

Mini weather station

OMC-938/939

Users Manual
Ver. No. 1.04

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1. General

The Obsermet mini weather station display OMC-938 is a combined display for wind speed and wind direction and four other parameters. The OMC-938 is provided with a digital LED indicator for speed, and a double ring of 36 LED's actual and average direction information and four 5 digits displays.

A second three digit display located in the lower right corner provides gust information.

The front panel is provided with three buttons for adjusting the brightness of the LED's. testing all the LED display's and entering a set menu for adjusting display settings.

The OMC-938 will accept the output-signals directly from the series OMC-182 and OMC-183 signal conditionings units, without the need of additional interfaces. The display provide "daisy-chain" connections for additional indicators. As an option, the OMC-938 can provide analogue output signals for wind speed and direction. Those can be 4...20 mA or 0...1 volt.

The display is housed in a 288x144 mm. DIN-size casing suitable for flush mounting in a console, or display panel. Unit depth is 63 mm.

The signal transmission of the daisy chain is: 20mA current loop, 1200 ... 9600 Baud, ASCII-code.

The OMC-938 can display the wind speed in various scales i.e. Miles per hour (mph). Meters per second (m/s). Knots. kilometers per hour (km/h) and Beaufort. In addition the analogue output for wind speed and direction can be transmitted using a variety of averaging periods between 1 and 600 seconds.

Principle characteristics.

Power supply	: 220Vac. 115Vac and 24Vdc selectable via wire bridges
Power supply optional	: 12 Vdc
Speed display	: 3 digit 7 segment LED display 14.3 mm height
Gust display	: 3 digit 7 segment LED display 10.1 mm height
Parameter displays	: 5 digit 7 segment LED display 14.3 mm height
Direction display	: 36 LED's circular color RED
Direction average	: 36 LED's circular color AMBER
Input signals	: Currentloop or RS422 with ASCII information
Output	: Daisy chain
Output (optional)	: 0...1 volt. 4...20 mA, RS232 and NMEA-183
Dimensions	: 288x144x94 mm
Weight	: approx. 1200 gr
Scale	: Knots, mph. m/s or km/h
Brightness control	: From the front panel (optional on distance)
Readout units	: m/s, Km/h, knots, Mph and Bft

2. Installation

2.1. Mechanical

Panel mounting of the OMC-938 display requires a panel cut-out of 282mm x 137mm square. Maximum panel thickness 5 mm. Rear access must be provided, for fixing of the tightening clamps and connecting the electric cabling. The depth of the unit is 63 mm and an additional clearance of 8 mm should be allowed for the cable connections.

2.2. Electrical

All Obsermet displays utilize a common terminal strip for the connections to the wind sensors and the ancillary displays and/or recorders. The signal cable between the conversion unit and the display is a 2-core cable for signal transmission. To reduce interference the cable must have a common screen. This screen should be grounded to earth in the junction box of the wind sensor. In this way the cable may run distances up to 1 kilometer.

Recommended cable: 1 twisted pairs with common screen, core size 0.75 mm².

In the case that the wind sensor is provided with a heater. 2 extra cores are required for power supply to the heater. The size of the heater cable depends on the cable length. (For more details see manual wind sensor)

The OMC-938 display unit can provide the 15 Volts DC. power supply to the microprocessor transmitter in the wind sensor. The power consumption of the sensor transmitter electronics is approx. 65 mA. This power supply should not be used for the optional heaters in the sensor. These sensor-heaters must be powered independently from the display unit.

2.2.1 General cable layout

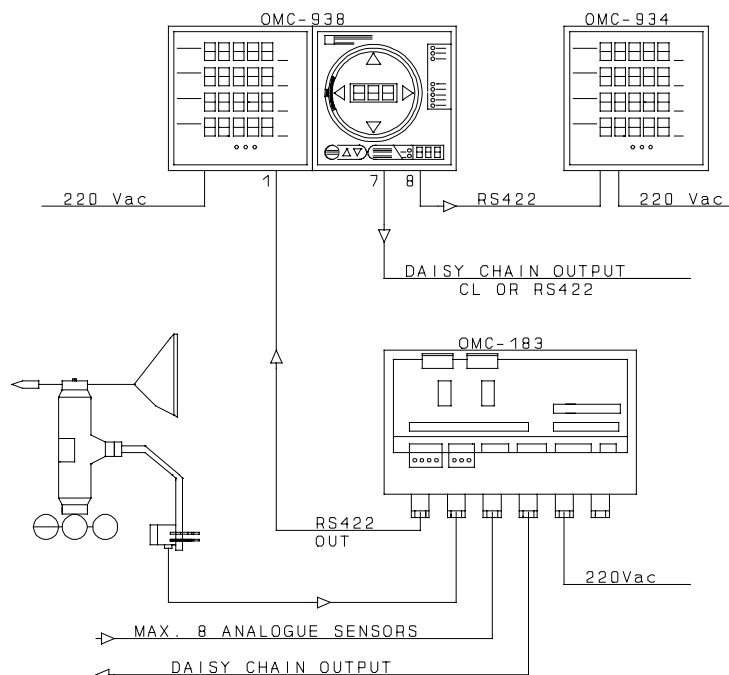
A typical cable layout is shown in the drawing shown on the right. The OMC-938/939 will always receive its information from a signal conditioning unit.

