



Whitecroft
lighting

Intral

Integrated lighting and
trunking for Industry

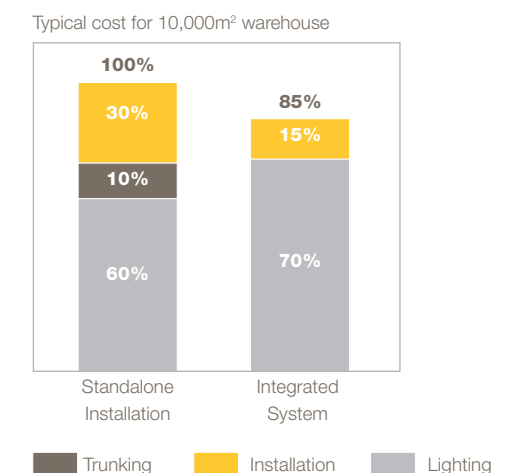


Efficiency in installation and operation

Intral represents the most efficient lighting and trunking solution available for today's industry. Efficient in installation as Intral is supplied as a complete unit, trunking and lighting combined, for rapid installation. Efficient in operation as Intral utilises low energy LED technology, combined with integral lighting controls to provide the most cost-effective lighting solution available.

Lighting and trunking at the lowest installed cost

Intral is the simplest trunking system available, combining high quality extruded aluminium trunking for a perfect fit every time, with pre-assembled and pre-wired sections containing all lighting, controls and additional services that simply plug together for rapid installation. Systems are supplied as a project-specific package, coded and ready to install from a minimum of suspension points, ensuring the lowest possible installed cost. Packaging is minimized, lowering the environmental impact and reducing wasted time and cost of waste disposal.



Designing for lowest energy

High efficiency for low energy consumption

Intral utilises the latest high efficiency LED technology. The flexibility of the Intral system means that lighting levels can be tailored to meet the exact demands of the space, avoiding over-lighting and therefore wasted energy and cost. Intral can deliver up to 180lm/cw, ensuring the highest efficacy from the fewest luminaires.

Optics are available for a wide range of applications, with wide, medium and narrow beams. To optimise the delivery of light to the working surface a diffused optic can be used for general area lighting, whilst lenses are employed in areas requiring greater glare control. This allows Intral to be used in all applications, including those requiring LG1 compliance.



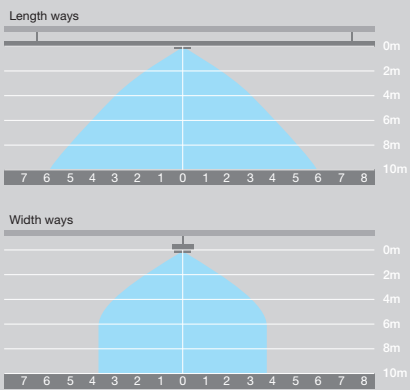
Controlling costs

Intral can be specified with integral lighting controls. These DALI-based sensors ensure that lighting is only used when and where it is needed, further reducing the lifetime cost of any application. Daylight detection allows luminaires to be dimmed where daylight is present, whilst presence detection is employed to ensure that lighting is only used in occupied areas.

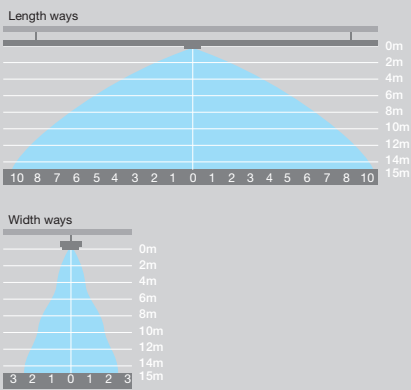
Sensors are available for both open area and narrow aisle configurations, and can be used at mounting heights of up to 20m. Individual luminaires or complete runs can be controlled, and programmed simply by using the optional hand-held remote control unit.

Detection zones

Open area



Narrow



Simplifying design, specification and installation

The Intral system removes complexity from the entire buying process, from initial enquiry right through to delivery and installation.

Design Optimisation

Upon initial enquiry, our sales engineers will quickly deliver design concepts, including outline budget and illumination levels. Once this has been agreed, our technical department will fine-tune the lighting design, adjusting the layout for both spacing and uniformity, as well as optimising lumen outputs and energy consumption. This ensures that the required levels of illumination are achieved using the least amount of luminaires, reducing cost at both the initial purchase stage and through life.

