Texas Electronics

"Relied on Worldwide in the Most Extreme Conditions"

2-200 Wind Speed Indicating System
User's Manual

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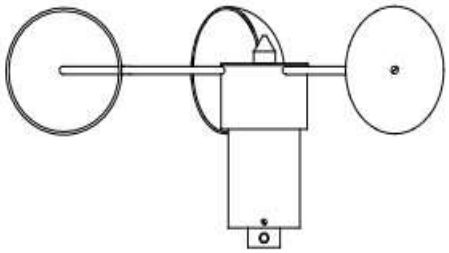


Model 2-200 Wind Speed Indicating System

DESCRIPTION

The Model 2-200 Wind Indicating System is an extremely accurate, low cost wind measuring system. This system consists of a Model TV-114 anemometer and a dial indicator. No external power source is required, as the system generates its own power. This feature makes the Model 2-200 ideal for mobile applications where access to a power source is limited or non-existent.

The TV-114 Wind Speed Sensor is a rugged sensor consisting of a lightweight. 3-cup anemometer mechanically coupled to a brushless precision AC generator located within a gold-anodized aluminum housing. The exterior of the sensor helps prevent corrosion even in extreme conditions of heat, cold and saltwater environments. The sensor is designed to be as sensitive as possible to light winds, yet strong enough to withstand hurricane force winds.

The indicator utilizes a 0-1 mA DC meter movement contained in a cast aluminum housing with universal mounting brackets. The brackets simplify meter mounting in marine or mobile installations as they allow for top, back or bottom mounting. The indicator can be ordered for any one of two ranges as follows: 0-100 MPH and 0-50 m/s.

Specifications

Indicator Size:	4.5” wide x 3.5” high x 2” deep (11.43cm x 8.89cm x 5.08cm)
Weight (complete system):	8 lbs. (3.62kg) with standard 60 ft. cable
Cable:	60’, 18 Gauge 2 conductor
Power:	Self generating, no power source necessary
Operating Temp:	-20 to 125° F (-29 to 50° C)
Storage Temp:	-40 to 160° F (-40 to 70° C)
Humidity Limits:	0 to 100%
Finish:	Sensor – gold anodized aluminum
	Indicator – black numerals on white dial
	Indicator Box –black powder-coat box; clear alodine aluminum mounting bracket
Warranty:	3 years

FEATURES & BENEFITS

- Self-generating system requires no external power source
- Provides for safe operation of wind-affected equipment
- Rugged instruments can withstand extreme conditions
- Extremely accurate readings at economical price
- Mounts easily in a variety of configurations
- Available in a variety of ranges
- Over 30 years in production

INSTALLATION & MAINTENANCE

Before attaching the anemometer or wind speed sensor in place, the three anemometer cup/cup arm assemblies must be attached to the rotor head of the sensor. The cup arms are inserted all the way into the holes in the side of the rotor top plate with the flat side facing up, and they are secured with allen screws inserted through the top of the rotor plate. Screws and allen wrenches are shipped in a small plastic packet accompanying the cup/cup arm assemblies.

The sensor head is equipped with a 12” straight tube through which cable is run to connect to the indicator. This tube is the mounting feature and can be attached with the supplied hose clamps to the top of a crane boom, or in other appropriate location where wind speed must be monitored. The sensor should be located in such a way as to avoid any obstruction within at least 100 feet if possible, and up or down currents, eddy currents or jet flow effects are also to be avoided.

After the anemometer is fastened in place, the cable must be properly secured to the point where it will be attached to the indicator box. The indicator is then firmly bolted inside crane cab or wherever it is needed in order to keep equipment operator informed of the current wind speed. If necessary, the cable may be cut down in length, or more cable can be added with negligible effect on the anemometer’s calibration. Additional cable length may be specified when ordering, and cable can be obtained from Texas Electronics if needed. If changing cable length by more than several hundred feet, contact the factory to determine the severity of the effect on calibration. Rotating elements are carefully balanced to eliminate any possible vibration and assure sensitivity to the lightest wind. In some applications users may wish to occasionally verify and document sensor accuracy with a synchronous test motor. Under average climate conditions, AC generator and/or bearings replacement is recommended at 3 to 5 year intervals.

