

# THORN

## Voyager LED Series

Discreet, high performance  
LED emergency lighting





# Voyager LED series - the optimum choice for high performance emergency lighting that can adapt to any application or design



- Efficient:
  - high power LED technology, ensuring excellent performance and spacing.
  - low parasitic power consumption.
  - long life and low maintenance.
- Discreet:
  - compact design.
  - minimal visual intrusion compared to conventional emergency lighting solutions.
- Sustainable:
  - environmentally friendly Nickel Metal Hydride (NiMH) Battery provides higher power density.
- Flexible:
  - recessed and surface options.
  - can be installed and wired to function as either a non-maintained, maintained or switched maintained emergency luminaire.



Voyager LED Area (recessed, white)



Voyager LED Route (recessed, silver)



Voyager LED Spot (recessed, silver)



Voyager LED Area (surface, white)



Voyager LED Route (surface, white)



Voyager LED Spot (surface, silver)

Voyager LED series offers a discreet emergency lighting solution that suits any application, consumes less power and can run for longer periods than ever before. The leading combination of performance, efficiency and comfort delivered by Voyager LED series puts this integrated range ahead of traditional fluorescent emergency luminaires for operation, peace of mind and genuine value.

The aluminium bodied Voyager LED series share the same unobtrusive and extraordinarily compact styling that ensures maximum performance with minimal visual intrusion in any application.

Voyager LED series is available in both recessed and surface options and are finished in white or silver.

However, discretion is only one of the merits of this range. Versatility is another key benefit.

There are three sophisticated optics designed around the superior LED package from leading American LED manufacturer Cree. Three carefully designed versions of Voyager LED series are optimised for use in the three core areas of emergency lighting - open areas, escape routes and for items requiring high levels of local illumination.

Of course, any emergency lighting installation has to be properly tested and maintained. This is to ensure safe evacuation in the event of a mains power failure and to comply with UK and European legislation.

For added peace of mind, this range comes with our SelfTest Addressable functionality as standard.

This means that Voyager LED products will run as self test fittings when standalone. When linked to Thorn's intelligent Explorer Vision or Explorer Project central test systems, the same fittings will become instantly addressable.

## Cost Comparison of Typical Parasitic Loads:

The Voyager LED series offers significant cost savings when compared with operating traditional forms of emergency lighting.

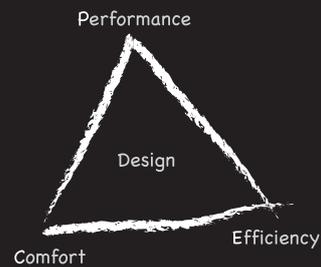
Emergency luminaire	Typical power consumption	Typical running cost per luminaire per annum	Typical annual saving for 100 luminaire site
8W NM emergency luminaire (2 cell)	4 watts	£3.23	-
High power LED (2 cell)	2.4 watts	£1.94	£129.17

## Performance, Efficiency and Comfort (PEC) – for a better lit environment

Voyager LED series evokes the spirit of Thorn Lighting's dynamic, results-orientated PEC programme



The programme is based on the principle that Performance, Efficiency and Comfort determine the effectiveness of lighting, its impact on the people using it, and its impact on the natural environment. Voyager LED series delivers the right light on the right place at the right time.



**Performance:** providing the best visual effectiveness

- The different options within the range provide a solution for all situations and ensure an installation can meet the relevant regulations.
- High power LED technology ensures good visibility, providing a safer lit environment.
- Superior optical control ensures a glare free view.

**Efficiency:** conserving energy and effort, reducing CO<sub>2</sub> emissions and waste, providing lighting that is practical and efficient to install, operate and maintain

- The use of LED technology reduces power demand and conserves energy.
- The small size of the luminaire uses less material, and is therefore a more sustainable design.
- Uses environmentally friendly NiMH battery technology.
- Easy to install and service, reducing the cost of ownership. The option for Thorn Explorer Project provides automatic monitoring and testing of luminaire status, providing test reports fulfilling statutory requirements.