“Intral was much quicker to install than other trunking systems because it was supplied with lights already fitted. We only had to hang the suspension wires, connect it and join the sections together”

Lee at Mitie Lighting Projects.

Efficient Installation

Once an order has been placed, final lighting layouts will be provided along with a schedule of unique codes indicating the installation sequence. The Intral system is delivered to site in complete lengths, with lighting, infills and detectors pre-installed in the trunking at the correct positions. Each section is clearly labelled so that the contractor has only to install suspension points in the correct place, then attach each section in order. This ensures a speedy installation and reduces the risk of errors on site.












Integrated Systems and Services

Through-wiring for rapid installation

Intral comes as standard with a seven core wiring system, allowing for three switched circuits or three phase power and DALI lighting controls. Optionally, ten or thirteen core systems can be specified to enable further live circuits, permanent live for emergency systems, and/or additional communications cables. The flexibility of the system allows it to be tailored to an individual application.

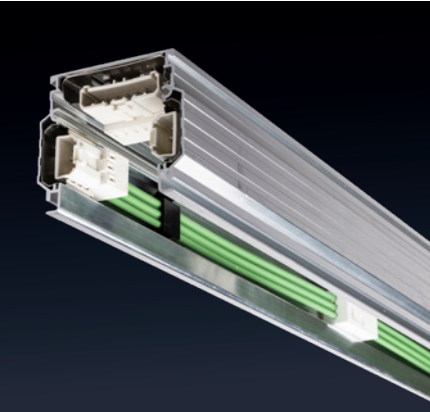
If additional cable capacity is required, Intral trunking can be specified with an alternative trunking profile having an upper cable channel for additional services such as network cables, fire alarm controls or power distribution.

N		Neutral
E		Protective Earth
L1		Live 1
L2		Live 2
L3		Live 3
D1		Controls Dail +
D2		Controls Dail -

7 Core system typical configuration

Emergency lighting and testing

As emergency lighting is a requirement in any industrial application, Intral can be specified with COMEPS, a DALI based automatic test system that allows the emergency lighting system to be tested over a robust DALI bus. It can be integrated into a building-wide lighting control system along with other devices using the same two wire DALI bus. This allows an automated, efficient, cost effective and reliable means of meeting the mandatory requirements. The automatic central test system guarantees regular testing and monitoring of emergency lighting and will reduce the overall cost of maintenance.



