



# Garda<sup>®</sup>

International InRail





## Award-winning handrail lighting for internal and external international applications

### **Best-on-market performance and uniformity**

Our award-winning recessed lighting solution for retrofit into handrail applications. Three standard module options offer a wide range of lighting levels, colour temperatures and distributions, including symmetric and asymmetric. Specify Garda InRail for best-on-market performance and uniformity.

**MADE IN BRITAIN**

Front cover: MAAT Museum, Lisbon





# Modules

Garda InRail offers a complete and flexible lighting package to meet the British Standard (BS5489-1:213) or customer specified lighting levels.



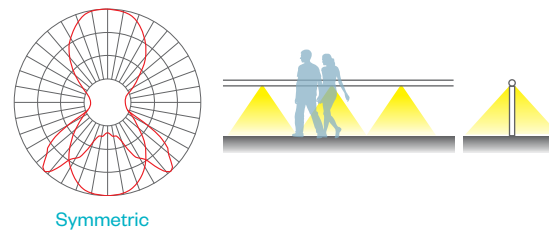
## Garda InRail

Offering symmetric and asymmetric performance for a large range of handrail applications. At launch, Garda set the standard for handrail lighting.

### Symmetric module

Length (mm)	Delivered lumens		
	2700K	3000K	4000K
300	201lm	281lm	335lm

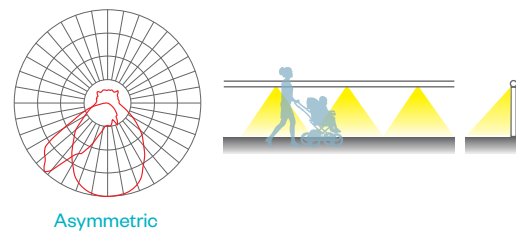
Illumination levels and uniformity*			
300mm	3.0 wide path	4.0 wide path	6.0 wide path
1.0 pitch	69lux Av @ 65% Uo	55lux Av @ 31% Uo	43lux Av @ 11% Uo
1.5 pitch	47lux Av @ 72% Uo	38lux Av @ 35% Uo	28lux Av @ 12% Uo
2.0 pitch	35lux Av @ 48% Uo	28lux Av @ 37% Uo	22lux Av @ 12% Uo
2.5 pitch	28lux Av @ 38% Uo	22lux Av @ 40% Uo	17lux Av @ 14% Uo
3.0 pitch	25lux Av @ 24% Uo	20lux Av @ 32% Uo	16lux AV @ 13% Uo



### Asymmetric module

Length (mm)	Delivered lumens		
	2700K	3000K	4000K
300	146lm	204lm	244lm

Illumination levels and uniformity*			
300mm	1.5 wide path	2.0 wide path	3.0 wide path
1.0 pitch	75lux Av @ 70% Uo	65lux Av @ 39% Uo	49lux Av @ 14% Uo
1.5 pitch	51lux Av @ 69% Uo	44lux Av @ 43% Uo	32lux Av @ 15% Uo
2.0 pitch	39lux Av @ 44% Uo	34lux Av @ 47% Uo	26lux Av @ 16% Uo
2.5 pitch	31lux Av @ 34% Uo	28lux Av @ 39% Uo	12lux Av @ 17% Uo
3.0 pitch	25lux Av @ 22% Uo	22lux Av @ 28% Uo	17lux AV @ 19% Uo



\*Garda InRail Pro and Garda InRail Comfort data available on request



## Garda InRail Pro

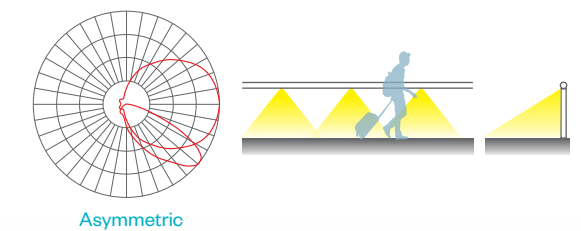
Garda InRail Pro is our NEW performance solution with asymmetric distribution. Designed for schemes which require increased module spacings, or high (150lux+) lighting levels and uniformity. For optimised lighting, performance and cost.