This signal conditioning unit is connected to all the sensors installed to the system. It converts all the information into a digital output string.

This information string is transmitted every second to the OMC-938/939.

If more than four sensors are connected to the signal conditioning unit a secondary display is added who can also display four sensor parameters.

If a barometric pressure sensor is connected to the signal conditioning unit the unit can calculate the QFE and the QNH if needed.



2.2.2 Power supply settings

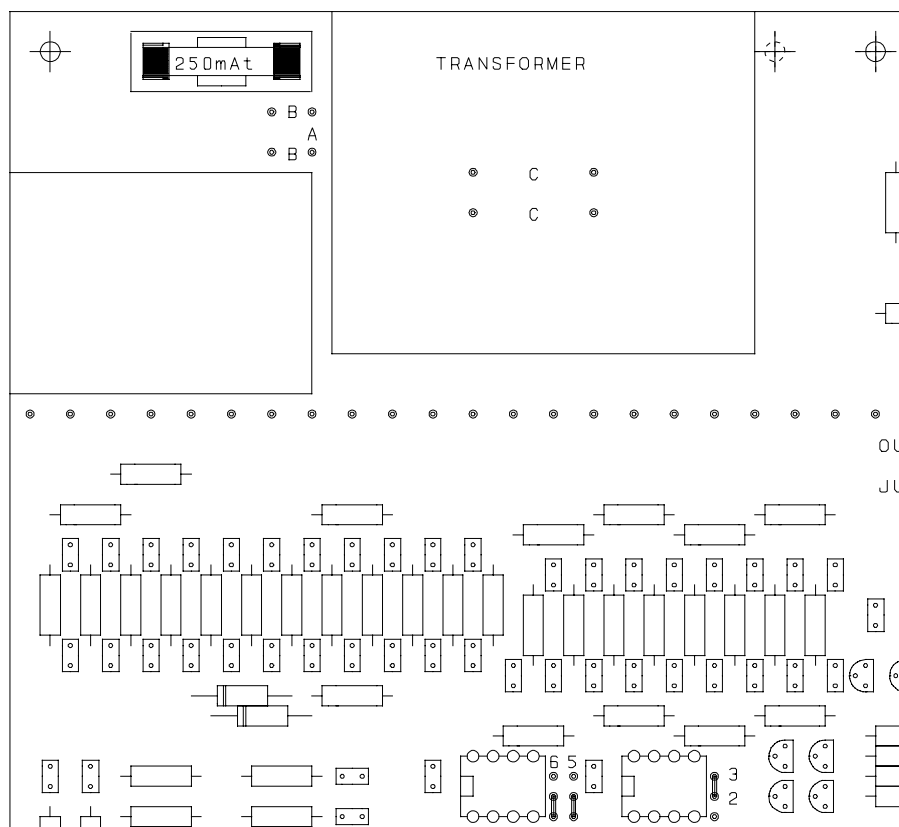
The OMC-938 will be delivered with the power supply set as required by the customer. If no power supply is mentioned in the official ordering papers the OMC-938 power supply will be set for 230 Vac.

If during installation is found that the supply setting is wrong two things can be done, the unit can be returned to the factory for modification or the user will modify the unit himself.

To modify the display unit for a different power supply proceed as follows,

On the power supply board, the Pcb with the terminal connection on the rear side, there is installed a transformer. The transformer offers the possibility of 115 or 230 Vac. The supply depends on the jumper settings between the filter transformer and the supply transformer. (see Pcb layout) If the wired marked "B" are installed the unit is set for 115 Vac, If the wire "A" is installed the unit is set for 230 Vac.

