

# Lumi-LinQ Programmer



## INTRODUCTION TO THE LUMI-LINQ SYSTEM

The Lumi-LinQ system provides a simple, effective means of controlling luminaires independently or in groups (zones). Significant energy savings and reduced operating costs may be achieved due to the system's control of light levels and presence detection.

## LUMI-LINQ LUMINAIRES

The Lumi-LinQ System is factory set to provide approximately 500 lux with a PIR time delay of 10 minutes. These light level settings are approximate and will vary according to conditions.

The Lumi-LinQ Programmer allows alteration of the factory set values to tailor the installation to the users requirements.

The system provides the following features:-

- 1. OCCUPANCY SENSING** - each luminaire has a detection angle of approximately 90° which covers an area 5 metres diameter at a mounting height of 2.4 metres. Any detection by one luminaire will trigger a signal to switch on the other connected luminaires in the zone.
- 2. LIGHT MEASUREMENT REGULATION** - The output is regulated so that the ambient light (artificial+natural daylight) remains at a constant level (maintained illuminance and daylight linking).
- 3. INFRA-RED CONTROL** - The Lumi-LinQ Remote Transmitter enables the light level to be adjusted remotely for individual or group control of the luminaires. The Lumi-LinQ Programmer enables more complex and permanent adjustments to light levels, time delays and switching patterns etc.

The Lumi-LinQ Scene Remote allows group dimming control and scene selection.

**4. LUMI-LINQ WIRELESS CONTROL** - With the addition of an optional plug on radio module Lumi-LinQ sensors can communicate through a mesh radio network for group linking, scene setting and remote energy monitoring.

**5. LUMI-LINQ EMERGENCY LUMINAIRES** - Lumi-LinQ compatible emergency luminaires can be programmed, tested and diagnosed with the Lumi-LinQ Programmer.

## THE LUMI-LINQ PROGRAMMER

The Lumi-LinQ Programmer has eleven touch pad buttons.

### DISPLAY

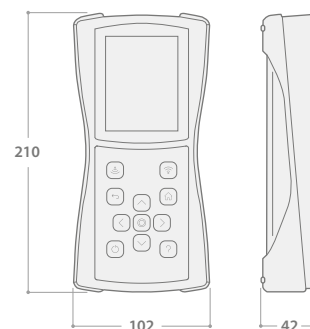
On the home screen the Internal, External, Emergency and Programmer Set Up menus are displayed.

### TECHNICAL DATA

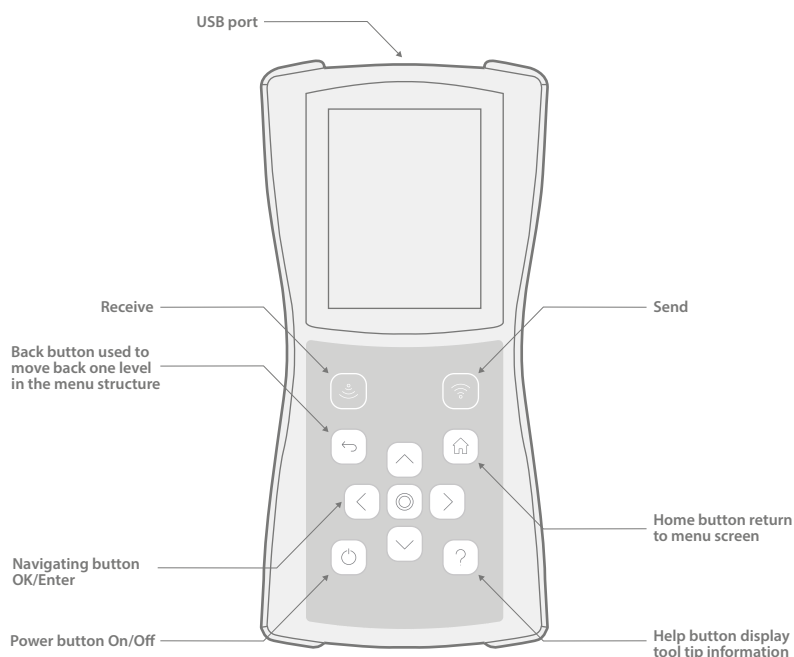
- Dimensions : 198 x 121 x 52mm
- Power : 3-6V Lithium-ion rechargeable battery



## DIMENSIONS



## PRODUCT OVERVIEW



## BASIC PARAMETERS

### INTERNAL

**TIME DELAY** - Factory default 10 minutes. The luminaires will switch off after an absence period of 10 minutes. Other time delays which may be set are:- 10h, 9h, 8h, 7h, 6h, 5h, 4h, 3h, 2h, 1h, 45, 30, 20, 15, 10, 5, 3, 2mins. 1min and 30secs. Alternatively a 'continuous' setting may be selected.

