



SMART

LUMINAIRES WITH INTEGRAL SMART SENSOR

- Presence/absence detection with exceptional PIR coverage
- Individual luminaires will dim in response to ambient light levels, with the ability to turn off if sufficient ambient light is present
- Lighting scenes can be created with the user override facility
- The Smart TR wireless control option is ideal for surface mounted retro-fit situations
- The ability to connect conventional luminaires to the control system to maximise energy savings using the Smart Hub
- Recessed luminaires are connected with Thorlux LCM leads for fast, flexible installation
- Settings can be customised using the infra-red Smart Programmer
- Energy monitoring is built into the Smart Sensor for power usage monitoring of individual luminaires
- Smart luminaires are suitable for all applications up to 18m (for full details on Smart presence detection see page 37)

Scan&Go



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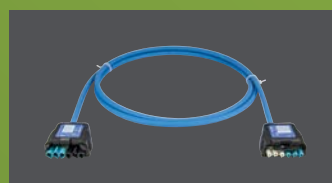
PROGRAMMING



SMART PROGRAMMER

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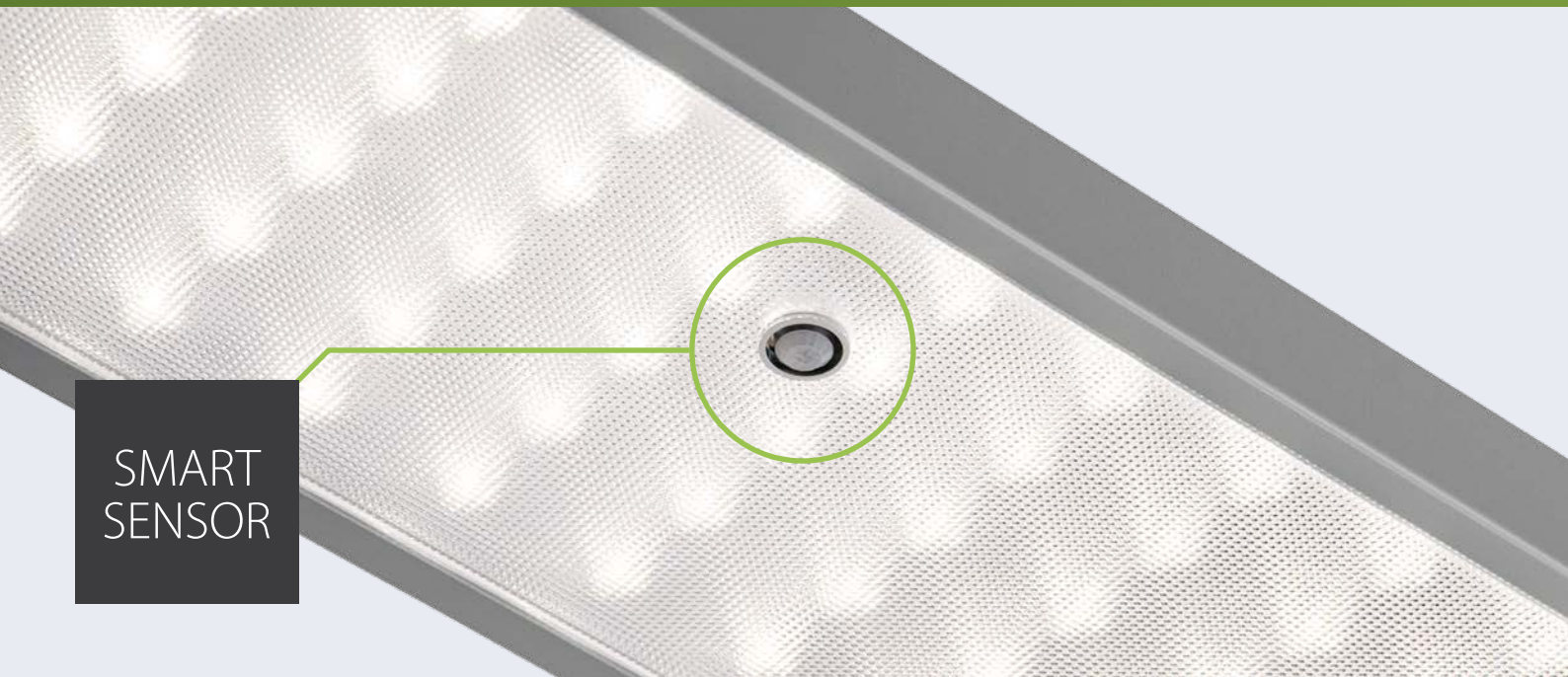
WHAT IS SMART?

The Thorlux Smart System exploits the latest “Digital Technology” to provide a simple, effective method of lighting control which minimises energy consumption whilst retaining high levels of user comfort.

A discrete sensor integral to the luminaire monitors ambient light and presence controlling output to the correct level, and ensuring that the area is only illuminated when occupied.

Lighting can account for a high percentage of energy consumed within a building, especially if uncontrolled discharge luminaires or old technology switch start fluorescent luminaires are installed.

Savings by the installation of automatic lighting control systems often exceed 70%.



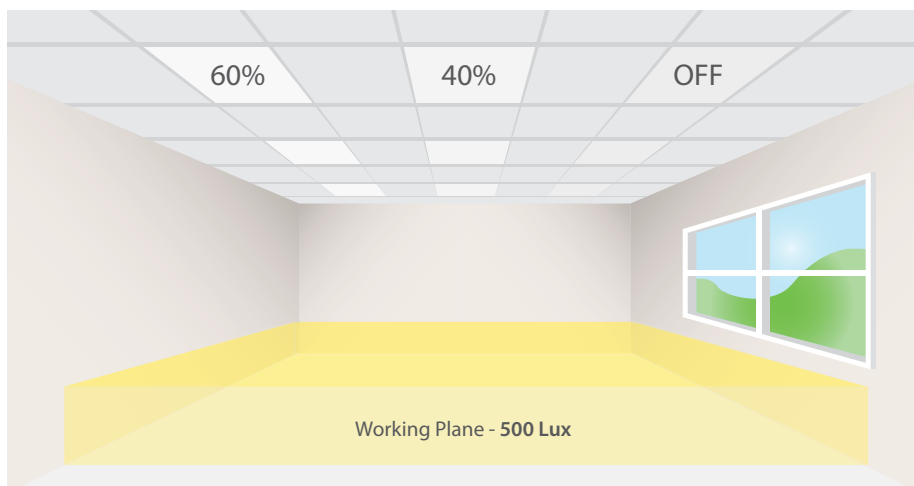
Many Thorlux industrial and commercial luminaires are available with Smart integral controls. Please refer to the range tables in the Thorlux Luminaire catalogue.





DAYLIGHT DIMMING

A light sensor in every luminaire controls its output to suit local ambient conditions. To meet the needs of individual users, or the requirements for the space, each luminaire's factory default settings can be altered using the Smart Programmer

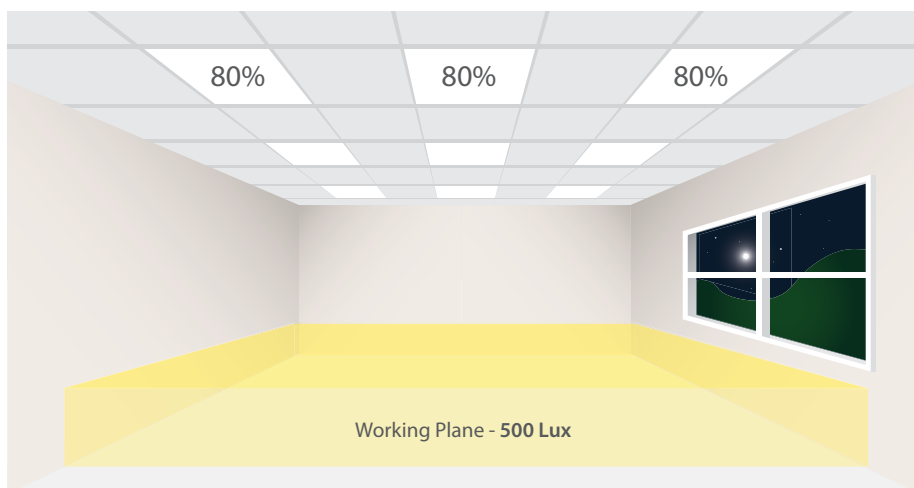


DAYLIGHT DIMMING

When daylight enters an area the sensors will take this light into account and gradually dim the lamps, saving energy whilst maintaining the required light level. Changes in light levels are made gradually for the comfort of users. Each luminaire in the Thorlux Smart System measures and adjusts independently according to the ambient light in its immediate surroundings. This provides good uniformity across the working plane even in situations where the natural daylight ingress is varied across the area.

Bright-out feature

In the event of excess natural light for more than 10 minutes, the individual Smart luminaire will turn off, saving further energy and prolonging lamp life.



MAINTAINED ILLUMINANCE

Accumulation of dirt and lamp lumen depreciation causes light loss and uncontrolled schemes are initially "over-lit" to compensate, resulting in wasted energy over the maintenance cycle.

The Thorlux Smart System avoids this waste of energy and over lighting by allowing installations to be initially dimmed to the required light level. This level is sustained throughout the maintenance cycle by the system automatically increasing lamp output.

MOVEMENT DETECTION

Presence sensors in all luminaires ensure excellent detection coverage, so that Smart luminaires turn on when movement is detected and stay on whilst the room is occupied



System operation when the space is vacated is configured during commissioning using the Smart Programmer. When using the factory default setting, lamps will dim and turn off after 10 minutes but this can be varied between 30 seconds and 10 hours. Alternatively lamps can be made to dim to a "Security Level" and remain on at that level for a set time, or even remain on continuously to provide pilot (or security) lighting.

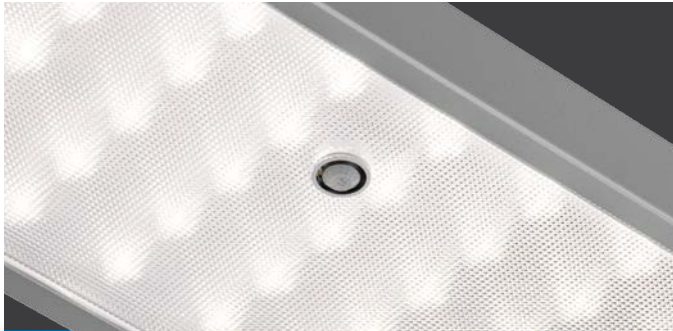
Alternatively luminaires can be configured for absence detection (see page 59). Use of a switch is required to turn on but if the room is left unoccupied the luminaires will automatically turn off after the pre-determined time.





SMART PRESENCE DETECTION GUIDE

STANDARD SMART SENSOR MOUNTING HEIGHTS UP TO 10m



The Thorlux Smart System uses an infra-red movement sensor built into each luminaire. Infra-red sensing is a commonly used technology for lighting control, but as the mounting height increases, a number of factors are increasingly important.

