighting accounts for 20% of the annual electricity used in non domestic buildings. This equates to 15.2 million tonnes of CO^2 at a cost of £3.6 billion, so it is not surprising that the drive to control this resource is of paramount importance.

Part L of the Building Regulations and the CRC Energy Efficiency Scheme are significant reminders that there is a need to reduce our carbon footprint. There is no simpler way to do this with artificial lighting than by either using natural daylight to supplement lighting or by turning it off when there is no one present. Typical savings of 40% can be made with occupancy control in offices, conference rooms, corridors, changing rooms and toilets which increases to 50% when daylight linking, and even as high as 70% when there is a lot of natural light. In warehouses the savings can be greater dependent on useage and availability of natural light.

The combination of daylight linking with scene setting provided by the DLCS is key to the cost saving benefits of a lighting control system. Add in the benefit of occupancy control and this makes the Setsquare modular or self contained DLCS one of the most cost effective solutions available. Universities, schools, offices, and commercial properties will benefit anywhere that natural light can be utilised.





A typical room with 10 x 58 watt switched fittings uses 5800 watt per day based on 10 hours usage.

Using the Daylux Lighting Control System could achieve savings of 50% = **2.9Kwh**

Over a 12 month period this equates to 2.9Kwh x 5 x 52 = **754Kwh**

CO^2 savings based on gas fired electricity generation = **354Kgs**

Software Suite

SET-DLCS Software Suite (SET-DPCS) Product description

This simple to use windows based software application (graphical user interface GUI) is designed to be used and operated by operatives of varied skills levels from Setsquare's engineers, trained service and maintenance engineers and end users.

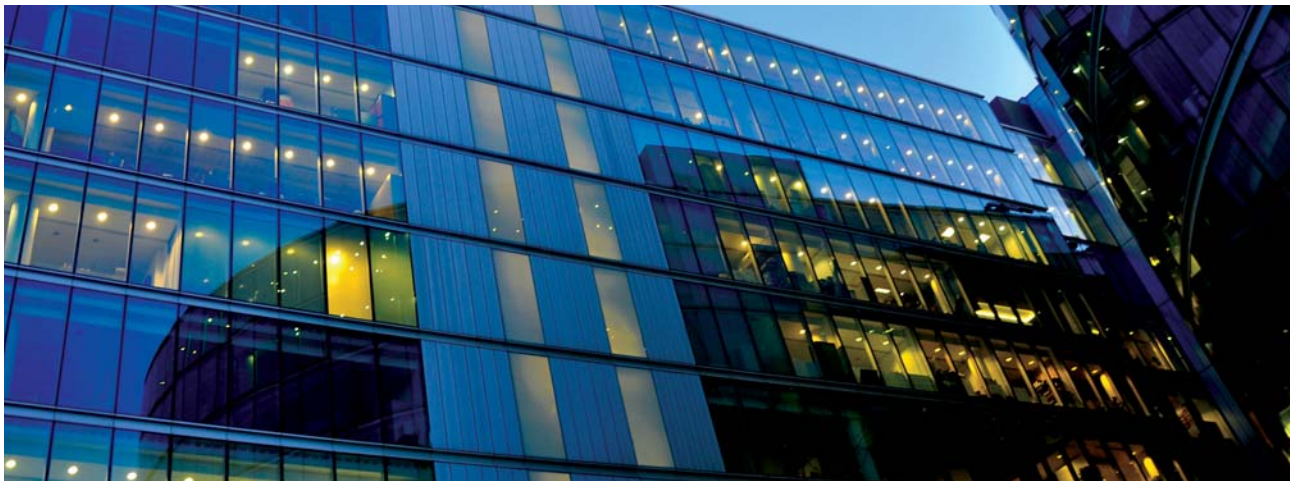
The SET-DPCS has been developed with a familiar feel and look which most PC users will be already accustomed to, with its explorer style viewing panes.

