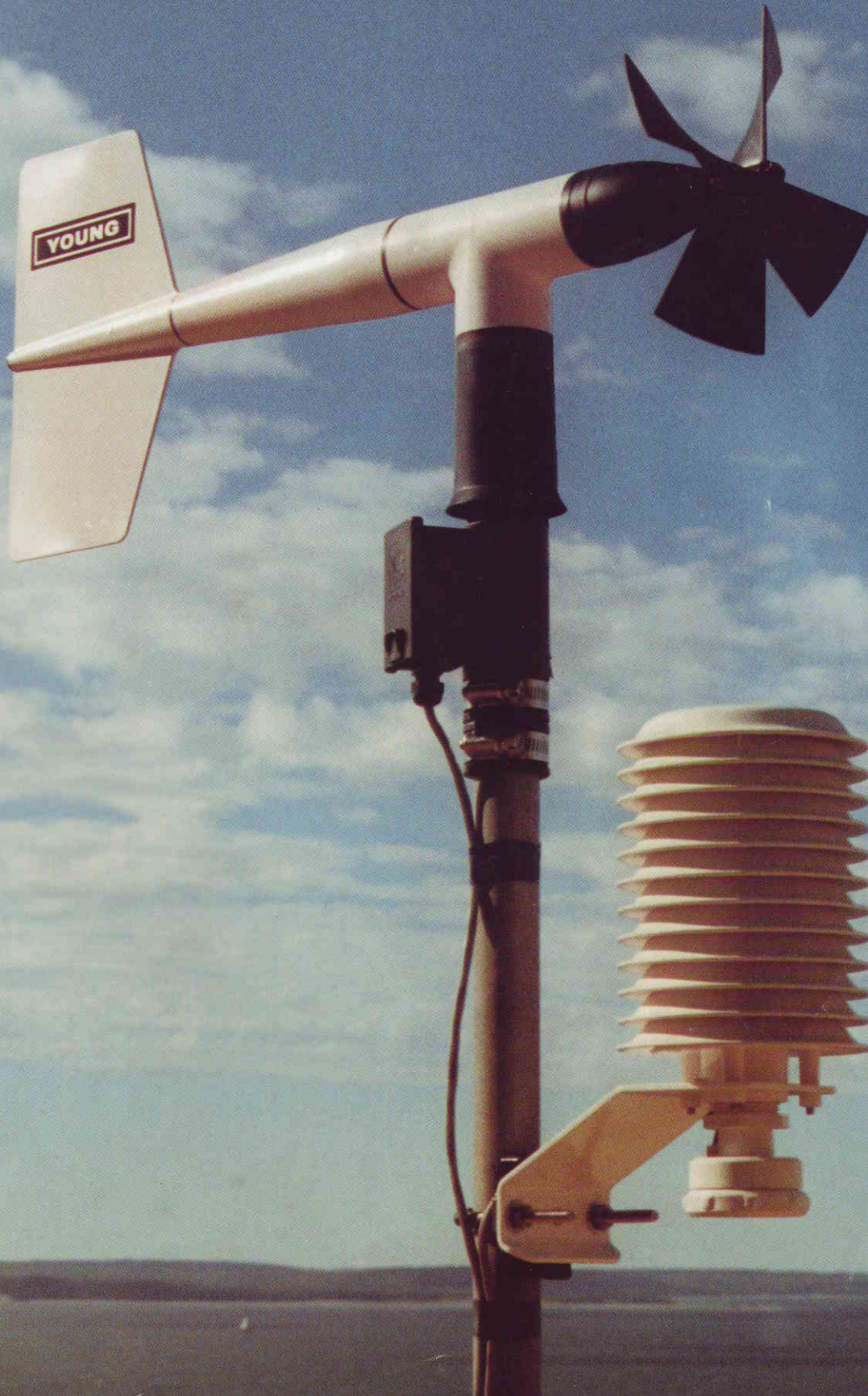




METEOROLOGICAL INSTRUMENTS

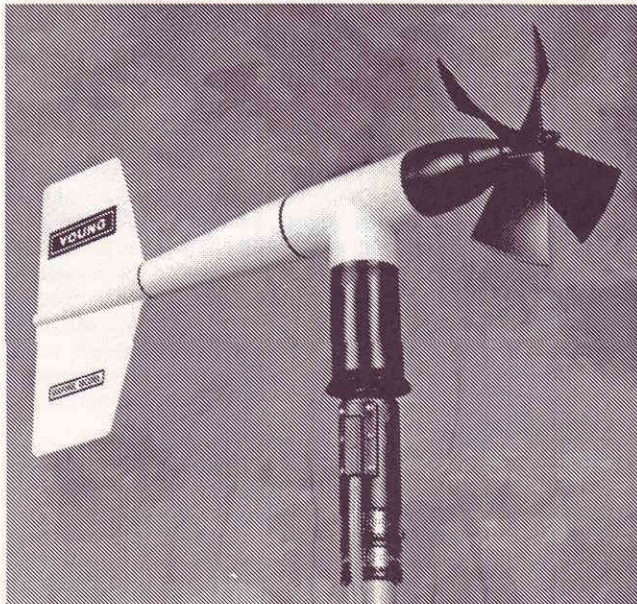
PRODUCT SUMMARY

JUNE 1991





MODEL 05106 WIND MONITOR-MA



WIND SPEED SPECIFICATION SUMMARY:

