

SDI-UWS-RMY
Ultrasonic Wind Sensor
Operating Manual

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GENERAL DESCRIPTION

FTS Forest Technology Systems Limited SDI-UWS-RMY is an ultrasonic wind speed and direction sensor designed to operate with the FTS data loggers' SDI-12 interface (see Figure 1). The SDI-UWS-RMY sensor consists of a RM Young 85000 ultrasonic anemometer, a sturdy anodized aluminum mounting arm, and an SDI interface cable. The sensor operates in polled mode as a slave on the SDI-12 bus. SDI-12 (Serial Data Interface at 1200 baud) is a standardized protocol that defines how microprocessor based sensors and data loggers communicate.

The wind speed and direction sensor is a four element device containing no moving parts. This results in a robust sensor that does not require field calibration.

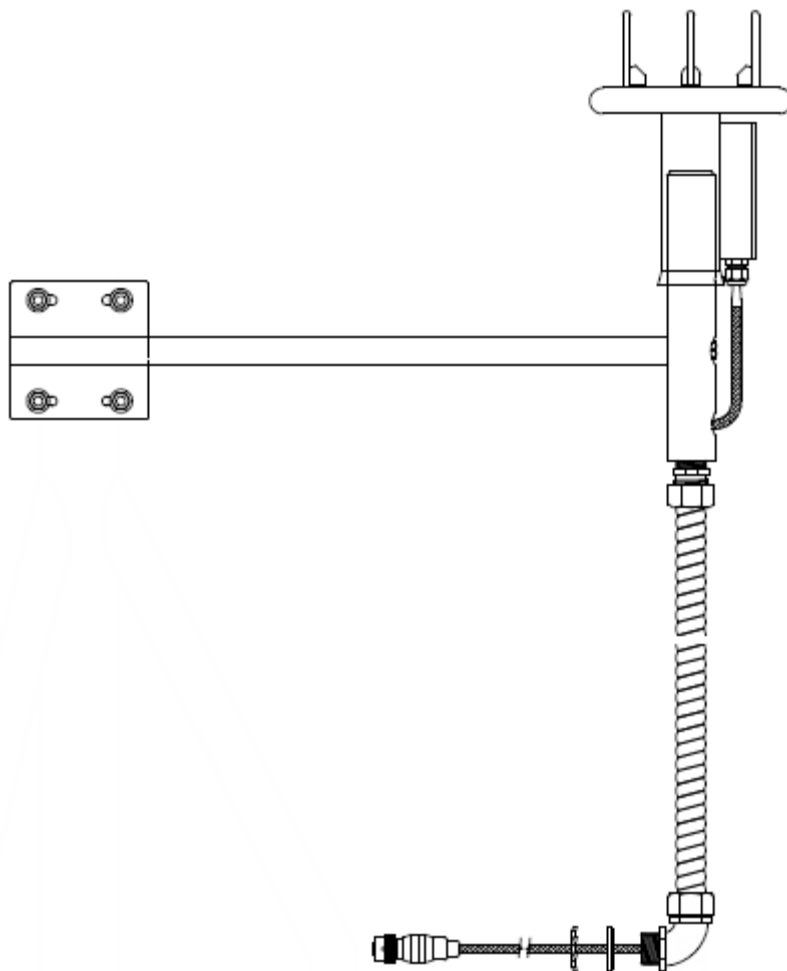


Figure 1: SDI-UWS-RMY Ultrasonic Wind Sensor Components

INSTALLATION

The SDI-UWS-RMY sensor is design to mount to a 1.5” to 3” diameter pipe.

Installation for the SDI-UWS-RMY is as follows (see Figure 2):

- a) Install the SDI-UWS-RMY sensor at the desired height by securely fastening the two U-bolts. Ensure that the sensor mounting arm is pointing South and that the sensor cable is long enough to connect back to the data logger.
- b) Orient the sensor so that North marker on the sensor points North. The RM Young orientation ring is not required as the sensor assembly slides over the alignment pin in the mount.
- c) Secure the sensor to the mount and the sensor cable to the mast.
- d) Connect the SDI-UWS-RMY sensor to an SDI port on the data logger front panel.

