Fog Sensor

Model: MiniOFS

MiniOFS is designed by Dr. Sten Löfving is used to make direct measurements of visual range. The sensor is sensitive for particles in a zone about 25 cm ahead of the location of the sensor who limit the visibility in the air. These particles are normally the microscopic water particles constituting fog, but they may also be snowflakes, raindrops or air pollutants. But the most indications of low visibility are because of fog or snow. The MiniOFS is probably the cheapest visibility sensor on the market. It is well known that fog causes many accidents in road traffic and elsewhere. You can read about how MiniOFS can reduce serial collisions in fog. The sensor should be mounted so that it "looks" horizontal and roughly north (on the southern hemisphere south). There must not be anything in the sightline closer than 5 to 10 meters. Outside a cone of about 30 degrees angle objects can be tolerated at down to 2 about meter. There are four M3 holes on a 14*51 mm rectangle in the top surface which can be used for the mounting

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Specifications

Dimensions: 68*45*34 mm
Weight: about 170 grams
Warm up time: 60 seconds (second data display from start)
Current consumption: <100 mA from a 12 Volt (8-14) supply
Outputs: analog 0-5 Volt and digital RS232
Update time: 30 seconds
Temp. range: -20 to +50 deg C
Optical output power: About 3 mW from an IR LED, eye safe laser, safety class 3R
Wavelength: 850nm
Housing: Anodized aluminum, openings sealed with O-rings
Visibility range: Visibilities from 4 km down to 20 meters.

Applications

- Road & rail tunnels
- Marine vessels
- Small airports & helipads
- Building controls
- Remote weather monitoring stations
- Environmental field sites
- Ports & harbours
- Mobile weather monitoring vehicles
- Coastal weather monitoring stations

Fog Sensor

Data Output of Sensor

he microprocessor controls the analog output giving the visibility directly (VIS =1 km gives 1 Volt, and VIS = 500 meters gives 0.5 Volt etc, up to 4000 meters). If the optical receiver is saturated by for instance sunlight or reflections from an object in the sensitive zone like fallen snow covering the front the output will be about 5 Volt.

The calculated data is presented in digital form as an ASCII string on the RS232 output, 1200 baud 8N1, that is transmitted "streaming" every 30 seconds. This string can be received by many loggers with RS232 inputs but also by a PC via the serial port and with a terminal program like Hyper Terminal (part of WINDOWS).

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