



Tunnel Vision Meters Luminance & Illuminance

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Luminance Meter

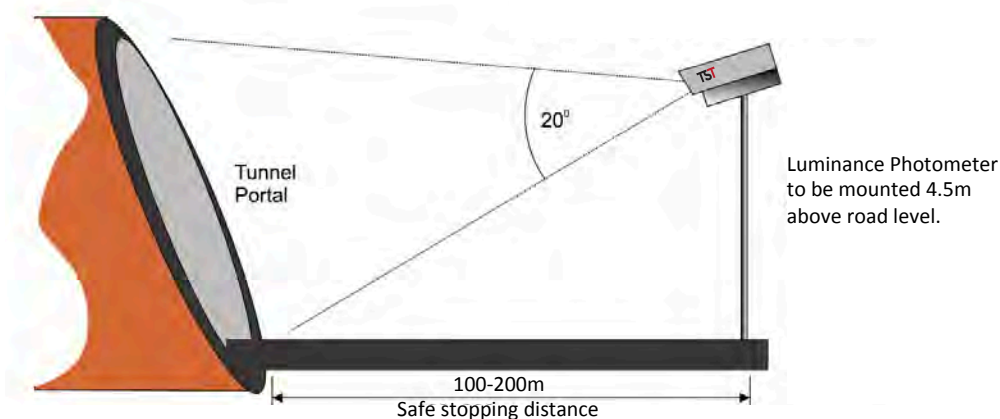
The TST – LU100 luminance photometer monitors the average luminance of a tunnel entrance and its surroundings. In accordance with C.I.E. publication recommendations, the photometer monitors the average luminance within a 20° angle over a standard range of 0 - 6,500 cd/m².

The detector is a metal/glass encased silicon diode photocell which is filtered to give a response that mimics the performance of the human eye and is perfectly linear within its measuring range and has an instantaneous response to changing light levels.

The LU-100 Luminance photometer has a 4-20 mA output to export data to the TST tunnel lighting system and the sensor is housed in a rugged aluminium enclosure which has an IP66 rating with an internal thermostatically controlled heater for snow and ice conditions.

In accordance to CIE recommendations luminance should be monitored as the luminance contained within in a conical field of view, subtending an angle of 20° and where the luminance photometer is mounted at the tunnel approach road approximately 100 - 200 metres from the portal, depending on the approach speed of the vehicles and their stopping distance.

The purpose of monitoring the luminance at the portal is to adjust the level of light intensity inside the road tunnel to the light intensity outside so that drivers do not have to adjust their eyes quickly or become affected by the “black hole” effect where they decelerate rapidly and become a hazard to other road users.



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Luminance Meter



- Optical filter embedded in lens.
- Tuned to human visual spectrum curve.
- High precision measurements in all conditions.
- In built analogue and micro processing.
- Output directly calibrated in cd/m^2
- Optical filter with high efficiency to CIE standards.
- Built in heating function for snow and ice conditions.
- Weather proof shell.
- Margin of measurement error +/- 1%.
- Factory Calibrated.
- Recommended Mounting height >4.5m
- Recommended distance from tunnel entrance 100-200m.
- Acceptance angle 20° @ 200m.
- 360° Adjustable bracket.



Parameters	Model: LU100
Measurement range	0 – 10,000 cd/m^2
Response time	< 1 sec
Accuracy	+/- 0.1 cd/m^2
Power	220V AC , 35 Watts Max
Outputs	Speed analogue output, 4-20mA o/p, 400ohm maximum load, range 0-10,000 cd/m^2
Construction	Corrosion resistant polyester coated aluminum housing.
Ambient Temperature	-50 $^\circ$ C to +75 $^\circ$ C
Ingress protection	IP66
Connection	2 x Luminance Meters in series per RTU concentrator