MODEL TV-114 WIND SPEED SENSOR SPECIFICATIONS

A three-cup anemometer directly connected to a precision alternating current brushless generator measures wind speed. The anemometer and generator shaft rotate in sealed ball bearings.

Starting Threshold:	2.2 to 3.0 mpg (1.1 to 1.3 m/s)
Distance Constant:	21.7 ft. (6.6 m)
Accuracy:	+/- 2.0 mph (0.9 m/s)
Excitation Requirement:	None, Self-Generating
Operational Envelope:	0 to 120 MPH (0 to 53.7 m/s)
Cup Wheel Diameter:	18” (45.7 cm)
Overall Height:	7.5” (19.1 cm)
Turning Radius:	9.0” (22.9 cm)

ORDERING INFORMATION

Model #	Description
2-200	Wind Speed Indicating System (Please specify indicating range if other than 0-100 MPH)

Optional Parts / Accessories

TV-114 WIND SENSOR

G-114 GENERATOR

The chart below shows the maximum output obtainable from this generator, under a no load condition. This signal may be scaled down to fit many customer requirements.

R.P.M. VS. OUTPUT

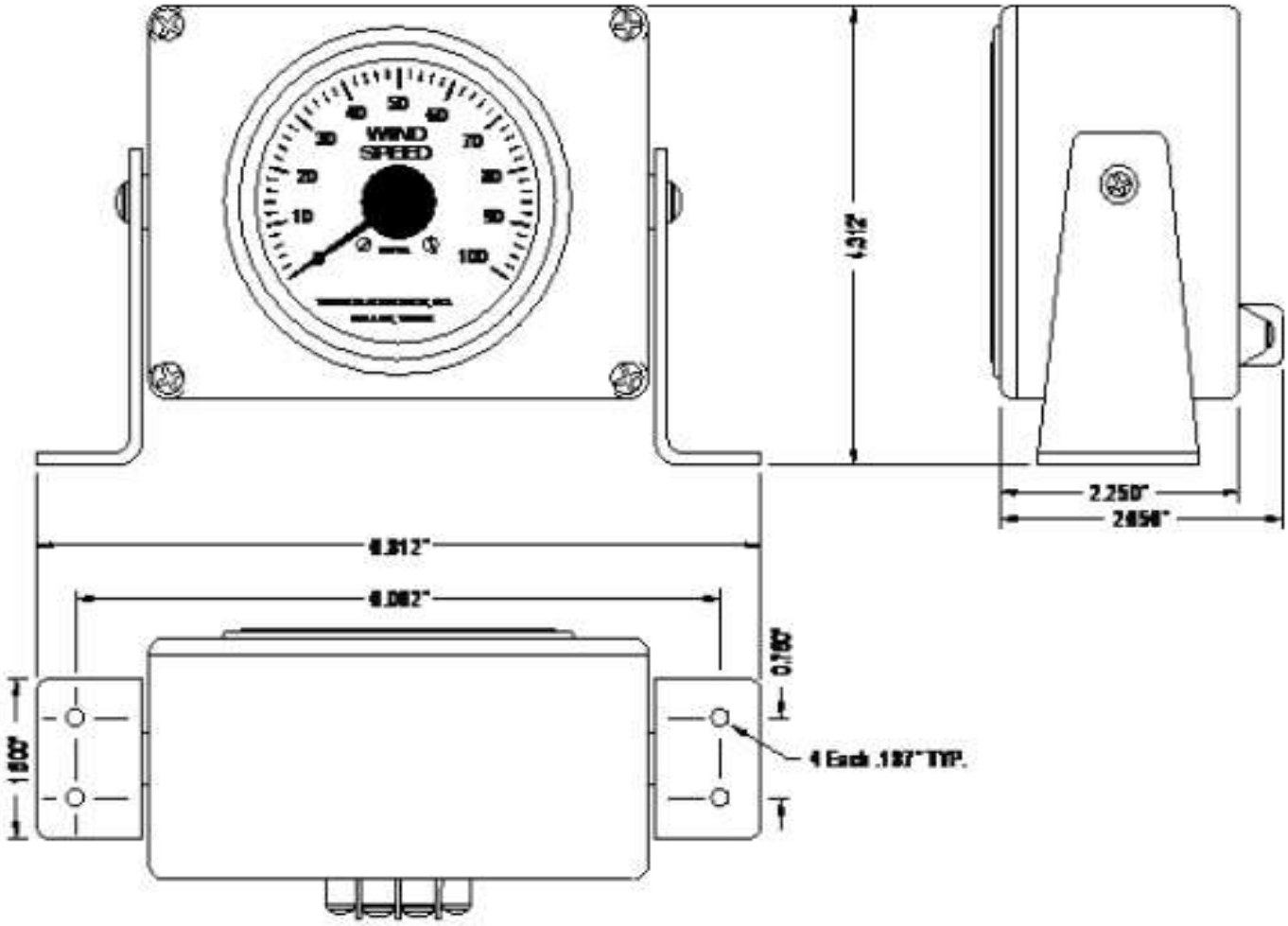
RPM	MPH	KNOTS	G-114 AC Generator	G-114 AC Generator
			AC VOLTS	DC VOLTS
0	0	0.000	0.00	0.0
50	5	4.345	0.22	0.35
100	10	8.684	0.45	0.78
200	20	17.36	0.95	1.65
300	30	26.052	1.43	2.38
400	40	34.736	1.92	3.12
500	50	43.420	2.38	3.83
600	60	52.104	2.86	4.60
700	70	60.788	3.32	5.35
800	80	69.472	3.79	6.11
900	90	78.156	4.25	6.90
1000	100	86.840	4.70	7.65

