NOVALYNX CORPORATION

MODEL 200-2510-A & 200-2511-A

TOTALIZING ANEMOMETER

INSTRUCTION MANUAL

CORPORATION

REVISION: FEBRUARY 2010

Receiving and Unpacking

Carefully unpack all components and compare to the packing list. Notify NovaLynx Corporation immediately concerning any discrepancy. Inspect equipment to detect any damage that may have occurred during shipment. In the event of damage, any claim for loss must be filed immediately with the carrier by the consignee. Damages to equipment sent via Parcel Post or UPS require the consignee to contact NovaLynx Corporation for instructions.

Returns

If equipment is to be returned to the factory for any reason, call NovaLynx between 8:00 a.m. and 4:00 p.m. Pacific Time to request a Return Authorization Number (RA#). Include with the returned equipment a description of the problem and the name, address, and daytime phone number of the sender. Carefully pack the equipment to prevent damage or additional damage during the return shipment. Call NovaLynx for packing instructions in the case of delicate or sensitive items. If packing facilities are not available take the equipment to the nearest Post Office, UPS, or other freight service and obtain assistance with the packaging. Please write the RA# on the outside of the box.

Warranty

NovaLynx Corporation warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from the date of shipment from the factory. NovaLynx Corporation's obligations under this warranty are limited to, at NovaLynx's option: (i) replacing; or (ii) repairing; any product determined to be defective. In no case shall NovaLynx Corporation's liability exceed product's original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by NovaLynx Corporation, or that has been subjected to misuse, negligence, or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

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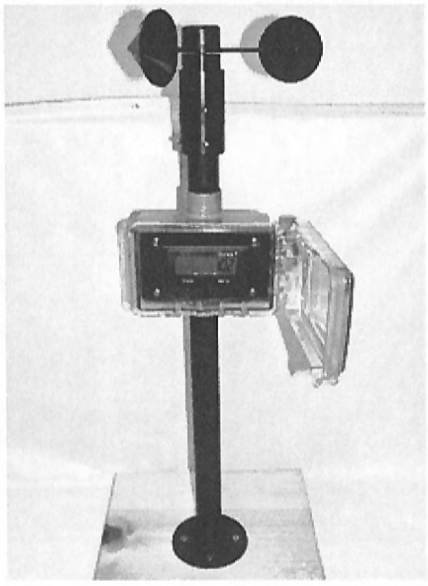
Totalizing Anemometer



1.0 INTRODUCTION

The Model 200-2510-A and 200-2511-A Totalizing Anemometers are equipped with a cup assembly that consists of three conical cups. The cup assembly actuates a magnetic reed switch that in turn increments an up counting totalizer and ratemeter with a liquid crytsal display. The front panel of the totalizer contains switches, **T/R** and **RST**, that can change the output mode from total count to rated of speed snd also a reset key that allows the counter to be reset to zero at each reading if desired.

The totalizer is located inside the NEMA4X enclosure. The display can be viewed by opening the hinged door of the enclosure. Battery life of the counter is 5 years. The display can be set up to measure the wind passage in statute miles or in kilometers. The display registers tenths of a unit.

2.0 SPECIFICATIONS

Type	3-cup anemometer
Cup size	2" diameter
Cup material	Plastic, glass reinforced nylon
Cup design	conical
Counter	Up counting, 8 digits
Operating temperature	0° to 55° C or -20° to 70°C
Power	Internal battery, 3V, lithium, 5 year life
Cup constant	960 Rev/m9ile (597 Rev/km)
Starting speed	0.75mph
Max speed	75mph, survival 100mph
Color	Grey
Size	9" diameter, 15" high
Weight/Shipping	5 lbs/9 lbs

3.0 OPERATION

The Totalizing Anemometer is delivered ready to use in either the miles of wind (200-2510-A)or in the kilometers of wind (200-2511-A) mode. It should be mounted with the screws provided to the platform on which the evaporation pan is sited.

3.1 RUN MODE

Two screens are available on the 200-2510-A.

Totalizer: This 8-digit screen shows you the accumulated scaled inputs. The totalizer has leading-zero blanking.

Ratemeter: This 4/5 digit screen shows current wind speed.