**Comfort:** giving people satisfaction and stimulation

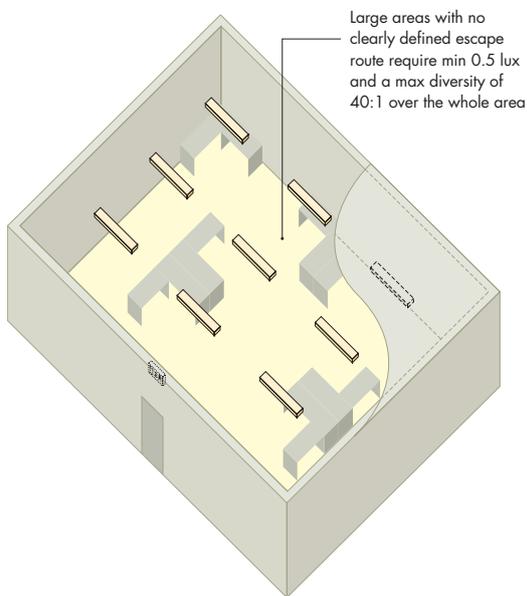
- The small size of the luminaire gives a discrete appearance, blending in with the architecture of the space.
- A well-designed emergency installation using good quality luminaires gives reassurance to users of the space.



# Application - Open Area

## Requirement

The requirements for emergency lighting in open areas state that a system has to provide sufficient light (0.5 lux according to EN 1838) to avoid panic and confusion. During an emergency, or even a short term mains failure, all occupants must feel safe. If evacuation is required, occupants must be able to locate the nearest exit by the shortest possible route, without becoming lost or tripping over.



## Legislative requirement

Definition	Escape area - Open or re-configurable area, including covered car parks and stepped areas in covered stadia (excluding designated escape routes)	
Areas	> 60m <sup>2</sup>	
Lighting level	Minimum 0.5 lux in core area (excludes 0.5m border)	
Diversity: $\Phi_{max} : \Phi_{min}$ Ratio of illuminance to min illuminance	< 40 : 1	
Response time: Time to reach emergency lighting levels	50% in 5 sec 100% in 60 sec 	
Colour rendering (Ra)	>40	
Glare: High contrast between luminaire and background leads to glare. Disability glare prevents you seeing properly.	<b>Mounting Height h</b>	<b>Open Area Max. Luminous Intensity (Imax)</b>
	m	cd
	2.5 ≤ h < 3.0	900
	3.0 ≤ h < 3.5	1600
	3.5 ≤ h < 4.0	2500

## Voyager LED Area

Voyager LED Area luminaires are made from die-cast aluminium. They are extremely compact (85mmØ or 146mm<sup>2</sup> for recessed versions), incorporate Nickel Metal Hydride (NiMH) batteries that ensure 3-hour emergency operation and can be easily installed and maintained. A visible LED indicator is included in the luminaire to show the status of the fitting. They are available in either white (RAL 9016) or silver (RAL 9006) in two variants:

## MRE – Recessed

The MRE version is designed to be recessed into suspended ceilings. The low-profile L-shaped battery and control gear box will fit through the cut-out aperture. For fitting into concrete ceilings, a recessing box is available.

## MCE – Surface mounted

The MCE version can be surface mounted. The gear tray is fixed on to the mounting surface and the cast aluminium body snaps firmly into place. The housing (only 33mm deep) also contains the inverter and batteries.

## E3TX - SelfTest Addressable

Both versions come standard with E3TX SelfTest Addressable emergency gear. E3TX provides SelfTest functionality, indicating the status of the luminaire via a bi-colour LED. If connected to a Thorn Explorer Project or Explorer Vision central test system, E3TX fittings are linked to an intelligent local controller that automatically conducts all the necessary tests and stores all results in one central location.

Voyager LED Area (surface, white)



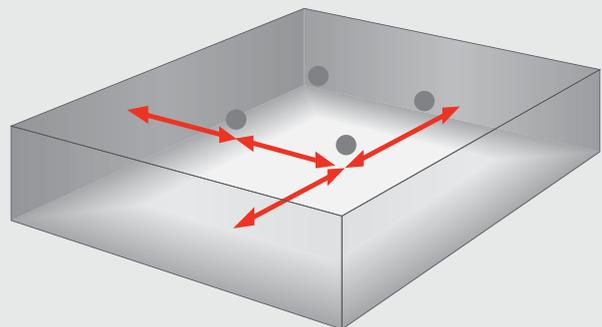
Voyager LED Area (recessed, white)



**Solution**

Voyager LED Area meets and exceeds all requirements and provides:

- Excellent diversity ratio (ratio of maximum to minimum illuminance), with worse case 30:1. This is significantly ahead of the legal minimum of 40:1.
- Quick response time, with immediate full light output that will last for the 3-hour duration.
- Glare figures significantly below the stated limits, with a maximum figure of 32.5 cd.
- Spacing of up to 11.6 metres.



