WindDisplay

User manual

Doc No. 1086-PS-0050

Issue 06

CE

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FOREWARD

This manual refers to the WindDisplay supplied by Gill Instruments.

The WindDisplay is a sophisticated instrument and to achieve optimum performance, we recommend that you read the whole of this manual before proceeding to use the equipment.

Gill products are in continuous development and therefore specifications may be subject to change without prior notice.

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1. PACKING LIST

- WindDisplay
- Mounting lugs
- This manual

2. SUMMARY OF ABBREVIATIONS USED

ac……	Alternating current
Bft	Beaufort scale
dc……	Direct current
km/h	Kilometres per hour
kn	Knots
LED……	Light Emitting Diode
mA	Milliamp
mph	Miles per hour
m/s	Metres per second
PCB……	Printed Circuit Board

3. GENERAL

The Gill digital WindDisplay is a combined wind speed and direction indicator. The WindDisplay comprises two, 3 digit LED arrays to provide instantaneous wind speed and maximum or minimum gust data. A double ring of 36 LEDs is used to indicate instantaneous and average direction information.

The front panel provides three buttons “MENU”, “σ” and ”τ”which may be used to adjust the brightness of the LEDs, enter a display mode or enter a set up mode.

The WindDisplay will accept data output directly from **Gill WindObserver** and **Gill WindMaster** anemometers without the need for additional interfaces. It provides the power supply to the anemometer and “daisy-chain” connections are available for additional WindDisplays. See **Appendix 1.**

The display is housed in a DIN-size casing suitable for flush mounting and must be mounted in a console or display panel.

The WindDisplay may be user-configured to display the wind speed in various scales, i.e. miles per hour (mph), metres per second (m/s), knots (kn), kilometres per hour (km/h) and Beaufort (Bft).

The WindDisplay is available in three versions. The marine version is designed for use on board ship. The front panel of the marine display has a degree scale range from 0° to 180° on both sides of the scale.

Standard	**0° - 359° scale**
Marine	**0° - 180° - 0° scale**
Marine	**0° - 180° - 0° scale NMEA format**

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Principal characteristics

Power supply	220Vac
Speed display	3 digit 7 segment LED display 14.3mm height
Gust display	3 digit 7 segment LED display 10.1mm height
Direction display	36 LEDs circular colour RED
Direction average	36 LEDs circular colour AMBER
Input	RS422
Output	Daisy chain RS422, 300 Baud, ascii 15Vdc supply to anemometer.
Dimensions	144 x 144 x 94 mm
Weight	Approximately 0.8kg
Scale	Knots, mph, m/s, km/h
Brightness control	From the front panel control
Readout units	m/s, km/h, knots, mph and Bft

4. INSTALLATION

INSTALLATION AND COMMISSIONING MUST BE
COMPLETED BY QUALIFIED PERSONNEL

4.1 Mechanical

Panel mounting of the WindDisplay requires a panel cut-out of 137mm square. Maximum panel thickness 5mm. Rear access must be provided for fixing of the tightening clamps and connecting the electric cabling. The depth of the units is 94mm and an additional clearance of 8mm should be allowed for the cable connections and strain relief.

4.2 Electrical

The WindDisplay utilises a common terminal strip for connections to the anemometers and ancillary displays. The signal cable between sensor and display is a 4-core cable with 2 cores for power to the sensor and 2 cores for signal transmission. To reduce interference, the cable must have a common screen. This screen should be grounded to earth. The cable may be up to 1 kilometre in length.

Recommended cable: See **Appendix 2**.

The WindDisplay provides the 15 Volts dc power supply to the anemometer.

4.2.1 Cable layout

See **Appendix 2.**

4.2.2 Power supply

The WindDisplay power supply will be set for 230 Vac.

