



PRODUCT RANGE

NEWLEC DALI OCCUPANCY DETECTOR

PART NUMBER

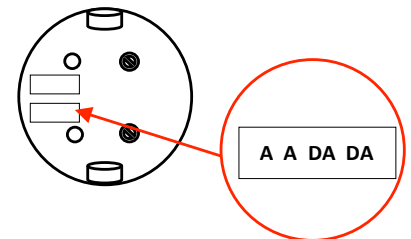
NL5701DALI

FEATURES

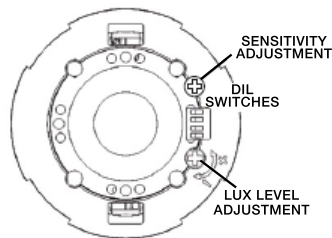
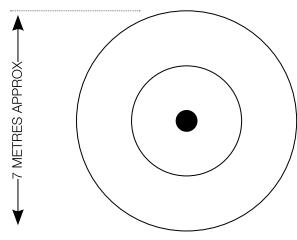
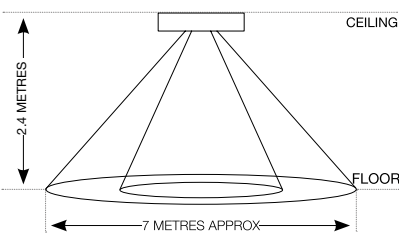
- Presence and Absence Detection Options
- Automatic Daylight Harvesting
- Settable Timing Modes
- Basic Luminaire setup without expensive commissioning tools
- Broadcast and Group Functions
- Dual Mode Remote Control
- Room & Corridor Options
- Manual Lux Level and Sensitivity Control
- Coloured Feedback LEDs
- Walk Test
- Can control LED and fluorescent DALI luminaires

NEWLEC DALI OCCUPANCY DETECTOR WIRING CONNECTIONS

A	Absence Control Lines
A	Absence Control Lines
DA	DALI Bus line
DA	DALI Bus line



Occupancy Detector detection pattern



NEWLEC DALI OCCUPANCY DETECTOR INSTRUCTIONS MUST BE READ IN CONJUNCTION WITH REMOTE CONTROL INSTRUCTIONS IN ORDER TO ENABLE ALL FEATURES OF THE OCCUPANCY DETECTOR

This flush mounted ceiling mount Newlec DALI Occupancy Detector has full DALI flexibility and is the intelligent sensor element of the Newlec DALI network system. It can automatically address the lighting ballasts without the need for expensive controllers. The Occupancy Detector is switched on by the detection of moving body heat within a specified range. When this moving body heat is no longer detected the unit will dim down the luminaires and eventually switch off. It will also automatically harvest available daylight to maximise energy savings. With the remote it is possible to set dimming time delays and Room and Corridor options. There are also helpful coloured feedback LEDs to make programming easier.

MAINS POWER SHOULD NEVER BE CONNECTED TO ANY TERMINAL OF THE DALI OCCUPANCY DETECTOR

The DALI connections are made to the DA DA bus lines. There is no polarity but it is advisable and good practice to keep wiring colours to the same connections for consistency.

Absence detection on the Newlec DALI network system can easily be achieved with the addition of a standard 1 gang 1 way switch. If 2 way and intermediate switches are required these can also be connected in to the terminals. To turn this DALI Occupancy Detector from a presence detector to an absence detector simply connect an ordinary on/off switch to the A and A Absence Control lines and the Occupancy Detector can be switched between presence and absence mode as desired.

CAREFUL POSITIONING OF THE OCCUPANCY DETECTOR IS ESSENTIAL TO MAINTAIN OPTIMUM DETECTION PERFORMANCE.

IMPORTANT NOTICE

All wiring should be carried out by a competent person or a qualified electrician and should be fitted to IEE 17th Edition Wiring regulations BS7671:2008. The circuit should be isolated before carrying out any work. Failure to adhere to the instructions will invalidate the warranty.

