



- **Designed specifically for tunnels**
- **Accurate measurement of illuminance within the tunnel bore**
- **Silicon photo diode,  $V_{\lambda}$  filtered for spectral response**
- **Operating temperature  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  to meet all prevailing ambient temperature conditions**
- **Rugged stainless steel construction**
- **Simple installation and operation**
- **Choice of interface / comms protocol**

The ILLIOS measures the level of illuminance within the tunnel bore to ensure interior illumination levels are being continuously maintained, in order to affect safe lighting conditions for drivers. Illuminance, or incident lighting, determines the amount of light that covers a specific surface or area within the tunnel.

Designed specifically for the tunnel environment, the ILLIOS continuously measures cosine corrected planar illuminance within the tunnel thus allowing elimination of directional error. The ILLIOS measures the illuminance over a standard range of 0 -20,000 lux, (max.), which can be scaled to meet user requirements.

The ILLIOS uses a specially designed, highly light-sensitive photocell, 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.

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

Having been designed for tunnel environments, the ILLIOS is of rugged construction using powder coated stainless steel to achieve an IP67 protection rating. The ILLIOS is able to withstand the corrosive atmosphere and regular tunnel washing that the tunnel environment endures.

The ILLIOS has an operating temperature range from  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  which ensures stable readings across all prevailing ambient temperature conditions.

**Specification:**
**Measurement Performance**

Item	Parameter	Units	Min	Max	Comment
1	Detector				Silicon photo diode, $V_{\lambda}$ filtered
2	Measurement Range	lx	0	20,000	Can be scaled within this range
3	Resolution	lx		1	Display resolution
4	Accuracy	%	-1	+1	
5	Damping	seconds	1	100	Default setting is 10s

**Power**

6	DC Input Voltage	Vdc	21.6	26.4	Nominal 24Vdc. ILLIOS-D only.
7	DC Input Current	A	1.5		Nominal 0.5A. ILLIOS-D only.
8	AC Input Voltage	Vac	85	264	Nominal 100-240Vac. ILLIOS-A only.
9	AC Input Frequency	Hz	47	63	Nominal 50-60Hz. ILLIOS-A only.
10	AC Input Current	A	0.7		ILLIOS-A only.

**Interface Options**

11	Serial Outputs				Modbus RTU via RS485 External USB
12	Analogue Output (one)	mA	0 / 2 / 4	20	Isolated and scalable (user selected)

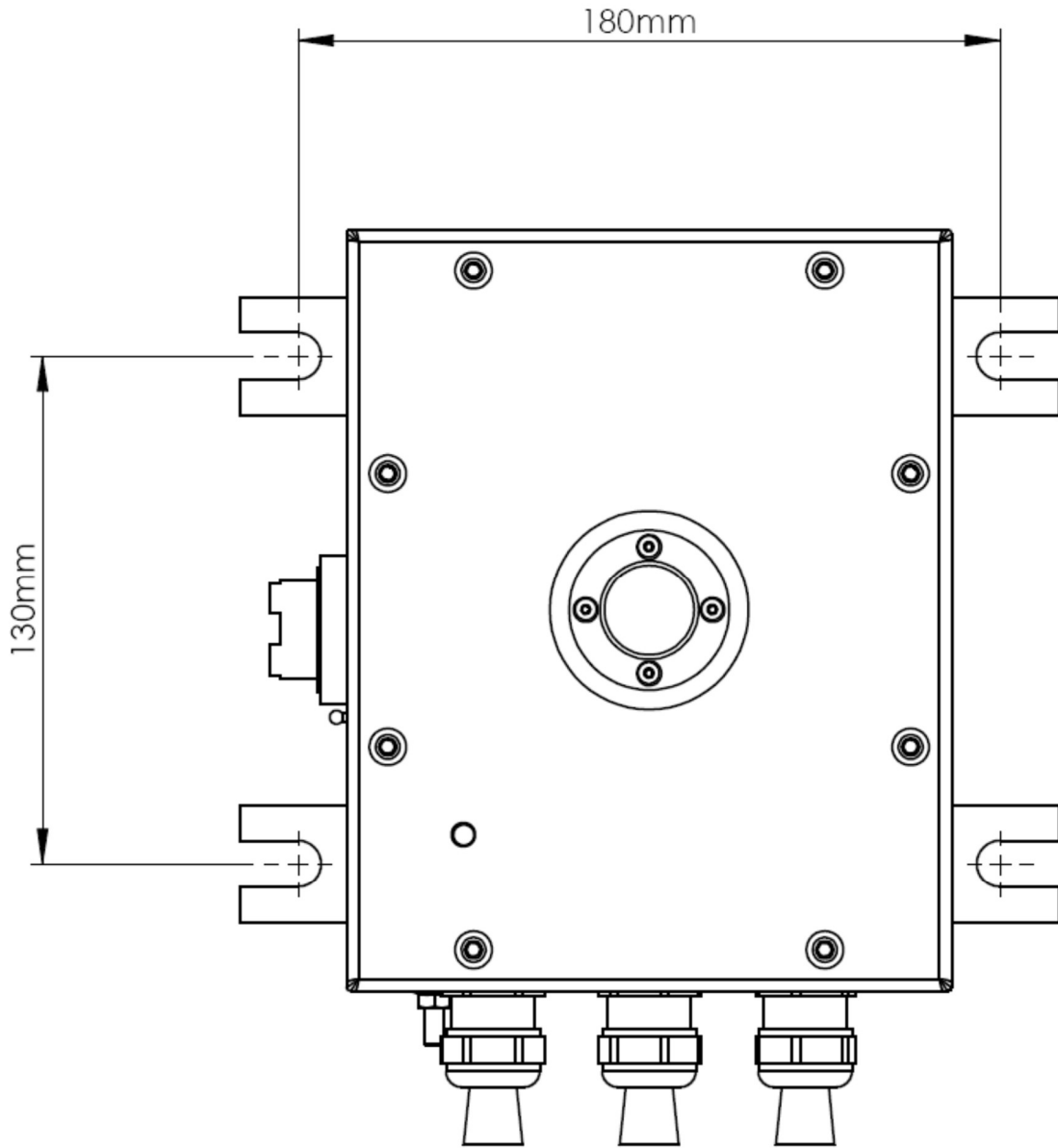
**Physical**

13	Ingress Protection			IP67	
14	Operating Temperature	°C	-30	+70	Max 50°C with mains powered option
15	Operating Humidity	%	0	100	
16	Materials				AISI/SAE 316L stainless steel
17	Dimensions	mm	150 x 190 x 80		W x H x D
18	Weight	kg		1.8	


**Compliance & Design**

19	Warranty	Months	24		Return to base warranty. Extensions available
20	Regulatory Compliance				2014/30/EU (Electromagnetic Radiation) 2014/35/EU (Low Voltage)

Dimensions:



**Options & Accessories**

Description	Order Code	Notes
ILLIOS Instrument  	TSL-ILLIOS-D	24Vdc powered.
	TSL-ILLIOS-A	100=240Vac powered.
Boxed PSU	TSL-PSU-75	Multi AC input, 24Vdc output, 75W, IP67 rated enclosure
Cable	CBL-099	7-core screened LSZH cable.

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