FT742-FF (FLAT FRONT)

ACOUSTIC RESONANCE WIND SENSOR

FT TECHNOLOGIES

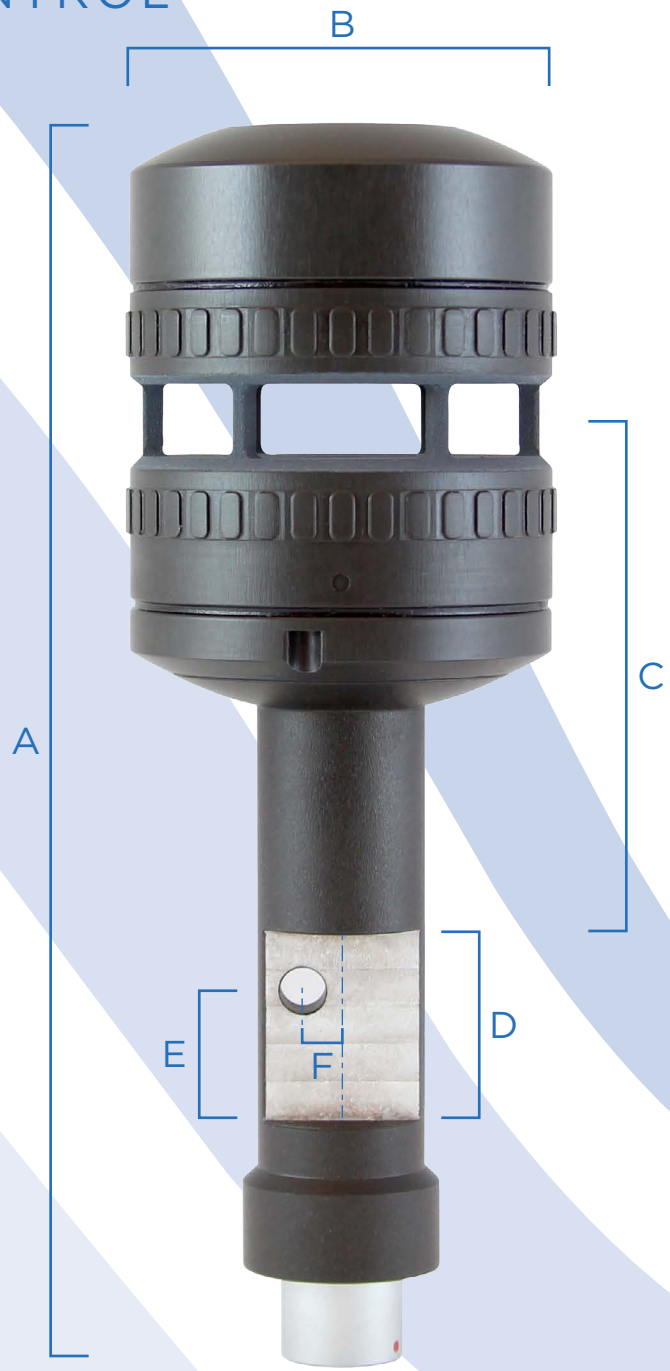
DESIGNED FOR TURBINE CONTROL

The FT742 Flat Front wind sensor is widely used in the wind turbine business, both on and offshore. It can measure wind speeds up to 75m/s making it suitable for use in the stormiest areas of the world.

Designed for installation against a metal bar, the sensor is easily aligned to the central axis of the turbine without error.

The thermostatically controlled heating system prevents ice build-up, not only on the sensor itself, but also on the metal bar. This prevents blockage of the measurement cavity, reducing turbine downtime during heavy icing events.

The hard anodised aluminium body is highly resistant to corrosion, sand, dust, ice and solar radiation. The sensor is sealed to IP66 and IP67 standard and inherently compensates for changes in the air's temperature, pressure and humidity.