BROADCAST MODE

The Newlec DALI Occupancy Detector is set to presence and broadcast mode straight out of the box and will control even brand new un-configured luminaires. In Broadcast Mode the Newlec DALI Occupancy Detector broadcasts DALI control signals to all luminaires on the connected DALI network. This is the simplest way to control DALI luminaires. In this way the Newlec DALI Occupancy Detector is truly a 'wire up and work' system. For each Power Supply Unit you can have one new broadcast network Occupancy Detector to control luminaires.







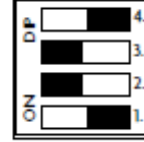
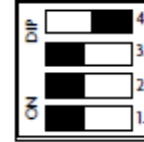


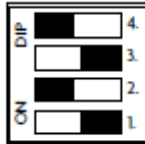


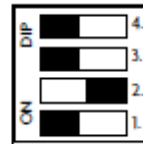
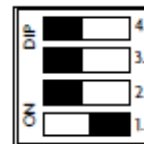
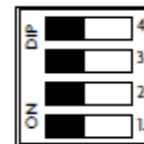
1. Firstly ensure the Newlec DALI Occupancy Detector is set by setting all four dipswitches to off (default factory setting).
2. Simply connect the bus lines in the Occupancy Detector with the Multi-purpose Connection Box and Power Supply Unit in system.
3. The Newlec DALI Occupancy Detector unit will automatically control all the luminaires on that network.

That's it!

For broadcast mode you have completed set-up at this point and the Occupancy Detector will automatically daylight harvest and work as a presence detector or absence detector with the addition of a single gang one way switch.

TABLE 1- BROADCAST AND GROUP DIPSWITCH SELECTION TABLE

Please note that the BLACK bar denotes position of the dipswitch

							
Broadcast Mode	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
							
Group 8	Group 9	Group 10	Group 11	Group 12	Group 13	Group 14	Group 15

If you require more than one DALI Occupancy Detector on the same DALI network (per DALI Power Supply Unit) you will need to separate Occupancy Detectors with the group modes (see 'Setting Group Mode').

SETTING GROUP MODE

There are 15 groups available with the 4 dip switches plus broadcast (see Table 1). As with standard DALI protocol you cannot have more than one Newlec DALI Occupancy Detector controlling the same lights on the same group. The standard DALI protocols ensure that maximum efficiencies are obtained by having the smallest groups possible. For example, one DALI Occupancy Detector to four DALI luminaires all set to Group one, another DALI Occupancy Detector controlling six DALI luminaires on Group 2.....etc. In order to program a group on the DALI Occupancy Detector the dipswitch must be set first. However in Corridor Option it is possible to have an Occupancy Detector controlling more than one group in a corridor or stairwell.

The Newlec DALI Occupancy Detector can control DALI luminaires via a group address. When a group is set on the DALI Occupancy Detector it sends DALI control signals to DALI luminaires with only that group address programmed within the ballast. In this way the DALI Occupancy Detector can replace an existing Occupancy Detector in a pre-programmed network provided the group number is known. The DALI Occupancy Detector can also program the ballast within DALI luminaires on a network to work on the currently set group (see 'Add group to pre-addressed luminaires') without the need for expensive commissioning tools. Using different groups, a number of DALI Occupancy Detectors can control sets of DALI luminaires on the same network, with many manufacturers Occupancy Detector this is not possible.

IMPORTANT NOTICE

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ADD GROUP TO PRE-ADDRESSED DALI LUMINAIRES

Setup of existing luminaires on a DALI network is important even if some or all of the luminaires are not to be controlled by the Newlec DALI Occupancy Detector currently being installed. In setting up luminaires the DALI Occupancy Detector updates its list of DALI addresses currently in use, so that those addressed are not allocated to new luminaires. To get the Occupancy Detector to setup DALI luminaires:

