# ILLIOS

## Tunnel Illuminance Photometer

- Designed specifically for tunnels
- Accurate measurement of illuminance within the tunnel bore
- Silicon photo diode, $V_\lambda$ filtered for spectral response
- Operating temperature -30º C to +70ºC 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 it to withstand the corrosive atmosphere and regular tunnel washing that the tunnel environment endures.

The ILLIOS has an operating temperature range from -30º C to +70ºC which ensures stable readings across all prevailing ambient temperature conditions.

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## Tunnel Illuminance Photometer

## Specification:

**Measurement Performance**

| No. | 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<br>External USB |
| 12 | Analogue Output (one) | mA | 0 / 2 / 4 | 20 | Isolated and scalable (user selected) |
| 13 | Digital Relay Contact (four) | A | 0 | 1 | @240Vac (signal levels and data valid) |

**Physical**

| | | | | | |
|---|---|---|---|---|---|
| 14 | Ingress Protection | | | IP67 | |
| 15 | Operating Temperature | °C | -30 | +70 | Max 50°C with mains powered option |
| 16 | Operating Humidity | % | 0 | 100 | |
| 17 | Regulatory Compliance | | | | 2014/30/EU (Electromagnetic Radiation)<br>2014/35/EU (Low Voltage) |
| 18 | Materials | | | | AISI/SAE 316L stainless steel |
| 19 | Dimensions | mm | 150 x 190 x 80 | | W x H x D |
| 20 | Weight | kg | | 1.8 | |
| 21 | Warranty | Months | 24 | | Return to base warranty. Extensions available |

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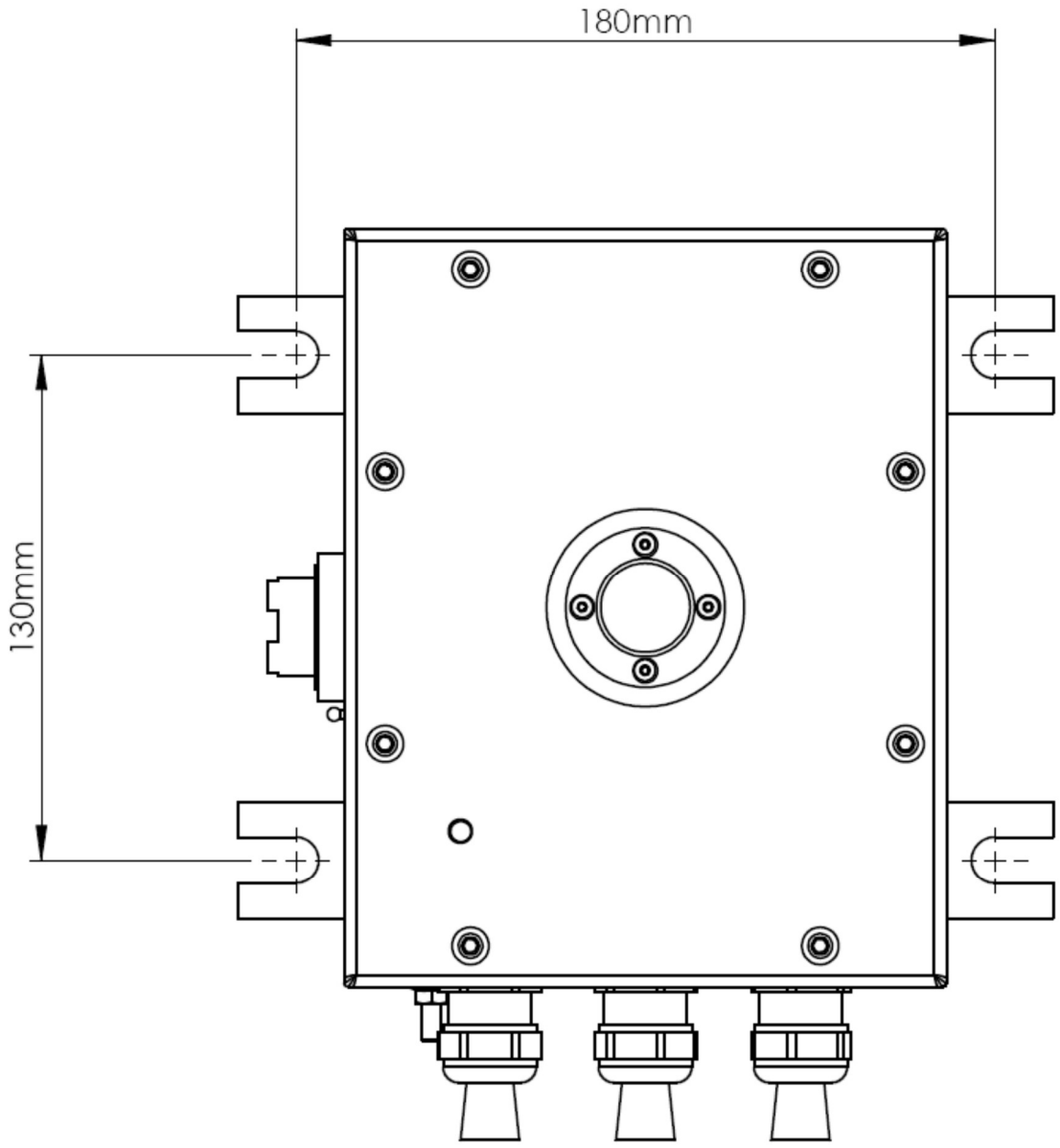
## Dimensions:



## 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-046 | 8-core, screened, 20AWG. DEF STAN 61-12 Part5 LSHZ. Max length 300m |

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