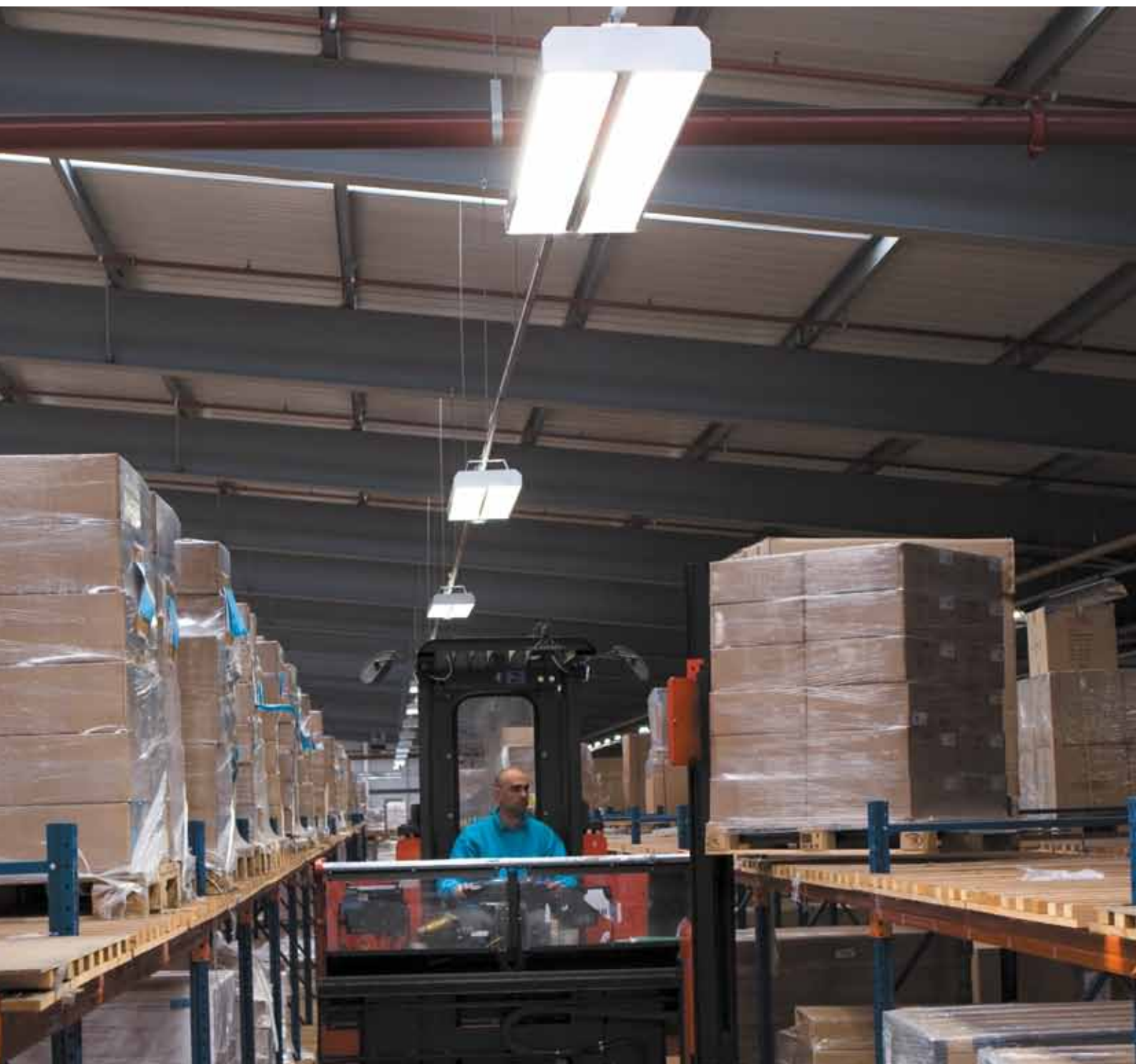


# THORN

## Hi-Rack

High output, energy saving fluorescent luminaire for high bay applications



# Basic to advance controls

Hi-Rack is particularly suited to storage, retail and industrial environments and offers a logical and cost-effective way to reduce energy costs and improve lighting quality.