USE OF THE AREA

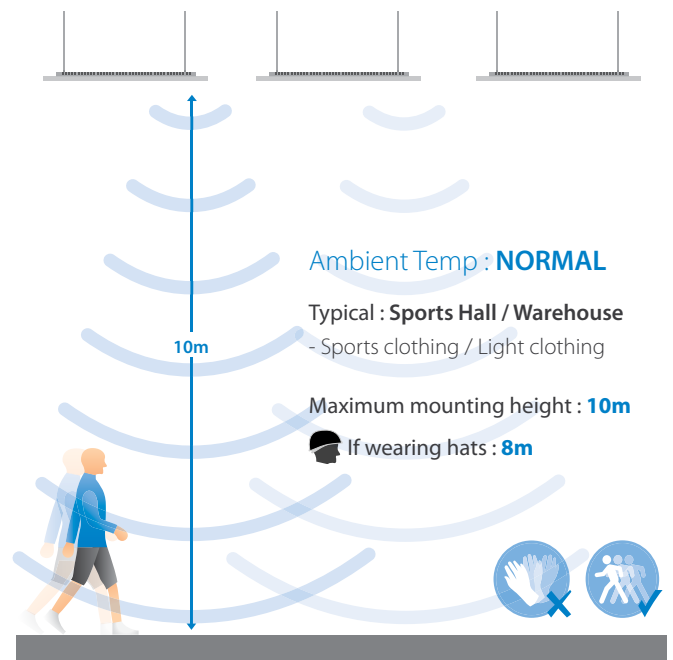
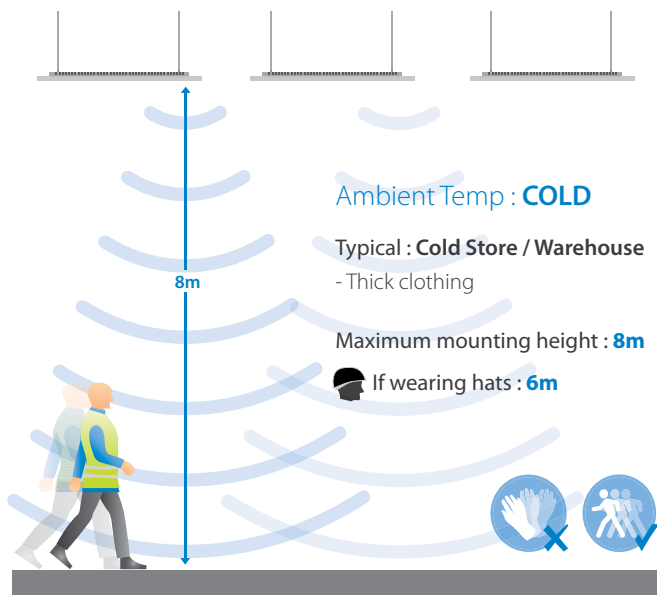
As the mounting height increases, so does the amount of movement needed to trigger the sensor. Hand movement may not be sufficient, the person may need to be walking to be detected.

LOW AMBIENT TEMPERATURE

In low temperature applications, personnel often wear thick insulating clothing. This can reduce the thermal image presented to the sensor, thus reducing PIR effectiveness.

HIGH AMBIENT TEMPERATURE

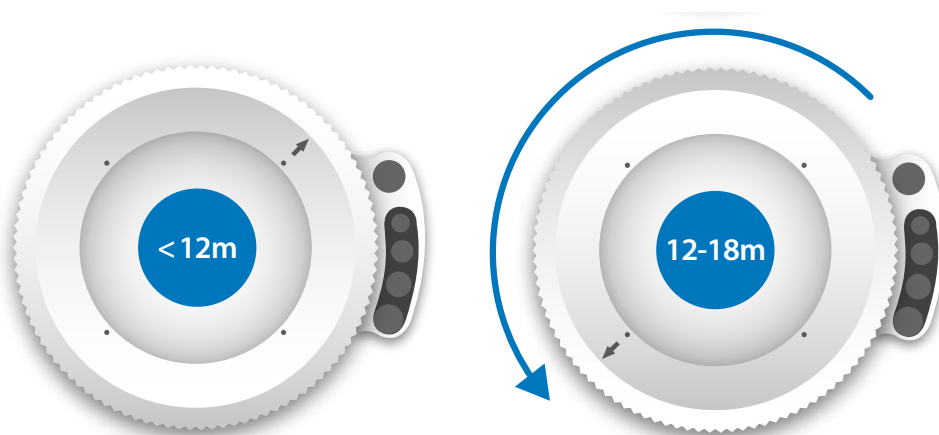
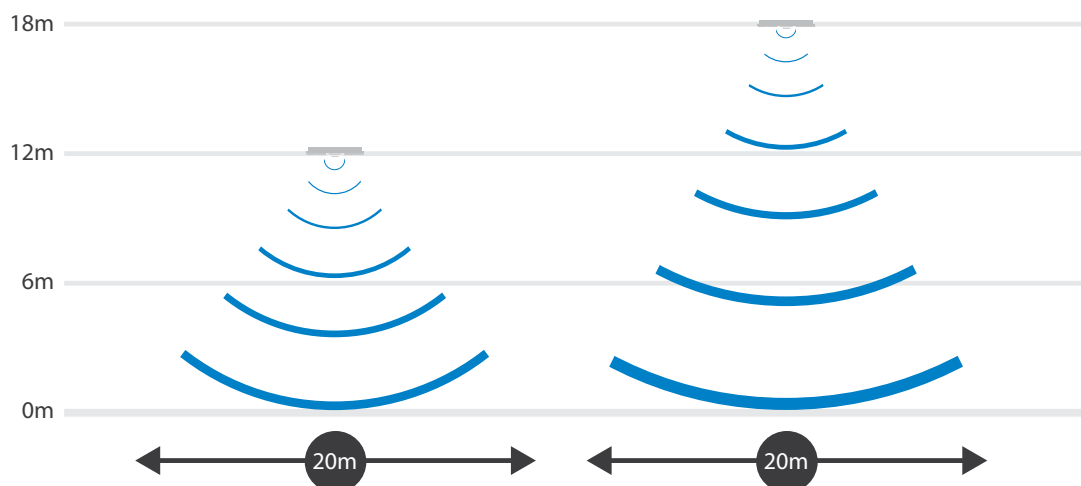
In higher ambient temperature applications (>30°C) the sensitivity may be reduced.



HIGH LEVEL SMART SENSOR MOUNTING HEIGHTS UP TO 18m

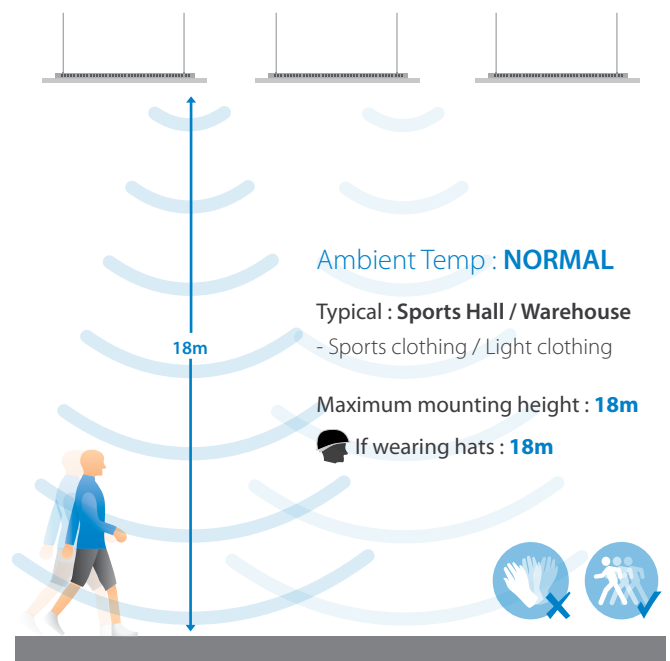
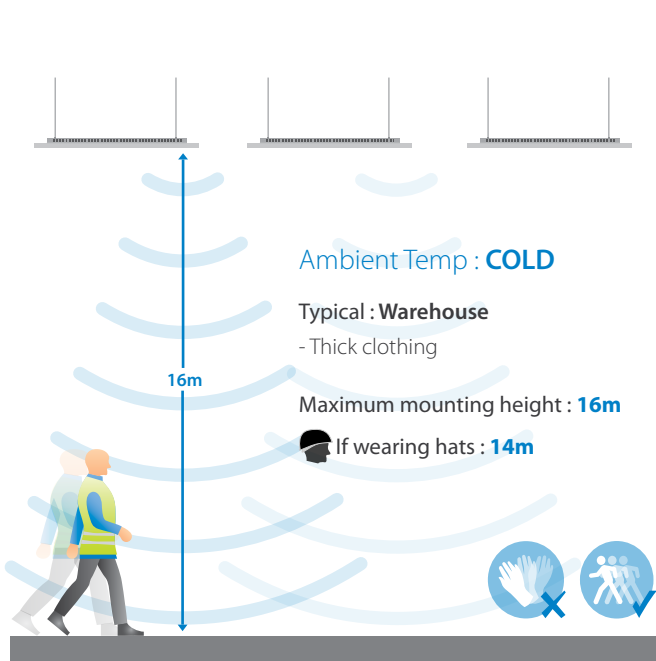
The new high level Smart Sensor is optimised for mounting heights up to 18m. An adjustable lens allows for the detection area to be tuned to suit the mounting height perfectly. Settings can be configured from ground level using the Smart Programmer.