**Spacing table for Voyager LED Area (0.5 lux)**

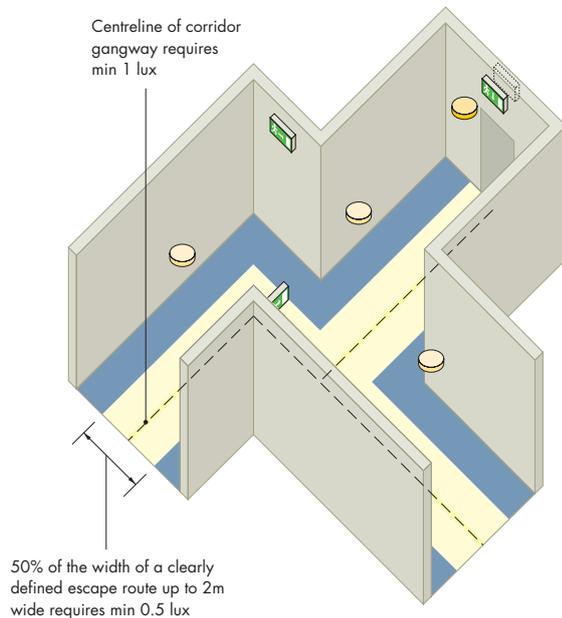
Mounting height		
	E3TX	E3TX
2.5	3.0	9.5
3.0	2.5	10.5
4.0	0.8	11.6

E3TX - 3 hour SelfTest or Addressable Test

# Application - Escape Route

## Requirement

The specifications for emergency lighting in escape routes requires sufficient light (1 lux according EN 1838) to be provided to enable occupants to identify the escape route and to evacuate the building safely.



## Legislative requirement

Definition	Clearly defined exit route, including moving walkways, which must always be kept clear											
Routes	Considered as a 2m wide strip or a series of 2m strips											
Lighting level	Minimum 1 lux on centre line at floor level. Minimum 0.5 lux on 0.5m either side of the centre line (50% of the route width)											
Diversity: $\Phi_{max} : \Phi_{min}$ Ratio of max illuminance to min illuminance	< 40 : 1											
Response time: Time to reach emergency lighting levels	50% in 5 sec 100% in 60 sec											
Colour rendering (Ra)	>40											
Glare: High contrast between luminaire and background leads to glare. Disability glare prevents you seeing properly.	<table border="1"> <thead> <tr> <th>Mounting Height h</th> <th>Escape Route Max. Luminous Intensity (Imax)</th> </tr> </thead> <tbody> <tr> <td>m</td> <td>cd</td> </tr> <tr> <td>2.5 ≤ h &lt; 3.0</td> <td>900</td> </tr> <tr> <td>3.0 ≤ h &lt; 3.5</td> <td>1600</td> </tr> <tr> <td>3.5 ≤ h &lt; 4.0</td> <td>2500</td> </tr> </tbody> </table>	Mounting Height h	Escape Route Max. Luminous Intensity (Imax)	m	cd	2.5 ≤ h < 3.0	900	3.0 ≤ h < 3.5	1600	3.5 ≤ h < 4.0	2500	
Mounting Height h	Escape Route Max. Luminous Intensity (Imax)											
m	cd											
2.5 ≤ h < 3.0	900											
3.0 ≤ h < 3.5	1600											
3.5 ≤ h < 4.0	2500											

## Voyager LED Route

Voyager LED Route luminaires are made from die-cast aluminium. They are extremely compact (85mmØ or 146mm² for recessed versions), incorporate Nickel Metal Hydride (NiMH) batteries that ensure 3-hour emergency operation and can be easily installed and maintained. A visible LED indicator is included in the luminaire to show the status of the fitting. They are available in either white (RAL 9016) or silver (RAL 9006) in two variants:

## MRE – Recessed

The MRE version is designed to be recessed into suspended ceilings. The low-profile L-shaped battery and control gear box will fit through the cut-out aperture. For fitting into concrete ceilings, a recessing box is available.

## MCE – Surface mounted

The MCE version can be surface mounted. The gear tray is fixed on to the mounting surface and the cast aluminium body snaps firmly into place. The housing (only 33mm deep) also contains the inverter and batteries.