DIMENSIONS

A. Sensor height	161mm
B. Sensor width max.	56mm
C. Top of mounting flat to cavity centre	66.3mm
D. Mounting flat height	25mm
E. Bottom of mounting flat to hole centre	17mm
F. Centre of mounting flat to hole centre	5.1mm

SPECIFICATIONS AT A GLANCE

WIND SPEED	WEIGHT	AVAILABILITY
0-75 m/s	320 g	> 99.9 %

THE WORLD'S TOUGHEST WIND SENSORS

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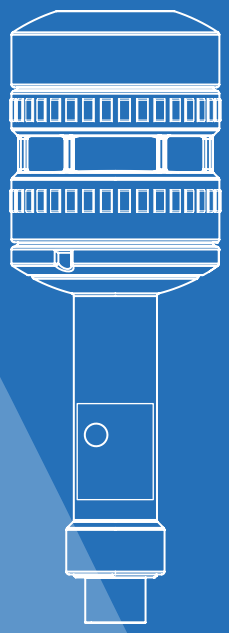

WIND SPEED

Range	0-75m/s
Resolution	0.1m/s
Accuracy	±0.3m/s (0-16m/s) ±2% (16-40m/s) ±4% (40-75m/s)

WIND DIRECTION

Range	0 to 360°
Resolution	1°
Accuracy (within ±10° datum)	2° RMS
Accuracy (outside ±10° datum)	4° RMS

ACOUSTIC TEMPERATURE*

Resolution	0.1°C
Accuracy	±2°C
Under the following conditions:	
Speed Range	5m/s - 60m/s
Operating Range	-20°C to +60°C
Temperature Difference between the air temperature and the actual temperature of the sensor	<10°C

*Available on digital sensors only

SENSOR PERFORMANCE

Measurement principle	Acoustic Resonance (automatically compensates for variations in temperature, pressure & humidity).
Units of measure	Metres per second, kilometres per hour or knots
Altitude	0-4000m operating range
Temperature range	-40° to +85°C (operating and storage)
Humidity	0-100%
Ingress protection	IP66 and IP67
Heater settings	0° to 55°C. The heater set point can be configured

POWER REQUIREMENTS

Supply voltage	12V to 30V DC (24V DC nominal)
Supply current (heater off)	31mA typical
Supply current (heater on)	Limited to 4A (default), 6A (max) – configurable in software in 0.1A increments. Heater power consumption will depend on the energy required to keep the sensor's temperature at the user determined set point. The heater and sensor power consumption is limited by default to 99W.

PHYSICAL

I/O connector	5-way (RS485 option), 8-way (4-20mA option) multipole connector
Sensor weight	320g

DIGITAL SENSOR

Interface	RS485 (half duplex), galvanically isolated from power supply lines and case
Format	ASCII data, polled or continuous output modes, Polar and NMEA 0183
Data update rate	Maximum 10 measurements per second
Error handling	When the sensor detects an invalid reading a character is set in the wind velocity output message. This error flag character is 1

ANALOGUE SENSOR

Interface	4-20mA, galvanically isolated from power supply lines and case
Format	One 4-20mA current loop for wind speed (different scaling factors are available). One 4-20mA current loop for wind direction (datum value configurable as 4mA or 12mA). Both analogue channels are updated ten times per second.
4-20mA configuration port	This port is for the user to change the internal settings of analogue sensors and to perform diagnostic testing. This interface is not intended for permanent connection to a data logger or other device.
Error handling	When the sensor detects an invalid reading then both speed and direction current loops will drop to a default value of 1.4mA (configurable up to 3.9mA).

EMC AND ENVIRONMENTAL TESTS

The FT7 Series have passed over 28 different environmental test certificates including Corrosion, Icing, De-Icing, Shock, Hail, Drop, ESD, power interruption and EMC. Further test details and full test reports available on request or via our website.

FT Technologies Ltd
Sunbury House, Brooklands Close
Sunbury on Thames, TW16 7DX, UK
Tel: +44 (0)20 8943 0801 | info@fttechnologies.com

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RECOGNIZED COMPONENT
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MANAGEMENT SYSTEM CERTIFICATION
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ISO 9001 = ISO 14001

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