### Typical applications:

- Bridges
- Ramps
- Staircases
- Emergency lighting

### Asymmetric module

Length (mm)	Delivered lumens	
	3000K	4000K
300	449lm	489lm



## Garda InRail Comfort

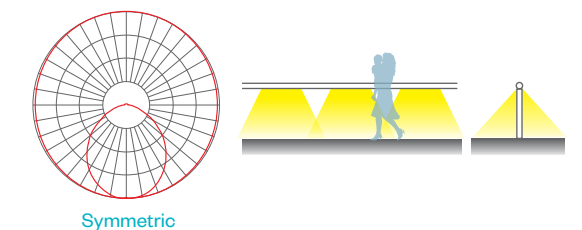
Ensuring we have a solution for every project; NEW Garda InRail Comfort is now available. With no visible LEDs, it offers a comfortable, homogeneous light. Its lower lighting levels – of 30lux – provide efficient lighting performance.

### Typical applications:

- Commercial premises
- Public realm

### Symmetric module

Length (mm)	Delivered lumens		
	2700K	3000K	4000K
300	294lm	300lm	320lm



 RGB available



# Electrical considerations

Electrical installation of a Garda InRail scheme is dependent on both the lighting requirements and the physical characteristics of the scheme.

## Electrical layout

Total system power including the specification of transformers are calculated to suit each application. The following issues are taken into consideration when we design our electrical solution:

- Lighting performance
- Total run length
- Distance between transformer and first LED module
- Cable size

## Number of LED modules per circuit

(based upon 48V AC supply)

Transformer rating	Module size
	<b>300mm</b>
100vA	16
160vA	26
250vA	42
400vA	68

(based upon 48V DC supply)

Driver rating	Module size
	<b>300mm</b>
52W	11
100W	21
150W	32
300W	64

### Control:

- Variable resistance dimming
- 1-10V dimming
- DALI dimming
- DMX (via DALI converter)

### Emergency:

Integrated emergency 3-hour battery back-up

### Protection:

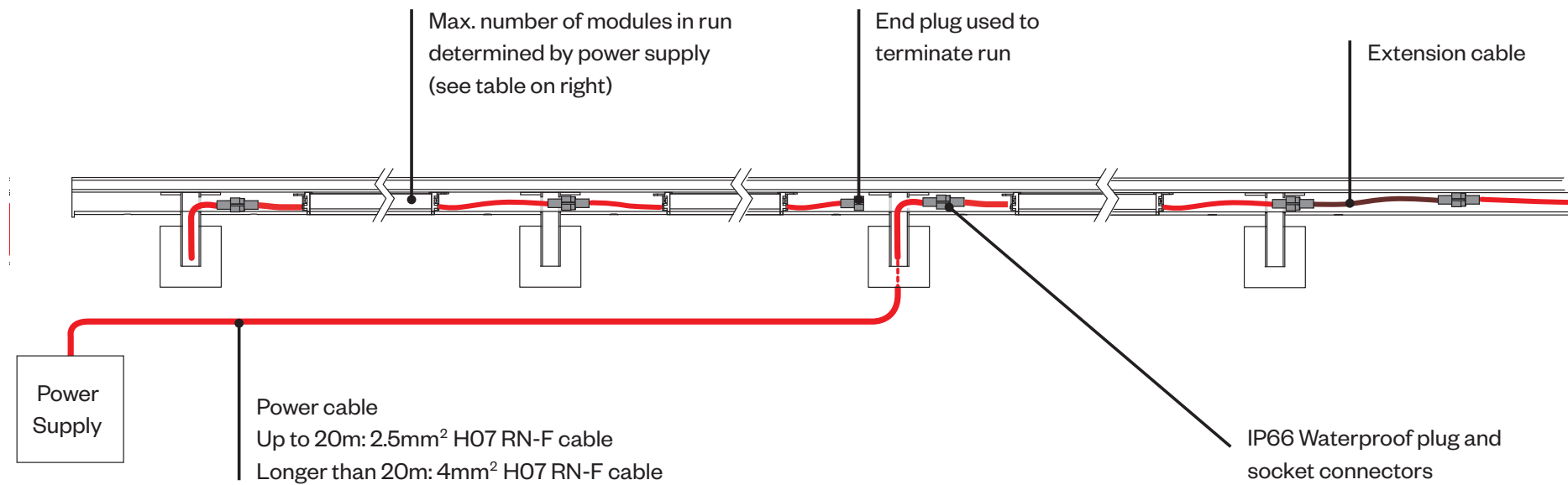
Class III SELV Supply (extra low voltage)

- IP rating: IP66 LED modules
- IK rating: IK10 shock resistance

### Electrical:

Supply:	24 - 48 Volts AC/DC (Pro and Comfort - DC only)
Electrically protected:	Surge protection Short circuit protection

