SET-DDC4 - FOUR CHANNEL LIGHTING CONTROL MODULE

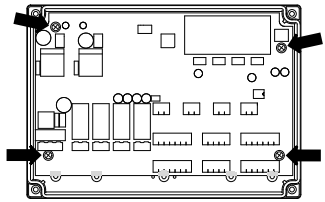
INSTALLATION INSTRUCTIONS

WARNING. This product works at mains potential. Be sure to take care when working with electricity. This product should only be installed by a qualified electrician in accordance with the latest edition of the IET wiring regulations and this instruction leaflet.

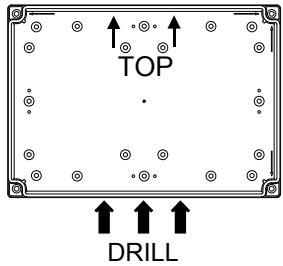
Mount the back box in a suitable location. Please note that the module will need to be accessed easily after installation for commissioning/setup purposes and future maintenance.

STEP 1.
Remove the front cover by undoing the four screws.

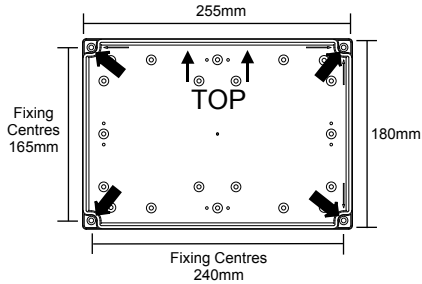
STEP 2.
Remove the four screws securing the PCB to the back box (arrowed below). Remove the PCB and keep it in a safe place.



STEP 3.
Carefully drill the required amount of holes in the bottom of the back box to enable fitting of the required size and number of cable glands (arrowed below).



STEP 4.
Fit the back box to a suitable surface using the correct fixings (max screw diameter = 4mm). The four fixing holes (arrowed below) serve as channels (max screw head = 8mm diameter) for the fixing screws, using these will preserve the IP rating of the product.



STEP 5.
Refit the PCB using the four screws which were removed in STEP 2.

STEP 6.
Wire the mains supply, the required input/output devices to the ‘Local’ and ‘Area’ networks and the sensors and components to the SET-DDC4 according to the ‘Connection Diagram’ on page 3, the ‘Connection Details’ on page 6 & 7, the ‘Channel Self Configuration Table’ on page 2, the ‘Do’s And Don’ts’ regarding sensors on page 5 and the ‘PIR Detection Zones’ on page 5. Please also refer to the relevant individual product installation instructions.

STEP 7.
If the ‘Local’/’Area’ network(s) have input/output devices wired to them you will need to set network termination - It is necessary to terminate each end of a ‘Local’ and ‘Area’ network. This is achieved by operating a pair of PCB mounted switches. Switch 1 & 2 on will terminate the ‘Area’ network and switch 3 & 4 on will terminate the ‘Local’ network.
See ‘Connection Diagram’ on page 3 for switch detail. Note: Only terminate the first and last device on each network.

STEP 8.
Once the controller is powered on, it will self-configure according to what type of sensors have been wired and what sensor inputs they have been wired to.
For example:- If a movement sensor has been wired to MOV1 and a light level sensor has been wired to LL1, then all four channels will respond to those sensors. See ‘Channel Self Configuration Table’ on page 2 for further details.

Power on the controller and observe that the LCD screen shows 'Setsquare' followed by the current firmware version. The lighting which is under control of the system should switch on.

The controller has factory set defaults which will enable a system to operate with simple functionality without the initial requirement of setup, programming or commissioning. Further functionality can be achieved by following the setup procedure detailed in the ‘Daylux DLCS User Guide’, the ‘SET-DDC Basic User Guide’ and the ‘SET-DDC Basic Programming Guide’.