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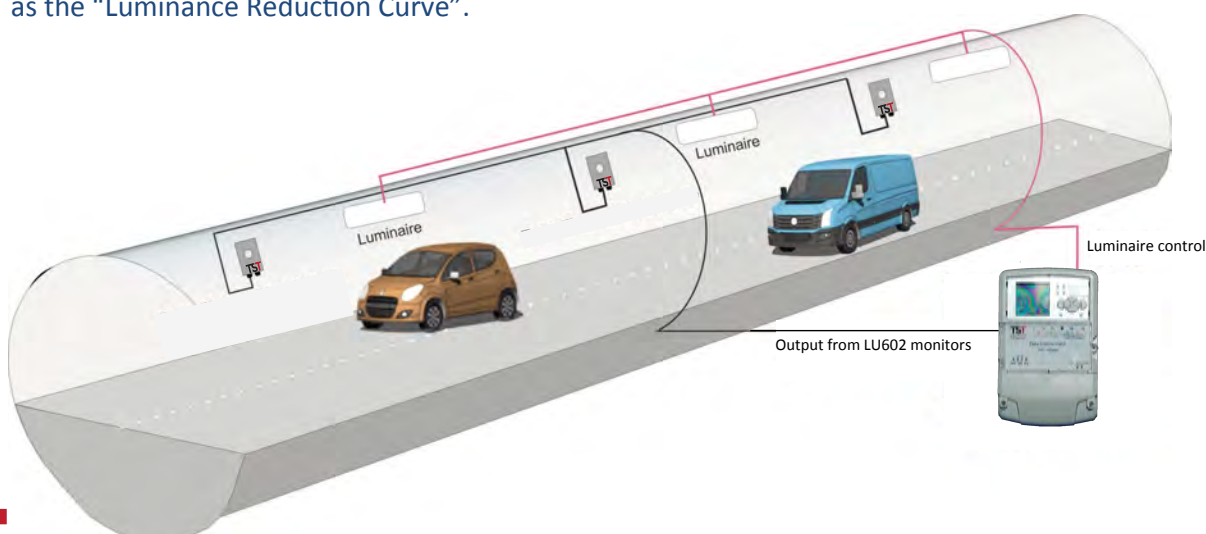
Illuminance Meter

The TST - LU602 Illuminance photometer monitors the average illuminance within a tunnel. In accordance to C.I.E. recommendations the photometer monitors the average illuminance over a range of 0 - 20,000 lux.

The detector is a metal/glass encased silicon diode photocell which is filtered to give a response that mimics the performance of the human eye. The detector is perfectly linear within its measuring range and has an instantaneous response to changing light levels. The LU602 Illuminance photometer has a 4-20 mA output to export data to the TST tunnel lighting system and the sensor is housed in a rugged glass reinforced polyester enclosure which has an IP65 rating and an internal thermostatically controlled heater.

The purpose of monitoring the illuminance in a road tunnel is to ensure the light intensity inside the road tunnel portal is regulated to the correct level so that drivers do not have to adjust their eyes quickly or become affected by the "black hole" effect where they decelerate rapidly and become a hazard to other road users. This is accomplished in conjunction with the LU100 Luminance monitor.

Once driver's vision becomes adapted to lower lighting levels, the artificial lighting levels can be reduced in intensity as the distance travelled within the tunnel increases, a relationship known as the "Luminance Reduction Curve".



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Illuminance Meter



- C.I.E compliant.
- Metal/Glass encased Silicon photodiode.
- VI filtered to human response.
- Detector linear within its measuring range.
- Instantaneous response to changing light levels.
- Tuned to human visual performance.
- High precision measurements within +/- 3%.
- Internal thermostatically controlled heater.
- Weather proof aluminum construction.
- Explosion proof – Eexe IIT6



Parameters	Model: LU602
Measurement range	0 – 20,000 lux
Accuracy	+/- 3%
Power	220V AC or 24V DC
Outputs	Analogue output, 4-20mA
Construction	Corrosion resistant polyester coated aluminum housing.
Ambient Temperature	-20° C to +50° C
Ingress Protection	IP65
Explosion Proof	EExe IIT6

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