Range	0 to 60 m/s (130 mph), gust survival 100 m/s (220 mph)
Sensor	18 cm diameter 4-blade helicoid propeller molded of polypropylene
Pitch	29.4 cm air passage per revolution
Distance Constant	2.7 m (8.9 ft.) for 63% recovery
Threshold Sensitivity	1.1 m/s (2.5 mph)
Transducer	Centrally mounted stationary coil, 2K Ohm nominal DC resistance
Transducer Output	AC sine wave signal induced by rotating magnet on propeller shaft. 125 mV p-p at 100 rpm. 12.5 V p-p at 10,000 rpm.
Output Frequency	3 cycles per propeller revolution (0.098 m/s per Hz)

WIND DIRECTION (AZIMUTH) SPECIFICATION SUMMARY:

Range	360° mechanical, 355° electrical (5° open)
Sensor	Balanced vane, 38 cm (15 in) turning radius.
Damping Ratio	0.25
Delay Distance	1.3 m (4.3 ft) for 50% recovery
Threshold Sensitivity	1.3 m/s (2.9 mph) at 10° displacement
Damped Natural Wavelength	7.4 m (24.3 ft)
Undamped Natural Wavelength	7.2 m (23.6 ft)
Transducer	Precision conductive plastic potentiometer, 10K ohm resistance ($\pm 20\%$), 0.25% linearity, life expectancy 50 million revolutions, rated 1 watt at 40° C, 0 watts at 125° C
Transducer Excitation Requirement	Regulated DC voltage, 15 VDC max
Transducer Output	Analog DC voltage proportional to azimuth angle with regulated excitation voltage applied across potentiometer.

INTRODUCTION

The Wind Monitor-MA-MA 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. Both the propeller and vertical shafts use stainless steel precision grade ball bearings. Bearings have light contacting teflon seals and are filled with a low torque wide temperature range grease to help exclude contamination and moisture.

Propeller rotation produces an AC sine wave signal with frequency proportional to wind speed. This AC signal is induced in a stationary coil by a six pole magnet mounted on the propeller shaft. Three complete sine wave cycles are produced for each propeller revolution.

Vane position is transmitted by a 10K ohm precision conductive plastic potentiometer which requires a regulated excitation voltage. With a constant voltage applied to the potentiometer, the output signal is an analog voltage directly proportional to azimuth angle.

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 mounting post assembly and orientation ring are secured to the mounting pipe by stainless steel band clamps. A 1 meter (3.3 ft) pigtail cable assembly is supplied for electrical connections. For longer cable lengths a user supplied junction box or connector may be used. A variety of devices are available for signal conditioning, display, and recording of wind speed and direction.

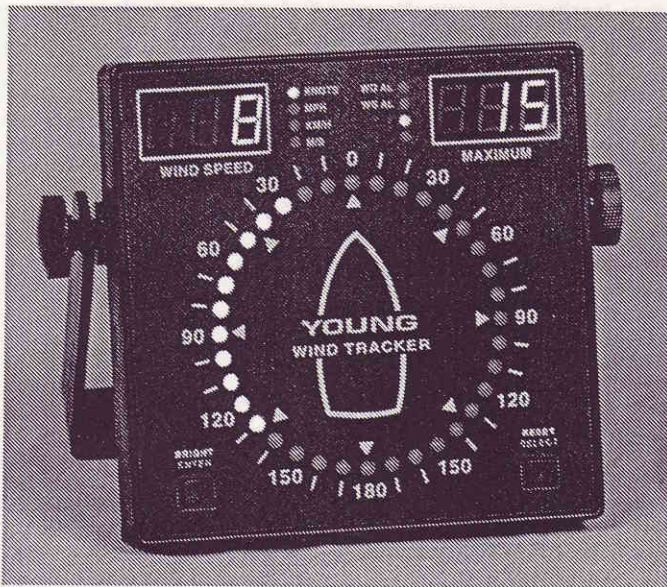
INITIAL CHECK-OUT

When the Wind Monitor-MA is unpacked it should be checked carefully for any signs of shipping damage. Remove the plastic nut on the propeller shaft. Install the propeller on the shaft so the letter markings on the propeller face forward (into the wind). Engage the propeller into the molded ribs on the propeller shaft hub. The instrument is aligned, balanced and fully calibrated before shipment, however it should be checked both mechanically and electrically before installation. The vane and propeller should easily rotate 360° without friction. Check vane balance by holding the instrument base so the vane surface is horizontal. It should have near neutral torque without any particular tendency to rotate. A slight imbalance will not degrade performance.