If the customer requires a different supply voltage, the following will apply:

- **The unit can be returned to Gill Instruments for adjustment.**
- **The Distributor will modify the unit.**

4.2.3 Connections

All connections to the WindDisplay are made to the rear of the display as shown on the drawing in **Appendix 3.**

4.2.4 Daisy Chain Connections

The daisy-chain output is used to transmit wind data to a second WindDisplay. The cable length depends on the type of cable used but a distance of up to 1000 metres is possible. The cable should be a twisted pair, screened and the screen should be grounded at one point only. See **Appendix 4.**

5. COMMISSIONING

Before switching on the mains, check that the power supply is correct as indicated on the identification label on the rear of the equipment.

The anemometer must be configured in the following output formats, depending on the type of WindDisplay used:-

Gill Output	**1Hz (P1), Baud Rate 9600 (B3), Polar Cont (M2)**
NMEA Output	**1Hz (P1), Baud Rate 4800 (B2), NMEA Cont (M5)**

With no anemometer cable connected, switch on the display and observe the front panel LEDs. The system will perform an LED test. All LEDs are switched on and off one by one. When the test is finished the display shows no information on the LED circle and on both speed displays "---" is shown.

Check the voltage at terminal (1) and (2) on the rear panel. This should be 15 Volts dc.

Connect the anemometer as shown in Appendix 3.

When there is no serial information received from the anemometer, the watchdog circuit in the display unit starts to switch the 15 Volt supply voltage to the sensor ON and OFF. The supply voltage is on for 10 seconds and if no information is received from the anemometer, the supply voltage is switched OFF for 5 seconds. If this occurs during commissioning, check the wiring to the anemometer.

When the display is fully operational and the sensor information is not received for more than 5 seconds, the display starts to flash indicating that sensor information is no longer being received by the display unit.

5.1 Settings via front panel

On the front panel of the display there are three push buttons. The buttons are marked "MENU" "? "and "? ". Under normal conditions the buttons marked "? " and "? " are used to adjust the brightness of the display.

5.1.1 Units and averaging settings

When the menu button is pressed the LED in the "average time window" starts to flash indicating that the selected option is functioning. It now becomes possible to make a selection using the arrow up and down buttons. If the menu button is pressed again, the LED in the units window starts flashing, indicating that the selected option is on. With the arrow up and down buttons, it is now possible to select different units for the wind speed.

If the buttons are not touched for 5 seconds, the display will return to the normal operating mode.

5.1.2 Lamp test

With both arrow buttons pressed, all the displays and LEDs start flashing (lamp test). When the interval time for a gust is set to 0 seconds, the gust must be reset manually. This has to be done by pressing the menu and the arrow down button at the same time.

5.1.3 Deviation setting

The display provides the possibility to add an offset to the wind direction. This is very useful for wind systems installed on oil rigs and for airports if they want to use the magnetic North instead of true North.

An offset is added in the following way. Press the arrow-up button "? " and the menu button. The Gust display starts flashing and is showing the offset. As long as the display is flashing, the offset can be changed using the arrow up or arrow down buttons. The set value is added to the actual wind information from the anemometer.

6. MAINTENANCE

The Gill WindDisplay unit has no moving parts and requires no routine maintenance. In the event of failure, the unit must be returned to the authorised Gill Distributor.

If required, the front panel of the display can be cleaned with a cloth, slightly moistened with a soft detergent. Ensure that no liquid enters the display unit. Solvents should not be used and care should be taken to avoid scratching the front panel.

Fuses: Glass fuses 5 x 20 mm
50mA for 230 Vac

The fuse can be reached as follows

Switch off the main supply and disconnect all the wiring on the rear of the display.
Remove the four 2.5mm screws on the rear of the display.
Remove the front window, pull on a corner with both hands.
Hold the front of the unit down and remove the whole case.
The fuse is positioned on the PCB see **Appendix 5.**

