

# SPECIFICATIONS

## IceFree3 Anemometer, AC Sine, 2.8m

### FEATURES

- Simple, robust design
- Accurate measurement of off-axis winds



Made of cast aluminum with black anodized finish, the anemometer efficiently transfers heat from constant temperature, self-regulating heaters. The signal output is a sine wave varying in amplitude and frequency with wind speed. Patented off-axis correction minimizes errors in measuring up-slope or down-slope winds. The sensor's pinch clamp base mounts easily to a 27mm (1.05") diameter mounting pipe. The IceFree3's heater is powered by 24V AC or DC, making it compatible with a wide range of remote site equipment. An optional 120/240 VAC to 24 VAC transformer is also available.

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Description	Sensor type	3 cup heated anemometer
	Applications	<ul style="list-style-type: none"><li>• wind resource assessment</li><li>• wind turbine control</li><li>• meteorological studies</li><li>• ski area maintenance</li><li>• environmental monitoring</li></ul>
	Sensor range	maximum rated wind speed is 90 m/s (200 miles per hour)
	Instrument compatibility	all NRG loggers
Output signal	Signal type	variable amplitude sine wave, frequency proportional to wind speed
	Transfer function	$m/s = (Hz \times 0.572) + 1.00$ [miles per hour = $(Hz \times 1.28) + 2.24$ ]
	Sensor to Sensor Variation	99.7% of sensors fall within 4.3% of stated transfer function (based on over 800 samples)
	Calibration	available upon request - contact NRG for more information.
	Output signal range	0 Hz to 155 Hz
Response characteristics	Distance constant (63% recovery)	7.6 m (25 feet)
Power requirements	Heater supply voltage	24 V AC/DC <ul style="list-style-type: none"><li>• optional transformer available</li></ul>
	Heater supply current	<ul style="list-style-type: none"><li>• Inrush: 8 A maximum</li><li>• Steady state: 1 A at 20 °C (68 °F), 4 A under maximum thermal</li></ul>

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		load (head frozen in clear ice then powered on)
Installation	Mounting	mounts to a 27 mm (1.05 inch) diameter (3/4 inch IPS) pipe with a 5/16 inch nut and bolt; cabling exits into mounting pipe
	Tools required	13 mm (0.5 inch) nut driver
Environmental	Operating temperature range	-40 °C to 60 °C (-40 °F to 140 °F)
	Operating humidity range	0 to 100% RH
Physical	Connections	Signal Cable <ul style="list-style-type: none"> <li>• clear: signal</li> <li>• black: ground</li> <li>• shield drain</li> </ul> Heater Cable <ul style="list-style-type: none"> <li>• black / white: heater power (AC/DC)</li> </ul>
	Cable length	<ul style="list-style-type: none"> <li>• Signal &amp; Power cables: 2.8 m (9.2feet)</li> <li>• extension kits available</li> </ul>
	Weight	1.45 kg (3.2 pounds)
	Dimensions	<ul style="list-style-type: none"> <li>• overall assembly height : 224 mm (8.82 inches)</li> <li>• body diameter: 70 mm (2.75 inches)</li> <li>• swept diameter of rotor: 127 mm (5 inches)</li> </ul>
Materials	Cups	precision balanced aluminum with black anodized finish and heat-resistant black paint
	Body	cast aluminum with black anodized finish and heat-resistant black paint
	Shaft	centerless ground, stainless steel
	Bearing	stainless steel ball bearings with application specific lubrication
	Magnet	4 pole ceramic
	Coil	single coil, shielded for ESD protection
	Cable	<ul style="list-style-type: none"> <li>• Signal: 2 conductor 20 AWG, chrome PVC jacket with overall foil shield and drain</li> <li>• Heater: 2 conductor 20 AWG, Teflon jacket with braid shield and drain</li> </ul>
	Enclosure	<ul style="list-style-type: none"> <li>• sealed to IP55</li> <li>• heater is epoxy encapsulated to IP65</li> </ul>
	Heater	fully encapsulated, self-regulating
	Base	cast aluminum with black anodized finish and heat-resistant black paint

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