For more information see www.thorlux.com/smart



SMART PRESENCE DETECTION GUIDE

HIGH LEVEL SMART SENSOR MOUNTING HEIGHTS UP TO 18m



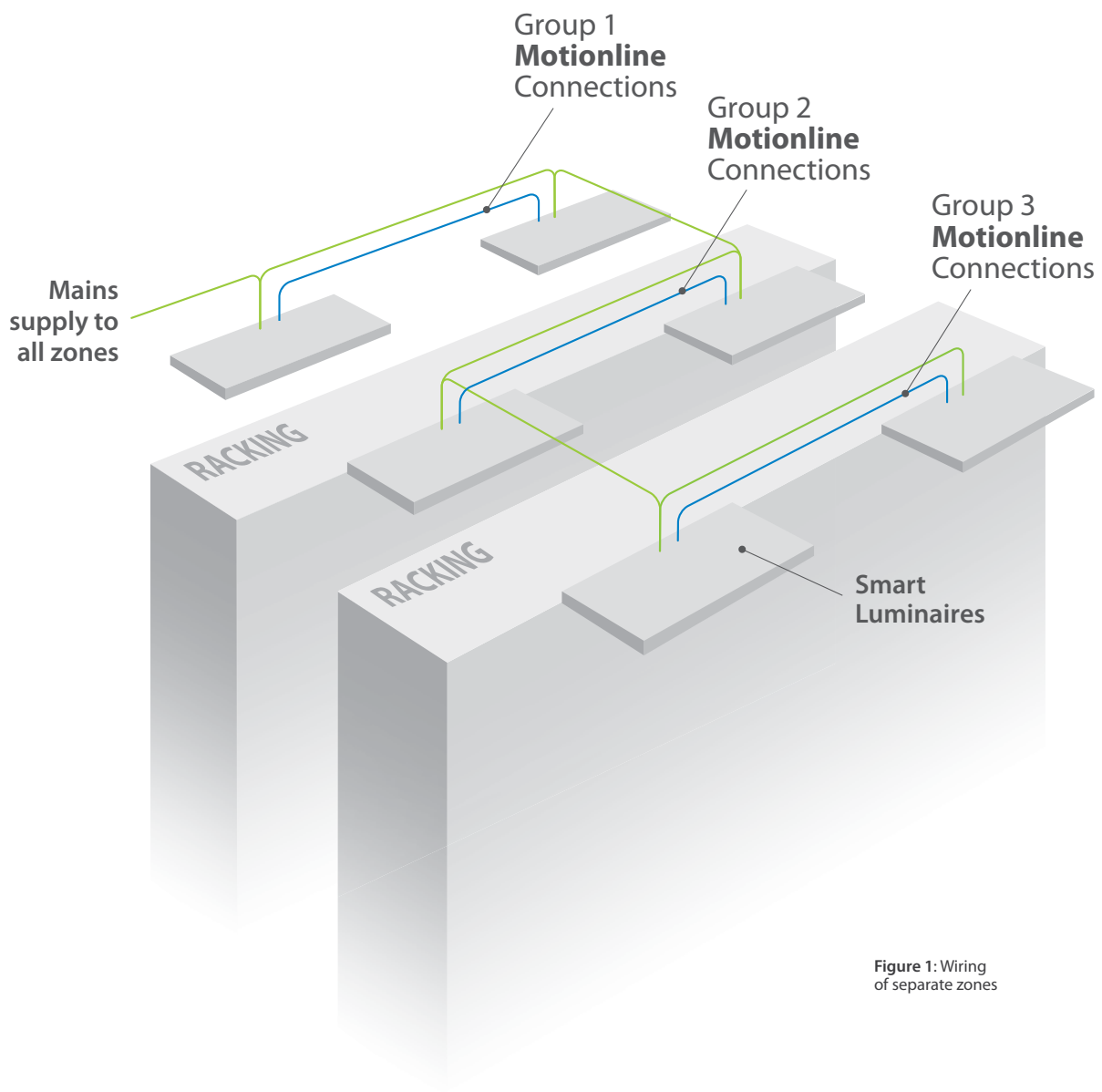


Figure 1: Wiring of separate zones

Individual Thorlux Smart luminaires may be linked into a grouped system using a “Motionline” two wire low voltage bus allowing luminaires to communicate within a group

If any one luminaire detects movement all connected luminaires within the group will illuminate. This valuable feature is designed to eliminate the possibility of a user being isolated in a small pool of light, surrounded by intimidating darkness. The Motionline ensures that there will always be a well lit comfortable environment. Once the last person leaves an area the luminaire waits for a pre-programmed period before dimming and turning off or dimming to a user pre-defined level. A manual override facility can be provided via a simple retractive (push to make) switch.

Motionline operation is enhanced further by the ability to send more digital signals enabling scene control of individual luminaires or groups of luminaires (see page 43).

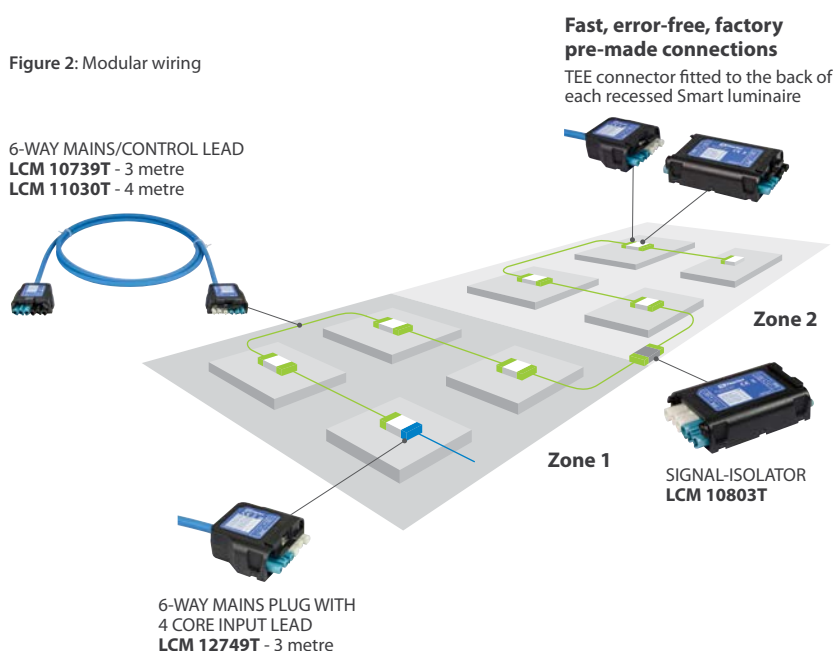


With Motionline a group of luminaires can be turned on when any one sensor detects movement. By isolating the Motionline signal (see Figure 1) separate zones can be achieved whilst using a common mains supply. For modular wiring use the Signal-Isolator (LCM 10803) which permits mains supply from the adjacent zone whilst isolating the Motionline control signal (see Figure 2).

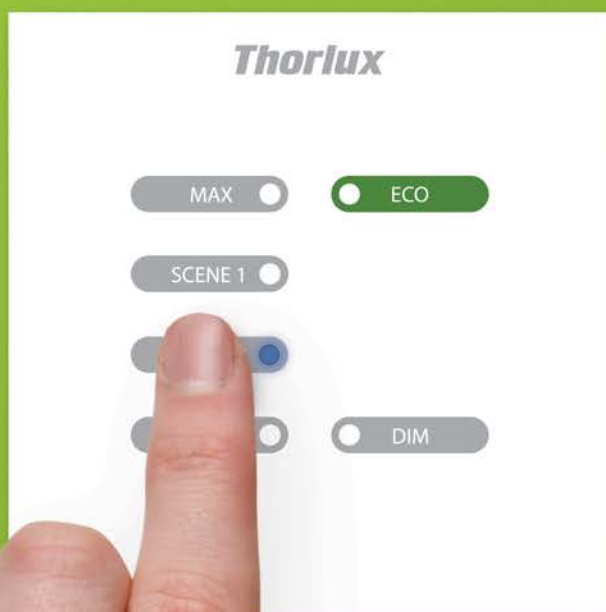


Without Motionline each luminaire will only turn on if a person is within its immediate area.

Figure 2: Modular wiring



For full details of modular wiring see pages 46-49



SCENE
SETTING
**WITH A
SINGLE
TOUCH**



The response of each luminaire to a scene command is set using the Smart Programmer. Three scenes are available plus MAX and ECO

Simple and flexible scene control is provided by the Smart Touch wall plate or Smart Scene remote control handset (see pages 60-61).

For each programmable scene, individual luminaires may be set to go to any fixed lamp power level from off through 1 to 100%, or to adjust their commissioned (working plane) maintained lux level from 10 to 200% of its setting.

For example, in a classroom, upon activating scene 1 the luminaires closest to a teaching wall may be turned off or dimmed to a low level, whilst the rest of the room remains at a higher level to allow the pupils to take notes. Alternatively, scene 1 may adjust the luminaires nearest the whiteboard to maintain 50 lux whilst those further away continue at their setting of 300 lux.

In a meeting room the "Screen" setting could be set to dim all the Smart luminaires and turn off the luminaire nearest the projector screen but turn on feature LED luminaires for effect around the room's perimeter, via the Smart Hub (see pages 62-65).

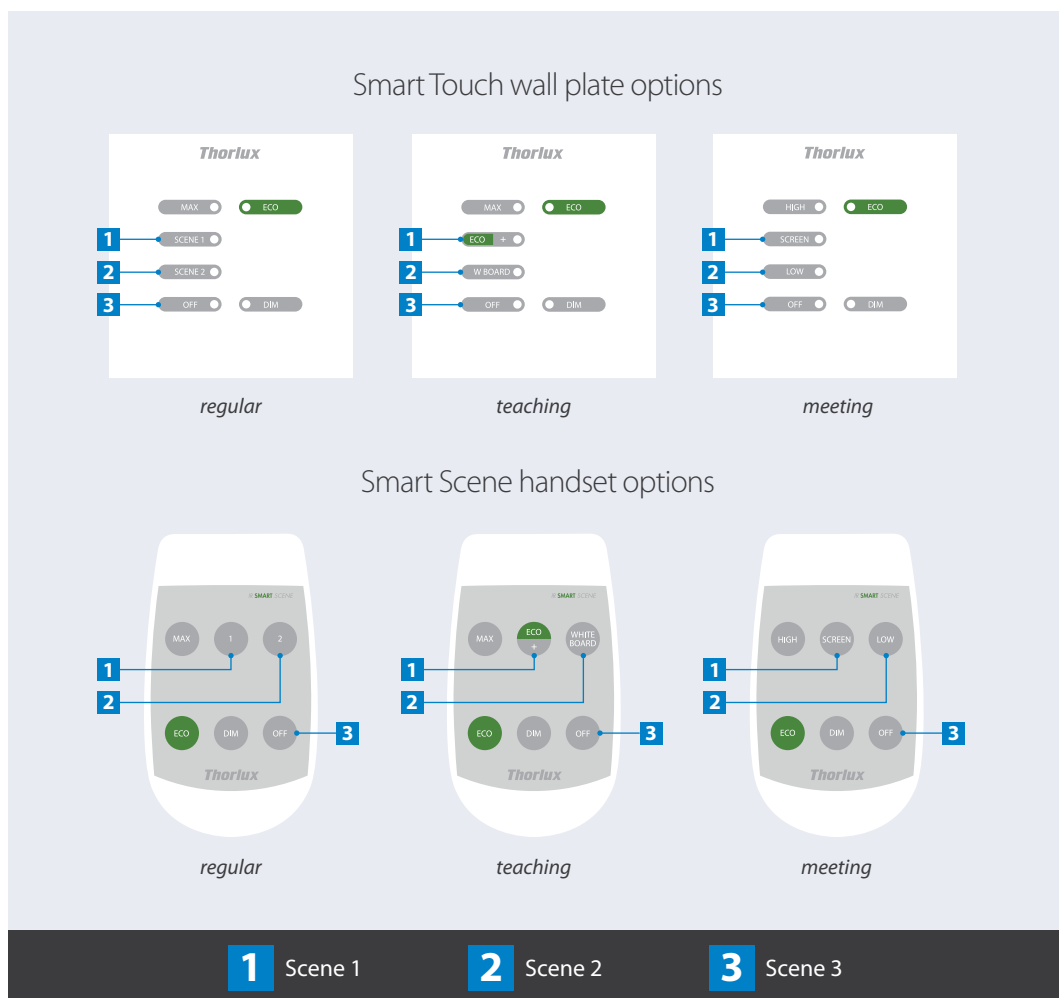
Smart Sensor factory pre-set scenes are set to:

Scene 1 = fixed 50% / 2 = fixed 25% / 3 = off

Smart Hub factory pre-set scenes are set to:

Scene 1 = ON / 2 = ON / 3 = OFF

When a particular scene is no longer required another scene can be selected, or by pressing the ECO (automatic) button the system will revert to automatic mode. Alternatively, the system reverts to automatic mode when presence is no longer detected and the time delay has elapsed.





