FT742-PM (PIPE MOUNT)

ACOUSTIC RESONANCE WIND SENSOR

FT TECHNOLOGIES

DESIGNED FOR TURBINE CONTROL

The FT742 Pipe Mount wind sensor is designed for installation on top of a pipe or post with an FT090 pipe mount adapter. The sensor cable is run inside the pipe giving added lightning and environmental protection. Factory alignment of the pipe mount adapter ensures that the sensor is automatically aligned with the central axis of the turbine without error.

Measuring wind speeds up to 75m/s it is suitable for use in the stormiest areas of the world.

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

Designed to last for up to 20 years, even in an offshore environment, the Pipe Mount sensor is used by turbine manufacturers around the world. Highly resistant to electromagnetic and acoustic interference, it is also an ideal choice for smaller-scale wind turbines.

DIMENSIONS

A. Sensor height to connector base...................................161mm

B. Sensor width max..56mm

C. Adapter to pipe mating surface to cavity centre............171mm

D. Alignment feature width...5.1mm

E. Sensor mounting flange width..45mm

F. Adapter external diameter...74mm
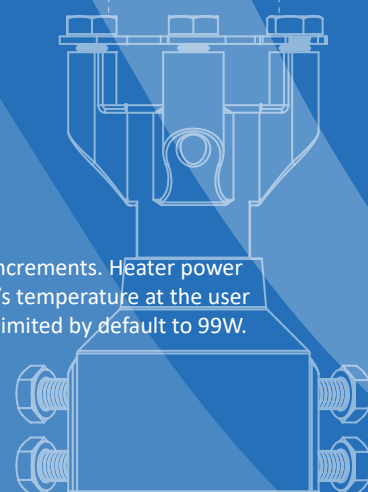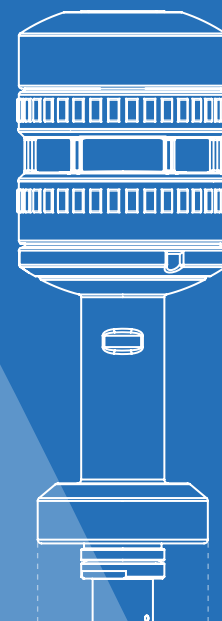
SPECIFICATIONS AT A GLANCE

WIND SPEED
0-75 m/s

WEIGHT
350 g

AVAILABILITY
> 99.9 %

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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	<10°C

between the air temperature and the actual temperature of the sensor

*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, IP67 and IPX6K
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
Weight	Sensor 350g
	Adapter 350g

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 30 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.

RECOGNIZED COMPONENT
C ETL US LISTED
Intertek

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 = ISO 14001

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