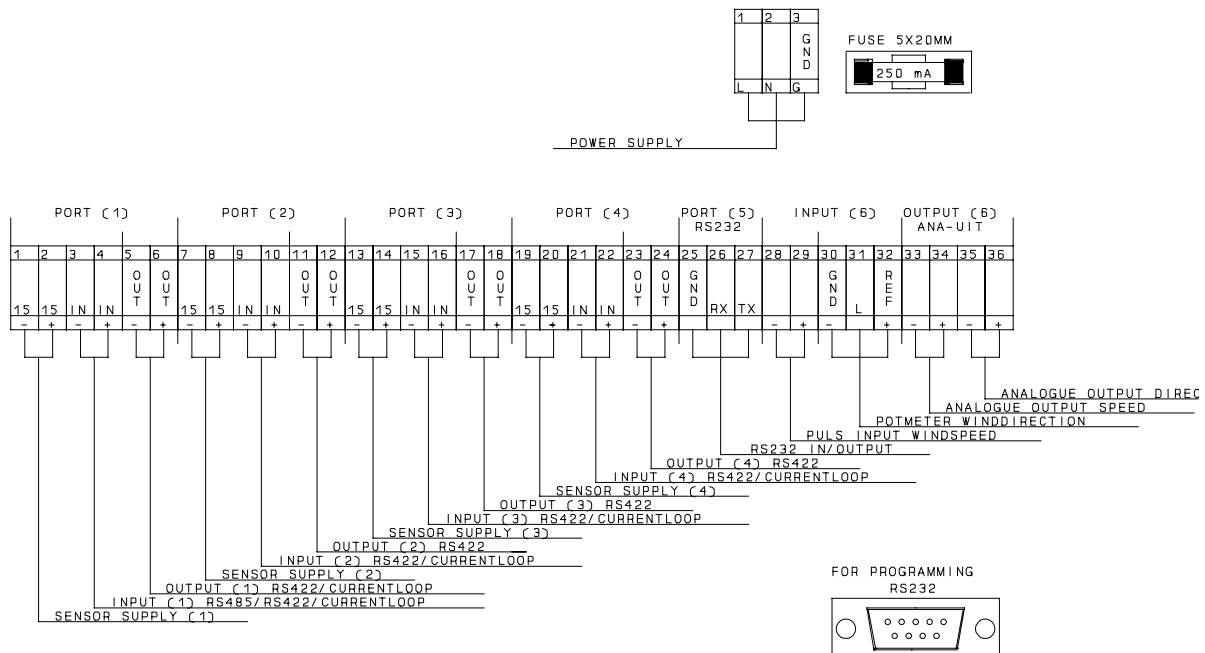
For 24 Vdc power supply the transformer TR1 has to be removed from the printed circuit board. When the transformer has been removed two wire connection can be made (marked with "C")



As an option the OMC-938 can be delivered for 12 Vdc, If the unit has to be modified to work with 12 Vdc the transformer has to be removed. With the transformer removed it becomes possible to install a DC/DC converter on the location of the transformer. The DC/DC converter converts the 12 Volt supply voltage up to 24 Vdc.

2.2.3. Connections

All connections to the OMC-938 display are made to the rear of the display as shown on the drawing on the right.

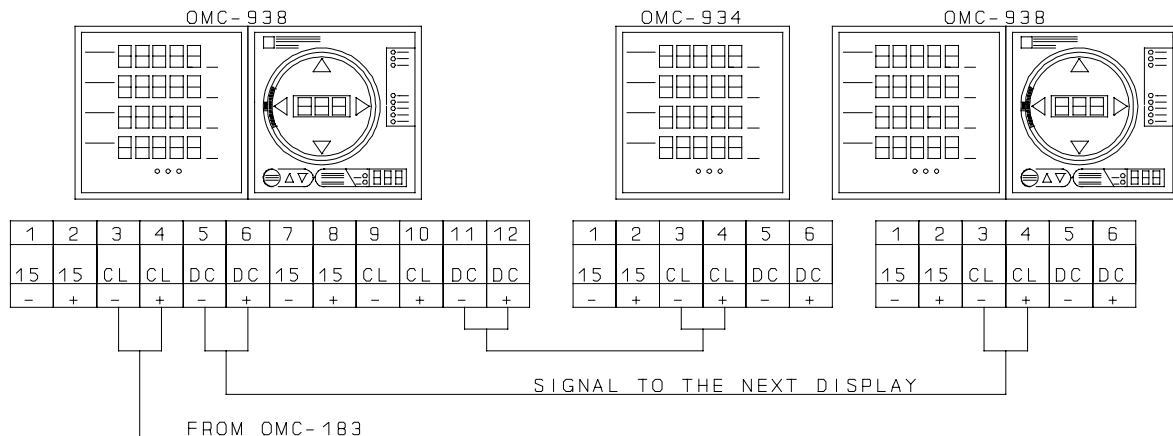


If the input is received from an Obsermet signal conditionings unit only the terminals 3 and 4 are used. Daisy chaining to the next instrument is done on the terminals 5 and 6.

- 1, 7, 13, 19 = -15 Vdc sensor supply
- 2, 8, 14, 20 = +15 Vdc sensor supply
- 3, 9, 15, 21 = - serial currentloop input, or RS422 input
- 4, 10, 16, 22 = + serial currentloop input, or RS422 input
- 5, 11, 17, 23 = - daisy chain output currentloop or RS422
- 6, 12, 18, 24 = + daisychain output currentloop or RS422
- 28 = brightness control on distance
- 29 = brightness control on distance
- 30 = not used
- 31 = not used
- 32 = not used
- 33 = - analogue speed output 4..20 or 0..1 Volt
- 34 = + analogue speed output 4..20 or 0..1 Volt
- 35 = - analogue direction output 4..20 mA or 0..1 Volt
- 36 = + analogue direction output 4..20 mA or 0..1 Volt

2.2.4. Daisy chaining

The daisy-chain output is used to transfer the sensor information to a second display. The cable length depends on the type of cable used. Depending on the total capacity of the cable a distance up to 1000 meter is possible. The cable should be screened, and the screen should be grounded at 1 point only.