1. Select the required group on the DALI Occupancy Detector dip switches as per the Table 1 above.
2. You must turn lights OFF with the remote first to operate and program in this mode. To do this, point the remote control at the DALI Occupancy Detector & press the override off button. While in override off the DALI Occupancy Detector LED flashes white.
3. Set the remote control to installer mode by pressing the hidden installer button inside the battery compartment, the remote control LED illuminates red.
4. Point the remote control at the Occupancy Detector & press button '1'. The detector will now search the network for luminaires that have a DALI short address pre-programmed.
5. Once the search is complete the lamps will pulsate. If you want the Occupancy Detector to control the pulsating luminaire in the group, press the remote control brightness up button for 'YES' or brightness down button for 'NO'. If 'YES' is pressed the luminaires ballast is updated with the DALI group currently set on the Occupancy Detectors dip switches and it updates its address list and controller list. This luminaire is now in the Occupancy Detectors group. If 'NO' is pressed only the address list is updated and the Occupancy Detector will not control this luminaire in that group selected. Please note twin fluorescent DALI luminaires will only pulsate if both tubes are engaged in the fitting correctly and are both working normally.

SET UP FOR BRAND NEW UNADDRESSED DALI LUMINAIRES

The Newlec DALI Occupancy Detector has the ability to do basic setup of brand new luminaires. With the 'Add new luminaires' function, group and scene information can then be programmed into the ballast within the luminaire. When new luminaires are addressed for the first time you must then complete the 'Add group to pre-addressed luminaires'. N.B. If there are existing pre-programmed luminaires already on the network skip back to 'Setting Group Mode' first before returning to this section.

To put the Occupancy Detector into 'Add new luminaires' mode:

PLEASE NOTE THESE INSTRUCTIONS MUST BE READ IN CONJUNCTION WITH THE REMOTE CONTROL INSTRUCTIONS

1. You must turn lights off first with the remote to operate and program in this mode. To do this, point the remote control at the Newlec DALI Occupancy Detector & press the override off button. While in override off the Occupancy Detector LED flashes white.
2. Set the Dipswitch with the group number you wish to use for the Occupancy Detector .
3. Set the remote control to installer by pressing the hidden installer button inside the battery compartment, the remote control LED illuminates red.
4. Point the remote control at the Occupancy Detector & press button '2' at the bottom of the remote control while the remote LED is red. The Occupancy Detector will now search for uncommitted DALI ballasts and program an unused DALI short address. An uncommitted luminaire will flash up to 5 times. During this search the blue signal LED on the Occupancy Detector will flash repeatedly.
5. When the Occupancy Detector flashes red the search is completed and any correctly programmed luminaires on the DALI network system will be unaffected. Once completed the newly setup luminaires can have a group (see Add group to, pre-addressed luminaires) and a basic set of scenes (see 'Set Scenes') programmed into their ballasts.
Any correctly programmed luminaires on the DALI network will be unaffected. Once completed the newly setup luminaire(s) can have a group (see Add group to pre-addressed luminaires.) and a basic set of scenes (see 'Set scenes') programmed into their ballasts.

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SET SCENES

When a new DALI luminaire is purchased the internal ballast has no scene information programmed. The Newlec DALI Occupancy Detector can configure a basic set of scenes into the ballasts of luminaires that have been setup using the 'Add group to pre-addressed luminaires' function. Basic scene setup consists of sixteen scenes, that range in brightness from minimum to maximum illumination. All luminaires on the network with the Occupancy Detector set group will have their ballast updated with the basic scene set. Setting scenes on the Occupancy Detector will give a basic 16 stepped levels of brightness. When replacing another manufacturers DALI Occupancy Detector with a Newlec DALI Occupancy Detector it is essential that the group number is known and set via the dip switches first. If you want to keep pre-programmed previous scene information then DO NOT follow 'Set Scenes' below.

1. You must turn lights off first with the remote to operate and program in this mode. To do this, point the remote control at the Newlec DALI Occupancy Detector & press the override off button. While in override off the Occupancy Detector LED flashes white.
2. Set the Dipswitch with the group number you wish to use for the Occupancy Detector.
3. Set the remote control to installer by pressing the hidden installer button inside the battery compartment, the remote control LED illuminates red.
4. Point the remote control at the Occupancy Detector & press button '3' at the bottom of the remote control while the remote LED is red. The Occupancy Detector will now flash green 16 times per ballast and give a blue flash when scene set is complete. This process repeats until all ballasts in the group are set with scenes.

