FT702
Ultrasonic Anemometer

with patented *Acoustic Resonance* sensing technology

Features

- **High accuracy wind speed and direction sensing**
- **Compact, unobtrusive solid-state design with no moving parts**
- **Very low-power operation (100mW typ.)**
- **Digital and analogue interface options**
- **NMEA0183 output format supported**
- **Integral anti-icing heater as standard**
- **Continuous self-diagnostic test function**
- **Requires no routine maintenance**
- **ISO9001 designed and manufactured**

Applications

- **Cost effective replacement for cup and vane anemometers**
- **Meteorological weather stations**
- **Wind stress monitoring for buildings and bridges**
- **Air pollution and chemical dispersion**
- **Wind speed and direction sensing for:**
  Ships and offshore platforms
  Harbours and ports
  Airports, airfields and heliports

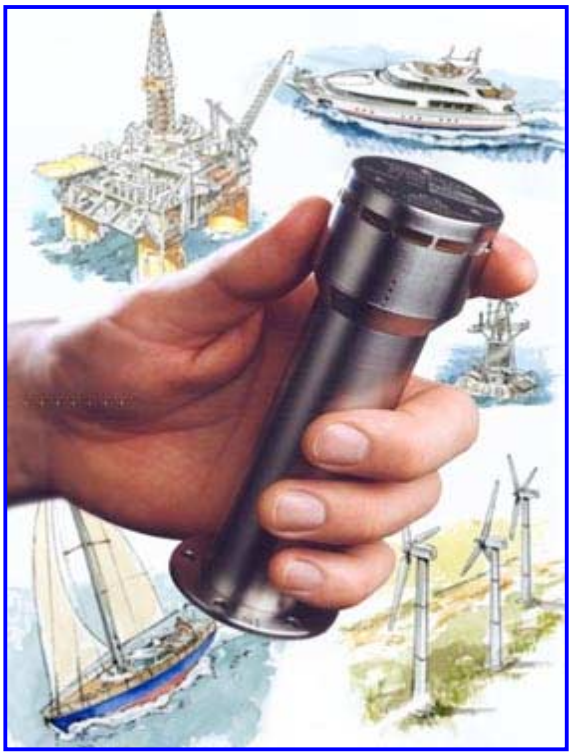
Description

The FT702 is a solid-state meteorological sensor, which uses a new, patented Acoustic Resonance airflow sensing technique to measure accurately both wind speed and direction.

The acoustic resonance sensing technique coupled with state-of-the-art signal processing gives the anemometer a wind speed range of 0.01m/s to 70m/s (option H).

The anemometer has been specifically designed to be a cost-effective replacement for cup/vane and propeller devices. By eliminating the well-known limitations of conventional mechanical anemometers, the FT702 offers for the first time a high performance, affordable anemometer that requires no routine maintenance or calibration.

Comprehensive measurement data (up to 5 readings per second) is available via either a serial RS422 (option A) or serial RS485 (option B) interface.



The RS422 model has separate transmit and receive terminals for full-duplex operation whereas the RS485 has a single transmit/receive terminal. The RS485 model allows up to 32 FT702s to be connected to a host terminal or data logger using a single twisted pair data link.

Other interface options include dc voltage and current loop outputs representing wind speed and direction.

The highly compact and symmetrical arrangement of the acoustic resonant cavity results in a physically small (50mm x 162mm), lightweight (0.5kgs) and robust anemometer. The FT702 is environmentally sealed to IP67 allowing it to be used in a wide range of demanding applications. Near-strike lightning protection is provided as standard on all signal and power lines.

An integral heater is incorporated to prevent icing. The heater can either be switched on or off as required (RS422 and RS485 options only) or it can be automatically controlled directly by the sensor.

DTI ***SMART*** Award Winner 1996
DTI ***SMART*** Follow-On Award Winner 1998

The patented Acoustic Resonance technology incorporated in the FT702 anemometer has received two ***SMART*** awards from the UK Department of Trade and Industry. These prestigious awards are granted in recognition of new products or processes that involve a significant technological advance.

FT Technologies Ltd Church Lane, Teddington, Middlesex, TW11 8PA, England. Tel: 020 8943 0801 Fax: 020 8943 3283
E-mail: sales@fttech.co.uk Web: http://www.fttech.co.uk

FT702 Specification

SENSOR PERFORMANCE[1]

MEASUREMENT PRINCIPLE	Acoustic Resonance (compensated against variations in temperature, pressure and humidity)
WIND SPEED MEASUREMENT	
RANGE	0-70m/s
ACCURACY	±4% of reading
RESOLUTION	0.1m/s (option S) 0.01m/s (option H)
ZERO ERROR	±0.1m/s (option S) ±0.02m/s (options H)
WIND DIRECTION MEASUREMENT	
RANGE	0 to 360°
ACCURACY	±3°
RESOLUTION	1°

DATA I/O

INTERFACE OPTIONS	Digital (serial data - RS422 full duplex or RS485 half duplex), dc voltage and 4-20mA current loop
DATA I/O	
RS422/RS485	Full range of user programmable functions. Proprietary and NMEA 0183 (MWV sentence) ASCII data output formats. RS485 option allows up to 32 FT702s to be connected in a cluster
ANALOGUE	Dual output variable voltage or current proportional to wind speed and direction
DC VOLTAGE	Speed scaling 17.5m/s per V (0-4V), direction scaling 100° per V (0-3.6V)
CURRENT LOOP (4-20mA)	Speed scaling 4.375m/s per mA, direction scaling 22.5° per mA
DATA UPDATE RATE	5 measurements per second

POWER REQUIREMENTS

ANEMOMETER	7V to 29.5V dc @ 14mA (typical, excluding data output drive current)
HEATER	48V @ 1A (dc or peak ac)

PHYSICAL

DIMENSIONS	50mm x 162mm (dia. x height)
WEIGHT	500g
MATERIAL	Stainless steel
I/O CONNECTOR	Multipole connector (p/n 62GB-57A12-10PN). Mating connector p/n 62GB-16F12-10SN
MOUNTING METHOD	Flange mounting

ENVIRONMENTAL

OPERATING TEMPERATURE RANGE	-40° to +85°C
STORAGE TEMPERATURE RANGE	-40° to +85°C
HUMIDITY	0-100%
WATER INGRESS	Sealed to IP67
VOLTAGE TRANSIENT PROTECTION	All signal and power supply lines protected against 1.5kV (peak) voltage transients (10/700µs waveform, 40Ω source)

NOTES:

1. Specification valid for wind angle of incidence within ±10° of the horizontal
2. All specifications subject to change without notice

Ordering Information

FT702/_ _ _

Append required options

Mounting:
F = Flange mounting

Performance:
H = 0-70m/s, 0.01m/s resolution
S = 0-70m/s, 0.1m/s resolution

Interface:
A = RS422 Interface
B = RS485 Interface
C = DC Voltage Interface
D = 4-20mA Current Loop