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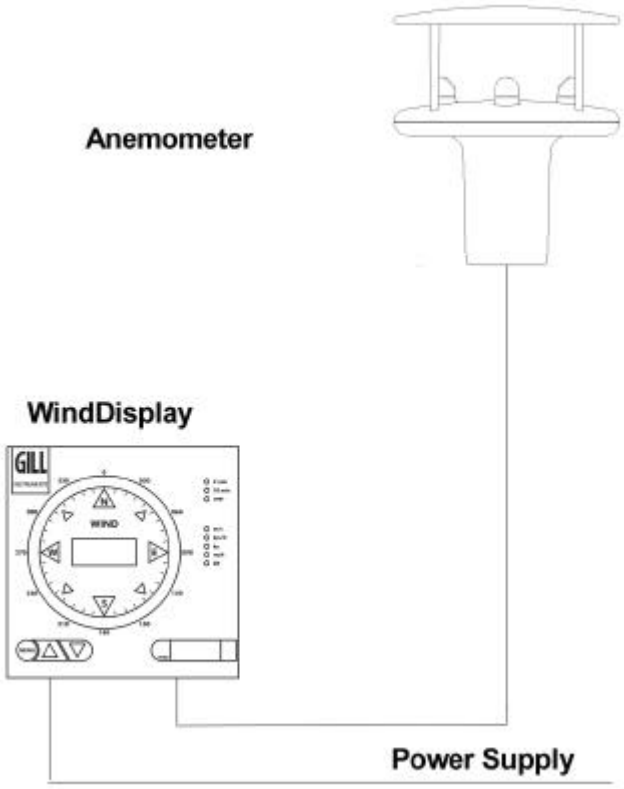
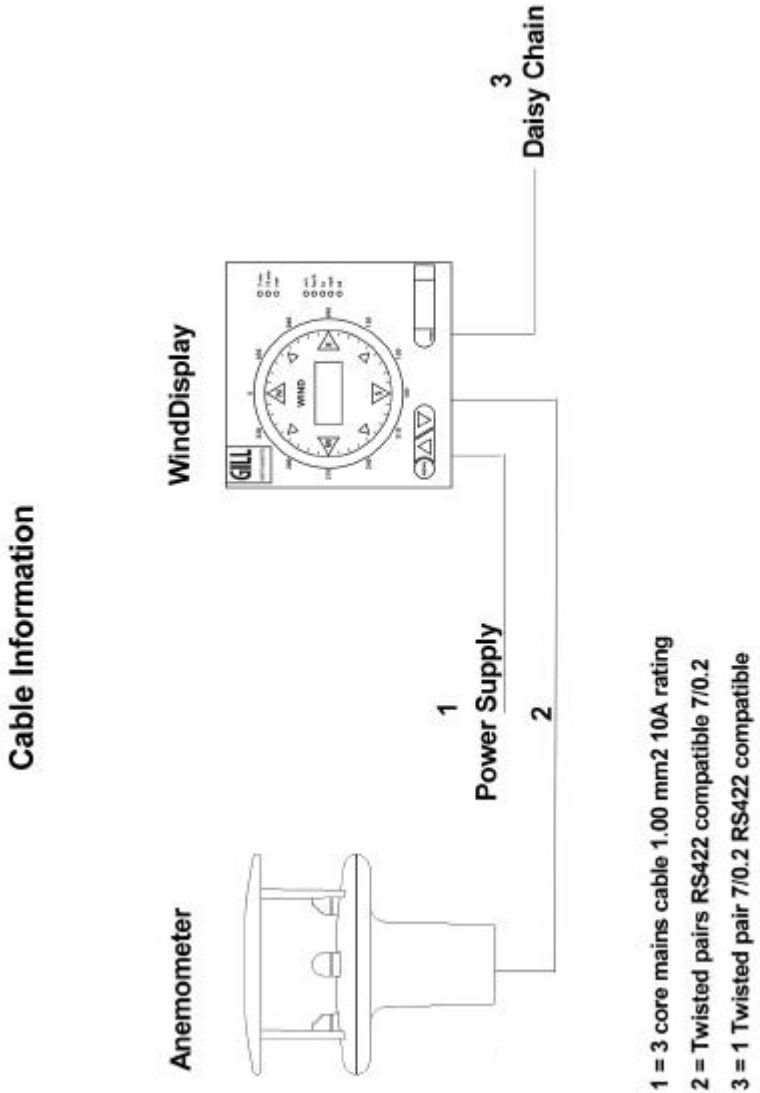
7. APPENDIX/DRAWINGS