**IF VACANT** - Factory default OFF. Switches the luminaires off when the **TIME DELAY** (see above) expires. If set to any other value, luminaires go to the **SECURITY LEVEL** setting (see above) for the programmed period. If set to **CONT** the luminaires will stay on at the **SECURITY LEVEL** indefinitely.

**SECURITY LEVEL** - Factory default 10%. May be set between 1 - 100%. This allows the user to set a level that the luminaire dims to, following the time delay period (dependent upon ballast dimming range capability).

**OFF FADE** - Factory default 15 seconds. States the time taken for a Lumi-LinQ luminaire to dim from 100% to off. Adjustable between 0s and 5min.

**PIR** - Factory default ACTIVE. Provides conventional PIR control (i.e. luminaires dim/switch off when area is vacated and raises light level/switch on when area is re-occupied). Can be set to:-

**INACTIVE** = PIR functions are deactivated.

**OFF ONLY** = luminaires are dimmed/switched off but NOT switched on again when area is re-occupied. A 'push-to-make' switch or wall plate will be required to switch luminaires on.

**NOTE: Lumi-LinQ requires a Lumi-LinQ Dim, Scene or Switch plate.**

**LIGHT LEVEL** - Factory default 70. May be set from 1-100 (dimming for maintained illuminance) or MAX (no dimming). (The factory setting of 70 will achieve approx. 500 lux average maintained illuminance at 2.4 metres luminaire centres). For Lumi-LinQ Radar luminaires this parameter is used to set the photocell switching threshold factory set to 70. The range is 1-100 or Max.

**BRIGHT-OUT** - Factory default YES. When the illuminance level exceeds the maintained illuminance level by 50% for 10 minutes the luminaires will switch off. When the illuminance level falls below the maintained illuminance setting the luminaires will switch on. When bright-out is set to NO, the luminaires will dim but not switch off.

**HOLD OVERRIDE** - Factory default NO. After the time delay has expired and new presence is detected the luminaire will revert to automatic mode and ignore any manual override that had been set (using Lumi-LinQ Remote or Scene Control).

If changed to YES, manual override settings will be retained permanently.

**MAX LAMP** - Factory default 100%. Sets the level above which the lamp will not dim. Has precedence over all other settings. Range setting 1-100%.

**MIN LAMP** - Factory default 10%. Sets the level below which the lamp will not dim. Has precedence over all other settings. Range setting 1-100%.

**PIR SENSITIVITY** - Factory default 4. May be adjusted to suit local conditions, and reduce nuisance switching. Range setting Min / 1-5 / Max.

**POWER UP** - Factory default ON. Determines what happens after a power cut or when the electrical supply is re-connected. If set to ON, luminaires will switch on after power is applied and then revert to automatic settings. Range settings ON/OFF.

### RADAR

**SENSOR TYPE** - Factory default Indoor. Sets the sensor type for Lumi-LinQ Radar Luminaires. The range is Indoor - Outdoor.

**LIGHT POWER** - Factory default 100%. Sets the output level as a percentage for Lumi-LinQ Radar Luminaires. The range is 10%-100% (dependent upon ballast/driver dimming range capability).

**COVER TRANSPARENCY** - Factory default 100%. Adjustment for photocell light level based on luminaire type. Range 1-100%.

**RADAR THRESHOLD** - Factory default 30. Radar sensitivity can be adjusted to suit each area. Range 1-255.

**WAIT VALID ML TIME** - Factory default 300ms. Used to adjust the response time for motion detection.

### EXTERNAL

**TIME DELAY** - Factory default 10 minutes. The luminaires will switch off after an absence period of 10 minutes. Other time delays which may be set are:- 10h, 9h, 8h, 7h, 6h, 5h, 4h, 3h, 2h, 1h, 45, 30, 20, 15, 10, 5, 3, 2mins. 1min and 30secs. Alternatively a 'continuous' setting may be selected.

