



R M Young Wind Monitor Integration Manual



Overview

The R M Young Wind Monitor measures horizontal wind speed and direction. Originally developed for ocean data buoy use, it is rugged and corrosion resistant yet accurate and light weight. The main housing, nose cone, propeller, and other internal parts are injection molded U.V. stabilized plastic.

It measures wind speed range from 0 to 100m/s and wind direction range 360 degree mechanical, 355 degree electrical



Mounting Instruction

The wind monitor requires proper placement. Trees, buildings, or other structures can influence the wind speed and wind direction observations.

The instrument mounts on standard one-inch pipe, outside diameter 34 mm (1.34"). An orientation ring is provided so the instrument can be removed for maintenance and reinstalled without loss of wind direction reference.

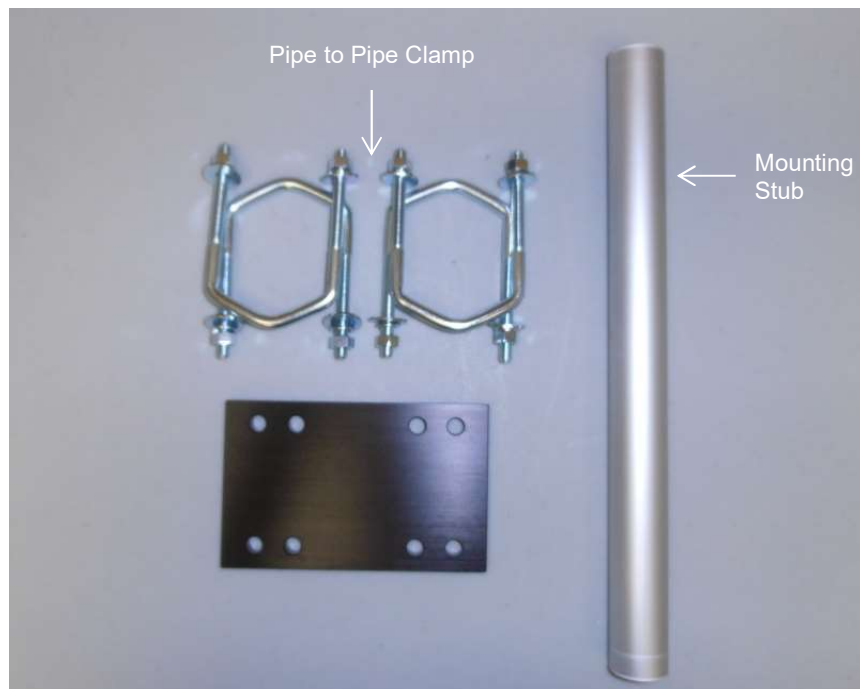
Both the mounting post assembly and the orientation ring are secured to the mounting pipe by stainless steel band clamps. Electrical connections are made in a junction box at the base.

Note:

P/N: E-E99-RMY-MAST-2" RM Young Wind Monitor Mast Mount

Contents:

1. Pipe to Pipe Clamp
2. Mounting Stub

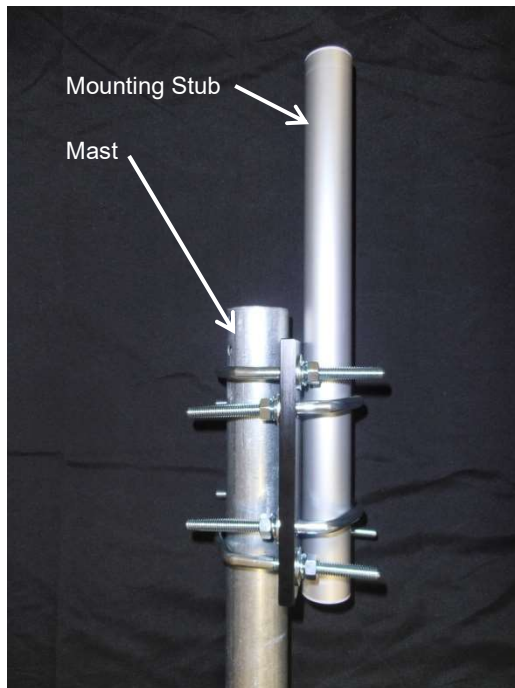




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After securely installing Wind Monitor on 1 inch Pipe connect 1 inch pipe to tripod mount using provided pipe to pipe clamp .



Place RM Young Wind Monitor on mounting stub secure with provided hose clamp.

Note: For detailed instruction on mounting please refer manufacturer manual.

