



- **Designed specifically to measure luminance within the tunnel**
- **Fixed 20deg Viewing Angle**
- **Silicon photodiode,  $V_{\lambda}$  filtered for spectral response**
- **Rugged 316L stainless steel construction**
- **Heated window and enclosure with IP66 protection rating**
- **Choice of interface / comms protocols**
- **User configurable for threshold or interior zones**

The LUMIOS-IT measures the level of luminance, or brightness, of the road surface inside a road tunnel. The unit has been designed to be used in the tunnel threshold zone and the interior of the tunnel.

The LUMIOS-IT uses a specially designed, highly light-sensitive photocell. The photocell is filtered to provide a spectral response close to that of the average human eye, to react to changes in light levels within the tunnel environment. This reaction is virtually instantaneous. The light receptor measures the average luminance within a fixed viewing angle of 20°. The luminance measurement range can be scaled to suit the application from 0 – 1 cd/m<sup>2</sup> up to 0 - 1,000 cd/m<sup>2</sup>.

The LUMIOS-IT is a self-contained intelligent analyser, the measurements are converted into an output signal of 0/2/4-20 mA (directly proportional to the luminance measurement) for hard wire connection and signal transmission to a host controller. The LUMIOS-IT also comes with alarm relay contacts and Modbus RTU serial communications protocol.

The LUMIOS-IT has been designed to enable it to withstand extremes of weather conditions. The complete electronic system is contained within a water-proof, heated housing of powder coated steel with an IP66 protection rating. The LUMIOS-IT has an operating temperature range from -40°C to +50°C which ensures stable readings across all prevailing ambient temperature conditions. Optional extras are available such as, alternative mounting brackets, providing a solution for the most demanding specifications.

**Specification:**

**Measurement Performance**

Item	Parameter	Units	Min	Max	Comment
01	Detector				Silicon photo diode, Vλ filtered
02	Viewing Angle (FWHM)	Deg	20	20	
03	Measurement Range	cd/m <sup>2</sup>	0	1,000	Can be scaled within this range
04	Resolution	cd/m <sup>2</sup>		0.1	Display resolution
05	Accuracy	cd/m <sup>2</sup> %	-0.1 -3	0.1 3	Of reading
06	Damping	Seconds	1	600	Default setting is 10s

**Power**

07	AC Input Voltage	Vac	85	264	Nominal 100-240Vac
08	AC Input Frequency	Hz	47	63	Nominal 50-60Hz
09	Power Consumption	W	6	10	

**Interface Options**

10	Serial Outputs				ModBus RTU via RS485 (isolated) External USB
11	Analogue Outputs (One)	mA	0 / 2 / 4	20	Isolated and scalable (user selected)
12	Digital Relay Contacts (Four)	A	0 0	1 3	@240Vac (AC LUMIOS) @30Vdc (DC LUMIOS)