**IF VACANT** - Factory default OFF. Switches the luminaires off when the **TIME DELAY** (see above) expires. If set to any other value, luminaires dim to the **SECURITY LEVEL** setting (see below) for the programmed period. If set to **CONT** the luminaires will stay on at the **SECURITY LEVEL** indefinitely.

**SECURITY LEVEL** - Factory default 10%. May be set between 1 - 100%. This allows the user to set a level that the luminaire dims to, following the time delay period (dependent upon ballast dimming range capability).

**OFF FADE** - Factory default 15 seconds. States the time taken for a Lumi-LinQ luminaire to dim from 100% to off. Adjustable between 0s and 5min.

**PIR** - Factory default ACTIVE. Provides conventional PIR control (i.e. luminaires dim/switch off when area is vacated and raises light level/switch on when area is re-occupied). Can be set to:-

**INACTIVE** = PIR functions are deactivated.

**OFF ONLY** = luminaires are dimmed/switched off but NOT switched on again when area is re-occupied. A 'push-to-make' switch or wall plate will be required to switch luminaires on.

**NOTE: Lumi-LinQ requires a Lumi-LinQ Dim, Scene or Switch plate.**

**REFLECTION (%)** - Factory default 20%. Factor built in to compensate for differing ground colours and reflection values. Note: This is not transmitted to the Lumi-LinQ External Sensor, but is used internally within the programmer to influence the Light Level setting. Range setting 10-100%.

**LIGHT LEVEL** - Factory default 70Lux. Sets the threshold at which the luminaire switches on. Range settings 6-200Lux.

**BRIGHT-OUT** - Factory default Yes. Determines whether the luminaires are switched off during the day or operate at all times. If set to Yes, the luminaire will switch off if the measured light level is above the Bright-Out Threshold for more than 10mins. If set to No, the luminaires will never switch off as a result of increased ambient light. Range settings Yes/No.

**BRIGHT-OUT THRESHOLD** - Factory default 200%. Sets the level at which the luminaires will switch off. It is set as a percentage of the Light Level setting. (Default setting requires there to be greater than 140 lux for more than 10 minutes before the light will switch off.) Range settings 100% - 400% in increments of 50%.

**HOLD OVERRIDE** - Factory default No. Determines whether the luminaire (on Power Up or after time-out) returns to automatic mode (No), or goes to the last manually set level (Yes). Range settings Yes/No.

**MAX LAMP** - Factory default 100%. Sets the level above which the lamp will not dim. Has precedence over all other settings. Range setting 1-100%.

**MIN LAMP** - Factory default 10%. Sets the level below which the lamp will not dim. Has precedence over all other settings. Range setting 1-100%.

**PIR SENSITIVITY** - Factory default 5. May be adjusted to suit local conditions, and reduce nuisance switching. Range setting Min / 1-5 / Max.

**POWER UP** - Determines what happens after a power cut or when the electrical supply is re-connected. If set to ON, luminaires will switch on after power is applied and then revert to automatic settings. Range settings ON/OFF. Factory default ON.

## SCENE PARAMETERS \*

## \* Internal sensors only

Scenes can be selected using either the **Lumi-LinQ Scene Remote**, **Lumi-LinQ battery switch module** or **Lumi-LinQ Scene plate**.

Luminaires can be programmed with a fixed output between 0% and 100% (will not dim with daylight) or to a maintained light level from 10% to 200% of the normal light level (will dim with daylight). E.g. If the room is illuminated to 500 lux and scene 1 is set to 'automatic 50%' the room will be maintained at a light level of 250 lux when scene 1 is selected (dependent upon driver dimming range capability).

**Please Note - any of the six scenes may be set to 'automatic'. If this parameter is chosen the luminaire will ignore that particular scene request and remain in a fully automatic mode.**

Luminaires can be programmed to react individually to scenes.

For example in a classroom a scene could be set so that the luminaires adjacent to the teaching wall may turn off whilst the remaining luminaires dim.