Unlimited Smart Touch kits or Smart Scene handsets can be used in one area. When the room is vacated and after the luminaires have automatically turned off, the system reverts to ECO mode. All Smart parameters can be adjusted to suit individual requirements using the Smart Programmer (see pages 50-51)



All luminaires go to their maximum level. Feature lighting switches on.



Scene 1

Smart luminaires boost to maintain 500 lux. Ideal for art classes, technology or adult education. Feature lighting, if used, switches off.



Scene 3

All luminaires turn off *

** Factory default "off" can be re-programmed to suit.*

Thon

MAX

ECO

W BOARD

OFF

Teaching Version

EXAMPLE OF SCENE CONTROL



Maintained level, in this example commissioned at 300 lux, feature lighting, if used, switches off. Maximum energy saving mode.



Scene 2
Smart luminaires adjacent to the teaching wall dim to 25% of the maintained ECO level, the luminaire closest to the whiteboard turns off. Others remain at the same setting. Feature lighting, if used, can switch on to highlight wall art.



Brightens or dims Smart luminaires manually to achieve desired level.

rlux

☒ ECO

☐ DIM



Recessed Smart luminaires are manufactured with fitted “plug and play” TEE connectors to accept factory made and tested interlink leads.

This approach, often referred to as modular wiring, provides a fast, error free installation and overall lower total system costs. A range of additional lighting control components can easily be added to the system to customise the installation to the user’s requirements.

TEE connectors can be added to non-Smart recessed luminaires for use with the Smart LCM Lighting Control System to benefit from fast, error free installation. Add suffix **TEE** to catalogue part number.

For more information visit www.thorlux.com/lcm

SPECIFICATION

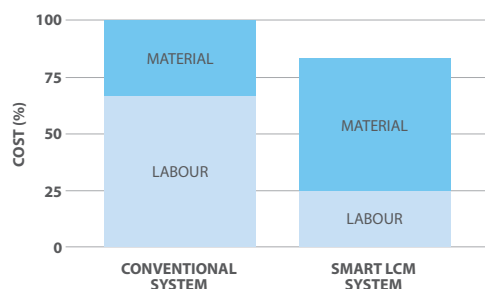
- Thorlux UK designed and manufactured
- LS0H – low smoke zero halogen cables
- Leads can be plugged together to extend wiring
- Future flexibility- plug and play
- Twin latch design – strong strain relief
- Constructed from flame retardant nylon
- Compliance with new standard BS EN 61535:2013



- Switched Live (L)
- Neutral
- Permanent Live
- + — Controls

COST EFFECTIVE

Using the Thorlux Lighting Cable Management System will significantly reduce installation labour costs as luminaires and cables are simply plugged together.



LIGHTING CABLE MANAGEMENT



- A**



D



Any push to make
momentary switch



F



F

Thorax

500 1000

5000 10000

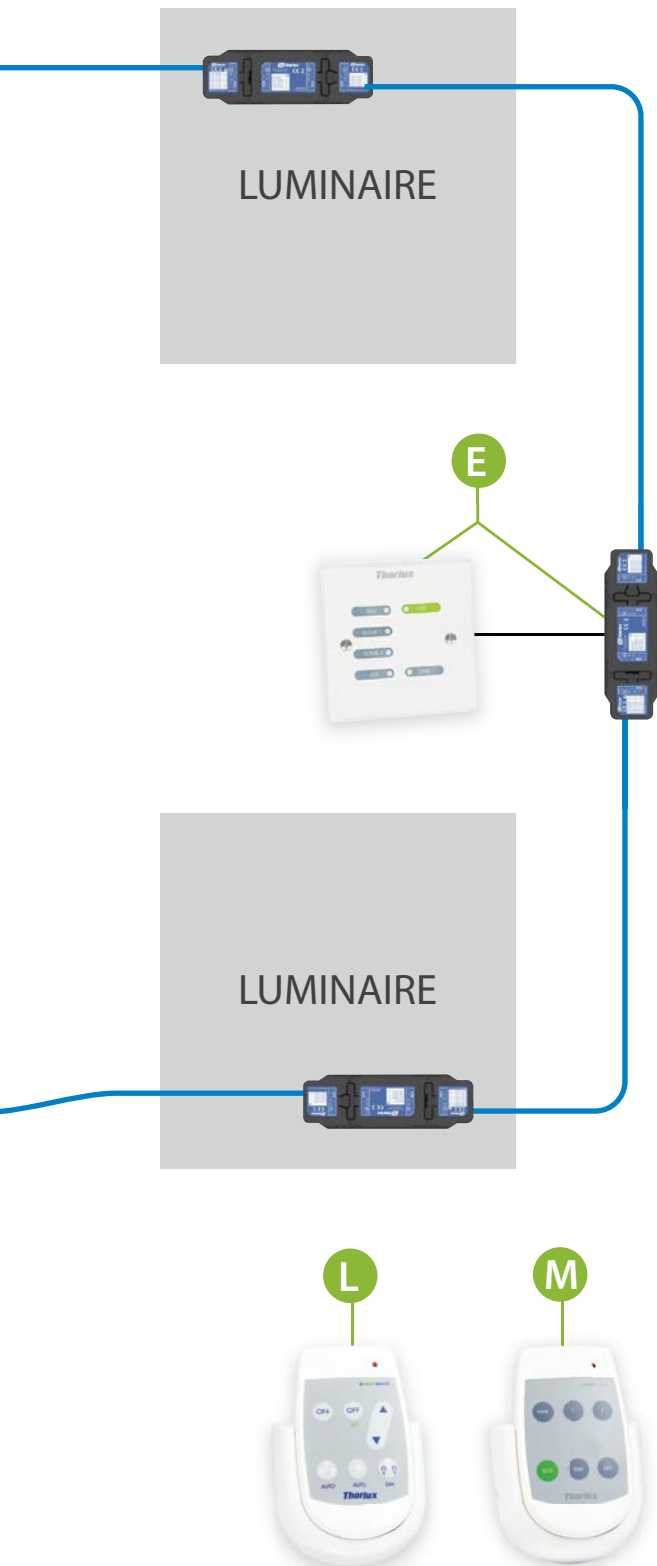
50000 100000

500000 1000000



K

TYPICAL EXAMPLE OF **SMART** MODULAR WIRING



RANGE

REF	DESCRIPTION	CAT. No.	APPROX. kg
A	6-way mains plug with 4 core input lead 1.5mm ² - 3m	LCM 12749T	0.39
B	Factory fitted TEE connector (suffix Thorlux luminaire catalogue number with TEE , standard factory fitted to recessed Smart luminaires)		
C	6-way mains/control connection lead 1.5mm ² - 3m	LCM 10739T	0.61
C	6-way mains/control connection lead 1.5mm ² - 4m	LCM 11030T	0.78
C	6-way mains/control connection lead 1.5mm ² - 6m	LCM 11003T	0.95
D	Wall Switch Kit (RJ45 lead - 6m supplied)	LCM 14010	0.25
E	Smart Touch kit (Modular Wiring Type) - Regular (RJ45 lead - 6m supplied)	LCM 14810	0.41
E	Smart Touch kit (Modular Wiring Type) - Teaching (RJ45 lead - 6m supplied)	LCM 14811	0.41
E	Smart Touch kit (Modular Wiring Type) - Meeting (RJ45 lead - 6m supplied)	LCM 14812	0.41
F	Signal-Isolator	LCM 10803T	0.2
G	Smart Hub (Modular Wiring Type)	LCM 14720TEE	0.97
H	3-way Hub extension lead - 3m	LCM 14823	0.16
I	Circuit splitter	LCM 14928	0.02
J	Smart Touch Kit (Hub Type) - Regular (RJ45 lead - 6m supplied)	LCM 14920	0.21
J	Smart Touch Kit (Hub Type) - Teaching (RJ45 lead - 6m supplied)	LCM 14921	0.21
J	Smart Touch Kit (Hub Type) - Meeting (RJ45 lead - 6m supplied)	LCM 14922	0.21
K	Luminaire factory fitted with a 1m Smart Hub lead and circuit splitter (suffix Thorlux luminaire catalogue number with SHL)		
L	Smart-Remote infra-red handset	LCM 13479B	0.08
M	Smart Scene handset - Regular	LCM 14816	0.08
M	Smart Scene handset - Teaching	LCM 14817	0.08
M	Smart Scene handset - Meeting	LCM 14818	0.08

For full details of wiring systems and lighting control products visit www.thorlux.com/control-systems



FEATURES PROGRAMMABLE DURING COMMISSIONING

One of the key benefits of the Smart based lighting control systems is the ability to program every sensor differently. Each luminaire or group can be tailored to suit its own very specific local requirements.

The main programmable features are:

“NO PRESENCE” DELAY

After a delay, which is variable between 30 seconds and 10 hours, the luminaires will go to the area vacant condition. Factory default setting - 10 minutes.

AREA VACANT CONDITION

Off or level from 1 to 100% (some ballasts limited to 10%). Factory default setting is off.

SECURITY SETTING DELAY

This allows an interim delay (30 seconds to 10 hour, or continuous) at a selected level following no presence detection and at the area vacant condition. Factory default setting - disabled.

For example, all luminaires in a building may be set to turn off except for exit routes which will reduce to 50% for a further one hour (assuming no presence detected). Alternatively, as a security feature, perhaps one in twenty luminaires may be kept on continuously at any chosen level.

PIR SENSITIVITY

May be adjusted to suit conditions.

LIGHT LEVEL SETTING *(Smart and Smart LCM only)*

Completely variable or may be set to maximum continuously.

LIGHTS ON SETTING *(Smart External only)*

Completely variable. Factory setting approximately 70lux.

BRIGHT OUT SETTING

Luminaires will be turned off automatically (particularly those nearest the window) if excess daylight is present for more than 10 minutes. Luminaires can also be programmed to simply dim and not turn off.

AUTOMATIC SETTING RETENTION

If lighting is manually overridden, e.g. for a presentation, then following a subsequent area vacant turn off, the system will revert back to automatic mode. It may alternatively be set to retain manually overridden settings.