Recommended cable: 1 twisted pair with common screen, core size 0.75 mm².

If more than four sensors have been connected to the OMC-183 signal conditionings unit the information cannot be displayed on the OMC-938. To overcome this problem an OMC-934 is added to the system. The output port number 2 is used to provide the OMC-934 with the necessary information. The RS422 output transmit the information with a speed of 9600 bps.

3. 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.

With no signal cable connected, switch on the display and observe the front panel LED,s. The system will perform a led test all led are switched on and off one by one. When the test is finished the display shows on the led circle no information and on all displays only "---" is shown. This is because no sensor information is received by the display.

With all cabling correctly connected, the display will show all the information received from the OMC-183.

Adjustment cannot be made as the sensor-signal is digitally transmitted.

When the display is fully operational and the and the sensor information is not received for more than 5 seconds the display starts flashing indicating that the sensor information is not longer received by the display unit.

If from the speed display inside the led circle the decimal point between the hundred and the ten display is ON the Eeprom has been damaged. Settings for proper operation are most probably lost. The display must be returned to the factory.

Displaying QFE and QNH

On the display often the calculate value QFE and QNH is shown.

QFE is defined as the barometric pressure corresponding to the official height of the **airfield**.

QNH is defined as the barometric pressure corresponding to mean **sealevel**.

The calculation for QFE and QNH is done in the OMC-183 signal conditionings, P1 gives the QFE value and P2 the QNH value.

The scalings factors S1 and S2 are used for airfield height and sensor height.

S1 = Sensor height in relation with the airfeld or helideck

S2 = Height airfield or helideck in relation with main sealevel

The calculate values P1 and P2 are transmitted to the OMC-938 with the indents F for QFE and N for QNH. The values are transmitted by the OMC-183 with one digit behind the decimal point.

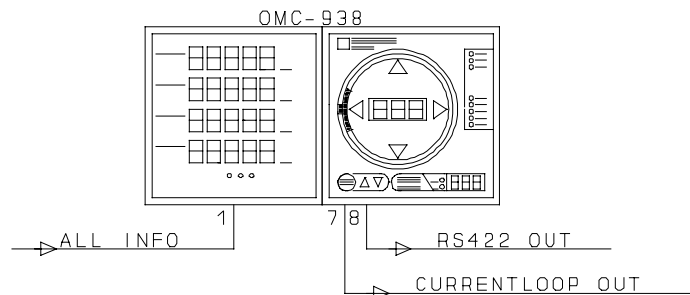
3.1 Communication and ports

The OMC-938/939 has 6 input and output ports available. The first 4 inputs are normally used for the Obsermet windsensors working with a currentloop output signal or signals from the obsermet signal conditioning units. For other purposes a RS422 input is also possible. Port number 1 can also be set for a RS485 input signal.

3.1.1 Serial input output Port 1

Port 1 uses the connections on the rear of the instrument numbered 1 to 6 in the following way,

- 1 = -15Vdc sensor supply
- 2 = +15Vdc sensor supply
- 3 = - serial input signal
- 4 = + serial input signal
- 5 = - serial output signal
- 6 = + serial output signal



Port number 1 will accept signals like currentloop, RS422 or RS485, this depends on jumper settings on the connection board and on the processor board.

Input jumper settings

Port number 1 has jumper settings on the connection board as well as on the processor board. On the connection board jumper field J1 is used to select Currentloop or RS422.

- J1 jumper position 1-3 and 2-4 = Currentloop input
- J1 jumper position 3-5 and 4-6 = RS422 input

On the processor board (right) the following jumper field is used,

- J1 jumper position 1-2 = Currentloop input
- J1 jumper position 2-3 = RS422 input
- J1 jumper position 4-5 = RS485 input

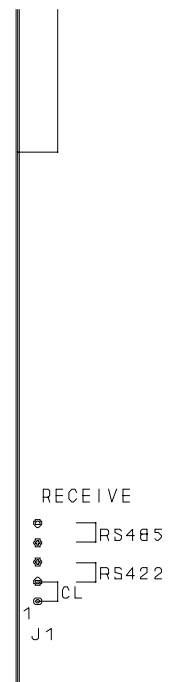
The default settings for port 1 are RS422 input 9600 bps communication speed. Port is used receive information from the OMC-183 signal conversion unit. All sensor information is received every second by the OMC-938.

Output jumper settings

Port number 1 has only jumper settings on the connection board, the selected outputs are Currentloop or RS422. Jumpers must be set as follows,

- J5 jumper position 1-3 and 2-4 = Currentloop output
- J5 jumper position 3-5 and 4-6 = RS422 output

Port is set for currentloop output, communication speed 9600 bps transmitting all received information.



