

▲ STANDARD SENSORS

NRG #40H Anemometer, Hall Effect (item: 1901)

The NRG #40 anemometer is the industry standard anemometer used worldwide. A Hall Effect version of this sensor is available for electrically noisy environments and instrumentation requiring a square wave signal. NRG #40 anemometers have recorded wind speeds of 96 m/s (214 mph). Their low moment of inertia and unique bearings permit very rapid response to gusts and lulls. Because of their output linearity, these sensors are ideal for use with various data retrieval systems. A Hall Effect switch induces a square wave voltage, producing an output signal with a frequency proportional to wind speed. A 5 to 24 VDC excitation voltage with 5ma of current is required. The #40H is constructed of rugged Lexan cups molded in one piece for repeatable performance. A rubber terminal boot is included.



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▲ Additional Product Details

Specifications

Product Support

Description

Sensor type	3-cup anemometer
Applications	<ul style="list-style-type: none">• wind resource assessment• meteorological studies• environmental monitoring
Sensor range	1 m/s to 96 m/s (2.2 mph to 214 mph) (highest recorded)
Instrument compatibility	controllers or loggers requiring a square wave signal

Output signal

Signal type	<ul style="list-style-type: none">• square wave signal from open collector transistor• external pull-up resistor required• frequency proportional to wind speed
Transfer function	$m/s = (Hz \times 0.765) + 0.35$ [miles per hour = $(Hz \times 1.711) + 0.78$]
Accuracy	within 0.1 m/s (0.2 mph) for the range 5 m/s to 25 m/s (11 mph to 55 mph)
Recommended load resistance	<ul style="list-style-type: none">• output sinks up to 20 mA• 3300 Ohm typical pull-up resistor for 24V• 250 Ohm minimum pull-up resistor for 5V
Calibration	calibrated version available
Output signal range	0 Hz to 125 Hz (highest recorded)

Response characteristics

Threshold	0.78 m/s (1.75 miles per hour)
Distance constant (63% recovery)	3.0 m (10 feet)
Moment of inertia	$68 \times 10^{-6} \text{ S-ft}^2$
Swept diameter of rotor	190 mm (7.5 inches)

Power requirements

Supply voltage	5 V to 24 V DC
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Supply current 9 mA max.

Installation

Mounting onto a 13 mm (0.5 inch) diameter mast with cotter pin and set screw

Tools required 0.25 inch nut driver, petroleum jelly, electrical tape

Environmental

Operating temperature range -55 °C to 60 °C (-67 °F to 150 °F)

Operating humidity range 0 to 100% RH

Physical

Connections 4-40 brass hex nut/post terminals

Weight 0.14 kg (0.3 pounds)

Dimensions

- 3 cups of conical cross-section, 51 mm (2 inches) dia.
- 81 mm (3.2 inches) overall assembly height

Materials

Cups one piece injection-molded black polycarbonate

Body housing is black ABS plastic

Shaft beryllium copper, fully hardened

Bearing modified Teflon, self-lubricating

Boot protective PVC sensor terminal boot included

Terminals brass