WALK TEST

Walk test can be used to test and setup the Newlec DALI Occupancy Detector sensitivity by moving in & out of the Occupancy Detector detection range. The signal LED on the Occupancy Detector indicates presence by flashing blue and can be used as a basic walk test. During walk test detection the luminaires will be illuminated to full brightness then after 10 seconds with no presence detected the luminaires will dim but not go off.

To put the Newlec DALI Occupancy Detector into walk test:

1. You must turn lights OFF using the remote first to operate and program in this mode. To do this, point the remote control at the Newlec DALI Occupancy Detector & press the override off button. While in override off the Occupancy Detector LED flashes white.
2. Set the remote control to installer mode by pressing the hidden installer button inside the battery compartment, the remote control LED illuminates red.
3. Point the remote control at the Occupancy Detector & press the 'Set' button, this will initiate luminaire walk test mode.
4. The LED on the Occupancy Detector will be illuminated blue while presence is detected and the luminaires will be set to full brightness. The Occupancy Detector will also flash red and green to indicate Walk test mode is initiated.
5. Leaving the Occupancy Detector detection zone for more than 10 seconds is indicated by the luminaires being dimmed & the LED on the detector being extinguished.

Walk test mode will be exited after 10 minutes or by pointing the remote at the Newlec DALI Occupancy Detector and pressing any remote control button. When the walk test is completed point the remote at the Occupancy Detector & press the override off button to return to normal. The remote control will automatically exit install mode after approximately 2 minutes from the last button press or can be taken out of installer mode immediately by re-pressing the hidden installer button.

STAIRWELLS








An additional feature of the Corridor Mode option makes it possible to have more than one group switched by a DALI Occupancy Detector. This means that luminaires in the current group or floor can be selected as well as other floors in the stairwell. Simply see the 'Add group to pre-addressed luminaires' and select YES for every luminaire you wish to be controlled in the stairwell. This flexibility allows you to maximise energy savings in stairwells.

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NEWLEC DALI OCCUPANCY DETECTOR FEEDBACK COLOURS AND FLASH STATUS

The Newlec DALI Occupancy Detector flashes several feedback colours via its LED to let you know what state it is in. The following table indicates the states that it is showing after installation.

MODE	PIR COLOUR	STATE
PRESENCE Lights OFF	No Flash	No flashes at the Occupancy Detector indicates no detection and lights will be OFF. There are no absence wall switches involved in this circuit.
PRESENCE Lights ON		When operating in normal presence mode sensor LED blinks BLUE when there is presence detection and presence detected.
PRESENCE OFF by Remote		In presence mode even if lights are switched off by Remote Control the sensor will flash WHITE (even if presence not detected i.e. no one is in the room). This is to let you know the system has been switched off by remote control.
ABSENCE Lights ON		If there are wall switches in this circuit wired into the A A position and the wall switch is operated, the LEDs on the sensor will blink BLUE then RED to indicate presence detected and absence mode is set.
ABSENCE Lights OFF		Sensor continues to blink RED with lights off to indicate sensor is in absence mode (even if presence not detected. i.e. no one is in the room). If lights are switched off by Remote control and are in absence mode the sensor will also flash RED (even if presence not detected).
CORRIDOR Option		In corridor option a greenish YELLOW flash will indicate presence detected and in corridor option.
CORRIDOR Option (Hibernation)		Occupancy Detector is in Corridor Option and two WHITE flashes indicates it has been switched off completely by remote (Hibernation). When the remote ON/OFF button is re-pressed the Occupancy Detector will resume in corridor mode.
Remote Button Press		When any button is pressed on the Remote Control a green flash confirms acceptance at the Occupancy Detector. (Note GREEN flashes need to be counted when Selecting Room and Corridor Options- see Table X on the Remote Control Instructions).