For open spaces or racking aisles not in continual use, you can use Hi-Rack's dimming and sensor capabilities to reduce lighting and power consumption to as little as 10%. Hi-Rack also offers a longer life than HID alternatives, so you can cut the cost of regular maintenance and associated downtime.

As demonstrated below, switching from HID luminaires to the basic Hi-Rack High Frequency (HF) model will enable you to achieve significant energy savings, while switching to the Hi-Rack High Frequency dimmable Sensor (HFS) model will enable you to achieve maximum energy savings.



## Hi-Rack compared to HID solution

HID luminaires have been standard practice for high ceiling applications for decades. They are particularly ideal where occupancy is fixed or the voltage is unstable. However, where occupancy is varied or reducing energy consumption is a priority, Hi-Rack offers a flexible and energy efficient alternative.

The figures to the right compare traditional HID Hi-Bay lighting with Hi-Rack for a typical 7,740m<sup>2</sup> logistic centre\*. Figure 1 demonstrates that in less than a year, both Hi-Rack products reach payback. By year three, substantial savings are achieved with Hi-Rack HF costing £19,600 less than the HID alternative and Hi-Rack HFS costing £64,500 less than the HID alternative.

When comparing the average energy consumption per m<sup>2</sup> and year (kWh/m<sup>2</sup>/a) to traditional HID lighting (Figure 2), Hi-Rack HF uses 30 % less energy and Hi-Rack HFS uses 64% less energy. Installing Hi-Rack will therefore substantially cut energy consumption and bills.

As illustrated in Figure 3, over a lifetime, running Hi-Rack HF instead of HID will reduce costs by 18%, while running Hi-Rack HFS will reduce costs by 53%.

\*The comparison is based on using 270 new installation fittings, lit to 150 lux over a 15 year period, operational for two shift patterns, 16 hours a day, five days a week, with 50% aisle occupancy.