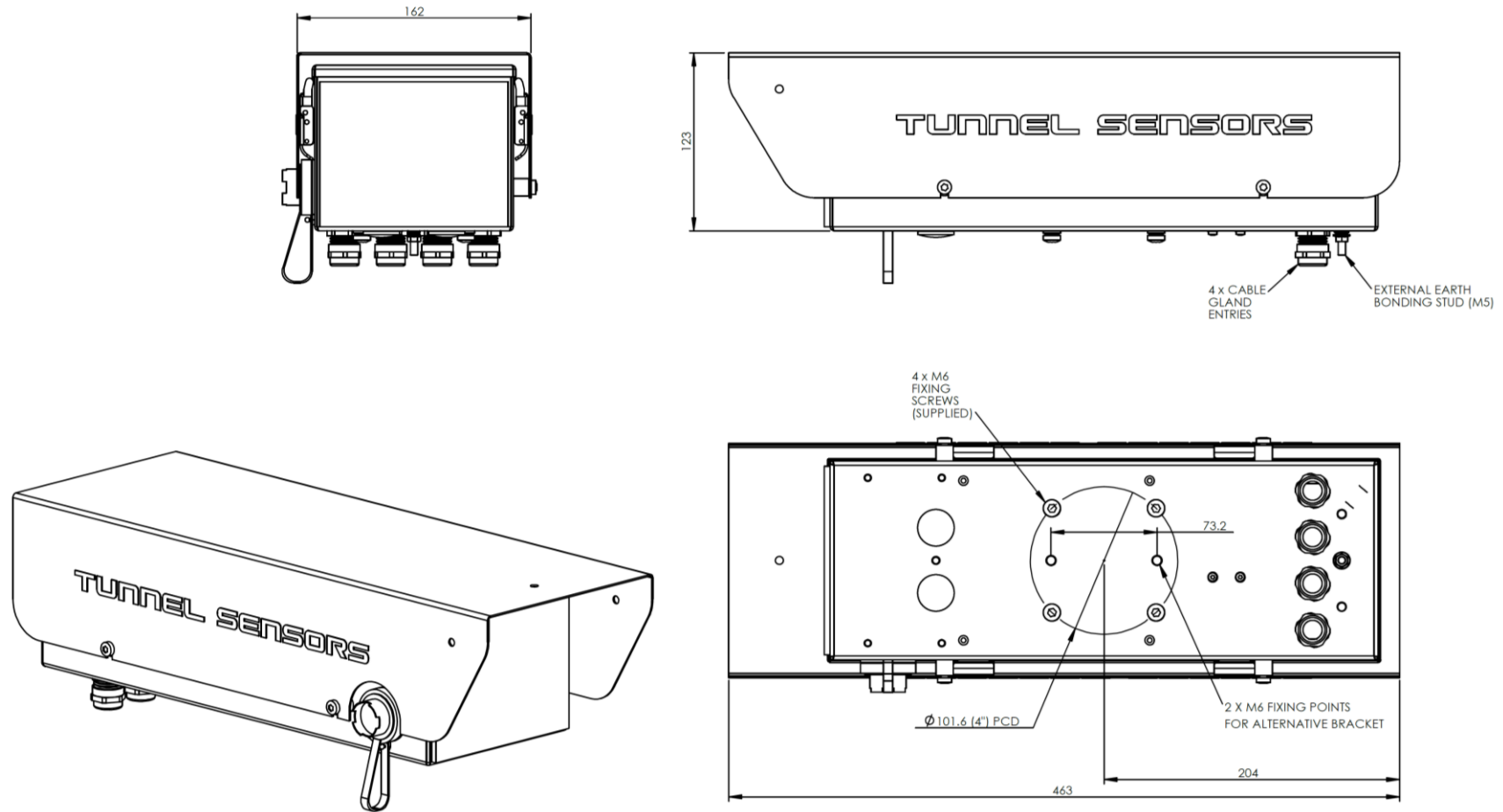
**Physical**

13	Ingress Protection			IP66	
14	Operating Temperature	°C	-40	+50	
15	Operating Humidity	%		100	
16	Materials				AISI/SAE 316L stainless steel
17	Dimensions	mm	463 x 162 x 122 463 x 162 x 184		Without optional wiper With optional wiper
18	Weight	kg	5.5 6.3		Without optional wiper With optional wiper

**Compliance & Design**

19	Regulatory Compliance				2014/30/EU (Electromagnetic Radiation) 2014/35/EU (Low Voltage)
20	Design Life	Years	20		
21	MTBF	Years	>20		
22	Warranty	Months	24		Return to base warranty. Extensions available




**Dimensions:**



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Specifications are subject to change without notice.  
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**Options & Accessories**

Description	Order Code	Notes
LUMIOS-IT Instrument 	TSL-LUMIOS-IT	LUMIOS-IT only, no mounting bracket.
Wall Bracket 	TSL-LU3-BRK-W	For mounting LUMIOS-IT on a wall, with pan and tilt adjustment.
Universal Bracket 	TSL-LU3-BRK-U	For mounting LUMIOS-IT on a wall or a pole, with pan and tilt adjustment.
Pole Top Bracket 	TSL-LU3-BRK-PT	For mounting LUMIOS-IT on top of a pole or post, with pan and tilt adjustment.

Note that the actual part may differ from the above representative pictures.