3.1.2 Serial input output Port 2

Port 2 uses the connections on the rear of the instrument numbered 7 to 12 in the following way,

- 7 = -15Vdc sensor supply
- 8 = +15Vdc sensor supply
- 9 = - serial input signal
- 10 = + serial input signal
- 11 = - serial output signal
- 12 = + serial output signal

Port number 2 will accept signals like currentloop and RS422, this depends on jumper settings on the connection board.

Input jumper settings

Port number 2 has only jumper settings on the connection board. On the connection board jumper field J2 and J6 is used to select Currentloop or RS422.

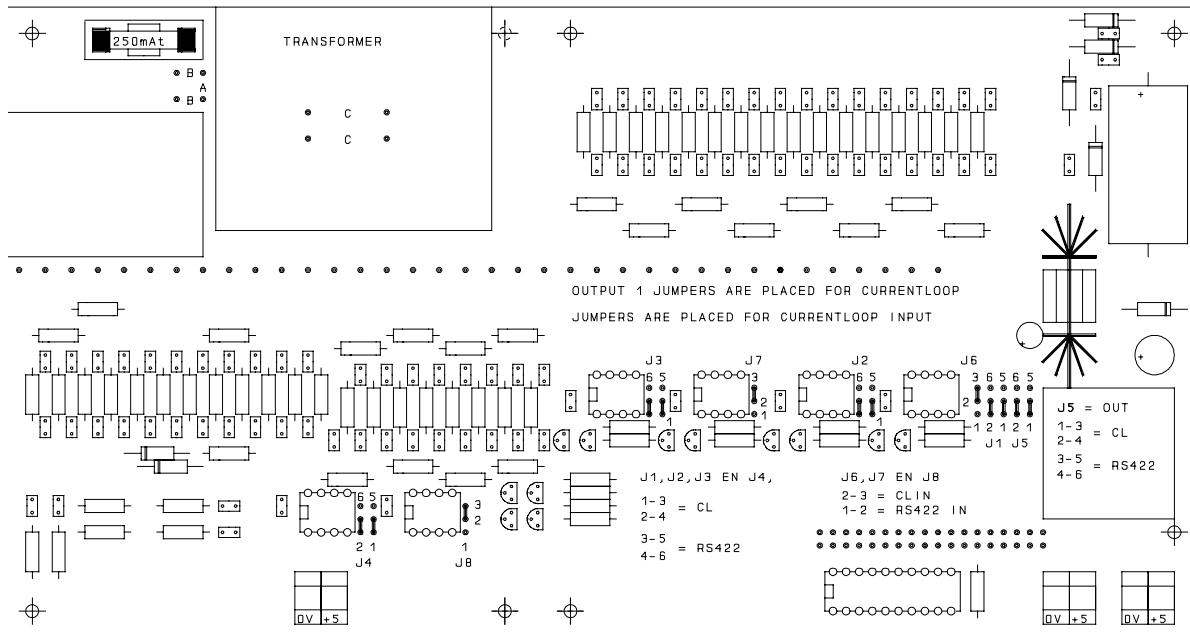
- J2 jumper position 1-3 and 2-4 = Currentloop input
- J2 jumper position 3-5 and 4-6 = RS422 input
- J6 jumper position 1-2 = RS422
- J6 jumper position 2-3 = Currentloop

The input of port 2 is not used in this configuration.

Output jumper settings

There are no jumper settings available. The output on port 2 can only be RS422.

The output of port 2 is used to transmitting the received information (RS422) to a second slave display which is used as the number of sensors, connected to the OMC-183, is more than four. The communication speed is set to 9600 bps.



3.1.3 Serial input output Port 3

Port 3 uses the connections on the rear of the instrument numbered 13 to 18 in the following way,

- 13 = -15Vdc sensor supply
- 14 = +15Vdc sensor supply
- 15 = - serial input signal
- 16 = + serial input signal
- 17 = - serial output signal
- 18 = + serial output signal

Port number 3 will accept signals like Currentloop and RS422, this depends on jumper settings on the connection board.

Input jumper settings

Port number 3 has only jumper settings on the connection board. On the connection board jumper field J3 and J7 is used to select Currentloop or RS422.

- J3 jumper position 1-3 and 2-4 = Currentloop input
- J3 jumper position 3-5 and 4-6 = RS422 input
- J7 jumper position 1-2 = RS422
- J7 jumper position 2-3 = Currentloop

The input port 3 is not used in the OMC-938 configuration.

Output jumper settings

There are no jumper settings available. The output on port 3 can only be RS422.

The default settings for port 3 are Currentloop input 300 bps communication speed, RS422 output communication speed 9600 bps.

The output port 3 is not used in the OMC-938 configuration.

3.1.4 Serial input output Port 4

Port 4 uses the connections on the rear of the instrument numbered 7 to 12 in the following way,

19 = -15Vdc sensor supply
20 = +15Vdc sensor supply
21 = - serial input signal
22 = + serial input signal
23 = - serial output signal
24 = + serial output signal

Port number 4 will accept signals like currentloop and RS422, this depends on jumper settings on the connection board.

