Tunnel Photo Diode Sensor

Luminance & Illuminance Measurement

DATA SHEET

DESCRIPTION

PLC-Multipoint Photo Diode sensor provide a linear analog input signal to controllers proportional to the light measured. Sensors shall be enclosed in heated weatherproof housings to prevent icing and condensation. Sensors signal the controller via 4-20mA current loops.

OPERATION

As the light level increases during the day, the analog photodiode sensor responds with an increasing current. When the sensor saturates at its full scale output, it remains stable, until the light level drops and the sensor output begins to decrease.

Luminance Measurement

TLUM Tunnel luminance sensors provide analog measurement in Candelas per square meter (cd/m²) that target reflected light at each traffic direction's entrance portal. Long distance signal transmission, up to 5,000 feet is accomplished through a 4-20mA current loop. TLUM Tunnel luminance sensors see a restricted field of view, e.g. 20° and are aimed at the tunnel portals composing the field of vision that a driver at a safe stopping distance before entering the portal.

The TLUM sensor is capable of measuring outdoor ranges of 0 to 10,000 Candelas per square meter (cd/m²). An amplifier in the sensor enclosure provides sensitivity adjustment for the sensor. Sensors located in severe weather environment are protected from accumulated snow and ice through the use of thermostatically heated housings. Sensors subject to corrosive gases are housed in a gasket enclosures.

Illuminance Measurement

TMAS Tunnel illuminance sensors provide analog measurement in Foot-candles. TMAS sensors may be mounted to monitor ambient light near each entrance tunnel portal in unidirectional traffic bores or be located in a compromise location when both traffic directions share the same bore. The TMAS sensor mounting location is selected from several factors; unidirectional or bi-directional traffic flow, dominant traffic direction, time of year requiring most contrast lighting and maintainability.

FEATURES

Luminance: (TLUM)

- **Measuring range of 0 - 10,000 cd/m².**
- **Photometric filter accuracy of 1% total area, error with CIE function error of 2%.**
- **Calibrated using NIST traceable reference photometer.**
- **Factory calibrated analog zero and span.**

Illuminance: (TMAS)

- **Low measuring range: 0 - 650 Fc**
- **High measuring range: 0 - 6,500 Fc**
- **Powered by 18-30VDC with polarity protection.**
- **2 wire loop powered 4-20mA signal.**
- **Range changeable in the field, to either to 1/2 or twice the factory setting.**
- **Factory full scale response time 10 minutes.**
- **Time changeable for full scale response to 1 second, and 10 or 20 minutes.**
- **Program changes over 4-20mA signal wires up to 5,000 ft. away.**

Photo Diode Sensors: (Both TLUM & TMAS)

- **Blue-Enhanced Photo Diode**
- **Provide linear response, repeatability and minimal temperature effects over the range of the sensor.**
- **Components rated for 0° –60°C and housed in thermostatically controlled heated enclosure. Switching ON at 10°C and OFF at 27°C.**
- **2 year warranty.**