There are six programmable scenes:

Factory default:

**SCENE 1** - 50% fix.

**SCENE 2** - 25% fix.

**SCENE 3** - Off (0%).

**SCENE 4** - Auto 20%.

**SCENE 5** - Auto 50%.

**SCENE 6** - Auto 150%.

**Please Note: Lumi-LinQ Scene plates and Lumi-LinQ Scene Remotes all have Scene 3 labelled as 'OFF'. It may cause confusion if this parameter is changed from the factory default setting.**

## SYSTEM TESTS

**TEST START** – This feature allows easy testing of the Lumi-LinQ circuit. All time delays are set to 25 seconds and bright-out is disabled.

**TEST END** – Reverts all basic parameters back to the programmed setting.

**SHORT CIRCUIT MOTIONLINE** – This feature is designed to determine if there are any factors that could be causing the luminaires to switch on when the area is vacated. The command will short circuit the Motionline for 10 minutes. The luminaires will synchronise then dim to off. After 1 minute all luminaires will act independently with regards to presence. After 10 minutes the short circuit is removed and all luminaires revert back to the programmed setting.

**NOTE: Not available on Lumi-LinQ. Only used with wired Motionline projects - not wireless.**

## INFRA RED REMOTE CONTROL

The **Lumi-LinQ Programmer** contains all of the commands that can be sent using the **Lumi-LinQ**(LCM13479) and the **Lumi-LinQ Scene Remote** (LCM14816/7/9). All commands are located in the IR RE-MOTE menu.

## Lumi-LinQ POWER MONITORING

The **Lumi-LinQ System** records its operational usage within the Lumi-LinQ sensor. This information can be downloaded via the Lumi-LinQ Programmer.

Each luminaire will have a different energy profile depending on its location and settings. Average luminaire dim level is stored but does not include driver losses which can be as much as 10% of full luminaire power. A small amount of power is also used whilst the luminaires are off.

Each V Sensor records the following data:

**HOURS POWERED TOTAL =**

(0 seconds - 136 years, non-resettable)

**HOURS POWERED SINCE LAST RESET =**

(0 seconds - 136 years)

**HOURS LAMP ON SINCE LAST RESET =**

(0 seconds - 136 years)

**AVERAGE DIM LEVEL WHILST LAMPS ON =**

(This will record lamp dim level for a maximum of 4,000 hours 'on time' due to the large amount of memory that the process requires).

Energy monitoring is normally recorded over a set period of time after the luminaires have been commissioned. To ensure correct results the power monitoring counters have to be reset using the **Lumi-LinQ Programmer** before the trial takes place.

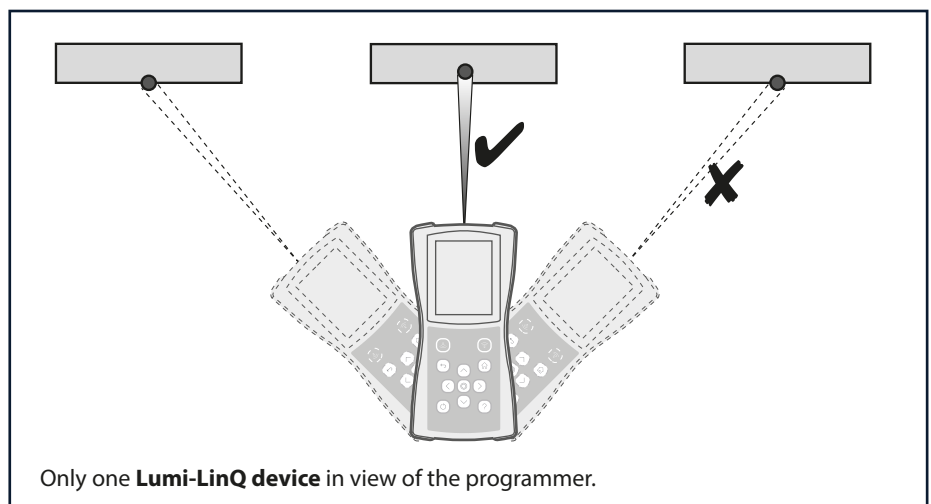
## HOW TO RESET THE POWER MONITORS

When the Send Button is pressed, **WAIT . . . .** appears on the display. If the transmission is successful, the message clears.

When the Read Button is pressed, **WAIT . . . .** appears on the bottom line. If the reception is successful, the message clears.