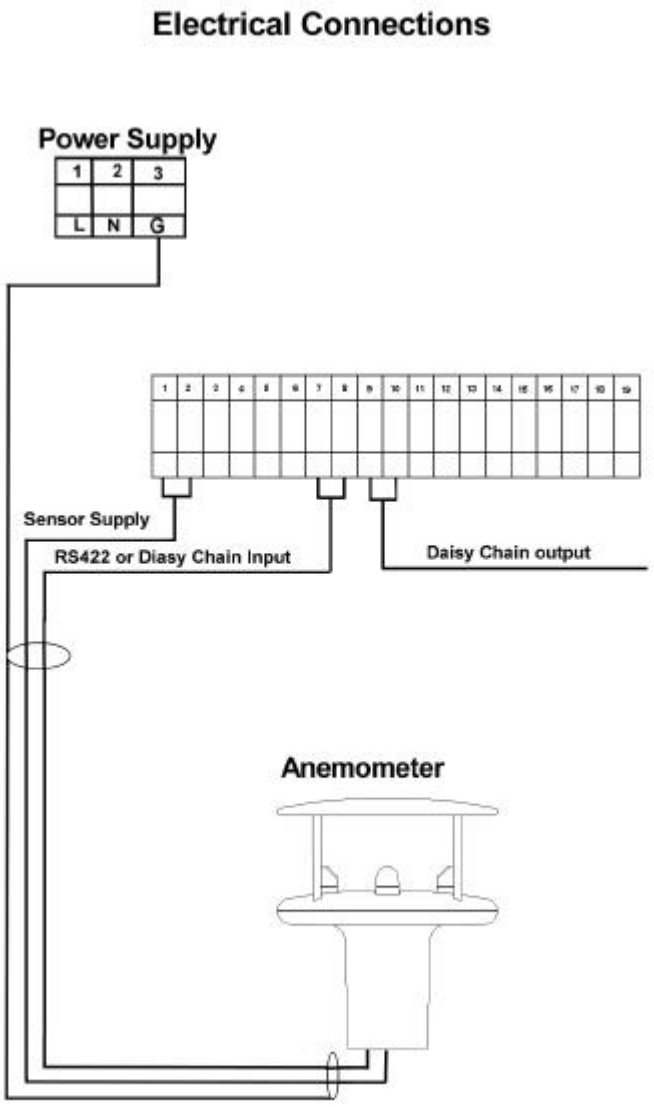
APPENDIX 1 – General assembley



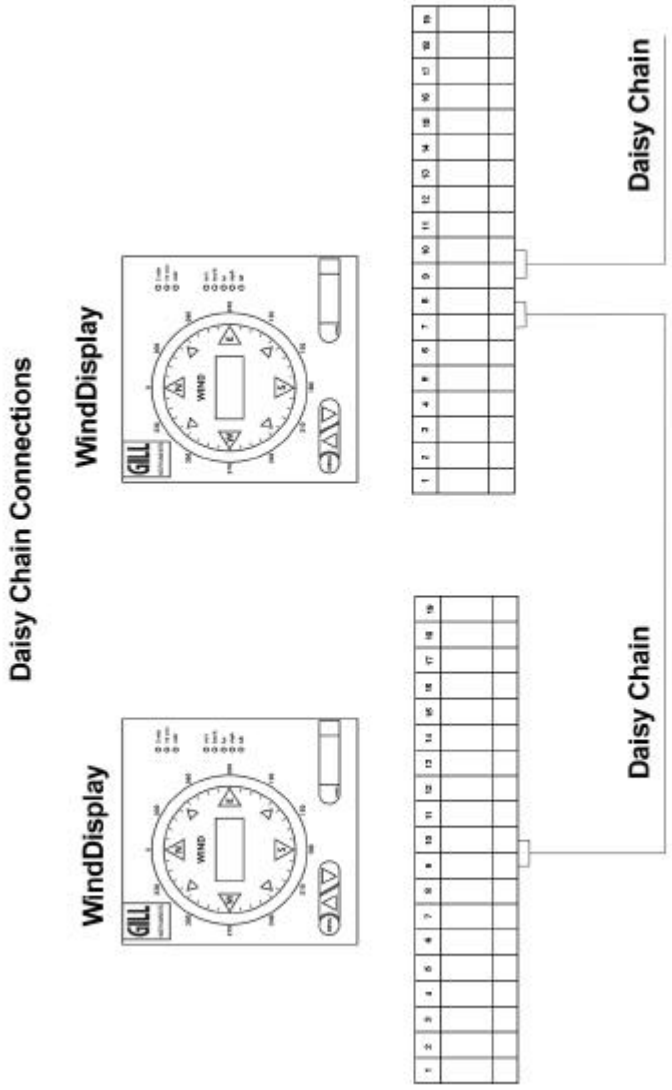
APPENDIX 2 – Cable information



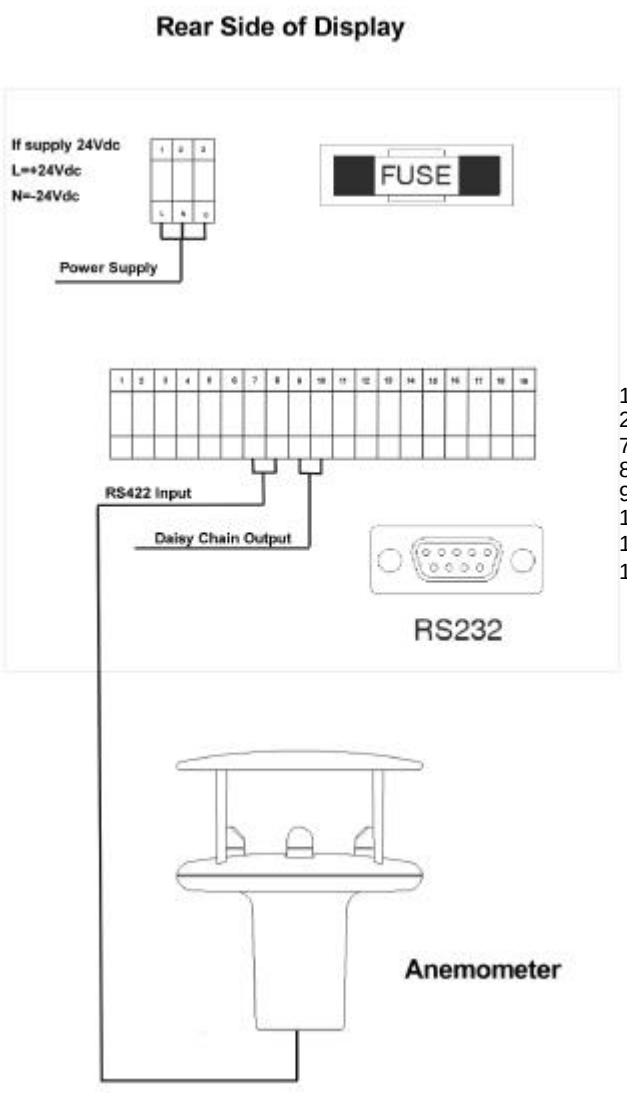
APPENDIX 3 – Electrical connections



APPENDIX 4 – Daisy chain connections



APPENDIX 5 – Rear view of WindDisplay



1 = Anemometer Supply V-
2 = Anemometer Supply V+
7 = RS422 IN (-)
8 = RS422 IN (+)
9 = Daisy Chain OUT (-)
10 = Daisy Chain OUT (+)
11 = Pulse speed input (-)
12 = Pulse speed input (+)