

# FT742-DM50 (DIRECT MOUNT)



## ACOUSTIC RESONANCE WIND SENSOR

The FT742-DM50 wind sensor fits directly onto a 47.9 to 50.2mm OD pipe and reads wind speeds up to 75m/s. For ease of alignment, it can be fitted using our special FT039 alignment collar and FT040/041 alignment tools.

With superior corrosion resistance and lightning protection, the DM50 has been specifically designed for wind turbine control. The hard anodised aluminium body is highly resistant to corrosion, sand, dust, ice, solar radiation and bird attack. The sensor is sealed to IP66, IP67 and IPX6K standard.

Small yet very rugged, it is designed to last for up to 20 years, even in an offshore environment. With no moving parts to degrade or damage and resistant to shock and vibration, it is easy to transport and can be used to upgrade and retrofit older turbines.



## DIMENSIONS

A. Sensor height.....	174mm
B. Sensor width max.....	70mm
C. Mounting pipe outside diameter.....	50.2mm
D. I/O connector width.....	22.1mm

## SPECIFICATIONS AT A GLANCE

WIND SPEED

**0-75** m/s

WEIGHT

**535** 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

## 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 recommended). Supports 12V battery operation with reduced heater capacity
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 Conector.....	5-way (RS485 option) or 8-way (4-20mA option) multipole connector.
Sensor weight.....	535g

## DIGITAL SENSOR

Interface.....	RS485 (half-duplex), galvanically isolated from power supply lines and case
Format.....	ASCII data, polled or continuous output modes, 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.
Configuration port.....	This non-isolated RS485 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).

## ALIGNMENT ACCESSORIES

FT has developed two accessories to facilitate fast and precise alignment of the FT742-DM50 to a given datum. Both of these accessories are designed to be used with a Laserboy II or comparable clamp-on laser unit.

### FT040 - Mast Mounted Alignment Tool

The FT040 is used in conjunction with the FT039 Alignment Collar. Use FT040 to align the collar before locking it in place. The alignment accessory can then be removed to fit an FT742-DM50 in the pre-aligned position.



### FT041 - Sensor Mounted Alignment Tool

The FT041 clamps onto the FT742-DM50, allowing you to rotate the sensor to datum before locking it in place. The alignment accessory can then be quickly removed for use on the next sensor.