If the transfer of data is not successful, **ERROR** appears on the display.

Possible causes could be that the programmer isn't being pointed directly at pod, is too far away, or may need the battery to be recharged. Resolve the issue and try again.



## Lumi-LinQ

**GENERAL** - Lumi-LinQ adds wireless communication capability to Lumi-LinQ emergency luminaires.

Lumi-LinQ uses wireless mesh technology to provide unrivalled wireless performance, the following wavelengths are used:

868MHz in EU countries  
922MHz in Australasia

The Lumi-LinQ plug on module is factory installed on the back of the Lumi-LinQ External sensors.

**DEFAULT SETTINGS** - Each Lumi-LinQ luminaire is delivered without any addresses set and radio (RF) communications disabled. It is important to set addresses correctly.

**LED STATUS - Lumi-LinQ** luminaires provide status feedback through various LEDs on each unit. The factory default is for radio status Indication to be disabled to avoid user nuisance. This can be enabled using the programmer.



### STATUS LED INDICATOR

#### LUMI-LINQ SENSOR & HIGH LEVEL SENSOR INDICATOR

EVENT	DEFAULT BEHAVIOUR
Bright-out	Green LED - fast flash (1 second ON, 1 second OFF)
IR Remote Control receive	Red LED - flashes twice
IR Programmer receive	Red LED - flashes 3 times
Motion detection	-
Motionline short circuit	Red LED - fast flash (1 second ON, 1 second OFF)
100 hour burn in	Red LED - permanent ON

#### LUMI-LINQ INDICATORS

EVENT	DEFAULT BEHAVIOUR	IF ENABLED BY LUMI-LINQ PROGRAMMER
RF transmitted	LEDs OFF	Blue LED - flashes once
RF received	LEDs OFF	LEDs OFF
RF inhibit	LEDs OFF	Yellow LED - flashes once every 8 seconds
Join/leave/ping network request	Blue LED - flashes for a maximum of 60 seconds	Blue LED - flashes for a maximum of 60 seconds
Join/leave/ping network successful response	<b>Smart:</b> Green LED - flashes 10 times	<b>Smart:</b> Green LED - flashes 10 times
	<b>Emergency:</b> Amber LED - flashes 10 times	<b>Emergency:</b> Amber LED - flashes 10 times
	<i>NOTE: If no response is received after 60 seconds, the LED stops flashing, and reverts to normal display (as defined above based on Short Address).</i>	
Join/leave/ping network unsuccessful response	<b>Smart:</b> Red LED - flashes 10 times	<b>Smart:</b> Red LED - flashes 10 times
	<b>Emergency:</b> LEDs OFF	<b>Emergency:</b> LEDs OFF

### MENU OPTIONS - LUMI-LINQ SENSORS AND LUMI-LINQ EMERGENCY MENU:

**DOWNLOAD ALL** - Downloads all Lumi-LinQ settings into the Lumi-LinQ programmer.

**PROGRAM ALL** - Uploads all settings to the Lumi-LinQ luminaire.

**BUILDING ADDRESS** - Identifies devices that are within the same system and forms the boundary for the wireless mesh to prevent adjacent buildings communicating. The building address can be set between 1-254.

**GROUP ADDRESS** - The control group, all luminaires with the same building address and the same group address will work together for presence detecton and scene control. Up to 254 different zones can be created in one building. The group address can be set between 1-254.

**DEVICE ADDRESS** - The unique device address within each group. This is used to identify individual luminaires on the system. The device address can be set between 1-254.

**READ UNIQUE DEVICE ID (UDID)** - When a luminaire is connected to the Lumi-LinQ Gateway via the mesh network it is issued with a unique device ID number. This is used by the system to track luminaires if group or device addresses are changed by the user. The 'UDID' can be between 1 and 500.

**RF TRANSMIT** - All Lumi-LinQ luminaires are delivered with RF disabled. RF must be enabled after addresses are set to allow communication.

**RADIO LED** - Radio traffic indication is turned off by default to avoid user nuisance. It can be enabled for commissioning and testing purpose.