The factory default settings are:-

Presence Detection = On
Time Out after presence = 10 minutes
Light Level (Daylight Linked) = Light Level High

If a SET-DFP7 faceplate and a light level sensor are connected to the system then the following scenes are factory set:-

Scene 1 = Automatic (Daylight linked). Output Level = High
Scene 2 = Automatic (Daylight linked). Output Level = Low
Scene 3 = Manual (Switch Controlled). Output Level = High
Scene 4 = Manual (Switch Controlled). Output Level = Low

If a light level sensor is not fitted, then Scene 1 & 2 are as per Scenes 3 & 4 above.

For further details on the operation of the SET-DFP7 faceplate, please see the ‘Daylux DLCS User Guide’ and the ‘SET-DFP7 User Guide’.

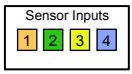
STEP 9.
Once setup and operational checks are complete, refit front cover.

CHANNEL SELF CONFIGURATION TABLE.

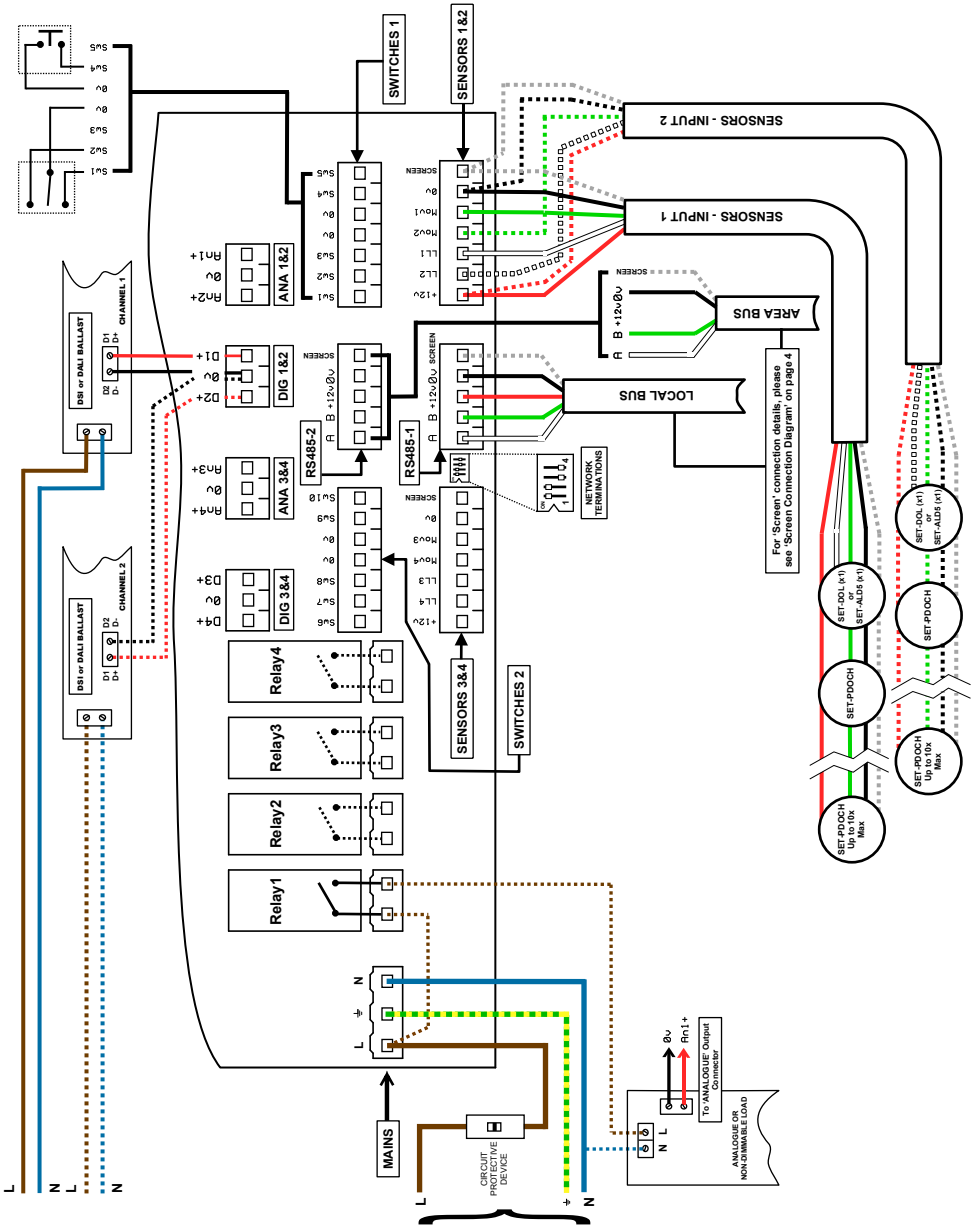
SENSOR INPUTS				OUTPUT CHANNELS
CH 1	CH 2	CH 3	CH 4	
SENSOR				1 to 4
SENSOR			SENSOR	1 to 3, 4
SENSOR		SENSOR		1&2, 3&4
SENSOR	SENSOR			1, 2 to 4
SENSOR	SENSOR	SENSOR		1, 2, 3&4
SENSOR	SENSOR	SENSOR	SENSOR	1, 2, 3, 4