The SET-DPCS software application provides for the following outlined functions and operations, but almost any configuration is possible to suit any application (please contact Setsquare for full details).

One of the unique features of the DLCS lighting control system is that once programmed the SET-DPCS can be closed as the system is self reliant with shared intelligence throughout the network.

- Multiple user programming.
- Auto system discovery and addressing.
- Device identification, grouping and user friendly naming.
- System monitoring, reporting and activity history.
- Emergency lighting testing.
- Time clock scheduling set up.
- Device configuration and programming (inc timeout functions, light level, corridor hold, manual and auto control, room partitioning etc).
- System backup and restore.
- Device and system firmware software upgrade.
- Password protected for high or low users.
- Virtual commands.

Before, During and After Sales Service



New Build and Retrofit

We have a technical sales team based around the UK who are there to help with all of your needs. From new build projects through to retrofit and site surveys, we can recommend products and applications to match your requirements. Depending on the application we can prepare a quotation which includes running costs and paybacks, typical schematics, product details and any notes pertinent to the project which will provide all the information you require before placing an order.

Engineering Support

Once you have purchased our products we can provide an installation support service from our nationwide team of fully trained NICEIC engineers. Working with your installation teams this service provides you with the ability to install all of our products in their ideal location, wired to the latest regulations. We will visit the site and run through the installation of our products answering any of your team's queries.

Commissioning

We take pride in our ability to provide the customer with a lighting control system that is fit for purpose. To ensure that the product or system is set to perform at its most efficient, we provide an expert commissioning service. We check on the integrity of the installation and adjust settings to optimise the energy saving benefit, at the same time creating a comfortable and balanced work lighting environment. The service provides training for the end user on how the lighting controls will operate. Once this is complete we issue our Operation and Maintenance Manual and a 5 year warranty on all of Setsquare's manufactured products.

Operation and Maintenance Manual

Once we have completed the commissioning, and in accordance with the requirement of the Building Regulations, in particular the energy efficiency requirements conveyed in PART L of Schedule 1, L1(b) and L1(c) "Conservation of Fuel and Power", we provide the following information and guidance.

1. **Method of Operation**
2. **Site Commissioning Log**
3. **Maintenance Information**

Method of Operation

We provide a typical description for the operation of lighting controls supplied and also a copy of the Installation and Operation instructions for the specific products.

Site Commissioning Log

We also provide our engineer's site commissioning report and data log which details the information about all controls installed with reference to the site schedule of works.

Maintenance and Service Contracts

To ensure the continued operation and peak performance of the lighting control system, we provide a yearly maintenance service by our own commissioning engineers. We check on the operational condition and effectiveness of the system, adjust light levels and time delays where appropriate, and record any loading and installation issues from change of use areas or additions.

We will make any recommendations for sensor coverage or remedial work once we have completed our visit.

daylux DLCS

DLCS • SIMPLY INTELLIGENT

Setsquare

Setsquare's range of energy conservation products and services includes:

SensorLite

infrapod

LITEminder

SensaLUX

Aqua minder

Our lighting controls are Energy Technology list approved and as such clients can financially benefit from the Enhanced Capital Allowance scheme. There are also interest free loans available from the Carbon Trust that can provide a useful source of funding when purchasing lighting controls and these are available either direct from the Carbon Trust for eligible private companies or via the Salix Fund for the public sector.

Due to the policy of continual development, Mode Lighting Limited reserve the right to alter specifications without prior notice.

BRITISH MADE

CE

bsi. ISO 9001 Quality Management

All Setsquare products are designed and manufactured to BS EN ISO 9001: 2008

Setsquare Energy Saving Controls
Mode Lighting Limited, The Maltings, 63 High Street,
Ware, Hertfordshire, SG12 9AD, United Kingdom
T +44 (0)1920 462121 F +44 (0)1920 466881
E sales@modelighting.com www.setsquare.com

set square energy saving controls

a division of MODE LIGHTING