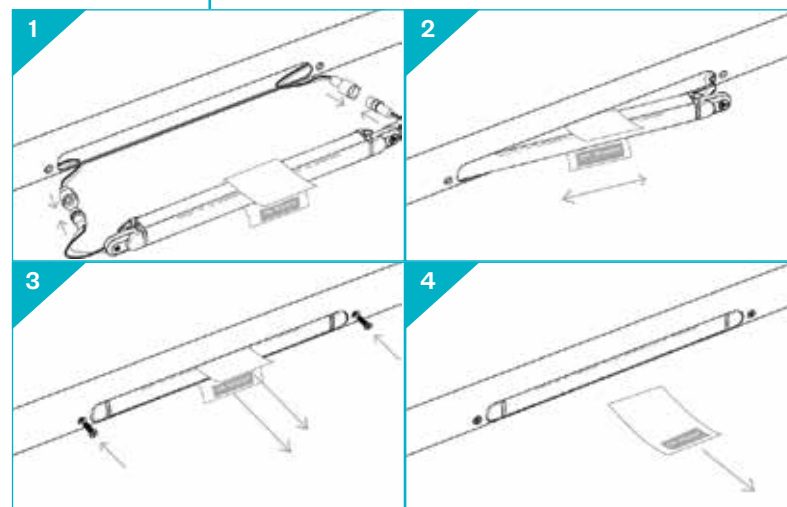
Power ratings:	48V AC	48V DC	24V AC	24V DC
<b>Module size</b>	<b>W</b>	<b>W</b>	<b>W</b>	<b>W</b>
Garda 300mm	3.6	3.6	4.2	3.6
Garda Pro 300mm		4.4		4.4
Garda Comfort 300mm				3.8



## Standard power enclosures

All electrical cabling below ground maintains IP66 integrity. Additional equipment associated with different control options, such as emergency batteries can normally be housed within the enclosure.

Dimensions	h: 300mm w: 300mm d: 150mm
Diameter	Minimum profile diameter: 50mm
IP rating	IP66
Input	1 x IP66 Ø20mm gland to accept 2.5mm <sup>2</sup> 3 Core as standard
Output	Up to 4 fused circuits with IP66 glands - 1.5mm <sup>2</sup> to 6mm <sup>2</sup> 2 Core





## MAAT Museum, Lisbon

Sweeping curved light which mirrors the geometry of the bridge and nearby Museum, without the obstruction of columns.

Full case study available on our website:  
[dwwindsor.com/projects/international](http://dwwindsor.com/projects/international)







**Champlain Bridge, Montreal**  
COMING SOON

# Garda InRail

## IP66 | IK10 | CLASS I | CLASS II

### Features

Suitable for both interior and exterior applications

Precise lighting control, for light where needed

Manufactured in the UK

Emergency lighting option available

Exclusive to international specifications

### Optical control

Garda InRail - Asymmetric

Garda InRail - Symmetric

Garda InRail Pro

Garda InRail Comfort

### L80 lifetime prediction

In excess of 100,000 hours

### Colour temperature

2700K (Garda Asymmetric, Symmetric and Comfort modules only)

3000K

4000K

RGB (Garda Comfort only)

### Colour rendering index

Garda Asymmetric, Symmetric and Pro: 70Ra

Garda Comfort: > 90Ra

### Mounting

Recessed

### Control

Switch: On/Off through conventional PEC or NEMA photocell

Dim: Factory set dimmed / customer specified dimming DALI / analogue

### Materials

Glazing: Polycarbonate (Garda Comfort: Opal polycarbonate)

Seals: Silicone

### Installation and maintenance

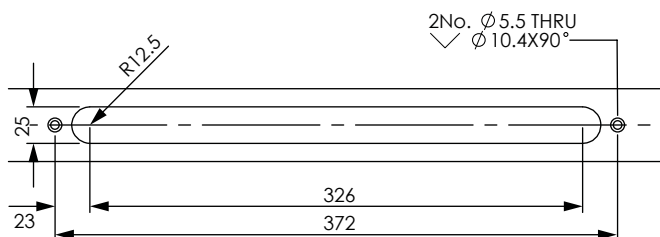
Modules supplied with plugs and sockets, pre-cabled to suit application

Operational temperature: up to 50°C

Installation drawings available on request

### Asymmetric and Symmetric modules

#### Garda InRail 300



Garda InRail Pro and Garda InRail Comfort module drawings available on request. Contact: [garda@dw Windsor.com](mailto:garda@dw Windsor.com)

For support specifying Garda InRail, contact: [international@dw Windsor.com](mailto:international@dw Windsor.com)

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