MINIMUM LAMP LEVEL

Can be set to restrict dimming range for certain sensitive lamp types (between 1 and 100%)

MAXIMUM LAMP LEVEL *(Smart External only)*

The maximum lamp level can be set to local conditions. Factory setting 100%.

DSI/DALI

The system can be set to operate DSI (as standard) or DALI control gear.

SCENE PARAMETERS *(Smart only)*

Three scene parameters can be set for each luminaire. For each scene, the lamps can be set to operate from off through 1% to 100%. Alternatively, the light level of the working plane can be changed from its standard commissioned setting in a range from 10% through to 200%.

PIR MODE *(Smart only)*

The PIR can be set to presence or absence detection (requires a manual command to turn the luminaires on).

Infra-red programming and information retrieval

A range of parameters can be programmed allowing Smart to be used in a wide range of applications from schools and hospitals to warehouses and factories

Each Smart Sensor can be individually programmed ensuring that the lighting installation is tailored not only to meet the needs of the users but to also maximise energy savings.

The lighting system can be fine-tuned by using a Smart Programmer to read the settings from a luminaire, make adjustments, and transmit back to the luminaire.

Factory default settings can be adjusted when required, so the lighting may be reconfigured if the use of an area changes.

Monitoring information can be read back from each luminaire independently using the Smart Programmer providing valuable maintenance and energy usage data.

Whilst Thorlux Smart Systems are designed to operate with factory default settings “straight from the box” Thorlux strongly recommends on site commissioning to ensure optimum energy saving and user convenience.



Smart Programmer

POWER MONITORING CAPABILITY

(Smart and Smart LCM only)

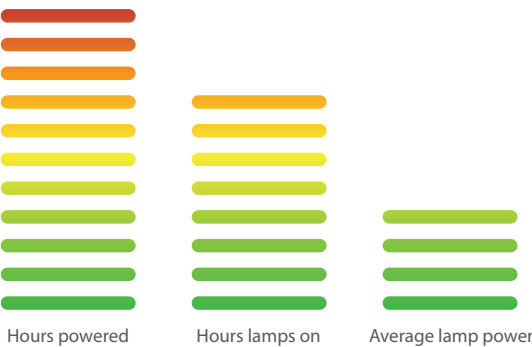
Smart Sensors monitor and record certain operating parameters which can be retrieved for analysis to provide maintenance and energy usage information.

The Smart System will provide data for individual luminaires and Smart LCM for groups of luminaires.

Non resettable Total time connected to mains (hours)

Resettable * Time connected to mains (hours)
Lamp switched on time (hours)
Lamp on average power level (%)

* 4500 hours maximum recording time (lamp on)



RANGE

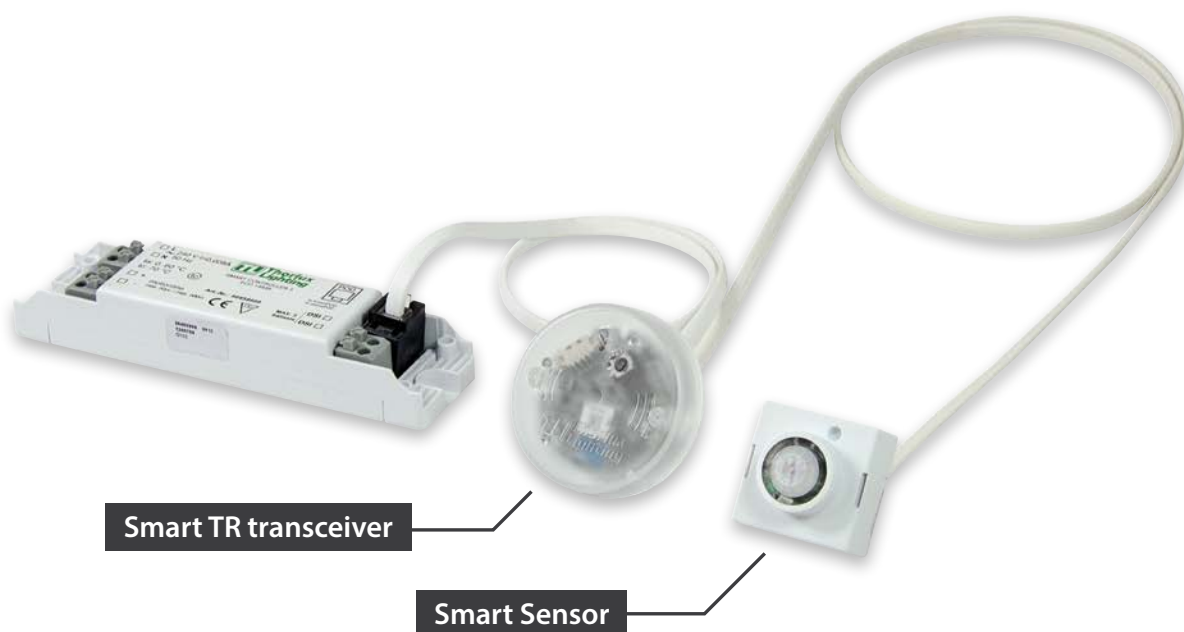
DESCRIPTION	CAT. No.	APPROX. kg
Smart Programmer	LCM 10777B	0.4
Smart External Programmer	SC 14228	0.4



SmartTR[®]



In some cases it can be time-consuming and costly to make Motionline interconnections between luminaires, for example in surface mounted retrofit installations, or in external areas such as open car parks. Thorlux has therefore developed the Smart System further, to its next generation, and now provides the option of full wireless control between Smart and Smart External luminaires. This new enhanced system, patent granted June 2014, is named Smart TR.



www.thorlux.com/smart-tr

FEATURES OF SMART TR

868 MHz*

2.4 GHz

Operational frequency 868 MHz* – relatively long wavelength compared to common 2.4GHz systems – provides greater distance and penetration of signals.

* 922 MHz for Australasia



Intelligent algorithm with low transmission of data – transmits less than 1% of total time (99% of time wireless is off) – reduces wireless traffic increasing reliability.



Mesh network – data can be transmitted from one device to another ensuring high signal reliability.



Good connectivity – software uses simple wait before transmit logic to ensure error free transmissions.



Smart Programmer used for commissioning – simple, fast, individual, setting of operational parameters from ground level.



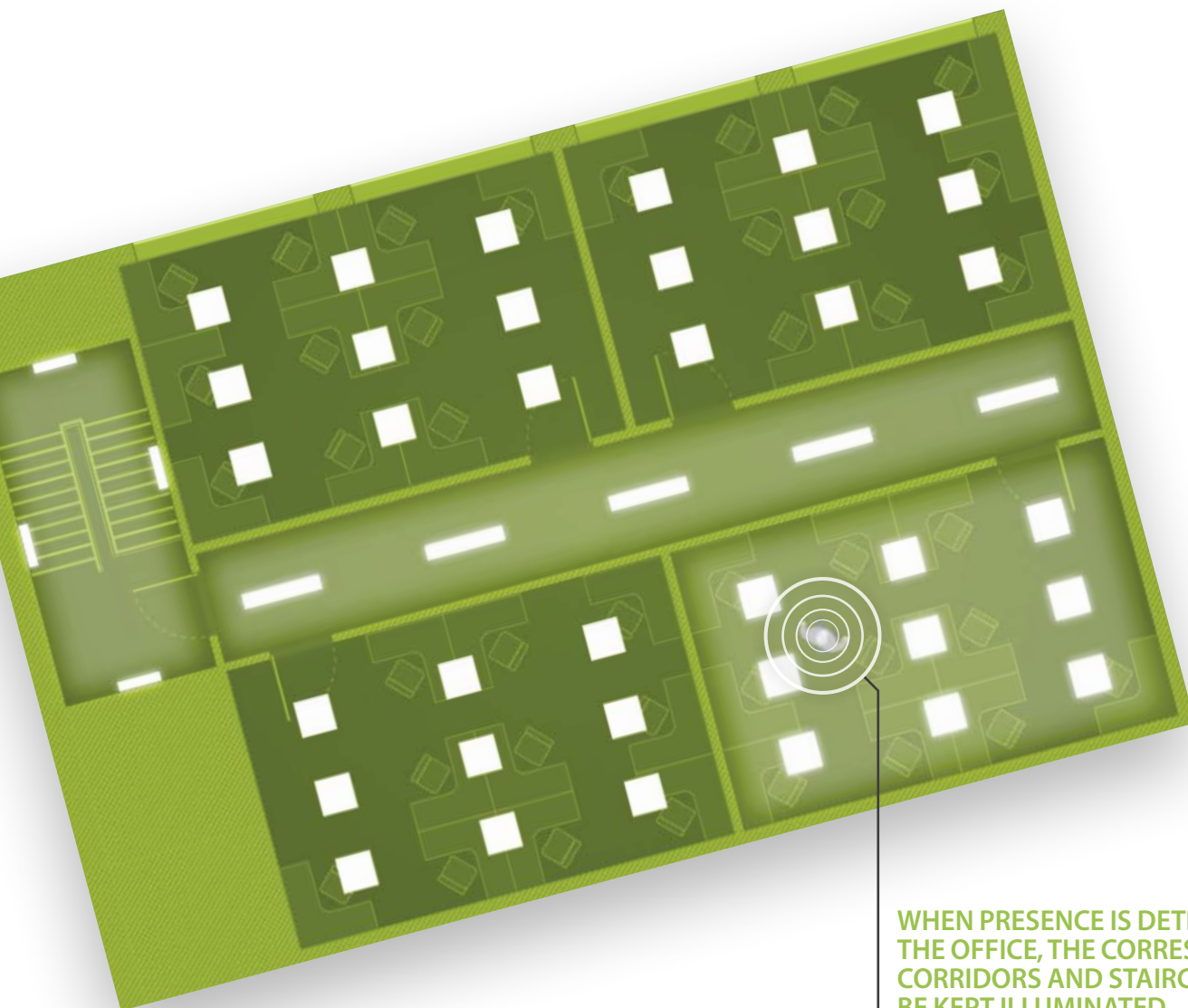
Available in most Thorlux Smart luminaires, including the Smart External range – seamless introduction of wireless communication to a Smart System.



Designed and manufactured by Thorlux in the UK – a one stop shop for luminaires, controls and connectivity.



HOW DOES IT WORK?



WHEN PRESENCE IS DETECTED IN THE OFFICE, THE CORRESPONDING CORRIDORS AND STAIRCASES CAN BE KEPT ILLUMINATED.

The factory fitted addition of a Smart TR transceiver, to a Thorlux Smart luminaire, introduces the latest “mesh” wireless technology and replaces the wired Motionline communication signals between luminaires with sophisticated, trouble free wireless transmissions.

Each transceiver can be individually programmed with a Smart Programmer, during commissioning, and assigned to work exclusively within a particular building, or group created within that building. It is also possible to create situations where different parts of a building communicate – for example, when presence is detected in the office, the corresponding corridors and staircases can be kept illuminated.