## E3TX - SelfTest Addressable

Both versions come standard with E3TX SelfTest Addressable emergency gear. E3TX provides SelfTest functionality, indicating the status of the luminaire via a bi-colour LED. If connected to a Thorn Explorer Project or Explorer Vision central test system, E3TX fittings are linked to an intelligent local controller that automatically conducts all the necessary tests and stores all results in one central location.

Voyager LED Route (surface, silver)



Voyager LED Route (recessed, white)

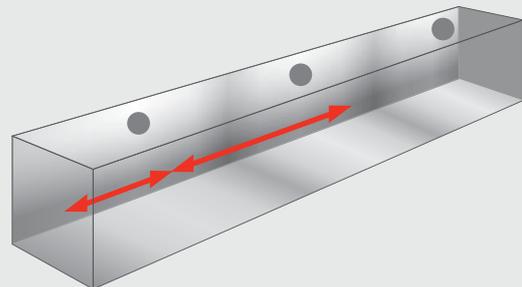


**Solution**

Voyager LED Route luminaires use special optics to comply with regulations and ensure clear visibility of the escape route. The optic is mounted axially in line with the escape route for maximum performance.

Voyager LED Route delivers:

- Excellent diversity ratio (ratio of maximum to minimum illuminance) with a worse case of 20:1. The legal minimum is 40:1.
- Immediate full light output.
- A maximum glare figure of 180cd, which is significantly below the legal limits.
- Leading spacing of up to 18.4 metres.



**Spacing table for Voyager LED Route (1 lux)**

Mounting height		
	E3TX	E3TX
2.5	6.1	14
3.0	6.7	15.6
4.0	7.3	18.4

E3TX - 3 hour SelfTest or Addressable Test

# Application - Spot Lighting

## Requirement

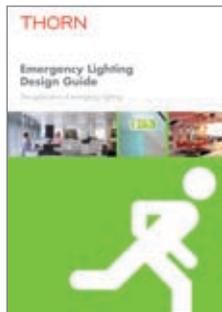
First aid points, fire extinguishers, fire hoses and other relevant equipment, such as eye wash stations, require additional emergency lighting (5 lux if not an escape route) in the event of an emergency.

## Spot Lighting

Definition	An area requiring extra levels of illumination to enable an activity or recognition to take place	
Areas	Fire call point, fire extinguishers and first aid points	
Lighting level	Fire call point, fire extinguishers and first aid points not on an escape route need to be lit to 5 lux minimum	
Diversity: $\Phi_{max} : \Phi_{min}$ Ratio of illuminance to min illuminance	< 40 : 1	
Response time: Time to reach emergency lighting levels	50% in 5 sec 100% in 60 sec	
Colour rendering (Ra)	>40	
Glare: High contrast between luminaire and background leads to glare. Disability glare prevents you seeing properly.	<b>Mounting Height h</b>	<b>Spot Lighting Max. Luminous Intensity (I<sub>max</sub>)</b>
	m	cd
	2.5 ≤ h < 3.0	900
	3.0 ≤ h < 3.5	1600
3.5 ≤ h < 4.0	2500	

## Find out more...

For detailed information on the planning of emergency schemes, please refer to the Thorn Emergency Lighting Design Guide.



## Voyager LED Spot

Voyager LED Spot luminaires are made from die-cast aluminium. They are extremely compact (85mmØ or 146mm<sup>2</sup> for recessed versions), incorporate Nickel Metal Hydride (NiMH) batteries that ensure 3-hour emergency operation and can be easily installed and maintained.

A visible LED indicator is included in the luminaire to show the status of the fitting. They are available in either white (RAL 9016) or silver (RAL 9006) in two variants:

## MRE – Recessed

The MRE version is designed to be recessed into suspended ceilings. The low-profile L-shaped battery and control gear box will fit through the cut-out aperture. For fitting into concrete ceilings, a recessing box is available.

## MCE – Surface mounted

The MCE version can be surface mounted. The gear tray is fixed on to the mounting surface and the cast aluminium body snaps firmly into place. The housing (only 33mm deep) also contains the inverter and batteries.

## E3TX - SelfTest Addressable

Both versions come standard with E3TX SelfTest Addressable emergency gear. E3TX provides SelfTest functionality, indicating the status of the luminaire via a bi-colour LED. If connected to a Thorn Explorer Project or Explorer Vision central test system, E3TX fittings are linked to an intelligent local controller that automatically conducts all the necessary tests and stores all results in one central location.

