



SOLAR TWILIGHT SENSOR

Automatic Comfort Setting

COMFORT. SAFETY. SENSATA.

Sensata Technologies' Solar Twilight Sensors provide unmatched comfort and safety for drivers around the world. The Solar technology delivers climate control with regard to solar loading variations. While the Twilight technology helps to keep vehicles more visible to other cars and pedestrians. These are just two of the reasons Sensata Technologies is the world's leading supplier of sensors and controls.

Sensata's patented Solar Twilight Sensor uses a combination of our Solar and Twilight technologies. This combination offers OEMs the benefits of two functions in one package; saving space and eliminating instrument panel clutter.

Using the solar signal, the climate control system can automatically adjust the temperature setting to maintain occupant comfort regardless of temperature changes caused by solar loading variations. Our patented diffuser technology provides horizon-to-horizon sensor response that allows the sensor to measure the solar heating, independent of the sun's elevation. This technique provides an accurate response model for the sensor to compensate for vehicle roofline position and glass.

The Twilight function works with lighting control to improve driver safety by making the vehicle more visible to other vehicles and pedestrians. Custom photo ASICs and proprietary optical plastics allow the sensor to respond to light like the human eye. The sensor generates an output directly proportional to the ambient light level.

Features and Benefits

Accurate Light Measurement

- C.I.E. photopic response gives human eye-like reaction
- Responds to color and light variations that accompany different sky conditions
- Custom Photo ASIC provides increased output current compared to standard photo detectors
- Patented diffuser technology provides horizon-to-horizon response
- Twilight output current proportional to ambient light level
- Solar output current proportional to solar heating
- Reacts to changing solar heating conditions independent of the sun's elevation

- Functions as a light dependent current sink
- Surface mount and chip-on-board technology
- Remains stable over temperature and time

Flexible Integration

- Customized configuration to meet specific mounting and cosmetic requirements
- Customizable output
- Custom interconnect
- Capable of adding additional functions such as dual zone solar sensing, tunnel sensing, interior fog sensing and an LED indicator

Applications

Safety

- Provides output used for automatic headlight control, driving lights, markers and tail light control

Comfort

- Automatic climate control system adjustment

Convenience

- Output used for instrument lighting controls and dimming of control panel and radio

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Technical Specifications

Configuration/Package

Package material	PBT or PC+ABS
Weight	< 6 g
Connector	3 pin typical
Output type	analog currents easily converted to voltage inputs with load resistor

Performance

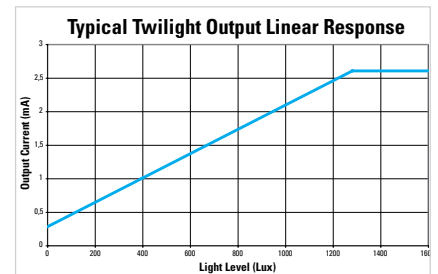
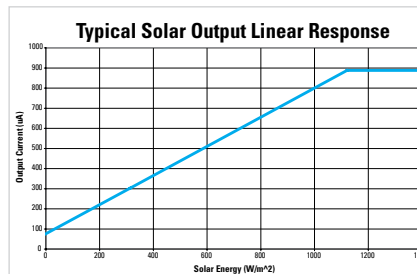
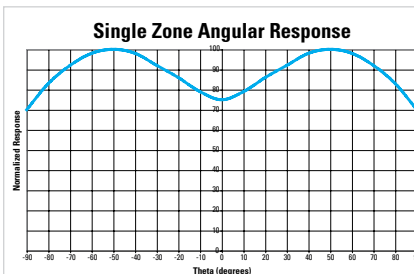
Solar temperature coefficient	1 $\mu\text{A}/^\circ\text{C}$
Twilight temperature coefficient	1 $\mu\text{A}/^\circ\text{C}$
Non-linearity	< 0.5 %
Input response time	10 ms

Operating Environment

Operating temperature range	-40°C to $+115^\circ\text{C}$
Storage temperature range	-40°C to $+125^\circ\text{C}$
Air velocity range	0.5 to 10 m/s

Electrical Characteristics

Operating voltage range	$5 \pm 0.5\text{ V}$
Twilight quiescent current	0.3 mA
Twilight saturation current	2.6 mA
Solar quiescent current	0.072 mA
Solar saturation current	0.88 mA
Reverse voltage protection	-14 V



The World Depends on Sensors and Controls

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