Sensor Inputs and Channel Outputs.

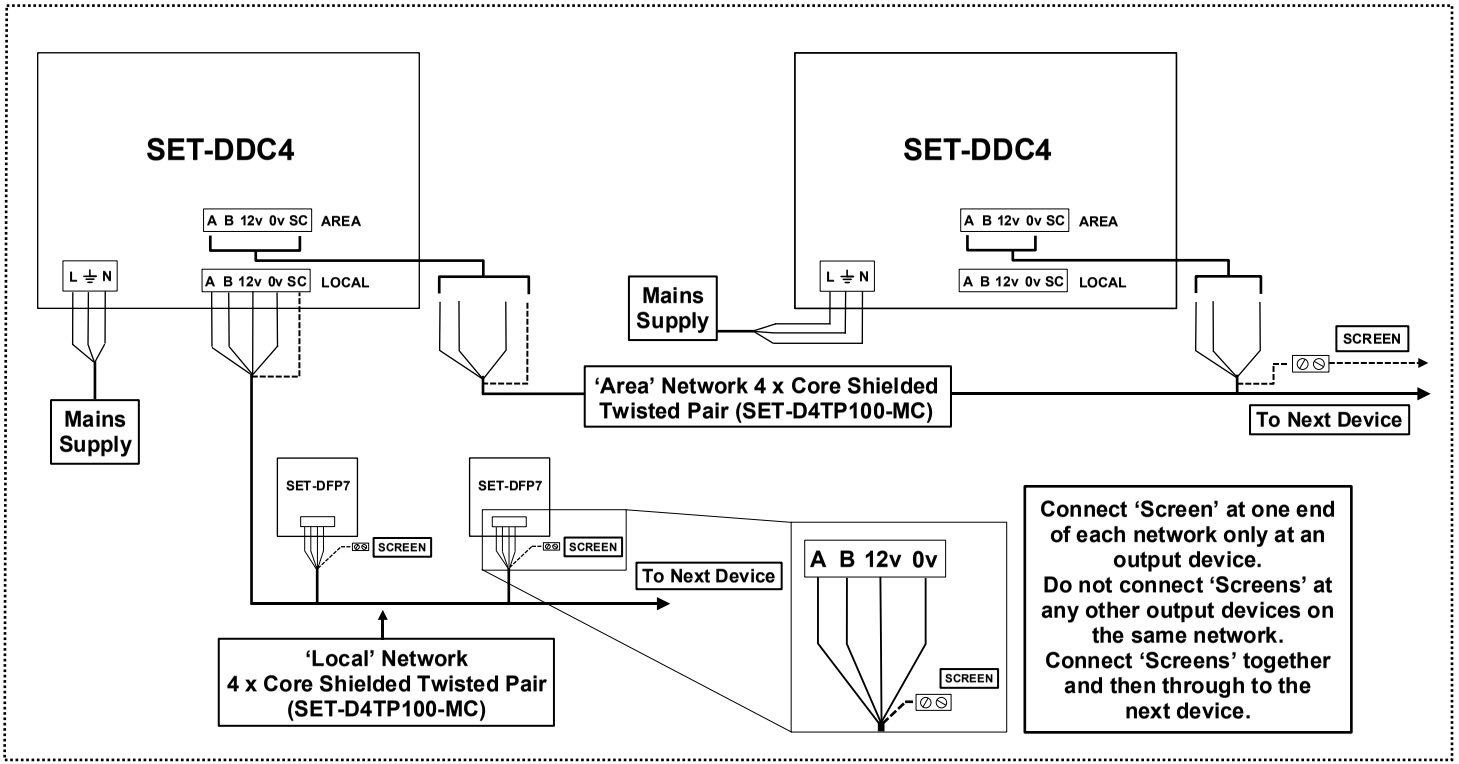
Sensors will control the desired output channels through self-configuration on light level according to the table to the left. Movement detection is ‘linked’ across all channels.