Input jumper settings

Port number 4 has only jumper settings on the connection board. On the connection board jumper field J4 and J8 is used to select Currentloop or RS422.

J4 jumper position 1-3 and 2-4 = Currentloop input
J4 jumper position 3-5 and 4-6 = RS422 input
J8 jumper position 1-2 = RS422
J8 jumper position 2-3 = Currentloop

The input port 4 is not used in the OMC-938 configuration.

Output jumper settings

There are no jumper settings available. The output on port 4 can only be RS422.

The default settings for port 4 are Currentloop input 300 bps communication speed, RS422 output communication speed 9600 bps.

The output port 4 is not used in the OMC-938 configuration.

3.1.5 Serial input output Port 5

Port 5 uses the connections on the rear of the instrument numbered 25 to 27 in the following way,

25 = Ground signal
26 = Receive data
27 = Transmit data

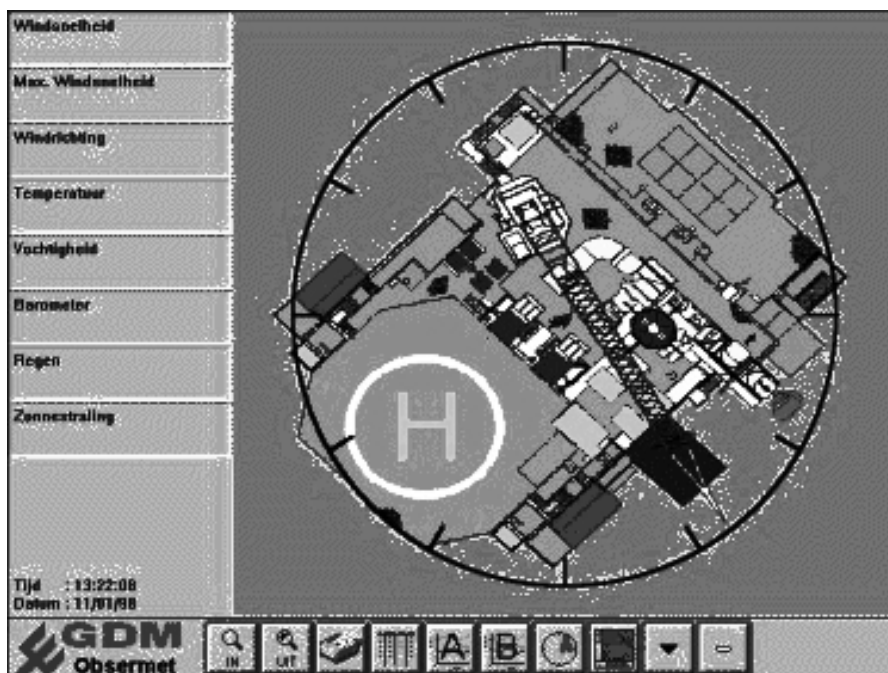
Port number 5 will accept only RS232 signals.

Within the menu driven software, input or output can be set to transmit or receive data on this port.

There are no jumper settings available for input or output port number 5

The default settings for port 5 are RS232 input and output, communication speed 9600 bps.

Port 5 is sometimes used for output all the received information to a computer running the GDM software for capturing the information and showing trend information as well as numeriek information. Program stores received information in day files on hard disk. example shown below.



3.1.6 Analogue input output Port 6

Port 6 is completely different used as the ports 1 to 5. The input of port 6 accept signals from an analogue windsensor system providing a pulse for wind speed and an potmeter output signal for wind direction. The output port 6 are two analogue signals coupled to one of the input and providing 0...1 Volt or 4...20 mA over a set range.

Port 6 input

Port 6 uses the connections on the rear of the instrument numbered 28 to 32 in the following way,

- 28 = - input pulse wind speed
- 29 = + input pulse wind speed
- 30 = common signal potentiometer
- 31 = wiper potentiometer
- 32 = + reference signal 2.7 Volts

As analogue input is optional the IC's needed are standard not installed in the sockets. If analogue is needed the IC's 14 and 15 must be placed in the sockets.

Port 6 output

The OMC-938 provides two analogue output signal which can be coupled to any of the received information. This is optional and not as standard available.

On the processor board (middle board) there are some jumper settings to select a current or voltage output signal. There are three jumpers that have to be set in the correct position. In the drawing the selection for a voltage output is set. In jumper field J2 de position 2-3 is selected and in jumper field J3 the jumper settings 1-3 and 2-4 are selected.