Smart TR uses 868 MHz* secure radio communication chosen for its excellent transmission distance and object penetration, which is especially useful within buildings. Each luminaire acts as a wireless node, repeating each command received onto the next luminaire, providing a robust system that will always find a communication path.

* 922 MHz for Australasia



WHEN TO SELECT SMART TR?

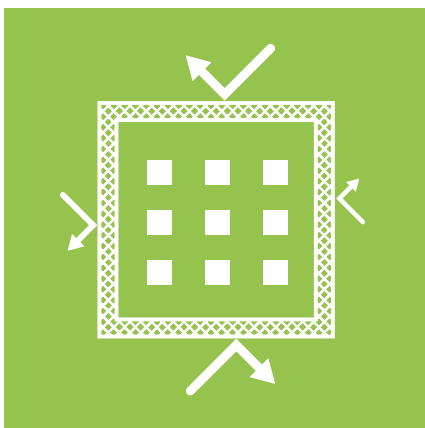
The Smart System is designed to work “out of the box” stand-alone, or to automatically work in groups when wired together using the Motionline. The Smart System is amazingly simple to use and install. Smart TR adds wireless connectivity to the Smart System and should be selected when luminaires are difficult to wire together into groups - for example luminaires mounted within a concrete staircase where channelling the walls to lay Motionline cables would be time-consuming and intrusive, or in an open car park where digging trenches to lay cables would be expensive. In recessed ceiling applications we continue to recommend the use of the Motionline wired connection provided by LCM interconnecting cables as this method will provide the most cost effective and simplest solution.

Smart TR must be commissioned as it has to be assigned building addresses and group addresses. Commissioning is extremely simple using the hand held Smart Programmer (catalogue number **LCM 10777B**) or Thorlux commissioning engineers can complete this task for you.



HOW DOES SMART TR PREVENT CROSS-TALK BETWEEN DIFFERENT GROUPS?

Addressing - Each Smart TR module can be addressed to suit its application. The following parameters are programmable:



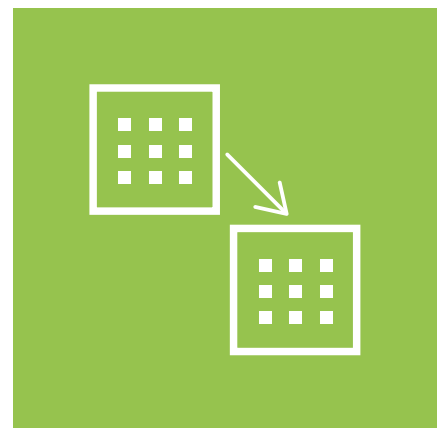
Building Address

Identifies devices that are within the same system and forms the boundary for the wireless mesh to prevent adjacent buildings communicating.



Group Address

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 zones can be created in one building.



Link Address

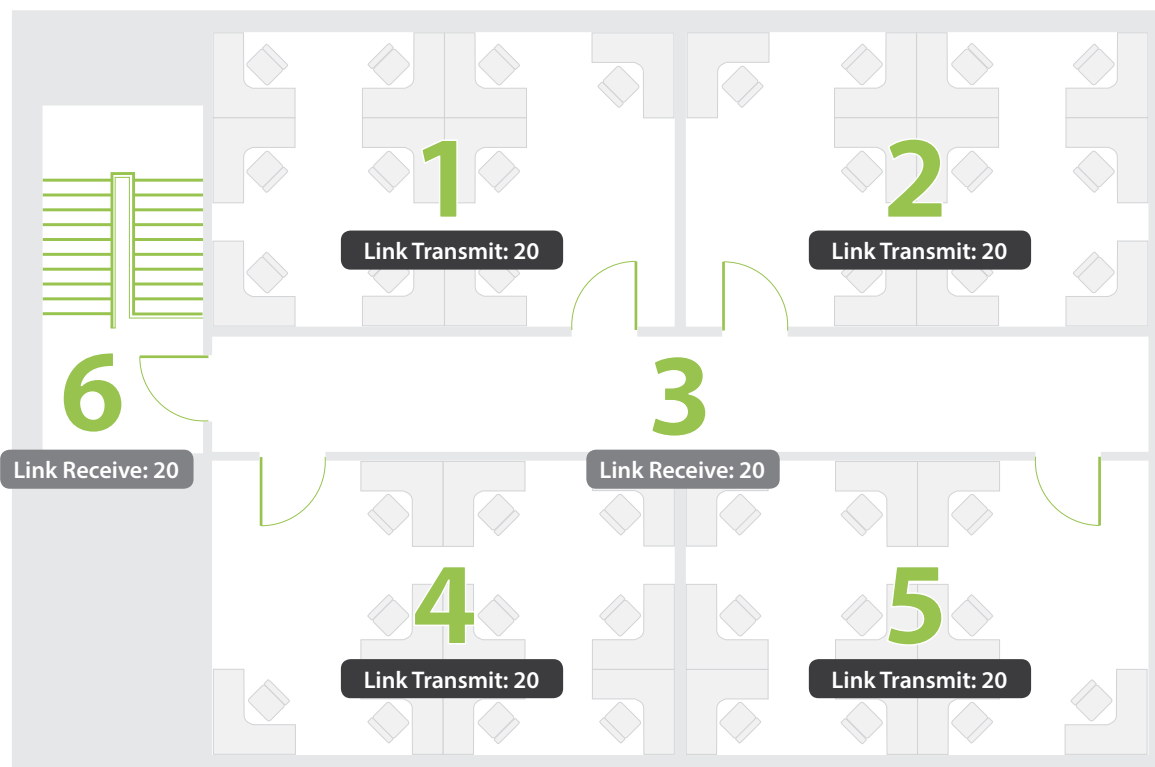
Allows presence detection communication signals to be transmitted between different groups of luminaires. Each group can be set to transmit or receive an independent link address enabling occupancy in one area to keep another area illuminated.



LINKING FEATURE

The Link Address feature of Smart TR provides additional communication within a building, across different groups, to provide linking, such that when one group is turned on another group can be turned on too – often known as “Corridor Hold”.

Example of Corridor Hold



Programming:

All areas are set to the same unique building address.

Each area is set to its own group address (1 to 6)

The four offices (1,2,4,5) are set to transmit link address 20.

The stairwell (6) and corridor (3) are set to receive link address 20.

Operation:

The stairwell (6) and corridor (3) will illuminate when occupancy is detected then turn off when vacated.

However, if any of the offices (1,2,4,5) are occupied then the stairwell (6) and corridor (3) will remain illuminated.

Each office will operate independently.

It may be desirable to only set half of the luminaires in the stairwell (6) and corridor (3) to remain illuminated and this can be achieved by selecting certain luminaires to receive link address 20 but not others.

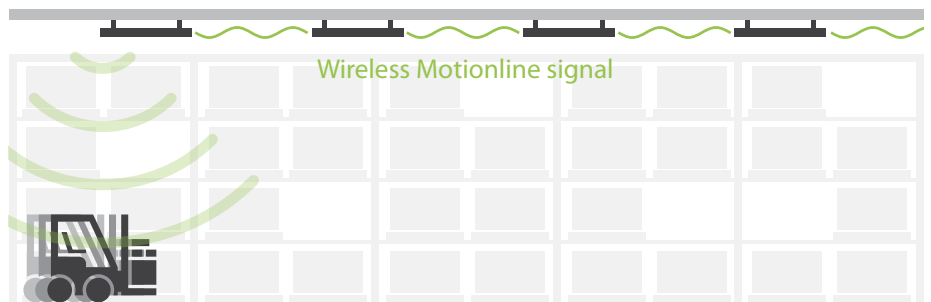
EXAMPLE OF SMART TR

If any one Smart TR luminaire detects movement all luminaires within the group will illuminate. This valuable feature is designed to eliminate the possibility of a user being isolated in a small pool of light, surrounded by intimidating darkness. The Motionline ensures that there will always be a well lit comfortable environment.

Covers large areas

Low installation cost

**Non-invasive
retro-fit solution**



SMART TR COMPLIANCE

SMART TR STANDARDS COMPLIANCE - EUROPE

BS EN 55015:2013	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
BS EN 61547:2009	Equipment for general lighting purposes. EMC immunity requirements
BS EN 61000-3-2:2014	Electromagnetic compatibility (EMC). Limits. Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 300 220-1 V2.4.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Technical characteristics and test methods
EN 301 489-3 V1.6.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz
BS EN 60950-1:2006+A2:2013	Information technology equipment. Safety. General requirements
BS EN 62311:2008	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)

SMART TR STANDARDS COMPLIANCE - AUSTRALASIA

IEC 55015:2013 + A1:2015	RFI
IEC 61547:2009	Immunity
IEC 61000-3-2:2014	Harmonics
IEC 62311: 2008	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
AS/NZS 60598-1:2013	Luminaires: General requirements and tests
ACMA 2014 RADIOCOMMUNICATIONS STANDARD 2014	Radiocommunications (Short Range Devices) Electromagnetic Radiation – Human Exposure

Selecting Smart TR

Simply remove the 'D' suffix from the Smart luminaire catalogue number and replace with 'TR' for Europe or 'TRAU' for Australasia.

Eg. RL 14437D will become RL 14437TR

Design Considerations

Wireless transmission distance will vary depending upon the type of luminaire and its location. Maximum achievable for an open area external site is approximately 70m from one Smart TR transceiver directly to another, reducing significantly indoors particularly where transmissions may be affected by thick concrete walls or metallic structures. Wireless mesh technology significantly improves transmission distances by propagating signals through many Smart TR devices rather than simply point to point.



MANUAL DIMMING

Thorlux Smart luminaires can be manually controlled using a retractive (push to make) switch or the Smart-Remote infra-red handset

Wall Switch Kit

Any number of retractive switches can be connected to the Motionline to provide group dimming control of the Smart luminaires.

In normal operation each Smart luminaire will automatically adjust its own luminance level to maintain the preset required light level.

When controlled via the switch all the luminaires will initially synchronise to the same lighting level which can then be varied from 100% to 1% (some ballasts are limited to 10%) and off.

Once the area is vacated and the installation has subsequently turned off, the system will revert to automatic mode. Automatic mode can also be reselected by one single momentary press of the switch.

Luminaires can also be re-programmed for absence detection. Use of the switch is required to turn on but if the room is left unoccupied the luminaires will automatically turn off after the pre-determined time.

Any "standard" retractive switch can be used and connected to the Motionline or our ready made modular wiring solution can be selected.

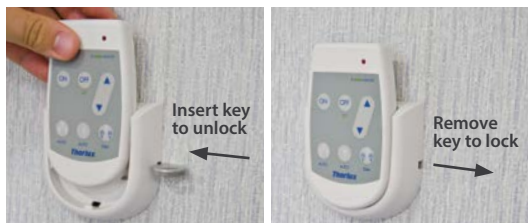


RANGE

DESCRIPTION	CAT. No.	APPROX. kg
Wall switch kit - modular wiring c/w inline connector	LCM 14010	0.25

Smart-Remote Infra-red Handset

The Thorlux Smart-Remote can be used to control individual luminaires or the group as a whole. It provides full control with on, off, raise and lower features. The Smart-Remote is supplied with a unique, robust wall mounting bracket. A locking key kit ECO 9724 is available if required.