Course of overall costs of solution over lifetime

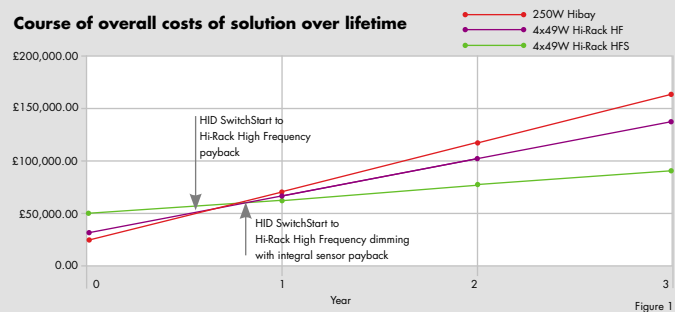


Figure 1

Average energy consumption per m<sup>2</sup> and year kWh/m<sup>2</sup>/a

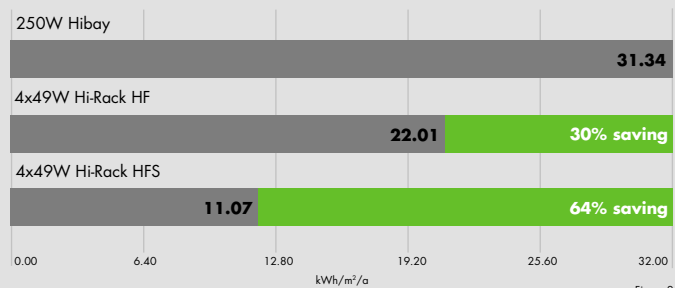


Figure 2

Investment cost vs. running cost of solution

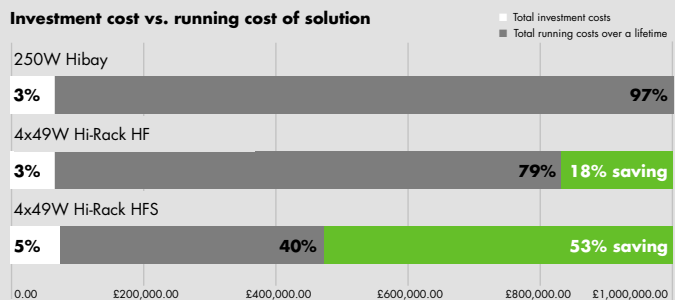


Figure 3

**Total sensor control for maximum savings**

Hi-Rack with a high frequency sensor ensures you only use light when needed, which can reduce annual energy consumption by as much as 64%. The sensor can be used up to 16 metre mounting heights and is quick and simple to install as it is factory set or can be programmed to specific needs using a handheld programmer from the floor.

Figure 4 shows the sensor factory settings and how the lighting is activated as soon as presence motion is detected. If no motion is detected after 10 minutes, lighting will automatically dim to 10%. If no motion is detected after three hours, lighting will automatically switch off.

Similarly, Figure 4 also shows how the sensors ensure no unnecessary lights are switched on. If only half an aisle is used, only half the lights will be activated, enabling you to achieve further energy savings.



100% saving as lights not activated for last 3 hours



50% saving as worker activates lights and stops half way down



Worker leaves aisle still, 50% savings

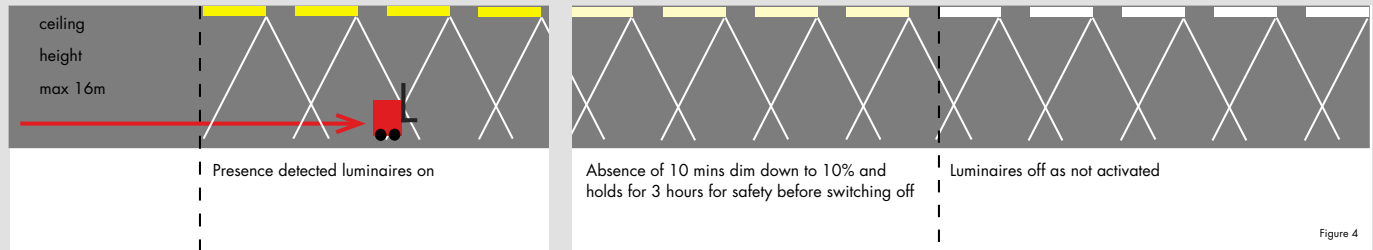


Figure 4

**Emergency Lighting**

Hi-Rack provides integral emergency lighting to allow you to install just one luminaire complete with emergency options, making the need for a secondary emergency system redundant. High output emergency solutions are also available for higher mounting applications and reducing the number of emergency luminaires required.

**Minimised Maintenance**

Maintenance at high mounting heights usually requires careful planning, special equipment and task downtime, making it difficult and costly to execute.

Hi-Rack minimises this burden as multi-lamp optics, full dimming capabilities and improved lumen maintenance with age, provides a longer life and minimised maintenance schedule.

Moreover, the failure of one lamp will not extinguish all lamps as with HID single lamp solutions, ensuring minimal impact on the task light.

**Rapid Installation**

Hi-Rack comes ready to install to minimise installation time and costs:

- Lamps supplied
- Choice of suspension
- External wiring connection
- Curved body shape for easy handling
- Factory-set sensor





# Product Features Ordering Guide Dimensions

## Lamps

⇒ 4x49/80W T16 (FDH) linear fluorescent. Cap: G5

## Materials/Finish

Housing: white steel with polycarbonate end caps  
Reflector: high grade aluminium, wide optic - Satinbrite, rack optic - Mirrorbrite  
Attachment cover: UV stable polycarbonate

## Installation/Mounting

Mounting kits to be ordered separately. Please note, a 100mm gap must be left between the top of the luminaire and any surface. For wire suspension, accessory kit 96535236 slides directly on to the back of the body and can be easily adjusted. Accessory kit 96535235 allows trunking mounting via 20mm holes or rod mounting via 10mm holes. For canalis trunking system mounting accessory kit 96239583 can be used via M6 screw fixings. A 2.5mm<sup>2</sup> piano key terminal block is accessed externally via a hinged lid (Isodom).