The potentiometer requires a stable DC excitation voltage. Do not exceed 15 volts. When the potentiometer wiper is in the 5° deadband region, the output signal is "floating" and may show varying or unpredictable values. To prevent false readings, signal conditioning electronics should clamp the signal to excitation or reference level when this occurs. **NOTE: Young signal conditioning devices clamp the signal to excitation level.** Avoid a short circuit between the azimuth signal line and either the excitation or reference lines. Although there is a 1K ohm current limiting resistor in series with the wiper for protection, damage to the potentiometer may occur if a short circuit condition exists.



MODEL 06206 MARINE WIND TRACKER



INTRODUCTION

The YOUNG Model 06206 Marine Wind Tracker is a compact wind speed and wind direction display. This model has features such as relative wind angle and NMEA compatibility that make it suitable for shipboard use.

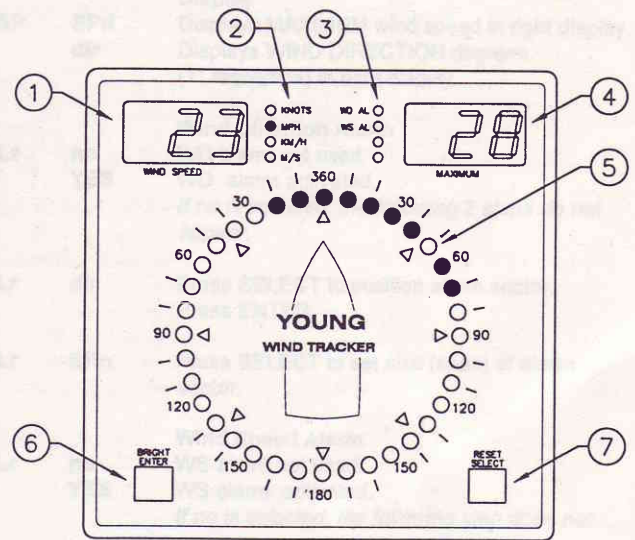
FEATURES

- 3 digit wind speed display
- 3 digit maximum wind speed or wind direction display
- Multi-color wind direction display with variability display
- Wind speed and direction alarms with delay
- RS-485/NMEA serial connections
- Calibrated 0-5 VDC outputs
- Display brightness control
- 4-20 mA Sensor Inputs
- Luminous front panel markings

PRECAUTIONS

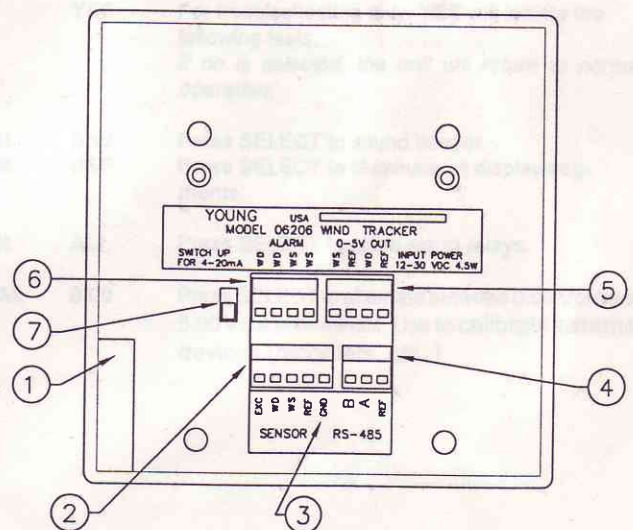
- INDOOR USE ONLY unless placed in approved enclosure.
- Operating temperature range 0-50°C (32-122°F), 0-95% RH.
- Use only recommended power sources; 12-30VDC, 4.5 W.
- Disconnect power when making connections or servicing sensors.
- MAX 24 VAC/30 VDC on alarm relay contacts.

FRONT PANEL



1. Wind Speed Display
2. Wind Speed Units Indicator
3. Alarm Status Indicators
4. Maximum Wind Speed or Relative Wind Direction Display
5. Relative Wind Direction and Variability Display
6. BRIGHT (operate mode), ENTER (setup mode)
7. MAX RESET (operate mode), SELECT (setup mode)

BACK PANEL



1. Power input (12-30 VDC) AC adapter supplied
2. Sensor or 4-20 mA inputs
3. Earth ground connection
4. RS-485/NMEA serial connections
5. 0-5 VDC calibrated outputs
6. Alarm relay connections (normally open)
7. Standard sensor or 4-20 mA input selector switch