



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 +136°F (-40 to +55°C)		
Storage Temperature	-58 to +158°F (-50 to +70°C)		
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 lbs (33 kg)		
Shipping Weight	135 lbs (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 enclosure)
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.
1165 National Dr.
Sacramento, CA 95834

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

www.allweatherinc.com

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