

WEATHER

Ultrasonic Wind Sensor

Model 2040



Overview

The Model 2040/2041 ultrasonic wind sensors are robust, lightweight, corrosion-resistant, and have no moving parts. They output wind speed and direction. The wind speed units, output rate and data formats are all user-selectable.

The wind sensors are available with or without de-icing heating (recommended when icing is likely).

The wind sensors may be used in conjunction with a PC, and integrate the raw data to a data logger for pre-processing and/or transmission to other devices, provided it is compatible with the RS-422 output. Multiple units can be networked as required.

The output message format can be configured in Polar, UV (2-axis), and NMEA (0183 Version 3) formats, and as either a Continuous output or Polled (requested by host system).

The wind sensors are configured using a standard serial interface on a PC or a laptop.

Ordering Information

The following Ultrasonic Wind Sensor models are available. Models with a cable have the specified cable length attached through a gland to the electronics in the wind sensor. Select a cable from the Accessories for models with a connector; cable lengths from 10 to 30 m are available. Connectorized versions allow for replacement of the wind sensor without having to reinstall a new wind sensor and cable.

Model	Description	Cable	Connector	Unheated	Heated	High Heat
2040	With 10 m cable	10 m		X		
2040C	With connector		X	X		
2040H	Heated, with 10 m cable	10 m			X	
2040HC	Heated, with connector		X		X	
2040HH	High Heat, with 10 m cable	10 m				X
2040HHC	High Heat, with connector		X			X
2040L	With 15 m cable	15 m		X		
2040HL	Heated, with 15 m cable	15 m			X	
2041C	Wind speed to 75 m/s, w/ connector		X	X		
2041HH	Wind speed to 75 m/s, w/ cable	10 m				X

Accessories

Part Number	Description
M493080-00*	30 m (100 ft) cable for wind sensors with connectors
M493104-00*	20 m (70 ft) cable for wind sensors with connectors
M493081-00*	10 m (35 ft) cable for wind sensors with connectors
M105548-00	Zero Wind Chamber for maintenance
M488623-00	2040/2041 Universal Mounting Kit
M488270-01	Corrosion-Resistant Mounting Kit
M488302-00	Mounting Bracket for Pole Mounting

* Select one of these cables for "connectorized" wind sensors (sensors with "C" in the Model number)

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Specifications

Parameter	Specification	
Measurement		
Output Frequency	1, 2, 4, 5, 8, 10 Hz	
Output Interval	100, 125, 200, 250, 500, 1000 ms	
Parameters	UV, Polar, NMEA, Tunnel	
Units	m/s, knots, mph, km/h, ft/min	
Averaging	Flexible 1–3600 seconds	
Threshold	0.01 m/s	
Wind Speed		
Range	2040, 2040C, 2040H, 2040HC, 2040L, 2040HL	0 – 65 m/s (0 – 145 mph)
	2040HH, 2040HHC	0 – 70 m/s (0 – 156 mph)
	2041C, 2041HH	0 – 75 m/s (0 – 168 mph)
Accuracy	±2%	
Resolution	0.01 m/s	
Offset	±0.01 m/s	
Direction		
Range	0 – 360°	
Dead Band Direction	None	
Accuracy	±2°	
Resolution	1° standard (0.01° optional)	
Digital Output		
Communication	RS-422 (full duplex)	
Baud Rates	1200, 2400, 4800, 9600, 19200, 38400 bps	
Formats	8 data bits; odd, even, or no parity	
Sensor Status	supplied as part of standard message	

Parameter	Specification	
Optional Analog Outputs		
Analog Outputs	speed, direction, status	
Scale	multiples of ±10 m/s up to ±70 m/s max	
Type	±2.5 V or 0–5 V	
V(output) Resistance	60 Ω	
4–20 mA Loading	10–300 Ω	
Power Requirements		
Sensor Only	9–30 V DC(40 mA @ 12 V)	
Heating Option	2040H, 2040HC	3 A @ 24 V AC/DC
	2040HH, 2040HHC	7 A @ 24 V AC/DC
Environmental		
Operating Temperature	-55°C to +70°C	
Relative Humidity	0% to 100%	
Precipitation Tolerance	300 mm/h	
Materials	316 stainless steel	
Moisture Protection	IP66 (NEMA 4X)	
EMC	EN 61000-6-2:2001, EN 61000-6-3:2001	

Dimensions & Weights

Size	2040, 2040H	405 × 210 mm (15.94" x 8.27")
	2040HH	426 × 213 mm (16.77" x 8.39")
	2041HH	438 × 213 mm (17.25" x 8.39")
	2040L, 2040HL	446 × 213 mm (17.56" x 8.39")
	2040C, 2040HC, 2040HHC, 2041C	489 × 213 mm (18.68" x 8.39")
Nominal Weight (wind sensor without cable)		1.4 kg (3.1 lb)