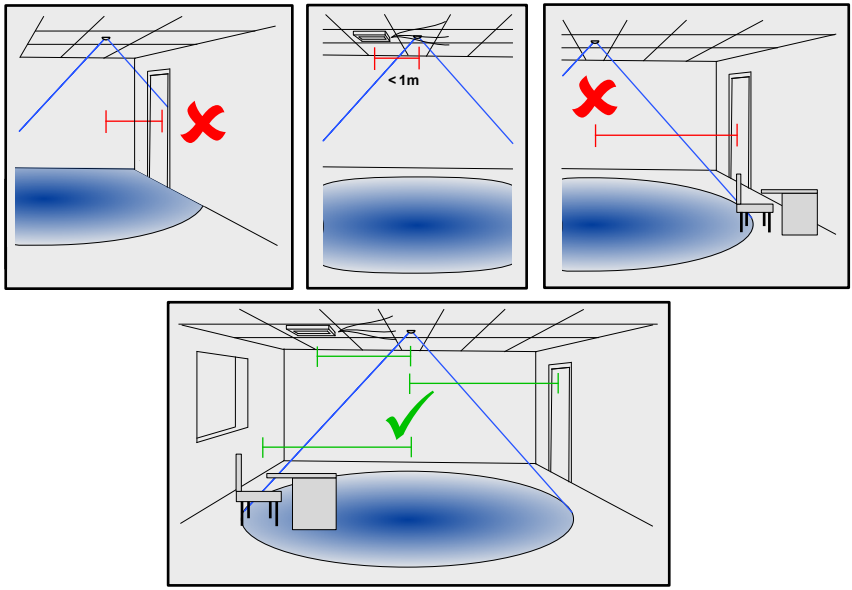
CONNECTION DIAGRAM.



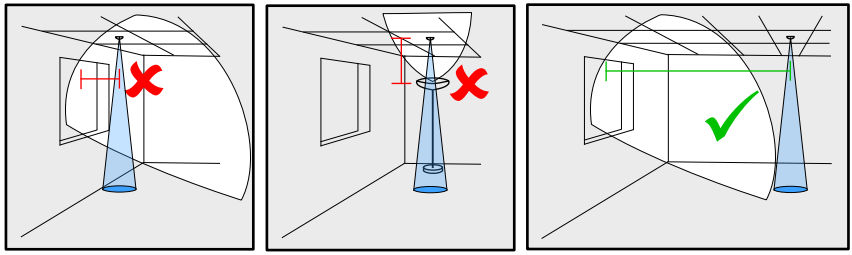
‘Screen’ Connection Schematic.



DO'S AND DON'TS - PIR.



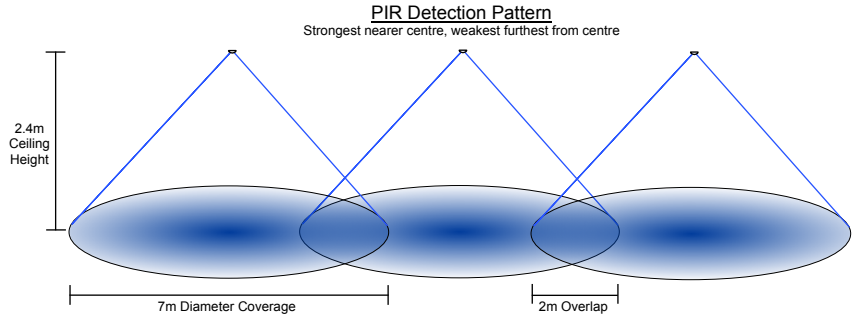
DO'S AND DON'TS - Light Level.