RANGE

DESCRIPTION	CAT. No.	APPROX. kg
Smart-Remote	LCM 13479B	0.08
Locking Key Kit	ECO 9724	-



Smart Touch, Smart Scene and Smart Hub offer scene setting capability

Smart Touch



Smart Touch wall plate - regular version

Smart Touch TR wall plate



Modular Wiring Kit - comprises Smart Touch wall plate, RJ45 connection lead and Modular Wiring Adaptor



Conventional Wiring Type

Simple and flexible scene control is provided by the Smart Touch wall plate which plugs in using an RJ45 connection lead and Modular Wiring Adaptor. Conventionally wired and Smart TR versions are also available. Touch sensitive buttons provide a tactile, user-friendly interface.

Smart Touch allows user control of connected Smart luminaires (and non-Smart luminaires via the Smart Hub).

Luminaires can be switched on and off, dimmed, switched between pre-set scenes, and returned to ECO (automatic energy saving) commissioned mode.

In addition to the regular format, versions are available with buttons tailored to the needs of teaching and meeting room applications.

There is no limit to the number of Smart Touch kits that can be added to each Motionline group enabling multi-point control. Smart Touch kits can be used together with the Smart Scene handset.

RANGE

DESCRIPTION	CAT. No.	APPROX. kg
Modular Wiring Type		
Smart Touch kit - regular	LCM 14810	0.41
Smart Touch kit - teaching	LCM 14811	0.41
Smart Touch kit - meeting	LCM 14812	0.41
Conventional Wiring Type		
Smart Touch - regular	LCM 14813	0.08
Smart Touch - teaching	LCM 14814	0.08
Smart Touch - meeting	LCM 14815	0.08
Smart TR Version		
Smart Touch TR	LCM 17184	0.08

Smart Scene



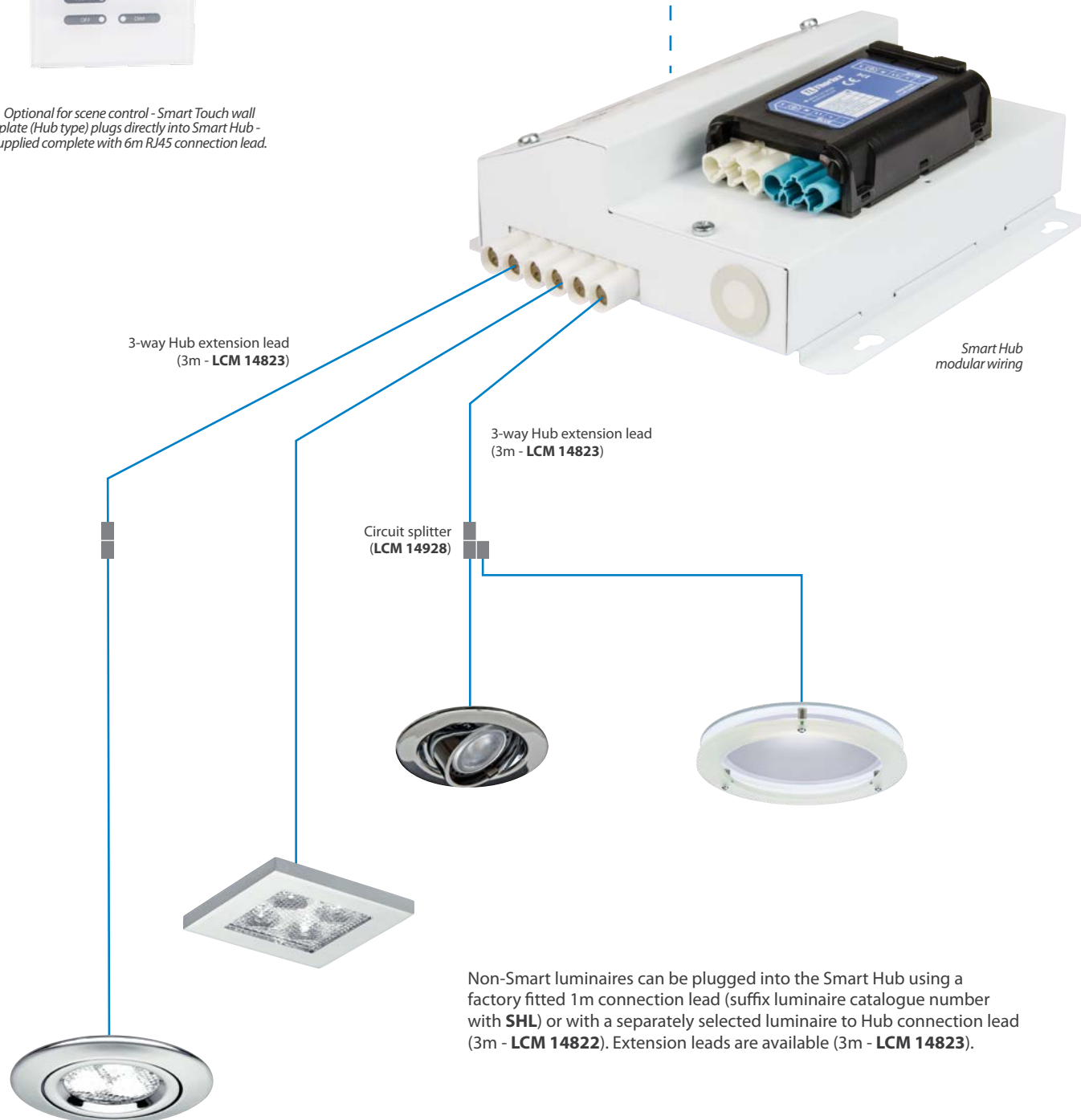
Smart Scene allows user control of connected Smart luminaires in the same way as Smart Touch but with the added convenience of wireless technology. Pressing and pointing the remote handset at any luminaire within a group, will activate the appropriate command, which will then be repeated via the Motionline to all luminaires together. Luminaires will react as dictated by the scene. Smart Scene is supplied with a unique, robust wall mounting bracket. A locking key kit ECO 9724 is available if required (see page 59 for details).

RANGE

DESCRIPTION	CAT. No.	APPROX. kg
Smart Scene handset - regular	LCM 14816	0.08
Smart Scene handset - teaching	LCM 14817	0.08
Smart Scene handset - meeting	LCM 14818	0.08
Locking Key Kit	ECO 9724	-



Optional for scene control - Smart Touch wall plate (Hub type) plugs directly into Smart Hub - supplied complete with 6m RJ45 connection lead.



ADDITION OF NON-SMART LUMINAIRES

The Smart Hub allows integration of non-Smart luminaires into the system. Practically any type of luminaire can be connected up to a total load of 5A for each Smart Hub. Connected luminaires are switched according to signals received via the Motionline

Smart Hub

Non-Smart luminaires are factory set to switch off after 10 minutes of no presence (programmable from 30 seconds to 12 hours). Luminaires will also switch in accordance with scene information carried on the Motionline. Three scenes can be set, with the choice of on or off for each scene. Operation can also be configured for security purposes so that connected luminaires switch on when there is no presence, for example to switch on LED night lighting or LED security lighting in corridors, stairwells and reception areas.

Motionline Commands

Max/High - Luminaires will switch on at maximum.

ECO - When movement is detected luminaires switch on or off (on as factory default).

Scene Commands - Luminaires can be set to switch on or off when scene 1, 2 or 3 is selected.

Non-Smart luminaires are connected to the Smart Hub relay switched mains output, fused at 5A. Certain luminaires can be supplied prewired with a purpose made 1m lead (suffix luminaire catalogue number with **SHL**, for example **LED 13642SHL**) for plugging directly into the modular wired Smart Hub. 3m extension leads are available. The small diameter of the connection leads (and plugs) allows feeding through 20mm conduit.



ACCESSORIES



3-way luminaire to Hub connection lead stripped at one end **0.75mm²**
(for non factory fitted luminaires)

3m - **LCM 14822**



3-way Hub extension lead **0.75mm²**

3m - **LCM 14823**



Circuit splitter
LCM 14928

RANGE - Smart Hub

DESCRIPTION	CAT. No.	APPROX. kg
Smart Hub - modular wiring	LCM 14720TEE	0.97
Smart Hub - conventional wiring	LCM 14720	0.86

RANGE - Smart Touch kit (Hub type ▲)

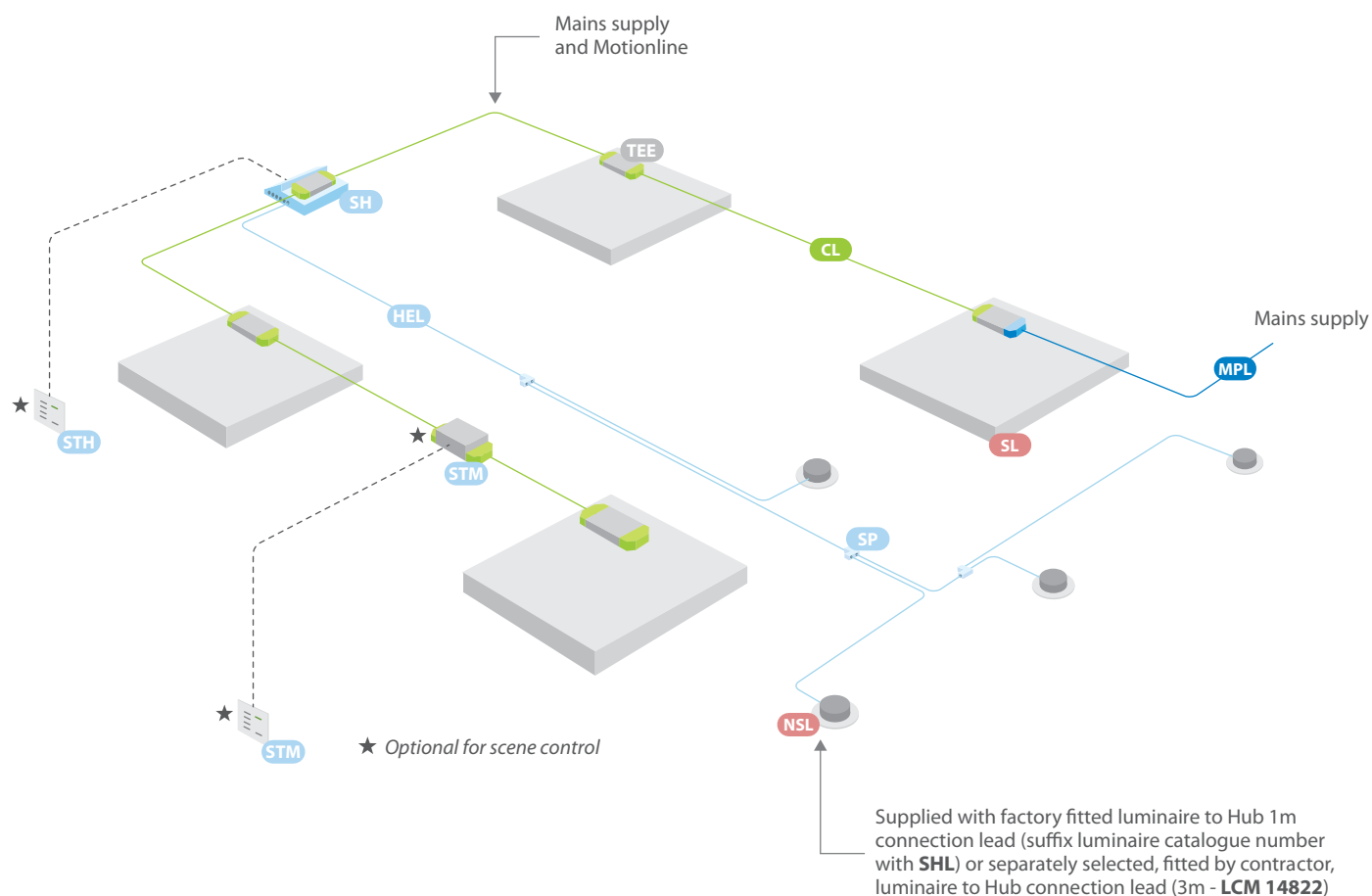
▲ Plugs directly into Smart Hub without the need for the Modular Wiring Adaptor