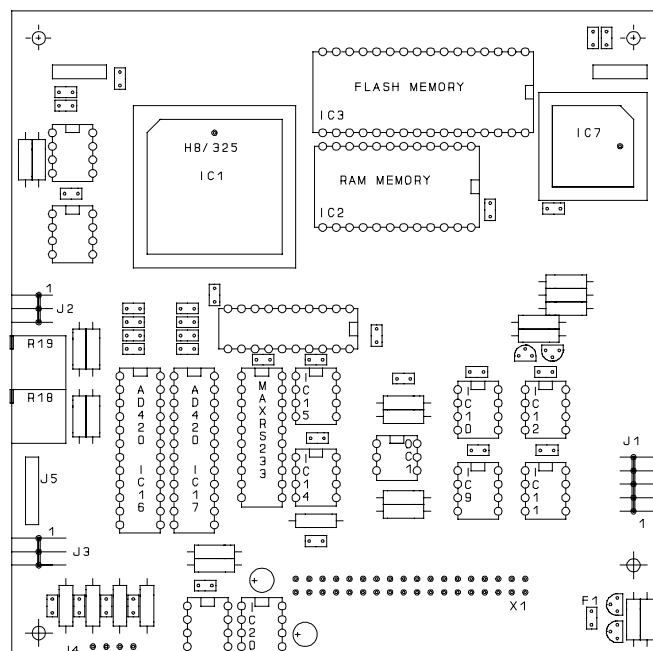
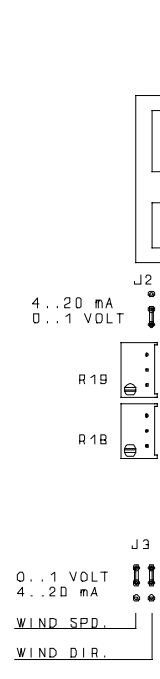
To get a 4...20 mA output the jumpers must be set as follows,

- Jumper field J2 set 1-2
- Jumper field J3 set 3-5 and 4-6

The potmeters R18 and R19 are used to set the range of the analogue output signals.

Because the analogue output is optional the IC,s needed for this output are not installed originally. If the analogue output is added after the display has left the factory some IC,s needs to be installed in the correct sockets.

For the analogue output the following IC,s have to be installed, IC16, IC17,IC18 and IC20. To select the correct output signal see above for the correct jumper settings.



3.2 Message format

Currentloop output OMC-160 message format

The currentloop output is normally used to transport the collected data from the currentloop input. Using the system in this way it is not necessary anymore to output the data as analogue signals which upgrade the performance and the accuracy. The data is transmitted with the same speed as data is received from the windsensor. 300 baud 8N1.

If the currentloop output signal from the OMC-160 is repeated by the OMC-138 the message looks as follows,

```
<LF>D125<sp>V234<sp>>cscs<CR>
```

In the above message the transmitted wind direction is the number shown after the indent "D" 125 degrees. the windspeed in the message is shown after the indent "V" 234 is 23.4 m/s. The windspeed is transmitted without decimal point and must therefor be divided by 10 to get the correct windspeed.

The checksum is all information in the string added, the least significant byte is divided into high and low nibble and both nibbles are incremented by hexadecimal 30. This information is sent out as a checksum.

OMC-2900 message format

Sometimes the data is transmitted in the OMC-2900 format. This format is used when more parameters are transmitted.

The wind data transported in the OMC-2900 format looks as following,

```
<STX> <LF>V21.2<SP>CSCS< CR>  
<LF>D156<SP>CSCS<CR> <EOT>
```

Every message starts with a start of text character after this the messages are transmitted. All messages start with a line feed followed with the identifier for the data, then the data and then a checksum for protection reasons, the message end with a carriage return.

All input channels can be transmitted in this way every second to any receiving station.

RS232/RS422 in/output channel

The OMC-2900 and the OMC-160 format on the RS232/RS422 looks the same as the format used in the currentloop output described paragraph 3.2.2.2

There are two possibilities to transmit data in the NMEA output, windspeed can be transmitted in m/s or in knots, both messages are shown below.

SIIMWV.I 23.R.5.8.N.A*24 Windspeed in knots

SIIMWV.1 23.R.5.8.M.A*27 Windspeed in meters per seconds

3.3 Settings via frontpanel

On the frontpanel of the display there are three pushbuttons. The buttons are marked "MENU", arrow up and arrow down. Under normal conditions the buttons marked arrow up and down are used to adjust the brightness of the display.

3.3.1 Units and averaging settings

When the menu button is pressed the led in the average time window starts flashing indicating that the select option is on. It becomes possible now to make a selection using the arrow up and down button. If the menu button is pressed again the led in the units window starts flashing indicating that the select option is on. With the arrow up and down button it is possible now to select different units for the windspeed.

When the buttons are not touched for 5 seconds the display will return to the normal operation mode.

3.3.2 Lamp test

With both arrow buttons pressed all the displays and led's start flashing (lamp test) When the interval time for 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.

3.3.3 Selection minimum/maximum wind

The display provide the possibility to use the gust display to show minimum or maximum windspeed. Selection is possible with the menu button. Press the menu button and the led in front of max wind starts flashing, press the button up and the led switches over to min wind. After 10 seconds the display automatically jumps back to max wind speed.

3.3.4 Deviation setting

The display provide the possibility to add an offset to the wind direction. This is very useful for wind-systems installed on oilrigs and for airports if they want to use the magnetic North instead of the 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 sensor.