Integral sensor versions come factory pre-set as follows (off time delay - 10 minutes, after off time delay lights stay on at 10% for 3 hours then turn off, daylight linking deactivated) can be mounted up to 16m. Hand held programmer (SAP code: 96102983 SENSALINK SENLP) can be used from the floor to customise sensor settings.

## Standards

Designed and manufactured to comply with EN60598.

Emergency versions EN605982.2.22

⊕ Class I electrical

Ta 25°C

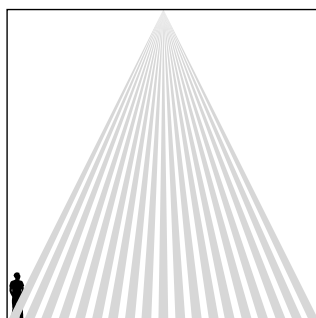
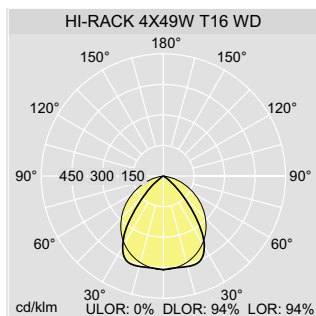
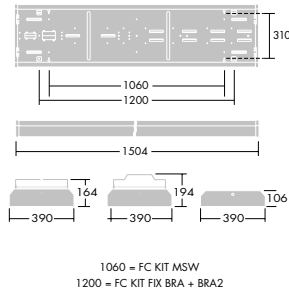
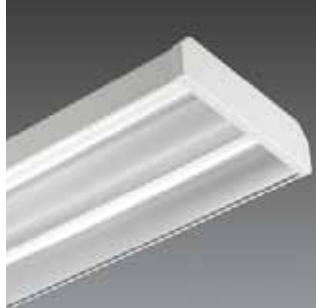
IP20 CE

## Specification

To specify state:

A high bay luminaire supplied with fluorescent T16/T5 (49W or 80W) linear lamps, curved body with plastic end caps, wide or rack reflector optics. Isodom connector. Pre-installed factory set sensor, electronic gear, high output emergency.

As Thorn Hi-Rack



Range: 360° cone-shaped detection pattern, diameter (at floor level) = 1 x mounting height

## Lighting Controls

e-Control is Thorn's initiative to increase the use of dimming and lighting control in products and lighting solutions.

The continuing importance of efficient energy use (on both cost and environmental grounds), together with a need for more flexible application of lighting, has led to a reassessment of lighting techniques and given a fresh impetus to the drive for more efficient controls.