PIR Detection Zones.

The PIR detection pattern consists of two 'zones', an inner and outer zone. The outer zone will detect large movements such as someone walking and the inner zone will detect smaller movements such as the movement of a hand or arm.

PIR sensors should be mounted every 5 meters to ensure the best possible coverage, reducing 'dead spots' and ensuring optimum movement detection.



CONNECTION DETAILS.

Connections should be made to the relevant connectors based on the requirements of the system design/specification i.e. If the system is going to be used for occupancy detection (PIR), light level control using either faceplates/switches or automatic via light level sensors.

MAINS

Mains input connector.

Supply to controller. L (Line) = Brown, N (Neutral) = Blue and Earth = Green/Yellow sleeved. The circuit should be protected with the correct rated fuse/circuit breaker.

RELAY 1

Volt free relay connector - output 1.

Switching (relay 1). Wire according to requirements of the installation. Used when there is a non dimmable load which requires switching, for signalling/interfacing with other systems or switching an analogue (1-10v DC) lighting load.

RELAY 2

Volt free relay connector - output 2.

Switching (relay 2). Wire according to requirements of the installation. See 'RELAY 1' detail above.

RELAY 3

Volt free relay connector - output 3.

Switching (relay 3). Wire according to requirements of the installation. See 'RELAY 1' detail above.

RELAY 4

Volt free relay connector - output 4.

Switching (relay 4). Wire according to requirements of the installation. See 'RELAY 1' detail above.

DIG 1&2 (Digital Outputs 1 & 2)

Digital (DSI / DALI) output connector. Wire to the required DSI ***or*** DALI ballasts. Connect from D1+ and 0v for channel 1 output and D2+ and 0v for channel 2 output.

DIG 3&4 (Digital Outputs 3 & 4)

Digital (DSI / DALI) output connector. Wire to the required DSI ***or*** DALI ballasts. Connect from D3+ and 0v for channel 3 output and D4+ and 0v for channel 4 output.

ANA 1&2 (Analogue Outputs 1 & 2)

Analogue output connector. Wire to the required Analogue ballasts (1-10v DC). Connect An1+ and 0v for channel 1 output and An2+ and 0v for channel 2 output. Please note: The live supply to these ballasts will need to be wired through either Relay 1 (channel 1) or Relay 2 (channel 2) for the lighting to be switched off by the SET-DDC4.

ANA 3&4 (Analogue Outputs 3 & 4)

Analogue output connector. Wire to the required Analogue ballasts (1-10v DC). Connect An3+ and 0v for channel 3 output and An4+ and 0v for channel 4 output. Please note: The live supply to these ballasts will need to be wired through either Relay 3 (channel 3) or Relay 4 (channel 4) for the lighting to be switched off by the SET-DDC4.

SENSORS 1 & 2, 3 & 4

Sensor input connectors.

Wire SET-DOL (combined light level and movement), SET-PDOCH (movement) or SET-ALD5 (light level) signals here as required using either a 2 x Core or 4 x Core Screened cable as applicable.

+12v DC = Red, LL1 (Light Level Input 1) = White, MOV1 (PIR Sensor Input 1) = Green, 0v DC = Black, Cable Shielding = Screen.

Please note: It is advised that a suitable sleeving is used to insulate the cable screen(s), such as Green/Yellow PVC Earth Sleeving.

For multi-channel control where independent movement/light level is required per channel, wire as above, but MOV2 is Movement Sensor Input 2 and LL2 is Light Level Input 2 and so on.

For further information on sensor wiring, please refer to the ‘SET-SENSORS’ installation instruction.

CONNECTION DETAILS Continued.

RS485-1

Network bus connector 1 (Local).