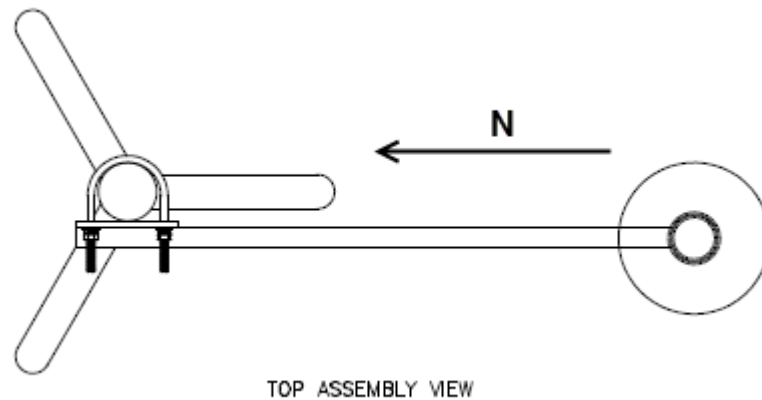


Figure 2: SDI-UWS-RMY Ultrasonic Wind Sensor Site Diagram

Connector Pin-out

The SDI-UWS-RMY connector is an environmentally sealed, bayonet mount, keyed, military style connector. The connector is waterproof even without a mating connector attached. Electrical signal connections for the SDI-UWS-RMY connector are shown in Table 1 below.

PIN	SIGNAL
A	+12 Vdc
B	Data
C	Ground

Table 1: SDI-UWS-RMY Ultrasonic Wind Sensor Signal Connections

OPERATION

The SDI-UWS-RMY is designed to operate with the FTS data logger on the SDI-12 bus. The data logger polls the sensor for a measurement as determined by the data logger configuration.

Configuration

Generally all SDI-12 sensors are shipped from FTS with a default address of 0; however, for specific applications or system, FTS will preset the sensor SDI address to the required value. The only configuration that may be required by the sensor is to change the address to another value if more than one SDI-12 sensor is on the same bus. See the SDI-12 Command section for instructions on how this is done.

SDI-12 Commands

SDI-12 Command details can be found in Appendix 1 – RM Young 85000 Ultrasonic Anemometer Instructions.

MAINTENANCE

The SDI-UWS-RMY Ultrasonic Wind Sensor is designed not to require re-calibration within its lifetime; however, the following procedure should be performed on an annual basis:

1. **Check the sensor for any build-up of deposits:**
 - Gently clean deposits with a cloth moistened with a mild detergent. Solvents should not be used and care should be taken to avoid scratching any surfaces.
 - Do not attempt to remove ice or snow with a tool.
2. **Check cables and connectors for deterioration or damage and replace if needed.**
3. **Check the sensor and mounting arm for correct North/South alignment.**

Please contact FTS technical support if the unit ceases to operate properly.

SPECIFICATIONS

SDI-UWS-RMY ULTRASONIC WIND SENSOR

Type	Ultrasonic Anemometer
Voltage	+12 Vdc nominal
Current	0.32mA standby, <12 mA active
Interface	SDI-12
Operating Temperature	-50°C to +60°C
Wind Speed	
Range:	0 to 70 m/s
Accuracy:	(30 m/s) +/- 2% or 0.1m/s; (70 m/s) +/- 3%
Resolution:	0.1 m/s
Wind Direction	
Range:	0 to 360 degrees
Accuracy:	+/- 2 degrees
Resolution:	1 degree

APPENDIX 1

RM YOUNG 85000 ULTRASONIC ANEMOMETER INSTRUCTIONS

< attach FTS document 701-RM Young 85000 Ultrasonic Anemometer >