

Aerovane Transmitter Model 140A

Features

- High Accuracy
- Low Starting Threshold and Wide Range
- All Weather Rugged Waterproof Design
- Programmable Digital Output
- Analog Voltage and Pulse Vector Outputs
- Field Programmable North Reference
- Proven Design & 10 Year Guarantee
- Low Power Requirement



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The Belfort All Environment Digital Aerovane® is designed to operate in the toughest operating environments where reliable accurate wind speed and direction measurements are essential to customer requirements. Large size and aerodynamic design assures low starting torque, directional stability, minimal impact from ice and snow, and large air sample size. Magnetic sensor and totally encapsulated electronics assure operation in presence of moisture and particles and are designed to comply with intrinsically safe requirements under ATEX guidelines. Made of high impact thermoplastic and mounted to a machined aluminum base the AEDA 200 will provide wind information up to 200 mph wind speeds.

Wind speed is sampled over a 182.6 in.² (1178 cm²) area by proven 3 blade impeller which is mounted to a stainless steel shaft and connected through sealed bearings to a high reliability magnetic sensor that provides digital pulse output directly related to rotational speed of the impeller. The large sample area minimizes wind speed errors due to micro turbulence particulates in the air while assuring low starting thresholds and accuracy of low wind speed measurements. Starting threshold of less than 2 knots and accuracy of wind measurements of 1 knot with 0.2 knot resolution are obtained in the worst environmental conditions.

Wind direction is provided by a large aerodynamic rudder attached to the vane and connected proprietary magnetic sensor through a sealed bearing to measure wind direction (with no dead zone) to and accuracy of 1° (0.2°), the best in the industry. The large rudder section (130 in², 839 cm²) of the Aerovane assures wind direction accuracy and stability (minimal modulation caused by turbulent flow over tail section) using the proven laminar flow tail design of the predecessor Belfort Series 120 Aerovane.

Balanced about its center of rotation with its long cord length (distance from mounting shaft to tail) and large airfoil tail design the AEDA 140A provides excellent sensitivity to small wind direction changes at low airflow while sampling a large cross section of air to minimize impact of micro turbulence. The AEDA 200 is available with optional thermostatically controlled heaters to prevent freezing during icing conditions to temperatures of 14°F (-10°C) and operation of electronics to -55°C.

THE STANDARD
OF MEASUREMENT

BELFORT INSTRUMENT
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Aerovane Transmitter Model 140A Specifications

Spec	Wind Speed	Wind Direction
Range	2-175 knots (2.3-200 mph)	1° to 360° in azimuth
Starting Threshold	less than 2 knots (2.3 mph)	less than 2 knots (2.3 mph)
Accuracy	+/- 1 knot to 90 knots	± 1° over entire operating range
Resolution	0.2 knots/0.2 mph Digital output	0.2°
Distance Constant	15 ft (4.6 m)	
Time Constant		@10 and 20 knots, 10° displacement, less than 2 seconds to reach within 5° of reference direction
Digital Output Selection: RS485 Format	- NMEA-0183 Standard Protocol: knots, km/hr, m/sec - NMEA-0183 Modified Protocol: mph, knots, km/hr, m/s, ft/s	RS485 Format: 1° to 360° in 0.2° increments
Vector Analog Output Options	- 3 pulses per revolution, 1ms pulse duration - 6 pulses per revolution, 1ms pulse duration	- 0-2.5 volts dc range into 1k ohms or higher resistance - 0-5.0 volts dc range into 1k ohms or higher resistance - Note: Output voltage options: TTL (5volt) at 470 ohms output impedance, Vsupply-1.5vdc at 3.3 kohm output impedance, or open drain at 100 ohm output impedance.
Wind Direction Reference:		Programmable in field either prior to installation or after installation
Transmission Range	Up to 1 mile via RS485 link	
Power Requirements	9-28 Volts dc at 150 ma. Reverse polarity protected	
Digital Output Detail	- Selectable ASCII output format: NMEA-0183 standard protocol for knots, km/hr or m/second outputs or NMEA-0183 (Belfort proprietary) protocol to provide output wind speed in mph, knots, km/hr, m/s, or ft/s - Programmable output baud rates: 300, 1200, 2400, 4800, 9600 - Programmable wind data sample rates: 1,2,4,10 seconds - All output lines short circuit protected	
Set-up	USB-RS 485 converter, PC with windows operating system with Hyper Terminal. Once connected to a PC through the USB-RS 485 converter press "enter" and the AEDA internal menu system will appear on the PC and prompt the user to select the set-up configuration desired. All settings are then saved in no-volatile memory.	
Lighting and Transient Protection	All input and output lines are 3 stage vicinity lighting protected and transient protected	
Size	32" L x 18" H (81.28 cm x 45.72 cm)	
Weight	8.8 lbs (4kg)	
Input/Output Connection: (red wire #1)	<ul style="list-style-type: none"> - RS485- - RS485+ - Ground - Ground - V Supply + 9 to 28 vdc - V Supply + 9 to +9 to 28 vdc - Analog Direction output (either 0-2.5vdc or 0-5.0vdc) - Ground - Speed Pulse output (either 3 or 6 pulses per revolution) - Ground 	



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