DESCRIPTION	CAT. No.	APPROX. kg
Smart Touch kit - regular	LCM 14920	0.21
Smart Touch kit - teaching	LCM 14921	0.21
Smart Touch kit - meeting	LCM 14922	0.21

Supplied complete with RJ45 connection lead



Modular wiring application with Smart Hub



Full range of standard modular wiring leads see page 67

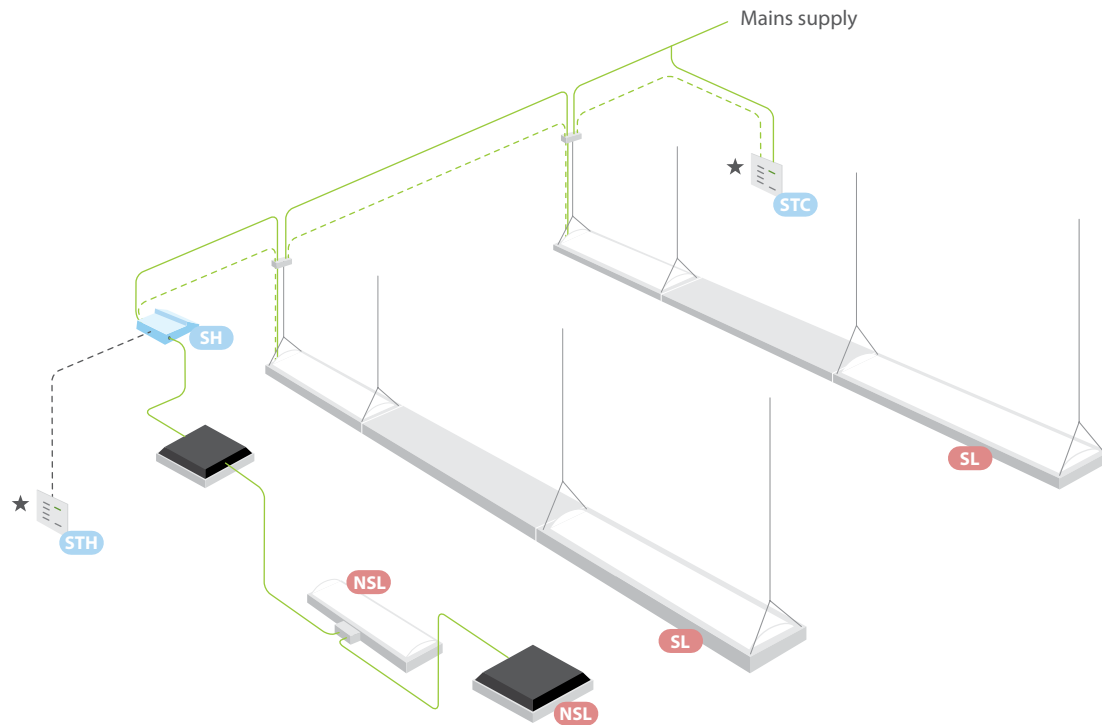
- SH** Smart Hub (LCM 14720TEE)
- STH** Smart Touch kit (Hub type)
(Regular - LCM 14920)
(Teaching - LCM 14921)
(Meeting - LCM 14922)
- STM** Smart Touch kit (Modular type)
(Regular - LCM 14810)
(Teaching - LCM 14811)
(Meeting - LCM 14812)
- SP** Circuit splitter (LCM 14928)
- HEL** Hub extension lead (LCM 14823)
- MPL** 6-way mains plug with 4 core input lead (3m - LCM 12749T)

- CL** 1.5mm² (CSA) Mains/control lead (6-way)
(3m - LCM 10739T)
(4m - LCM 11030T)
(6m - LCM 11003T)
- SL** Smart luminaire
- NSL** Non-Smart luminaire
- TEE** TEE connector - fitted to back of all Smart luminaires
- Mains and Motionline 6-core**
- Mains switched 3-core, maximum distance 100m**

- Maximum 20 Smart luminaires (max 5A)
- Maximum of 5A total load on Smart Hub (fused internally)
- Maximum combined system current 10A

ADDITION OF NON-SMART LUMINAIRES

Conventional wiring application with Smart Hub



SH Smart Hub (LCM 14720)

STH Smart Touch kit (Hub type)
(Regular - LCM 14920)
(Teaching - LCM 14921)
(Meeting - LCM 14922)

STC Smart Touch (Conventional wiring type)
(Regular - LCM 14813)
(Teaching - LCM 14814)
(Meeting - LCM 14815)

SL Smart Luminaire
NSL Non-Smart Luminaire

— Mains
- - - 2 wire Motionline

Maximum 20 Smart luminaires
on one mains circuit

Maximum 50 Smart luminaires
on one Motionline group

Maximum of 5A total load
on Smart Hub (*fused internally*)



SMART ACCESSORIES



6-way mains/control connection
lead 1.5mm²

3m - LCM 10739T
4m - LCM 11030T
6m - LCM 11003T



6-way mains plug with 4
core input lead 1.5mm²

3m - LCM 12749T



Signal-Isolator
LCM 10803T



6-way plug
Live end (for connection to luminaire) -
LCM 13219T
Dead end (for connection from luminaire) -
LCM 11820T



3-way luminaire to Hub connection
lead stripped at one end
0.75mm² (for non factory fitted luminaires)
3m - LCM 14822



3-way Hub extension lead 0.75mm²
3m - LCM 14823



Circuit splitter
LCM 14928

SMART PROGRAMMER

For information
on programming
see pages 50-51.



DESCRIPTION	CAT. No.	APPROX. kg
Smart Programmer	LCM 10777B	0.4

For full details on programming see pages 50-51



HOW TO SPECIFY THE SMART SYSTEM

SHORT SPECIFICATION TEXT

Intelligent luminaire fitted with integral Smart Sensor providing daylight harvesting, maintained illuminance, presence/absence detection and scene setting. The system shall be capable of group presence communication ensuring luminaires can illuminate in groups and with individual scene setting control. Optional 868 MHz* wireless mesh connectivity with building wide link address capability. All aspects are programmable from floor level using an infra-red remote control programmer.

FULL SPECIFICATION TEXT

Each luminaire shall be equipped with an "intelligent" electronic sensor providing movement detection, light level sensing and an infra-red receiver for programming and remote control. Luminaires shall be capable of being linked together to form motion groups. Linking shall be possible using a two core bus or wirelessly using an 868 MHz* transceiver. Movement detected by one sensor will be signalled to all other sensors in its group. No bus power supply or other ancillary control devices will be required to facilitate such operation. Sensors shall be capable of "absence" mode operation in conjunction with a scene control plate or infra-red handset.

Each sensor shall provide individual dimming of the luminaire and maintain a set illumination level. Grouped dimming shall not be acceptable for daylight control. Sensors shall be fully programmable and reconfigurable using a hand held infra red programmer. The programmer shall be capable of reading back and displaying current sensor settings and power/maintenance monitoring information from individual luminaires. Monitoring can be reset by the user. Sensors to be capable of operating DALI and DSI digital ballasts.

WALL SWITCH CONTROL

Momentary action switches may be connected to the Motionline circuit to enable group dimming and switching control of intelligent luminaires.

"TOUCH" SCENE CONTROL

Sensors shall be capable of responding to scene controls from a wall-mounted, touch sensitive control plate or a hand-held remote controller. Each sensor shall be individually programmed and reconfigurable for each scene.

The system shall be capable of setting either fixed scenes which are a percentage of full output, or automatic scenes which will maintain an illumination level expressed as a percentage of the standard light level setting.

Scene control plates shall be of the capacitive sensing type. Each function shall have a status LED which will display the current system status. Scene plates shall be printed to suit the application, and matching infra-red remote controllers shall also be available. Remote controllers should be supplied with wall brackets and optional locking mechanisms.

Each control group shall be capable of using multiple scene control plates and its current setting will automatically display on all scene plates. When the area is vacated the whole system should automatically revert to "ECO" energy saving mode.

WIRELESS CONNECTIVITY

Luminaires shall be capable of being inter-connected wirelessly. Operational frequency shall be 868 MHz* with low data rates - less than 1%. The system shall work on a mesh networking principle and be capable of adding link addresses across a building. Programmable settings can be altered from floor level using an infra-red programming device.

MODULAR WIRING

Recessed luminaires shall be supplied complete with a 6-way modular wiring TEE connector to include an unswitched and switched mains supply. Interconnecting leads shall be used to provide rapid installation and flexibility for future modifications to the system. Leads shall be factory tested for circuit continuity/polarity and high voltage tested for insulation quality. Interconnecting leads shall use LSOH cables and comply with BS EN 61535:2013. Connections between leads and luminaires shall have twin latch.

CONVENTIONAL WIRING

Luminaires shall have a two-pole terminal block for connection of the Motionline link between luminaires.

ADDITION OF NON-INTELLIGENT "SLAVE" LUMINAIRES

The system shall be capable of switching non-intelligent "slave" luminaires based upon movement detection of the main group of intelligent luminaires and shall be capable of being reconfigured for all conditions - i.e. normal (automatic/ECO) operation, scene and vacant conditions.

ENVIRONMENTAL CREDENTIALS

The manufacturer shall be independently certified to ISO14001. The manufacturer's processes shall be carbon offset via a quantifiable carbon offsetting scheme and shall include emissions from the lighting manufacturer's vehicles used for delivery and other project associated mileage.

* 922 MHz for Australasia