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FLOWATCH®

Air or Liquid Flow Measurement Instrument

INSTRUCTIONS MANUAL

You just have acquired a high precision instrument, manufactured with the most up-to-date technologies. It was designed to withstand intensive use. However we recommend you treat it carefully and diligently read this owner's manual.

To work properly, the FLOWATCH® system has to include at least :

- 1 LCD display head
- 1 probe
- 1 interchangeable impeller – for measuring air or liquid flows

1. LCD display head specifications

I : Flow speed measurement :

- Center LCD display : Current speed
- Top LCD display : 1) Maximum speed (MAX)
  2) Average speed (AV) Calculated from being turned "on" or the last reset
- Vertical bargraph : Current speed, Beaufort Scale

- Units of measurement :	**km/h**	minimum reading 0.3 km/h maximum speed measured : 51 km/h
	knots	minimum reading 0.2 knots maximum speed measured : 27 knots
	mph	minimum reading 0.2 mph maximum speed measured : 32 mph
	m/s	minimum reading 0.1 m/s maximum speed measured : 14 m/s

II : Temperature measurement

- 4 measurements modes :

- **Current temperature**
  For quicker and more precise temperature measurements and to safeguard your **FLOWATCH®**, we advise you not to expose it to extreme temperatures (for example under a car's windshield).
- **Minimum temperature**
  The minimum temperature is calculated from the time the instrument is turned on.
  It can be re-set by activating the auto toggle mode (press the right-hand button).
- **Maximum temperature**
  The maximum temperature is calculated from the time the instrument is turned on.
  It can be re-set by activating the auto toggle mode (press the right-hand button).
- **Wind Chill Factor (when using the FLOWATCH® as a windmeter)**
  Low temperatures are dangerous for the human body and the faster the wind blows, the faster the body loses heat. For example a 0°C (32°F) current temperature and a 30 km/h wind bring you a temperature of -13°C (9°F) ! The Wind Chill Factor is the calculation of the wind effect on temperature and is automatically calculated by the FLOWATCH®.

The LCD box will display –68°C or –90°F if no probe is connected. The reason is that the temperature sensor is at the end of each probe.

III : Use of the LCD display head

ON	Briefly push either left or right button to turn on the instrument.
OFF	Hold both buttons down for one second to turn off the instrument.
AUTO OFF	The instrument has a 36 hours auto-off to allow statistical measurements.
SPEED UNITS	Hold down the left-hand button until the desired unit is displayed and release. 4 units available : knots, km/h, mph and m/s
MAXIMUM	Maximum speed is constantly on the top LCD display.
& AVERAGE	The symbol MAX is shown on the LCD.
SPEED	Push the left-hand button to read the average windspeed. The symbol AV is shown on the LCD for 2 seconds.
CURRENT SPEED	Constantly on the center LCD display. Averaged over two seconds.
BEAUFORT SCALE	A Beaufort scale is displayed when there is a current windspeed.
TEMPERATURE UNITS	Hold down the right-hand button to change the unit and release. 2 units available : Centigrade and Fahrenheit
WINDCHILL FACTOR	Push the right-hand button. Push again to fix the arrowed symbol when it appears.
MINIMUM TEMPERATURE	Push the right-hand button. Push again to fix the symbol MIN when it appears.

	Minimum temperature is calculated from the time the instrument is turned on. It can be re-set by activating the auto toggle mode (press the right-hand button).
MAXIMUM TEMPERATURE	Push the right-hand button. Push again to fix the symbol MAX when it appears. Maximum temperature is calculated from the time the instrument is turned on. It can be re-set by activating the auto toggle mode (press the right-hand button).
CURRENT TEMPERATURE	Push the right-hand button. Push again when no symbol appears.
AUTO TOGGLE MODE	Press the right-hand button to activate the auto toggle mode of the 4 temperature modes
BATTERY	Lithium battery CR 2032. To change the battery : open the drawer on the bottom of the instrument by gripping the ends between the forefinger and the thumb. Beware of the battery's polarity (a "+" is marked on the drawer) and drawer during its re-installation (a locating pin is preventing an erroneous installation).
RESET	Remove the battery.