**JOIN RADIO NETWORK** - Sends a join request from the luminaire to the Lumi-LinQ Gateway. Once accepted the Gateway will issue a UDID and request luminaire status. **Note: wait 60 seconds between re-issuing join requests.**

**SEND PING REQUEST** - Sends a ping request to the Lumi-LinQ Gateway to check radio communication.

**LEAVE RADIO NETWORK** - Send a message to the Lumi-LinQ Gateway to remove the luminaire from the network. Once accepted the UDID is removed from the luminaire. **Note: If you remove a luminaire without leaving the radio network the system will report the unit as faulty.**

**RADIO MODULE PLUGGED IN** - Checks that the Lumi-LinQ sensor has the Lumi-LinQ radio module connected. The answer is either Y (Yes) or N (No).

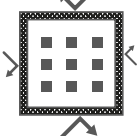


**DALI TUNNEL** - Enables or disables the wireless DALI tunnel (Central control). This can be set to Di (Disable) or En (Enable).

## LUMI-LINQ EMERGENCY MODULES




FAULT	ELP	TRIDONIC	MACKWELL
Normal mode	Green LED - ON	Green LED - ON	Green LED - ON (Pulses every 10 seconds)
Commissioning	Green LED - slow flash	Green LED - ON	Green LED - slow flash
Function test	Green LED - fast flash	Green LED - fast flash	Green LED - fast flash
Duration test	Green LED - slow flash	Green LED - slow flash	Green LED - slow flash
Lamp fault/open circuit/short circuit	Red LED - ON	Red LED - ON	Red LED - fast flash
Battery fault	Red LED - slow flash	Red LED - slow flash	Red LED - slow flash
Charge fault/Circuit fault	Red LED - fast flash	Red LED - fast flash	Red LED - fast flash
Emergency mode	LED OFF	LED OFF	LED OFF
Identification	Red/Green LED - slow flash	Red/Green LED - slow flash	Red/Green LED - slow flash

## ESSENTIAL CONFIGURATION

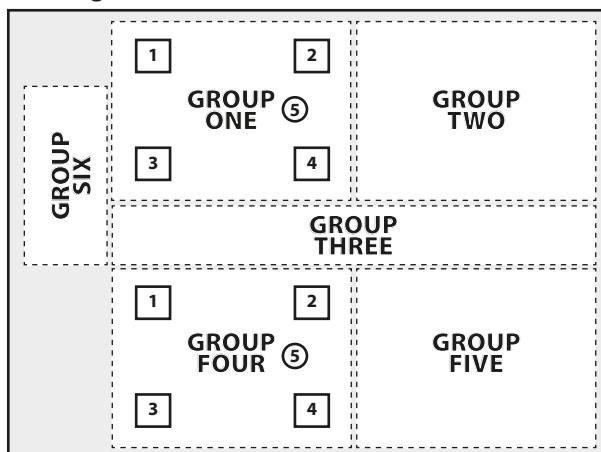
Each **Lumi-LinQ** device requires programming with two addresses. A third device address and fourth link address is optional. Programming is achieved using the Lumi-LinQ Programmer. In order to prevent areas of a building inadvertently communicating it is essential that addresses are correctly set and we recommend they are recorded for future reference.

1. ESSENTIAL	2. ESSENTIAL	3. OPTIONAL	4. OPTIONAL
 <p><b>BUILDING ADDRESS</b></p> <p>Identifies devices that are within the same system and forms the boundary for the wireless mesh to prevent adjacent buildings communicating.</p> <p>The building address can be set between 1-254.</p>	 <p><b>GROUP ADDRESS</b></p> <p>The control group, all luminaires with the same building address and the same group address will work together for presence detection and scene control. Up to 254 different groups can be created in one building.</p> <p>The group address can be set between 1-254.</p>	 <p><b>DEVICE ADDRESS</b></p> <p>The unique device address within each group. This is used to identify individual luminaires within a group.</p> <p>The device address can be set between 1-254.</p>	<p>Enable RF communications.</p>