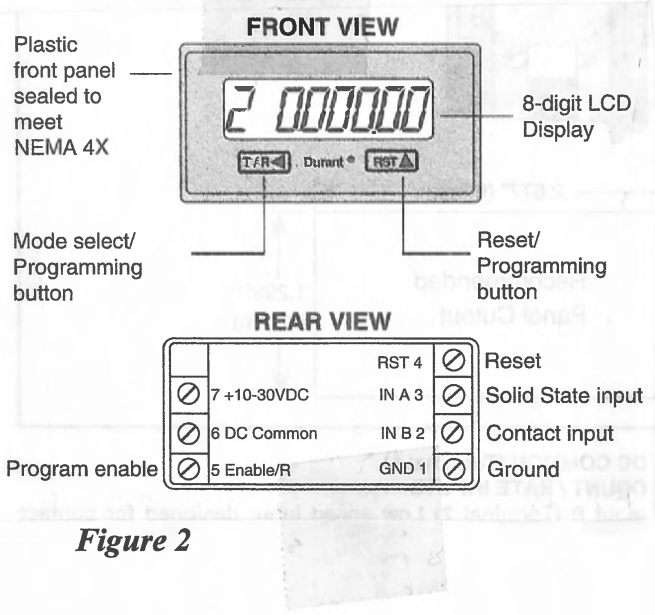


Figure 2

3.2 FRONT PANEL KEYS

Press the **T/R** key on the front panel to toggle between the totalizer and the rate meter screens. Press the **RST** key to reset the totalizer display to zero. This button has no effect on the ratemeter screen.
Note: The **RST** may be disabled. See program mode.

3.3 PROGRAM MODE

This mode only needs to used if it is necessary to change units back and forth between miles and kilometers. To enter the program mode, a connection must be made between terminals 1 and 5 on the back of the totalizer. See **figure 2.**

Screens

There are six program mode screens in the 200-2520-A. Press and hold the **TR** key while repeatedly pressing the **RST** key to advance to successive screens.

PROGRAM SCREENS

SCREEN	FUNCTION
1	Count Scale Factor
2	Totalizer Decimal Point
3	Rate Scale Factor
4	Ratemeter Decimal Point
5	Rate x1/x10
6	Reset Key Enable/Disable

3.4 COUNT SCALER

Calculating the Count Scale Factor

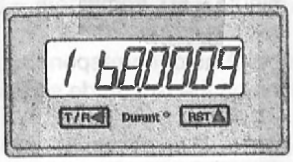
The count scale factor is used to convert the incoming count pulses to miles or kilometers. This scaler has six digits available with fixed decimal point.

Count Scalers

Miles:.....0.0104
Kilometers:..0.0167

3.5 Programming Count Scale Factor

The first screen in the program mode is used to enter the count scale factor.



Screen	MILES	KILOMETERS
1	00.0104	00.0167

The far right digit will be flashing. Press the **RST** key until reaching the desired digit value.

Note: Pressing and holding the **RST** key will cause the numbers to autoscroll.

Nest press the **T/R** key to move the flashing digit one place to the left. Change this digit to the desired value with the **RST** key.

Repeat this process until all digits are set correctly.

3.6 Programming Totalizer Decimal Point

The second screen is used to enter the decimal point display on the totalizer screen. Press and hold the **T/R** key and then press the **RST** key to move from screen one to screen two.

Screen	MILES	KILOMETERS
2	00000.0	00000.0

Press the **RST** key to move the decimal point to the desired position.

3.7 RATE SCALER

Calculating the Rate Scale Factor

This 1/Tau ratemeter calculates the rate by measuring the time interval between impulses, converting to a frequency (F = 1/Tau) and multiplying the product by the rate scaler. The rate scaler is user programmed to convert the count input frequency into the desired rate units for display.

Rate Scalers

Miles.....037.5
Kilometers.....60.35

3.8 PROGRAMMING RATE SCALE FACTOR

The third program mode screen allows you to enter the rated scale factor. The lower case "d" appears on the right of the display when it is time to enter the decimal point position for the rate scaler.