**Ordering Guide** Supplied complete with lamp. Mounting kits to be ordered separately

Description	Ilcos Code	Socket	Weight (Kg)	SAP Code
<b>Wide Optic</b>				
HI-RACK 4X49W HF WD L840	FDH	G5	5.5	96535219
HI-RACK 4X80W HF WD L840	FDH	G5	5.5	96535227
<b>Wide Optic, dimmable</b>				
HI-RACK 4X49W HFD WD L840	FDH	G5	5.5	96535221
HI-RACK 4X80W HFD WD L840	FDH	G5	5.5	96535229
<b>Wide Optic, dimmable with sensor</b>				
HI-RACK 4X49W HFS WD L840	FDH	G5	6.0	96535224
HI-RACK 4X80W HFS WD L840	FDH	G5	6.0	96535232
<b>Wide Optic, emergency</b>				
HI-RACK 4X49W HF E3 WD L840	FDH	G5	6.6	96535220
HI-RACK 4X49W HF E3HO WD L840	FDH	G5	7.0	96535240
HI-RACK 4X80W HF E3 WD L840	FDH	G5	6.6	96535228
<b>Wide Optic, dimmable, emergency</b>				
HI-RACK 4X49W HFD E3 WD L840	FDH	G5	6.6	96535222
HI-RACK 4X49W HFD E3HO WD L840	FDH	G5	7.0	96535223
HI-RACK 4X80W HFD E3 WD L840	FDH	G5	6.6	96535230
<b>Wide Optic, dimmable with sensor, emergency</b>				
HI-RACK 4X49W HFS E3 WD L840	FDH	G5	7.6	96535225
HI-RACK 4X49W HFS E3HO WD L840	FDH	G5	8.0	96535226
HI-RACK 4X80W HFS E3 WD L840	FDH	G5	7.6	96535233
<b>Rack Optic</b>				
HI-RACK 4X49W HF RK L840	FDH	G5	5.5	96535203
HI-RACK 4X80W HF RK L840	FDH	G5	5.5	96535211
<b>Rack Optic, dimmable</b>				
HI-RACK 4X49W HFD RK L840	FDH	G5	5.5	96535205
HI-RACK 4X80W HFD RK L840	FDH	G5	5.5	96535213
<b>Rack Optic, dimmable with sensor</b>				
HI-RACK 4X49W HFS RK L840	FDH	G5	6.0	96535208
HI-RACK 4X80W HFS RK L840	FDH	G5	6.0	96535216
<b>Rack Optic, emergency</b>				
HI-RACK 4X49W HF E3 RK L840	FDH	G5	6.6	96535204
HI-RACK 4X49W HF E3HO RK L840	FDH	G5	7.0	96535238
HI-RACK 4X80W HF E3 RK L840	FDH	G5	6.6	96535212
<b>Rack Optic, dimmable, emergency</b>				
HI-RACK 4X49W HFD E3 RK L840	FDH	G5	6.6	96535206
HI-RACK 4X49W HFD E3HO RK L840	FDH	G5	7.0	96535207
HI-RACK 4X80W HFD E3 RK L840	FDH	G5	6.6	96535214
<b>Rack Optic, dimmable with sensor, emergency</b>				
HI-RACK 4X49W HFS E3 RK L840	FDH	G5	7.6	96535209
HI-RACK 4X49W HFS E3HO RK L840	FDH	G5	8.0	96535210
HI-RACK 4X80W HFS E3 RK L840	FDH	G5	7.6	96535217
<b>Attachments/mounting kits</b>				
HI-RACK KIT FIX BRA			2.0	96535235
HI-RACK KIT FIX BRA 2			2.0	96239583
HI-RACK KIT MSW			1.0	96535236
HI-RACK KIT PC COVER			1.5	96535237

HF - High Frequency, HFD - High Frequency dimmable, HFS - High Frequency dimming with sensor, WD - Wide reflector, RK - Rack reflector, E3 - Emergency 3 hour, E3HO - Emergency 3 hour high output, BRA - Bracket, MSW - Wire suspension

Hi-Rack is an energy saving alternative for lighting indoor spaces with high ceilings



Hi-Rack not only cuts energy consumption by up to 64%, but also improves light quality. Employing high output T16 (T5) fluorescent lamps, it offers an energy efficient alternative to high intensity discharge (HID) luminaires:

- Optional integrated dimming or sensor versions for maximum energy savings
- Choice of wide or rack reflector optics to suit the application
- Excellent light quality with a colour rendition index of 80
- No warm-up delay or re-ignition time
- High output emergency solutions allow integral emergency systems to be installed at higher mounting heights
- Plastic cover attachment protects lamps and reduces dust on reflectors



At Thorn we recognise our sustainability responsibilities, and with the **PEC** programme we have introduced a wide-ranging philosophy that underpins our approach to lighting design and implementation. The programme is based on the principle that performance, efficiency and comfort determine the visual effectiveness of lighting.

**Performance:** Providing the best visual effectiveness

**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

**Comfort:** giving people satisfaction and stimulation

These key attributes are demonstrated throughout this brochure



Retail



Exhibition Centres



Factories



Logistic Centres

# THORN

Lighting people and places

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**Publication No: 430 (GB) Publication Date: 2/11**



ISO 9001:2008  
Reg: AT-00005/5  
ISO 14001:2004  
Reg: AT-00247/2  
Manufacturing