## BUILDING, GROUP & DEVICE ADDRESS - Example

 = Building     = Group     = Device

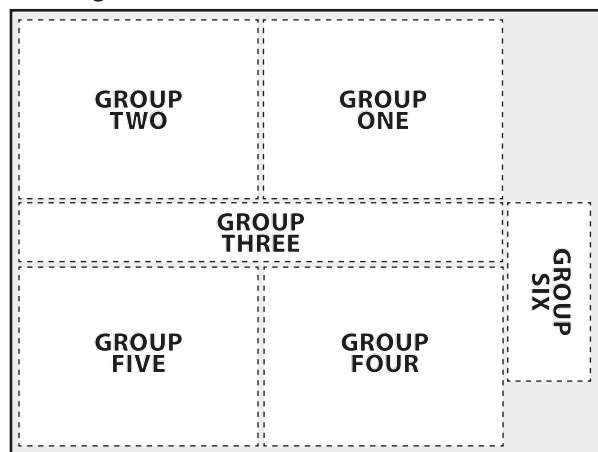
### Building 1



### BUILDING 1

All luminaires within groups 1-6 have their building address set to 1, and their relevant group address set. This will ensure that all lights in Building 1, and only Building 1, communicate within their group, but groups do not communicate with each other. The device address is used to identify individual luminaires on the system when using platform 2.

### Building 2



### BUILDING 2

By setting the building address to 2, these luminaires will not communicate with the adjacent building. All luminaires within a group will communicate, but groups will remain separate.

## PROGRAMMER - FIRMWARE UPDATES

To check the current firmware version:

- Turn on the Programmer
- Scroll to System Configuration, select
- Prog\_Version is displayed on the screen

From the below webpage download the **Smartscan IRPR Re Flash Tool** and the latest firmware version to your PC.

- [www.thorlux.co.uk/software](http://www.thorlux.co.uk/software)

Connect the Programmer to the PC with a USB lead.

On the PC open the Smartscan IRPR Re Flash Tool

- Smartscan IRPR Re Flash Tool will start searching for the Programmer (USB Device).
- With the Programmer turned off, put the Programmer into Bootloader Mode:
  - Push and hold the **OK/Enter** and **Power** buttons.
  - Keeping the **OK/Enter** button pressed release the **Power** button.
- The Smartscan IRPR Flash Tool will Display Device Found.
- Select **LOAD FILE** and **OPEN** the firmware file previously downloaded.
  - This will load into the v IRPR Re Flash Tool.
- Select **RE FLASH** and allow the firmware to complete the update.
- **DO NOT UNPLUG THE PROGRAMMER OR CLOSE THE FIRMWARE UNTIL THE PROCESS IS FINISHED.**
- Once complete the Programmer will automatically reboot and switch on within 20 seconds.
- The Programmer can be unplugged as the process is complete.

## MAINTENANCE

The **Lumi-LinQ Programmer** should not be subjected to undue mechanical shock, extremes of temperature or submersion. Clean only with a clean dry cloth. The **Lumi-LinQ Programmer** is powered by a lithium-ion rechargeable battery. This is not a user servicable component.

## MODIFICATIONS

TRT Lighting products should not be modified. Any modification may render the product unsafe and will invalidate any Safety/ Approval marks.

**GB - NOTICE TO CONTRACTOR - PLEASE PASS THIS LEAFLET TO THE END-USER.**  
**FR - A L'ATTENTION DE L'INSTALLATEUR - MERCI DE TRANSMETTRE CE DOCUMENT À L'UTILISATEUR.**  
**DE - HINWEIS AN DIE MONTAGEFIRMA - BITTE GEBEN SIE DIESE INFORMATION AN IHREN KUNDEN WEITER.**  
**IT - AVVISO PER CONTRACTOR - LA PREGHIAMO DI INFORMARE ILLUSTRATIVO ALLE UTENTE FINALE.**  
**SE - INFORMATION TILL ENTREPRENÖREN - VÄNLIGEN VIDAREBEFORDRA DETTA INFORMATIONSHÄFTE TILL SLUTANVÄNDAREN.**  
**ES - NOTA AL CONTRATISTA - POR FAVOR HAGA LLEGAR ESTE FOLLETO AL CLIENTE FINAL.**  
**NL - MEDEDELING VOOR DE AANNEMER: GEEF DEZE INFORMATIE DOOR AAN DE EIND GEBRUIKER.**  
**NO - NOTAT TIL ELEKTRIKER - VÆR VENNLIG Å GI DETTE SKRIV TIL SLUTTBRUKER.**  
**PL - INFORMACJA DLA MONTAŻYSTY - PROSZĘ PRZEKAZAĆ INSTRUKCJĘ MONTAŻOWĄ DLA ODBIORCY.**