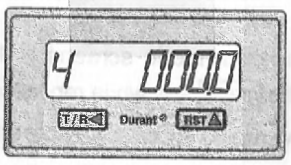
Screen	MILES	KILOMETERS
3	037.5 or 037.5d	60.35 or 60.35d

Press the **RST** key to change the first digit to the correct value. Press the **TR** key to select the next digit to be changed. Repeat this process until all the digits are correct. When "d" appears, press the **RST** key until the decimal point is in the desired location.

3.966 Ratemeter Decimal Point

The fourth program mode screen is used to enter the decimal point position for the ratemeter run-mode display.

The display will show the screen number (4) and four zeros.



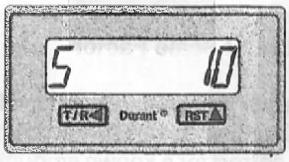
Screen	MILES	KILOMETERS
4	000.0	000.0

Press the **RST** key until the decimal point is in the correct position.

3.10 Rate x1 or x10

The fifth screen is used to select the rate display multiplier of one or ten. Selecting rate x10 will add a zero to the far right of the display. This zero will not change value and not affect the decimal point position.

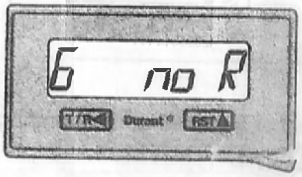
The display will show the screen number (5) and a 1 at the right.



Screen	MILES	KILOMETERS
5	1	1

3.11 Front Reset Key Enable/Disable

The last screen in the program mode is used to determine whether the front panel reset key will function. The screen will show a number **6** on the left and **R** on the right.
Press the **RST** key to choose the option you want.



Screen	MILES	KILOMETERS
6	R	R

To exit the program mode, break the connection between terminals 1 and 5.

4.0 INSTALLATION

This instrument is thoroughly tested and fully calibrated at the factory and is ready for installation.

Unpack the anemometer carefully and inspect for any damage that may have occurred in transit. Select a location for the anemometer that provides the best available exposure to winds from all directions. Avoid locations shielded by nearby objects that will set up swirls or updrafts.

The red and black wires from the anemometer should be connect to the **IN B 1** and **GND 1** terminals on the back of the counter. Spin the cup assembly by hand to see that it turns freely.

Mount the anemometer on a suitable support. Typically, the base is bolted to the wooden platform supporting the evaporation pan or to a wooden post.

Reset the display to zero by pressing the **RST** key at the beginning of each recording session. The average wind speed can be determined by taking the number of miles (kilometers) of wind passage

from the counter at the end of the recording session and divide by the number of hours in the recording session.

5.0 THEORY OF OPERATION

The totalizing anemometer is a simple but precise electro-mechanical method of determining average wind speed. The cups will rotate 960 revolutions per mile of wind passage. The magnetic reed switch in the anemometer is momentarily closed one time per revolution which creates an electronic pulse that is counted by the totalizer and converted into miles (kilometers) of wind passage. The counter will indicate a maximum of 9999999.9 miles (kilometers).

The counter can be reset to zero at the beginning of each recording session. Each time a reading is made the time should also be recorded. The average wind speed for a given session can the be determined using the following formula:

$$\text{Average Wind Speed} = \frac{\text{Totalizer Reading}}{\text{End Time - Start Time (hours)}}$$

6.0 BATTERY SAFETY

The lithium battery that powers your device contains flamable materials such as lithium organic solvent, and other chemical ingredients. Explosion or fire may result if the battery is not handled correctly. To avoid an accident follow these guidelines:

- Do not stack or jumble up batteries
- Do not heat batteries above 95°C
- Do not recharge lithium batteries
- Do not apply pressure to , or deform batteries
- Do not solder to batteries
- Insert battery with correct polarity

7.0 CALIBRATION

The anemometer should be inspected every six months unless experience shows that more frequent inspection is required.

Te instrument bearing and cup assembly should be replaced if noisy or if the starting threshold is too high.

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If the Battery is Removed or changed All initial programming will be Lost

Below is what the Screens should Look Like in the Program Set-Up Mode

Screen #	**MILES** SET-UP SCREEN	**KILOMETERS** SET-UP SCREEN
1	00.0104	00.0167
2	00000.0	00000.0
3	037.5 or 037.5d	60.35 or 60.35d
4	000.0	000.0
5	1	1
6	R	R
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