2. Probes specifications

Available in 2 different length, these 2 probes are essential to install any impeller.

- Carbon rod, 3 sections of 40cm, 2 meters long in total
  To measure hard-to-reach ventilation shafts, air conditioning conduits, rivers flows, hydrological studies, irrigation canals, etc...
- Carbon rod, 10 cm long
  To use your FLOWATCH® as a compact windmeter (mostly used with windspeed impellers ø 25mm and ø 18mm)
- Probe with a 15 meters sounding cable with waterspeed impeller, to measure water flow from bridges.
  When the ballast touches the bottom, the impeller axis is 65mm above the bottom.

3. Impellers specifications

- Regular size windspeed impeller : ø 25 mm, hole diameter ø 33 mm
  Minimum sensitivity : < 3 km/h - < 1 m/s
  Precision : +/- 2%
  "off-axis" error : +/- 30° / +/- 3%
  Temperature use : -50° C to +100° C / -58°F to 212°F
- Small size windspeed impeller : ø 18 mm, hole diameter ø 18 mm
  Minimum sensitivity : < 3 km/h - < 1 m/s
  Precision : +/- 2%
  "off-axis" error : +/- 10° / +/- 3%
  Temperature use : -50° C to +100° C / -58°F to 212°F
- Water impeller: ø 60 mm
  Minimum sensitivity : < 0.3 km/h - < 0.1 m/s
  Precision : +/- 2%
  "off-axis" error : +/- 20° / +/- 3%

4. Technical data

- Weatherproof
- Threaded for a tri/unipod
- Accuracy of the readings : please refer to the impellers features.
- Accuracy of the thermometer : + / - 1°
- Weight display box : 110 gr. (3.9 ounces); sounding rod 2 m 160gr. (5.6 ounces); impellers 5-10 gr. (0.2 – 0.4 ounces); sounding cable 1kg. (2.2 pounds)
- Dimensions : 62 X 120 X 32 mm
- Warranty : 1 year

The speed measurement principle of the **FLOWATCH®** is based on magnetic transmission. The turning impeller creates a magnetic field that is detected by the **FLOWATCH®** (**JDC ELECTRONIC SA** patent). If the **FLOWATCH®** is close to a another magnetic field (from a computer, electronic appliance, etc..), it may display unexpected values but only if the impeller is not turning.

If humidity is important for you to measure, we recommend to you the **SKYWATCH® Hygros**. This high precision hygrometer (+/- 3% from 0 to 100% rH) is a very easy-to-use and sturdy instrument and has a special spot reserved in the **FLOWATCH®** case.

Limited Warranty

JDC ELECTRONIC S.A. makes every effort to ensure that its products meet its high quality standards and warrants its new products to be free from defective material and workmanship under normal handling and use by the first consumer purchaser. This limited warranty shall be in effect for one year after the data of purchase by the original consumer purchaser. During this limited warranty period, **JDC ELECTRONIC SA** will repair or replace without charge any defective product with a comparable product. The defective instrument must first be returned to **JDC ELECTRONIC SA**, or its local dealer, round trip transportation charges prepaid. The instrument must be accompanied by a written statement, explaining the nature of the defect, how and when it was used and the name and address of the store from which it was originally purchased. A copy of the original sales slip will establish the date of purchase. This limited warranty will not apply to any instrument that has been misused, improperly installed, repaired, altered or which has been the subject of any negligence or accident.

North American distributor :

The Flowatch is distributed in North America by Speedtech Instruments, 10413 Deerfoot Drive, Great Falls VA 22066. Tel: 703 759 0511. Fax: 703 759 0509. E-mail: info@speedtech.com.
Any warranty, or service questions from North American customers should be addressed to Speedtech Instruments.