Voyager LED Spot (surface, silver)



Voyager LED Spot (recessed, silver)



**Solution**

The Voyager LED Spot meets and exceeds the requirements for additional emergency lighting and provides:

- Instant full light output for important items.
- Worse case glare levels of 156cd, which is significantly below the legal limits.
- A beam diameter of up to 2.7m at 3.5m mounting.

**Performance table for Voyager LED Spot**

	Area of illumination to 5 lux (m <sup>2</sup> )
Mounting height	E3TX
2.5m	2.3
3m	2.6
3.5m	2.7

E3TX - 3 hour SelfTest or Addressable Test

# Peace of mind with Thorn Explorer

## Explorer SelfTest

Explorer SelfTest technology provides simple and reliable automatic testing for standalone emergency luminaires. An intelligent diagnostic processor automatically performs the required function and duration testing. The results are clearly displayed on a bi-colour LED indicator that is integrated into the product. Compliance with the legal regulations requires the building operative to walk around the application once a month and check the status of the LED indicators. The overall result must be recorded in a central log book.

Any fault can be clearly seen and identified using the bi-colour LED indicator. A red light shows a fault, whilst the frequency of the flash indicates the type of fault (eg. low battery).

Benefits of Explorer SelfTest technology:

- Easy installation, with automatic self-commissioning and no need for additional cabling.
- Simple monthly visual monitoring by the building operative.
- Faster than average recharge time for emergency batteries (around 10-15 hours, compared to 24 hours for conventional manual test fittings).
- Bi-colour LED (red and green) status indication.
- Intelligent scheduler learns to test while the building is unoccupied.

Explorer SelfTest is an ideal testing solution for small applications or building refurbishments. Key applications include small shops, offices and public buildings.



## Explorer Project

Emergency lighting schemes have to be tested regularly to meet the requirements of UK and European law. Failure to provide full test records can result in legal action and the eventual closure of a building.

In the event of an emergency, if the emergency lighting is found to be defective, the insurance policy for a building may be invalidated and the building operator could face a heavy fine or imprisonment.

To help building operators and owners maintain a fully functional emergency lighting scheme that meets the full raft of legal requirements, Thorn offers the Explorer range of automated central test systems. Explorer can provide an intelligent testing protocol that is fully compliant with European Standards, combining peace of mind with consistent safety. Explorer technology eliminates the need for costly and time-consuming manual testing by a 'competent person' and can be specified to suit different applications and budgets.

## Find out more...

For further information on Explorer please refer to the Explorer product brochure.



Explorer Project is a centrally-addressable testing system that provides fully automatic monitoring, testing and fault logging for up to 256 emergency fittings. It delivers:

- Ultimate convenience for emergency lighting testing.
- Automatic, paper-free storage of results for two years.
- A reporting function that identifies each luminaire, its location and precise details of any fault.
- Coverage of up to 900 metres from the local controller.
- Flexible scheduling of tests to suit local requirements.
- Staggered testing to minimise the risk of depleted batteries.
- Simple installation and commissioning.
- Simple connection of E3TX Voyager LED luminaires using polarity-free twin DALI wire and standard mains-rated installation materials.

Explorer Project is particularly suitable for small-to-medium projects requiring an easy and convenient way of maintaining an emergency lighting installation. Schools, colleges, offices, surgeries, libraries and public buildings are among typical user groups.

## Typical whole life cost comparison for mandatory testing

Life cost of Manual Test	£668,956
Life cost of SelfTest	£352,772
Saving over Manual Test	£316,184
Life cost of Explorer Addressable Test	£315,405
Saving over Manual Test	£353,551
Saving over SelfTest	£37,367

Example based on an installation of 999 luminaires that is tested to meet mandatory test requirements over a 10-year period.

# Specifications

## Lamps

2.7W high power LEDs

## Materials/Finish

Surface mounting version  
 Body: cast aluminium alloy body, finished in RAL 9016 white or RAL9006 metallic silver.  
 Recessed version - aluminium alloy reflector, finished in RAL 9016 white or RAL 9006 metallic silver. Polycarbonate housing for battery and control gear.

## Installation/Mounting

Surface mounting: rear and side cable entry.  
 Recessed version: cable entry into remote control gear.

