Visibility Sensor Model 8364

Overview

The 8364 Dual Technology Visibility Sensor measures the transparency of the atmosphere and calculates its extinction coefficient and meteorological optical range (MOR) values. The direct-attenuation technologies used by the 8364 provide measurements once available only from a transmissometer, and are now coupled with the reliability and cost-effectiveness of a forward-scatter visibility sensor. This precision makes the 8364 ideal for applications such as aviation and meteorological studies requiring high performance and reliability, .

Accuracy by Design

The accurate measurement of visibility in all weather conditions, including heavy precipitation, fog, snow, smoke and blowing sand is limited in other sensors. Two-headed forward scatter visibility sensors that rely solely on light scattering techniques are blind to certain size airborne particles that do not reflect light. By measuring both the light attenuation and light scattering at the same time the 8364 computes ratiometric values to derive the most accurate answer. This measuring process cancels several variables during calculation and ensures that the visibility measurement is not affected by contaminants on the lenses, or by temperature effects on the emitters and electronics.

By having two direct attenuation and two scatter values for every measurement the 8364 does not have to depend upon absolute measurements to be the most accurate sensor available today. This advantage means that measurements are independent of the effects of the environment, thereby maximizing accuracy, reducing recurring calibration, and minimizing maintenance requirements.

Scientifically Valid Chain of Calibration

Every 8364 is calibrated through a scientifically valid chain of reference. The response of the calibration device can be clearly traced to the "FAA golden standard transmissometer" at the FAA testing facility. This standard was established in direct comparison during certification of the sensor for aviation-quality measurements.

Extensive Self-Diagnostics

If one of the heads should fail the four-headed configuration allows for continued operating with only three sensor heads. Built-in test (BIT) functions report the sensor head failure so that appropriate maintenance can be scheduled. The BIT functions also monitor power supply voltages, heater status, and indications of abnormal operation.

SENSORS

SPECIFICATIONS

Parameter		Specification	
		8364-E	**8364-G**
Measurement Range		33 ft to 20 miles (10 m to 32 km)	
Accuracy		±15% RMSE	
Measurement Type		MOR or Extinction Coefficient	
Averaging Intervals		3, 5, or 10 min	
Measurement Units		miles or km	
Operating Principle		Dual Technology - direct attenuation and forward-scatter	
Light Source		Infrared LED	
Optical Bandpass Filter		865 nm ± 35 nm	
Detector		Silicon Photodiode	
Principal Scatter Angle		35 degrees	
Communication		RS-485 or RS-232	
Output Interval		Programmable: Interrogate, 10 s, 1 min, or 10 min	
Baud Rate		Programmable: 300, 1200, 2400, 4800, or 9600 bps	
Output Format		ASCII characters — 8-N-1 (8 data bits, no parity, 1 stop bit)	
Analog Output Option			
Output Voltage		0–1 V	
Output Impedance		100 Ω	
Handheld Terminal Port			
Baud Rate		1200 bps	
Serial Port Parameter Setting		8-N-1 (8 data bits, no parity, 1 stop bit)	
Power Requirements			
Supply Voltage		115 V AC, 50/60 Hz, 200 W	115 V AC, 50/60 Hz, 400 W
Environmental			
Operating Temperature		-40 to +136ºF (-40 to +55ºC)	
Storage Temperature		-58 to +158ºF (-50 to +70ºC)	
Relative Humidity		0–100%, condensing	
Wind		up to 120 knots (220 km/h)	
Hail		up to 0.5" (1.3 cm) diameter	
Ice Buildup		up to 0.5"/h (1.3 cm/h)	
Elevation		-100 to 10,000 ft ASL (-30 to 3030 m ASL)	
Mechanical			
Dimensions	Sensor Assembly	61" L × 19" W × 21" H (155 cm × 48 cm × 53 cm)	
	Controller Assembly	14" W × 16" H × 8" D (35 cm × 40 cm × 20 cm)	
Weight		74 lb (33 kg)	
Shipping Weight		135 lb (61 kg)	

ORDERING INFORMATION

Part Number	Description
8364-E	Visibility Sensor
8364-G	Visibility Sensor with Heated Windows
M403326	Day/Night Sensor Assembly
M488171	Ambient Light Sensor Kit
M488173-01	Unistrut Mounting Kit (control emclosure)
M488317-00	Pipe Mounting Pipe Kit (control enclosure)
M488174	230 V AC Conversion Kit

ACCESSORIES

Part No.	Description	Part No.	Description
M104744	Calibration Paddle	T600503-00	Signal cable, specify length
M488150	Grounding Kit		
M488175	Handheld Terminal	M492557	Power cable, specify length
11903	Backup Battery Kit		

All Weather Inc.

www.allweatherinc.com

allweatherinc

Phone: 916-928-1000
USA Toll Free: 800-824-5873
Fax: 916-928-1165