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Vaisala Visibility Sensor PWD20W for the wind energy industry

Vaisala PWD-series of present weather detectors and visibility sensors provide you off-the-shelf accuracy and realiability. They are a sensor family that grows with your needs.

Limit your light emissions

Flashing lights can be disturbing so it is smart to dim them to the optimal level. With the help of the Vaisala Visibility Sensor PWD20W you can be in conformity with the regulations, such as the German General Administrative Regulation for the Marking and Lightning of Obstacles to Air Navigation. At the same time you can create a comfortable living environment for the surrounding community.

The conditions on top of a wind turbine require a robust device, like the Visibility Sensor PWD20W. Its performance and reliability have proven to be top-class. The hood heaters prevent ice accumulation on the device. A special firmware ensures that flashing lights near the visibility sensor are not mixed with light pulses from the sensor.

Thousands of PWD sensors are installed world-wide in demanding applications in all kinds of climates. They are installed on wind turbines both on and off-shore. Thus, when it comes to optimizing the brightness of obstruction lights, rely on us, the leader in visibility measurement. With the PWD series sensors you get the best in class measurement performance and unparalleled reliability. Our failure rate statistics indicate a mean time between failures (MTBF) clearly in excess of 20 years. You will also benefit from our fast delivery.

The FAA and other leading aviation authorities have placed their confidence in us. Our visibility sensor is also certified by Deutscher Wetterdienst.

Features/Benefits

- Certified by Deutscher Wetterdienst
- Accurate measurement of prevailing visibility
- Hood heaters prevent ice accumulation
- Robust and versatile
- Unique algorithm ensures no flicker interference
- Mean time between failures (MTBF) in excess of 20 years

Especially for wind turbines

Wind turbines are usually equipped with two red obstruction lights each. These obstruction lights flash at set intervals by day and night. Residents in the vicinity of a wind turbine complain of the brightness of the obstruction lights at night. Visibility data is used to control the intensity of these obstruction lights, thereby reducing the disturbance to the neighbours, yet not undermining aviation safety.

The PWD20W software has been specially designed for the wind turbine application. The infra red light, emitted by obstruction lights, (to be controlled by the visibility sensor) though, serves as interference to normal visibility sensors. The specially coded software for the PWD20W filters out the intereference to eliminate the effect of obstruction lights on the visibility measurement. Red LED lights intefere with neither the visibility measurement nor the control of the lights.

Wherever visibility measurement is needed

With a measurement range of 10 to 20,000 meters, the Vaisala Visibility Sensor PWD20W offers long-range visibility measurement for onshore and offshore obstruction lights, offshore obstruction lights for vessels, met mast equipment. The standard model PWD20 can be used in diverse applications covering harbors, coastal areas, heliports, wind parks – indeed, any locations or areas where visibility measurement is necessary.

Easy installation

PWD sensors are less than one meter wide. All are compact, light-weight, come with a cable and connector for easy installation, and can be mounted in many ways on any existing mast.

Expandable measurement capabilities

The measurement capabilities of the Vaisala PWD-series sensors can be extended when your measurement needs grow. All PWD-series sensors can be economically upgraded to ensure that your PWD sensor gives full value for many years to come.

Technical data

Visibility measurement

Operating principle	Forward scatter measurement
Measurement range (MOR)	10 ... 20,000 m (32 ... 65,600 ft)
Accuracy	±10%, range 10 ... 10,000 m ±15%, range 10 ... 20 km

Electrical

Power supply	12 V DC ... 50 V DC (electronics) 24 V AC or 24 V DC for heater option
Power consumption	3 W (electronics with dew heater @12VDC)
Options	2 W (luminance sensor with dew heater) 65 W (heater option)
Outputs	RS-232, RS-485 Three programmable relay controls, visibility alarm threshold and delays configurable, fault alarm relay 0 ... 1mA, 4 ... 20 mA analog current

Mechanical

Dimensions	40.4 (w) x 69.5 (l) x 19.9 (h) cm (15.91" (w) x 27.36" (l) x 7.83" (h))
Weight	3 kg (6.61 lb)

Environmental

Operating temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH
Protection class	IP66

Electromagnetic compatibility

CE-compliant

Compliance has been verified according to the following EMC directives

Verification subject	Standard
Radiated emissions	CISPR 16-1,16-2
Radiated susceptibility	IEC 61000-4-3,10 V/m
Conducted emissions	CISPR 16-1,16-2
Conducted susceptibility	IEC 61000-4-6
EFT immunity	IEC 61000-4-4
ESD immunity	IEC 61000-4-2
Surge	IEC 61000-4-5

Accessories/options

Pole mast	
Interface unit with power supplies	115/230 VAC
Interface unit with power supplies, transient protection and relays	230 VAC
Luminance sensor PWL111	
Hood heaters for harsh winter conditions	
Support arm for mast installations	
Pole clamp kit for mast top installations	
Calibration set PWA12	
Maintenance cable	PWDRSCABLE

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For more information, visit www.vaisala.com or contact us at sales@vaisala.com

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