## Standards

Designed and manufactured to comply with EN 60598 2-22, EN 55015

Class I electrical (surface mounted versions)

Class II electrical (recessed versions)

IP40 from below; IP20 from above

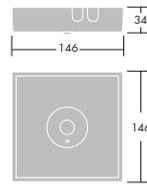


## Specification

To specify state:  
 Compact self-contained LED luminaire, suitable for recessed or surface mounting, with optics optimised for open areas, escape routes and spot lighting. 3-hour emergency duration from Nickel Metal Hydride batteries. Explorer SelfTest Addressable test capability. As Thorn Voyager LED Series.



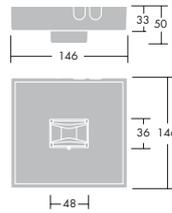
Voyager LED Area (surface, white)



Area, surface mounted



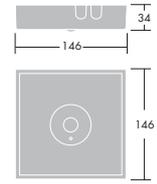
Voyager LED Route (surface, white)



Route, surface mounted



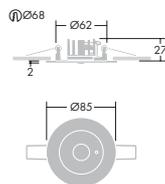
Voyager LED Spot (surface, silver)



Spot, surface mounted



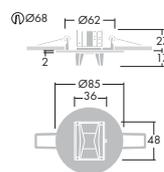
Voyager LED Area (recessed, silver)



Area, recessed



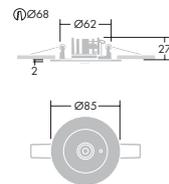
Voyager LED Route (recessed, silver)



Route, recessed



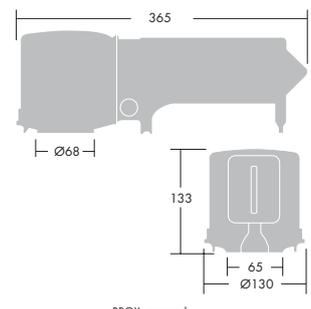
Voyager LED Spot (recessed, white)



Spot, recessed



Optional recessing box for installation of recessed (MRE) versions into concrete ceilings



RBOX, recessed

# Ordering Guide

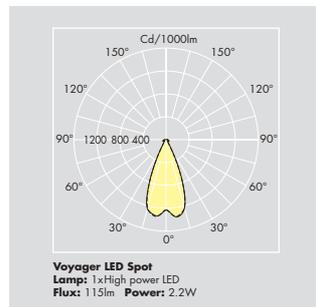
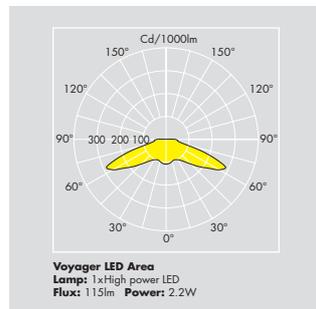
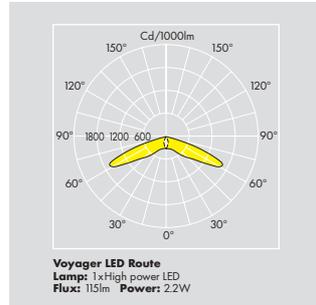
## Ordering Guide

Description	Weight (Kg)	SAP Code
<b>Route</b>		
VOYAGER LED ROUTE MCE E3TX SIL	0.8	96503714
VOYAGER LED ROUTE MCE E3TX WHI	0.8	96503716
VOYAGER LED ROUTE MRE E3TX SIL	1.2	96503718
VOYAGER LED ROUTE MRE E3TX WHI	1.2	96503720
<b>Area</b>		
VOYAGER LED AREA MCE E3TX SIL	0.8	96503724
VOYAGER LED AREA MCE E3TX WHI	0.8	96503726
VOYAGER LED AREA MRE E3TX SIL	1.2	96503728
VOYAGER LED AREA MRE E3TX WHI	1.2	96503730
<b>Spot</b>		
VOYAGER LED SPOT MCE E3TX SIL	0.8	96236609
VOYAGER LED SPOT MCE E3TX WHI	0.8	96236611
VOYAGER LED SPOT MRE E3TX SIL	1.2	96503734
VOYAGER LED SPOT MRE E3TX WHI	1.2	96503737
<b>Accessories</b>		
RBOX PE VOYAGER LED MRE CONCRETE*	0.3	96236606*
VOYAGER LED MCE BESA**	0.2	96236796**

E3TX - 3 hour SelfTest or Addressable Test  
MCE - ceiling surface mounted  
MRE - recessed mounted  
PE - polyethylene,  
RBOX - recessing box  
SIL - silver finish  
WHI - white finish

\* Only suitable for use with a recessed (MRE) version of the Voyager LED series that is to be recessed into a concrete ceiling.