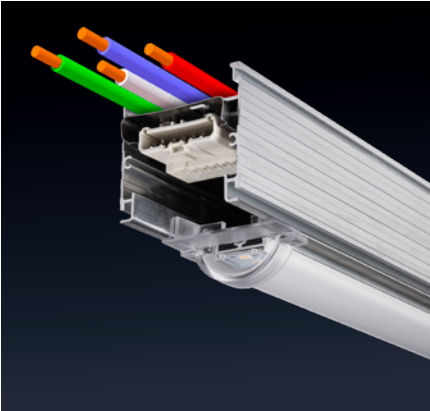
13 Core trunking



Standard 7 Core trunking

Service integration for increased efficiency

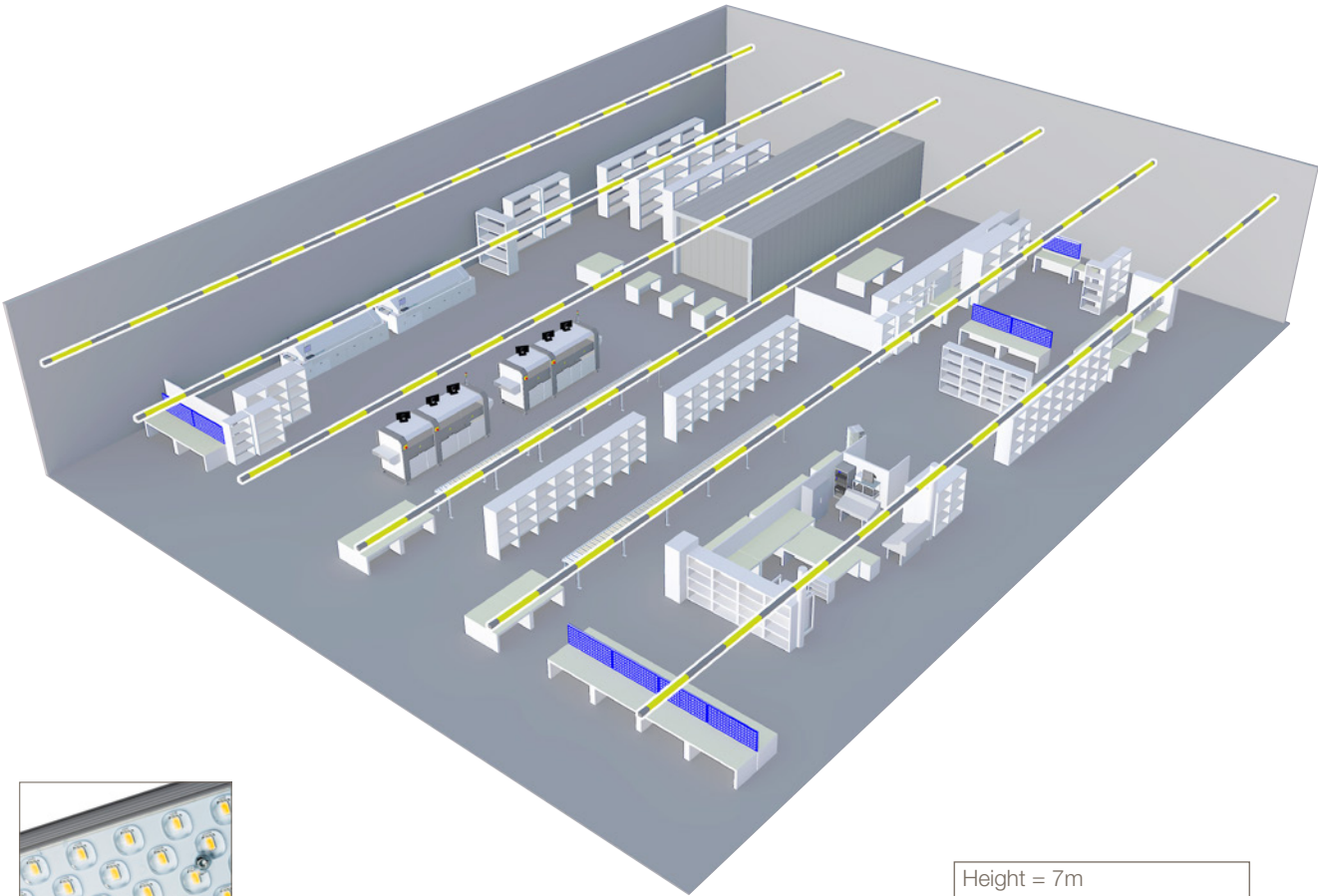
As well as lighting systems, Intral can be configured and supplied with a range of project-specific integrated services. From alarm and PA systems to power drops for additional equipment. For more information on these services please contact your sales engineer or the Whitecroft technical department.



Optional upper cable channel

Intral in action

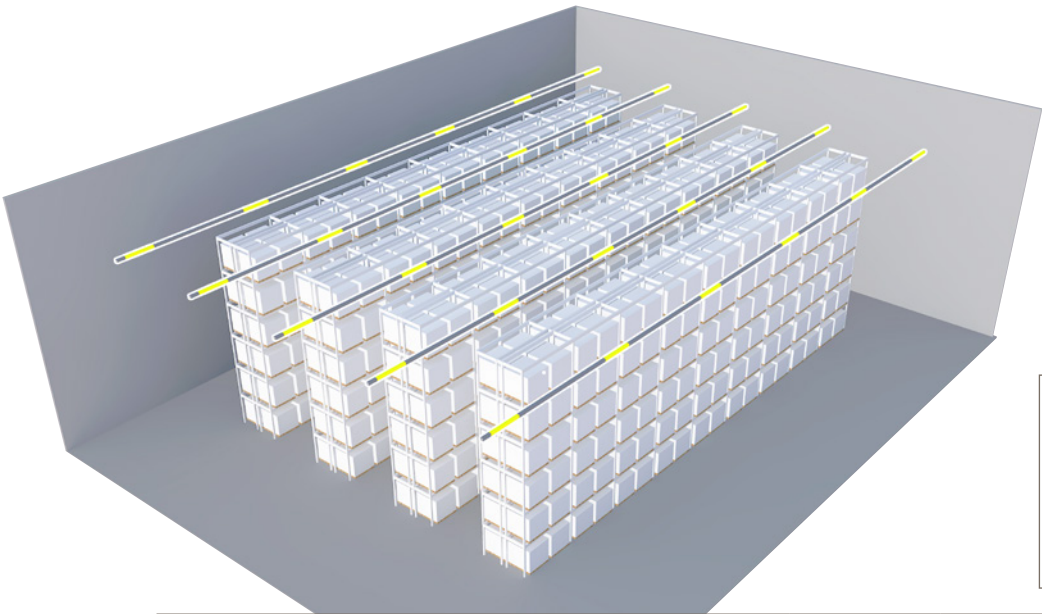
Intral is suitable for any industrial application, whether warehousing, manufacturing or mixed-use space. The flexibility of the system allows it to be used in a multitude of configurations, delivering the required lighting levels from 4 to 20m heights. Depicted here are some typical applications, however the Intral system can be specified to meet the exact requirements of any space.