CALCULATING MAXIMUM RATIOS OF DALI OCCUPANCY DETECTORS TO BALLASTS IN A SINGLE NETWORK

Each Newlec DALI Occupancy Detector is capable of running 64 ballasts (although in reality that will not be sensible practice). In order to calculate the maximum numbers of Occupancy Detectors and luminaires that can be on the same network, use the following equation.

$$\frac{180 - (L \times 2)}{14}$$

Where L = number of DALI luminaires

Worked Example 1

20 ballasts
For example 20 ballasts x 2 = 40
180 - 40 = 140
 $\frac{140}{14} = 10$
14

Therefore maximum 10 detectors for 20 ballasts

Worked Example 2

40 ballasts
40 ballasts x 2 = 80
180 - 80 = 100
 $\frac{100}{14} = 7$ (rounded up)
14

Therefore maximum 7 detectors for 40 ballasts

POSITIONING OF THE DETECTOR

CAREFUL POSITIONING IS ESSENTIAL TO OBTAIN OPTIMUM PERFORMANCE

Use the detection range to determine a suitable location for the sensor. When locating the position of the units, ensure the sensor is not subjected to bright or direct sunlight or in areas with high reflective surfaces. Do not site units on a vibrating surface, or near forced air heating and ventilation. They should not be placed within 1 metre of the load. Sensors work when objects move across their field of view. Position the sensor where people will be detected walking across the zones rather than towards the zones identified in diagram 1. Adjust sensitivity to suit the area that the sensor has been installed in.

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NEWLEC DALI NETWORK SOLUTION OVERVIEW

The Newlec DALI network solution has been designed to make installation and set-up of a Newlec DALI system quicker and easier for installers. With the increasing energy saving requirements to cut emissions and energy bills for consumers and businesses alike, Newlec's DALI network solution is here to meet these demands.

Newlec have achieved this by making the first range of sensors that can automatically configure DALI lighting ballasts, as well as the more commonly used broadcast mode. The system provides presence and absence detection and delivers daylight harvesting to ensure maximum energy efficiency. The Newlec DALI Occupancy Detector is a presence, absence and daylight harvesting sensor all rolled into one.

In a brand new 'out of the box' installation of new DALI luminaires and with a new Newlec DALI Occupancy Detector, you can simply wire the lighting, the Power Supply Unit and the Occupancy Detector together with the Multi-Purpose Connection Box and simply accept the default settings of..





- Broadcast mode
- Timing
- Daylight Harvesting

...and the Occupancy Detector with just a few pushes of the remote control will find and address all luminaires control gear on the network and the installation is complete.

With just a few more button selections on the Occupancy Detector and the remote controller, the product can easily set up groups and scenes as well as corridor modes, additional timing modes and the Occupancy Detector will also automatically daylight harvest to maximise energy savings.

Unlike some manufacturers systems Newlec's DALI Occupancy Detector sensors can be wired to control their own set of luminaires using in built DALI group functions to give control by group and not just by broadcast alone.

The complete Newlec DALI network solution is provided with just four elements

	Newlec DALI Occupancy Detector	Newlec DALI Dual Purpose Remote Control	Newlec DALI Power Supply Unit	Newlec DALI multi-purpose connection box
Image				
Part No.	NL5701DALI	NL5711	NL5712	NL5713
Features	<ul style="list-style-type: none"> • Presence and Absence Detection • Automatic Daylight Harvesting • Default Timing Modes • Broadcast and Group Functions • Room & Corridor Mode • Manual Lux Level and Sensitivity Control • Coloured Feedback LEDs • Walk Test 	<ul style="list-style-type: none"> • Dual Purpose control options for End user and Installers • Sets all non-default functions • Sets Timing Room Modes and Corridor Modes • Sets Min Arc Levels • 25%, 50% and 100% brightness pre sets • Override Functions • Remote Lux Control • Remote Feedback LEDs • 3 x AAA Batteries supplied 	<ul style="list-style-type: none"> • 18V d.c. 250mA • Connects to Multi-Purpose Connection Box • Essential to supply power to DALI network 	<ul style="list-style-type: none"> • 10A Max for Lighting loads • Connects Lighting (ALL TYPES) and DALI network • Connects Power Supply

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