M.P.H. VS. FREQUENCY

MPH	FREQ.	MPH	FREQ.
5	6.66 Hz	55	73.315 Hz
10	13.33 Hz	60	80 Hz
15	20 Hz	65	86.645
20	26.66 Hz	70	93.31
25	33.325 Hz	75	100 Hz
30	40 Hz	80	106.64 Hz
35	46.655 Hz	85	113.305 Hz
40	53.32 Hz	90	120 Hz
45	60 Hz	95	126.635 Hz
50	66.65 Hz	100	133.33 Hz

NOTES:

l. Calibration may be checked by rotating the anemometer head at a known RPM. The above table shows the value that should be displayed on the indicator.
2. The AC Volts column shows the output directly out of the transmitter.
3. The DC Volts column shows the open circuit voltage out of the AC to DC adaptor.


WIND
SPEED
4.312"
2.250"
2.656"
6.812"
6.062"
0.180"
1.500"
4 Each .187" TYP.

Warranty

Texas Electronics, Inc. (hereafter TEI) warrants the equipment manufactured by it to be free from defects in material and workmanship. Upon return, transportation charges prepaid to TEI, within three (3) years of original shipment of sensors and one (1) year of original shipment of electronics, recorders and indicators, TEI will repair or replace, at its option, any equipment which it determines to contain defective material or workmanship, and will return said equipment to purchaser, F.O.B., TEI. Texas Electronics shall not be obligated however to repair or replace equipment which has been repaired by others, abused, improperly installed, altered or otherwise misused or damaged in any way. TEI will not be responsible for any dismantling, re-assembly, or reinstallation charges.

This warranty is in lieu of all other warranties, expressed or implied. TEI shall not be liable for any special, indirect, incidental or consequential damages claimed in connection with any rescission of this agreement by purchaser.