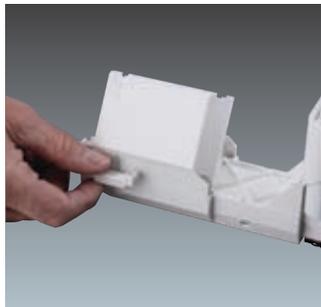
\*\* Only suitable for use with a surface (MCE) version of the Voyager LED series that is to be fixed to a besa box.



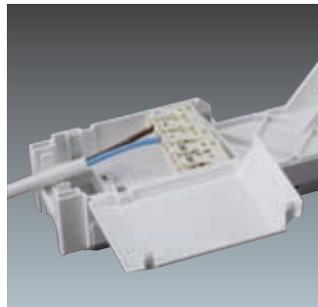
# Installation



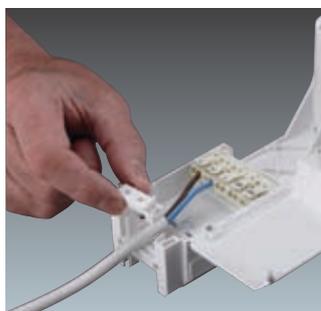
1.



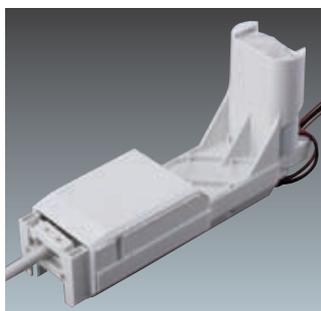
2.



3.



4.



5.



6.



7.

1. The recessed version of Voyager LED series (MRE) has been designed to make installation as simple as possible.
2. The specially moulded cable clamps should be snapped off the body, ready for use.
3. Mode of operation (non-maintained, maintained or switched) is selected at this point.
4. Use the cable clamps to lock off input cable so as to avoid strain on the terminal block.
5. Close the body to shroud the connections.
6. Insert the control gear in through the aperture prepared for the Voyager LED series.
7. Push up the spring clips and offer the product up into the ceiling aperture.



# THORN

Lighting people and places

## Thorn Lighting Limited

### UK

Silver Screens, Elstree Way, Borehamwood,  
Hertfordshire, WD6 1FE

### UK Sales desk -

#### Orders/Stock Enquiries

Tel: 0844 855 4810

Fax: 0844 855 4811

### Ireland

Thorn Lighting (Ireland) Limited

Century House

Harolds Cross Road

Dublin 6W

Tel: (353) 1 4922 877

Fax: (353) 1 4922 724

E-mail: [dublinsales@thornlighting.com](mailto:dublinsales@thornlighting.com)

### Thorn Olympics Sports Lighting Team

Tel: 07785 251 438

E-mail: [olympics.team@thornlighting.com](mailto:olympics.team@thornlighting.com)

### Spare Parts

Tel: 0191 301 3131

Fax: 0191 301 3038

E-mail: [spares@thornlighting.com](mailto:spares@thornlighting.com)

### Technical Support

Tel: 0844 855 4812

Fax: 020 8732 9882

E-mail: [technical@thornlighting.com](mailto:technical@thornlighting.com)

### Brochureline Answering Service

Brochures on specific products/ranges

Tel: 020 8732 9898

Fax: 020 8732 9899

E-mail: [brochures.uk@thornlighting.com](mailto:brochures.uk@thornlighting.com)

**[www.thornlighting.co.uk](http://www.thornlighting.co.uk)**

Thorn Lighting is constantly developing and improving its products. All descriptions, illustrations, drawings and specifications in this publication present only general particulars and shall not form part of any contract. The right is reserved to change specifications without prior notification or public announcement. All goods supplied by the company are supplied subject to the company's General Conditions of Sale, a copy of which is available on request. All measurements are in millimetres and weights in kilograms unless otherwise stated.

**Publication No: 452 (GB) Publication Date: 04/09**



Member of The Lighting  
Industry Federation



ISO 9001:2000  
Reg: 2916/0  
Manufacturing & Distribution