Littelfuse
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Automotive Sensor Products

Single/Dual Zone Solar and Ambient Light Sensors

Figure 1: Solar Sensors

General Description

Solar sensors detect the amount of solar irradiation acting on the vehicle and allow the climate control system to compute and compensate thermal loads inside of the passenger compartment for occupant comfort.

Ambient light sensors measure ambient light conditions as seen by the human eye and allow the vehicle body lighting system to automatically control the Interior or Exterior lighting features such as Daylight Running Lights or automatic dimming of instrument panel lighting.

Features

- Solar irradiation intensity measurement
- Available as Single or Dual Zone variant
- Linear output proportional to irradiance level
- Capable of integrating additional functions such as temperature sensing or alarm LED indicator
- Operates with wide range of windscreen types
- Customer tailored spectral characteristics
- Choice of connectors and terminals

Benefits

- Patented diffuser technology provides horizon to horizon response and regular characteristics
- Individual calibration using laser trimming technology
- Customized styling and mechanical interface
- Customized output and electrical interface

Applications

- Automotive HVAC Control
- Interior and Exterior Lighting Control
- Visual Indicator

Operation

Basic Principle

Solar radiation acts on the vehicle by generating thermal heat inside of the passenger compartment. Solar sensors measure the solar irradiation intensity by providing a signal to the vehicle climate control system to compensate solar thermal load inside of the cabin for passenger comfort.

Packaging Options

Custom packaging can be provided to meet any need, please contact Littelfuse Engineering for details.

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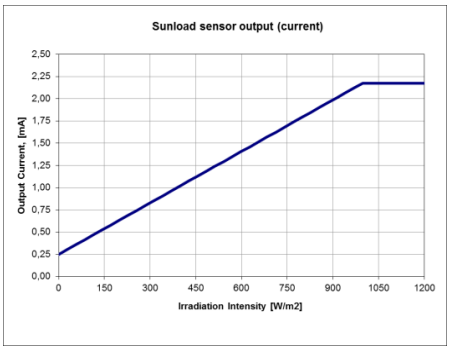
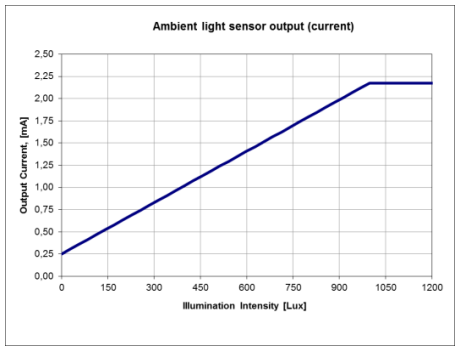
Typical Output Response Characteristics





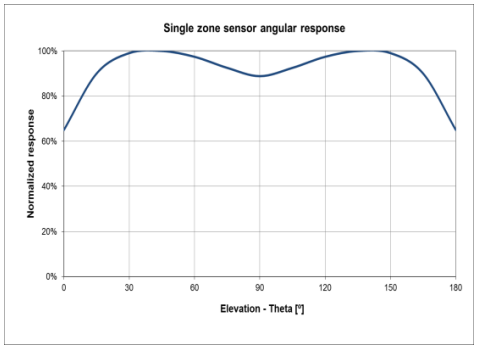


Figure 2: Output Characteristics

Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit
Power Requirements				
5 V Supply Voltage	4.5	-	5.5	V
Dark Current	0.025	0.25		mA
Saturation Current		2.20		mA
Output Type				
Analog current converted to voltage with pull-up resistor				
Temperature Range				
Operating Temperature	-40		105	°C
Storage Temperature	-40		125	°C

Typical Output Tolerances

Parameter	Meas. Range	Tol.	Unit
Illumination Intensity (Visible light, Ambient Response)			
Part to Part	0 to 3500 lx	± 7	%
Over Temperature	0 to 3500 lx	± 10	%
Over Lifetime	0 to 3500 lx	± 10	%
Irradiation Intensity (IR Light, Sunload Response)			
Part to Part	0 to 1000 W/m²	± 5	%
Over Temperature	0 to 1000 W/m²	± 10	%
Over Lifetime	0 to 1000 W/m²	± 10	%

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