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DATA SHEET

PHOTO DIODE SENSOR TECHNICAL DATA

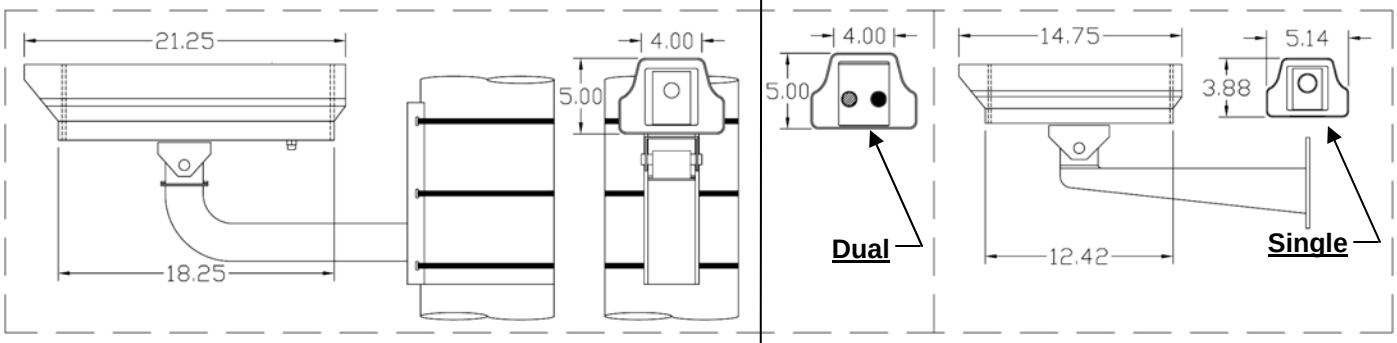
LUMINANCE

Accuracy:	Repeatability +/- 1% Linearity +/- 2% at 70 F (21 C) Temperature +/- 10%
Overall Tolerance:	+/- 12% over the spec light & temp. range
Operating Temp:	ON at 10°C and OFF at 27°C
Sensor Type:	Blue-enhanced Photo Diode
Sensor Ranges:	Housing — Factory Cal. Waterproof — 0 - 10,000 cd/m²
Compliance Voltage:	24VDC & 120VAC +/-1VDC
Field of View:	20 degrees
Protection:	Fused and MOV
Sensor Output:	4.0 - 20mA +.1/ - .1mA
Notes:	Photometric filter accuracy of 1% total area error with a CIE function error of 2%.

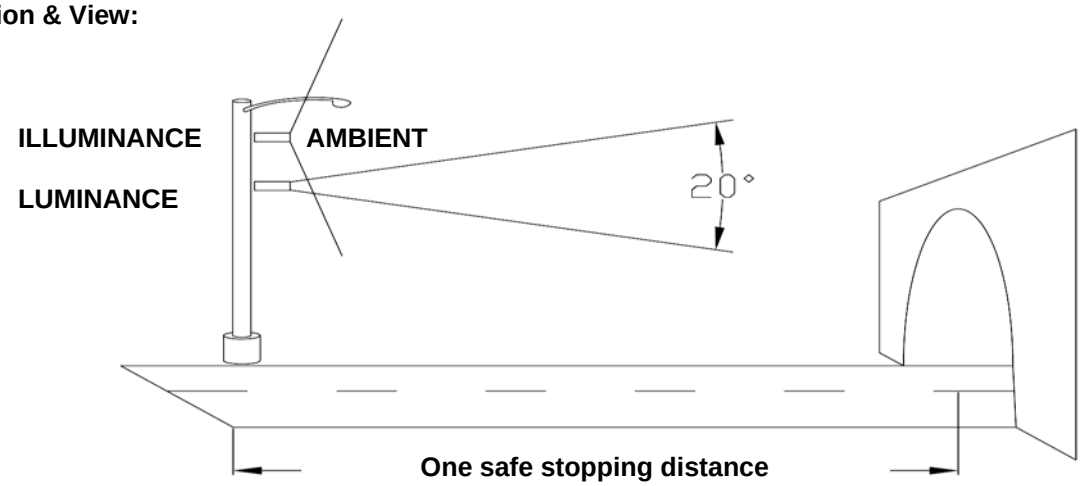
ILLUMINANCE

Accuracy:	Repeatability +/- 5% Linearity +/- 2% at 70 F (21 C) Temperature +/- 10%
Operating Temp:	-40 F to 140 F. (-40C to 60C)
Sensor Type:	Blue-enhanced Photo Diode
Sensor Ranges:	Housing — Factory Cal. **Low** Waterproof — 0 - 650 Fc **High** Waterproof — 0 - 6,500 Fc
Compliance Voltage:	24VDC +6VDC / -6VDC
Protection:	Non Polarized Voltage Limited
Loop Burden:	<10 VDC
Sensor Output:	4.0 - 20mA +.1/ - .1mA
Overall Tolerance:	+/- 12% over the spec light & temp. range
Notes:	Field scalable with MAS-CAL. See MAS & MAS-CAL data sheet for more info.

Dimension:



Sensor Location & View:



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