Sensor Junction box should be facing south for proper orientation

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Burlington, Ontario, L7L 5L6
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Sample setup



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05103 Wiring Instructions

Sutron 9210 datalogger:

R.M. Young Terminal	Wire Color (Might change)	Enclosure Terminal	Scaling
WS Ref	Blue	AGND	Jumper from CH7 to Vref
WD Ref	Black	AGND	
WD Sig	Green	WD	0-360 Deg
WD EXC	White	VREF	
WS Sig	Red	WS	Km/Hr
Shield	Shield	GND	

Sutron XLink Datalogger (Only supports model 05103V and 05103L):

R.M. Young Terminal	Wire Color (Might change)	Enclosure Terminal	Slope and Offset
WS	White	WS or DIN#1	Wind Speed Slope= 0.098
WD	Blue	WD or AN A/B/C+/D+	Wind Direction Equation $X/VREF*355$ {converts to degrees}
REF	Green	GND	
+PWR	Red	12V	
PWR REF	Black	VREF	
GND	Shield	GND	

Sutron Satlink Datalogger (Only supports model 05103V and 05103L)

R.M. Young Terminal	Wire Color (Might change)	Enclosure Terminal	Slope and Offset
WS	White	WS or DIN#1	Wind Speed Slope= 0.098
WD	Blue	WD or AN A/B/C+/D+	Wind Direction Equation: $X/VREF*355$ {converts to degrees}
REF	Green	GND	
+PWR	Red	12V	
PWR REF	Black	VREF	
GND	Shield	GND	



Sensor verification

After proper installation, verification is required to confirm sensor accuracy.

Equipment needed:

For Wind Speed:

- Hand drill with adjustable RPM or RPM calibrator

For Wind Direction

- R M Young Vane angle bench stand

Or you can order R M Young Wind sensor calibration kit



Model 05108-45 Wind Monitor-HD Alpine

WIND SPEED vs PROPELLER RPM

$$\text{m/s} = 0.00833 \times \text{rpm}$$

$$\text{knots} = 0.01619 \times \text{rpm}$$

$$\text{mph} = 0.01863 \times \text{rpm}$$

$$\text{km/h} = 0.02999 \times \text{rpm}$$

WIND SPEED vs OUTPUT FREQUENCY

$$\text{m/s} = 0.1666 \times \text{Hz}$$

$$\text{knots} = 0.3238 \times \text{Hz}$$

$$\text{mph} = 0.3726 \times \text{Hz}$$

$$\text{km/h} = 0.5998 \times \text{Hz}$$

Calibration Formulas

Model 05103 Wind Monitor and 05103V

WIND SPEED vs PROPELLER RPM

$$\text{m/s} = 0.00490 \times \text{rpm}$$

$$\text{knots} = 0.00952 \times \text{rpm}$$

$$\text{mph} = 0.01096 \times \text{rpm}$$

$$\text{km/h} = 0.01764 \times \text{rpm}$$





notch with wind monitor, so your junction box will be at south.

Read pointer indicated 0 to 360 degree with $\frac{1}{2}$ degree resolution.

Match the indicator reading with logger reading for verification

Wind Speed verification

Set the RPM on Hand drill or RPM calibrator. Remove propeller from wind monitor and attach hand drill to wind monitor

Start hand drill to desire RPM. Check the logger reading of wind monitor. Use calibration formula to get the value in km/h

For example:

If Hand drill RPM= 1500 RPM

$$\begin{aligned}\text{Km/h} &= 0.01764 \times \text{RPM} \\ &= 0.01764 \times 1500 \\ &= 26.46 \text{ km/h}\end{aligned}$$

The data logger reading of wind speed should be 26.46km/h

Onset Dataloggers with DataGarrison Telemetry (for HD Alpine)

Note when connecting the 05108-45 Alpine HD sensor to Onset WCE-M003 Smart Sensor Input Adapter you need to apply a scaling factor to the data of 1.7. This is because the pitch of the propeller blade reduces the RPM's of the sensor to reduce wear on the bearings. For real time stations with DataGarrison telemetry you can add the scaling factor in the web page for automatic conversion.

Sutron Xlite 9210 (for HD Alpine)

Note when connecting the 05108-45 Alpine HD sensor to a Sutron 9210 datalogger using the 05103 Graphical setup you need to apply a scaling factor to the data of 1.7. This is because the pitch of the propeller blade reduces the RPM's of the sensor to reduce wear on the bearings. For real time stations with DataGarrison telemetry you can add the scaling factor in the web page for automatic conversion.