Lens wide

Height = 7m
Mounting height = 6m
Working plane = 1m
Reflectances = 50, 30, 10%

Manufacturing open area						
Luminaire	Lumen output	Spacing W x L (m)	Average Lux	Uniformity	UGR	Energy W/m²/100lux
Targets	n/a	n/a	500	0.6	22	n/a
Lens 1.5m Wide beam	14,000	5.2 x 3.06	508	0.67	19	0.81



Lens narrow

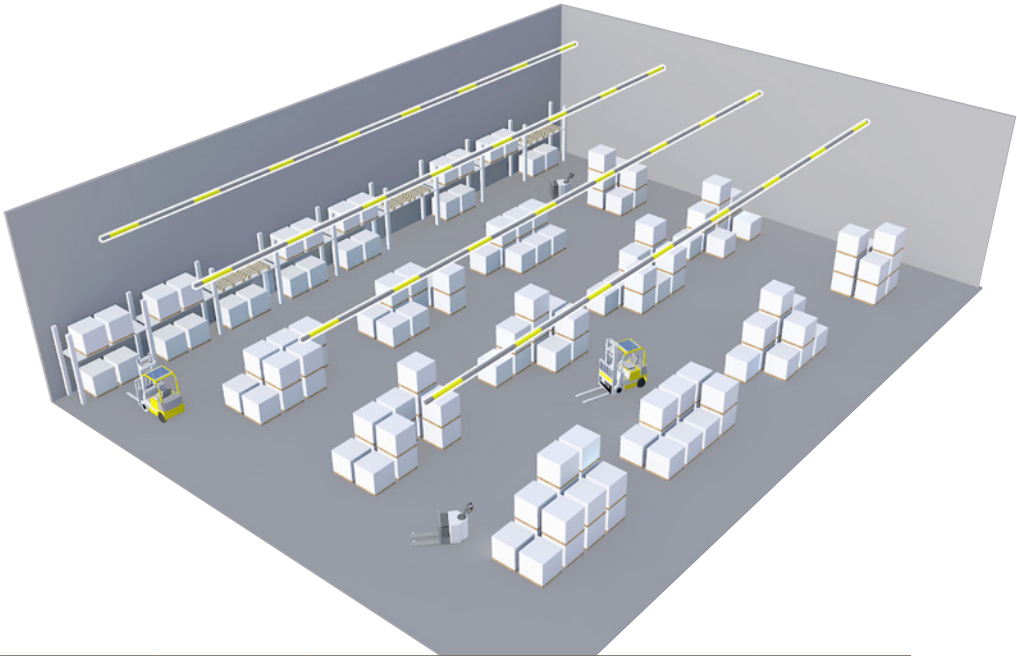
Width = 2.4m
Height = 13m
Mounting height = 12m
Working plane = Floor
Reflectances = 50, 30, 10%

Warehouse high racking						
Luminaire	Lumen output	Spacing L (m)	Average Lux	Uniformity	UGR	Energy W/m²/100lux
Targets	n/a	n/a	200	0.4	25	n/a
Lens 1.5m Narrow beam	11,000	6.12	203	0.56	21	2.10



Lens medium

Height = 10m
Mounting height = 9m
Working plane = 1m
Reflectances = 50, 30, 10%



Warehouse open area						
Luminaire	Lumen output	Spacing W x L (m)	Average Lux	Uniformity	UGR	Energy W/m²/100lux
Targets	n/a	n/a	300	0.6	25	n/a
Lens 1.5m Medium beam	11,250	6.5 x 4.59	305	0.67	19	0.79