Local Bus connection. For connection of 'Local' networked input devices such as SET-DFP type faceplates or other local network devices. **Note: Please refer to the 'Screen Connection Schematic' on page 4 for the correct termination of 'Screens'. If a termination point does not exist on a device, then make sure that continuity is preserved by connecting the 'screens' together in a terminal block.**

RS485-2

Network bus connector 2 (Area).

Area Bus connection. For connection of 'Area' networked output devices such as other SET-DDC's, SET-DLCM's etc. **Note: Do not connect +12v DC (red) between this and other devices. Please refer to the 'Screen Connection Schematic' on page 4 for the correct termination of 'Screens'. Make sure that continuity is preserved by connecting the 'screens' together in a terminal block.**
Ensure that all 'screens' are connected to 'Earth' at one end of the network only.

SWITCHES 1 & 2

Switch input connectors. Wire any volt-free single pole momentary or SPDT centre off switch(es) here for various manual control options. See 'Daylux DLCS User Guide' and the 'SET-DDC Basic Programming Guide' for more details.

Technical Data.

Supply Voltage: 110 to 230v A.C. 50hz/60hz.

Total Power consumption: Standby = 4.0 Watts maximum.

Relay Contacts: 4 x Volt-free, SPST, N/O. 8 Amp Resistive or 8 x HF Ballasts. Max. Voltage 250v A.C. Mains loads (outputs) must be on the same phase as the SET-DDC4. A contactor can be switched in the event that the load exceeds the relay(s) capacity or output circuits are on different phases to the SET-DDC4 supply.

Dimming Outputs: Digital (DSI / DALI) = 50 ballasts per channel. Analogue = 50 ballasts per channel.

Dimming bus cable lengths and CSA's (2 x core):- 110m = 0.5mm^2. 220m = 1.0mm^2. 300m = 1.5mm^2.

Switch Inputs: 2 x 5 Inputs to accept volt-free switches, relays etc switching to 0v DC.

Sensor Inputs: 4 x Movement, 4 x Light Level. Max. 1 x SET-ALD5 or SET-DOL per light level input and up to 10 x SET-PDOCH sensors or 1 x SET-DOL and 9 x SET-PDOCH sensors per movement input.

Local Network: RS485. Max. 4 x Input Devices. (SET-DFP's SET-DIR's, SET-DMI's, SET-DCI's etc).

Area Network: RS485. Max. 127 x Output Devices. (other SET-DDC4's or SET-DDC1's, SET-DLCM's etc).

Sensor Cable Specifications: Recommended sensor cable - Setsquare SET-D4SC100-MR-7-W (4 x core screened) for SET-DOL, SET-PDOCH and SET-ALD5.

Network Cable Specification: 4 x core shielded twisted pair such as Setsquare SET-D4TP100-MC, Belden 8723 or equivalent. Please Note: SET-D4TP100-MC cable can be run in the same containment as mains wiring carrying 600v and is also LS0H.

Terminal Specifications: Mains input and relay output terminals capacity = Maximum 1 x 2.5mm^2 or 2 x 1.5mm^2

Dimensions: L=255mm x W=180mm x D=78mm.

Material: Grey Polycarbonate.

Weight: 880 grams.

I.P. Rating: 65 (If correct cable glands are used).

Operating Temperature: 0-40^{o}C.

WARNING

This product contains electronic devices.

Do not perform any high voltage tests on this product or to any equipment connected to it. Mains connections can be high voltage tested in accordance with BS 7671:2008, IET Wiring Regulations 17th Edition section 612.3.3.

The DLCS SET-DDC4 is part of a range of energy conservation products available from Setsquare. This apparatus maybe turned on by high powered RF interference and should not be installed near pager aerials or Inductive loop equipment. It will recover when the RF ceases.

CE

WEEE Directive.
Electrical and electronic equipment should never be disposed of with general domestic or commercial waste but collected for their proper treatment and recovery. The crossed out wheely bin symbol is to remind you of the need to dispose of this product at the end of its life in a way that will assist in the recovery, recycling and reuse of many of the materials used in this product. Where possible also recycle the packaging.

WEE/DJ0002ZR

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