Intral

Fully integrated lighting trunking system



Optics

- 4000K LEDs
- Ra >80
- LED Life over 100,000 hours to L80 B50
- Wide, medium or narrow rack distributions
- Diffuser or lens optics
- Efficacy up to 180 l/cw

Body

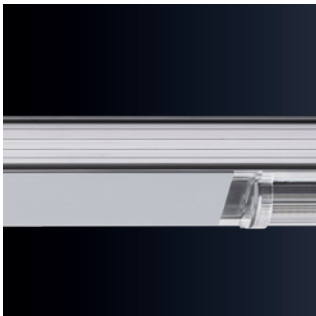
- Extruded natural aluminium
- IP40 rated when installed, also available as IP65
- IK07 impact protection
- 7 core cables as standard with 10 or 13 cores on request
- Suitable for surface mounting, chain or wire suspension
- Integral 3 hour emergency facility with COMECS addressable test feature
- Status LEDs for emergency versions
- Integrated controls with open area or narrow detection
- Control options use DALI drivers for daylight regulation and presence detection
- Suitable for ambient temperatures -25 to +35°C



Coupler



Suspension bracket



Infill section



End cap

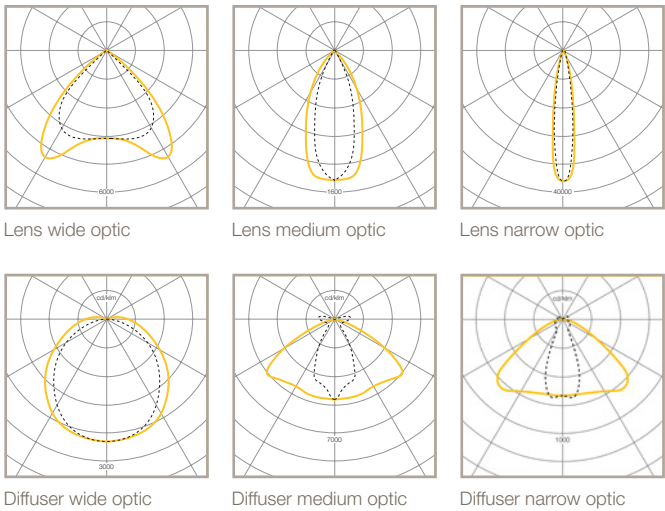


Power supply unit



Lens optic

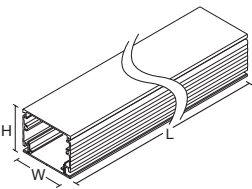
Photometric Performance



To Order

This is a project specific solution. Please contact Whitecroft for details.

Dimensions



Version	L	W	H	KG	KG _{EM}
Per 1.53m	1530	60	61.3	5.9	6.9
Power supply	150	60	55	0.5	n/a

Intral is a project based solution, supplied fully assembled in an optimum length of 4.59m. Weights shown above are the maximum for the complete system, per 1.53m. Exact details may change subject to project requirements.

Options

Design file reference for Relux and Dialux			
Type	Low output c. 8000 lumens	Medium output c. 14000 lumens	High output c. 17000 lumens
Diffuser, Wide	LTDH1514KWO	LTDH1524KWO	LTDH1534KWO
Diffuser, Medium	LTDH1514KM	LTDH1524KM	LTDH1534KM
Diffuser, Narrow	LTDH1514KN	LTDH1524KN	LTDH1534KN
Lens, Wide	LTLH1514KW	LTLH1524KW	n/a
Lens, Medium	LTLH1514KM	LTLH1524KM	n/a
Lens, Narrow	LTLH1514KN	LTLH1524KN	n/a

Efficacy ranges

Lens 158 to 180 l/cw
Diffuser 140 to 166 l/cw

LED Performance

Colour Temp	Ra (CRI)	Life Expectancy	Colour Consistency
4000K	Ra>80	L ₈₀ (100,000hrs)	MacAdam 3 SDCM

To Specify

Fully integrated lighting trunking system with extruded aluminium profile, highly efficient luminaires, pre-wired 7 to 13 core cables and plug-in connectors. Robust, high quality components to ensure a long life and maximum energy efficiency. Factory assembled system delivered ready to install for a quick and easy installation – as Whitecroft Lighting INTRAL.

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