3.4 Settings possible via the RS232 port.

- 1 Users interval time, 3 different times can be set, direction, speed and gust. When for gust a time of 0 is selected the gust can be reseted by pushing the menu button and the arrow down button at the same time.
- 2 Scaling analogue outputs. For the analogue outputs it is possible to set the span of the signal. 4...20 mA can be 0...40 m/s or 50 m/s. For the direction a choice can be made between 360 or 540 or 720 degrees.
- 3 Average time for analogue output signals, For the 2 available analogue outputs it is possible to set a average time. This is done to prevent analogue recorder to paint the paper.
- 4 Selection of sensor type, a selection can be made between the following inputs.
 - a. Obsermet sensors OMC-160. OMC-170 and OMC-165 (standard)
 - b. Gill sensors RS422 (optional)
 - c. Irdam sensor RS422 (optional)
 - d. Vector pulse/potmeter (optional)
- 5 When pulse/potmeter is selected it is possible to set the scaling factors for the input signals.
- 6 RS232 output on/off and baudrate setting
- 7 RS422 output on/off and baudrate setting
- 8 Repeat the sensor message on the RS232/422 or select NMEA-183 output signal.
- 9 The display provide the possibility to add an offset to the wind direction. This is very useful for wind-systems installed on oilrigs and for airports if they want to use the magnetic North instead of the 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 sensor.

4. Maintenance

The Obsermet OMC-138/139 digital display unit has no moving parts, and requires no routine maintenance. If required, the perspex display front can be cleaned with a cloth, slightly moistened with a soft detergent. Care must be taken that no liquid enters the display unit. Solvents should not be used, and scratches should be avoided.

Fuses: Glass fuses 5x20 mm, 250mA for 230 Vac. 250mA for 115 Vac 250mA for 24 Vdc

The fuse can be reached as follows,

Switch of the main supply and disconnect all the wiring on the rear of the display.

Remove the four 2.5 mm screws on the rear of the display.

Remove the front window by pulling on a corner with both hands.

With holding the front down, the whole case can be removed now.

The fuse can be reached now. The fuse is placed on the PCB where all the wires are connected to.

4.1 Uploading a new software version in the OMC-938 display unit

On the rear of the instrument there is a 9 pin D-connector. Connect to this connector a RS232 serial cable wired from computer to computer (2 and 3 swapped). No handshake needed.

Start the Program Hyper terminal available in Windows 95'.

Set terminal parameters to 9800 8N1

Press the "enter bar", The following menu should appear.

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

If this menu appears on your screen a proper connection with the display has been established, cable, display and terminal program are working properly.

Close the program "Hyper terminal" and go to the DOS environment.

Go to the directory where the files "Upload" and the program "Flash.A20" can be found. If this is done give the following command "Upload 1 flash.a20" (The "1" stands for the number of com port)
Display will respond with the following messages,

1. Program to upload motorola hex-files into the omc-138 and series
2. Start erasing Flash eprom
3. Flash is erased
4. Start with upload and programming of flash
5. 000000 !ACK! until 01C500 !ACK! (number of blocks depends on length of program)

The program has been downloaded and installed.

The next thing to do is programming display parameters.

5. Setup via RS232 port on rear of instrument

During final testing in the factory the OMC-938 is setup for the system it is manufactured for. If at a later stage the settings have to be changed then this can be done by the user in the following way.

Connected a cable to the RS232 connector at the rear of the instrument. Connected the other end of the cable to a PC. Cable needs wires 2, 3 and 5 to be connected 2 and 3 swapped.

Start on the PC a terminal program like "Terminal" under Windows or "Hyper terminal" under windows 95.

Select the proper transmission speed, the speed is default set to 9600 bps. This setting might be set differently, if no response from the instrument when pressing the ENTER button on the keyboard try a different transmission speed.

5.1 Select input device

When the correct communication speed has been found on the "enter" bar has been pressed a menu as shown on the right will become visible.

Select the item that needs to be set by pressing the number in front of the option.

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

When "Select input device" (1) is pressed the menu shown on the right becomes visible,

In this menu it is possible to set parameters for the input port 1 or to set the parameters for the four display on the left side of the OMC-938.

Press "1" to get to next menu,

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

Instrument input device.

- 0 - menu back.
 - 1 - input 1 cl/rs422/rs485.
 - 2 - Sensor A.
 - 3 - Sensor B.
 - 4 - Sensor C.
 - 5 - Sensor D.
- Select option :

Select "1" and a new menu will be shown,

With the menu shown on the right the baudrate can be set of which the information is received on input port number 1.

If the input is coming from an OMC-183 signal conversion unit select 9600 baud.

Press "0" to return to the previous menu.

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

Input 1 settings.

- 0 - menu back.
 - 1 - 300 baud.
 - 2 - 1200 baud.
 - 3 - 2400 baud.
 - 4 - 4800 baud.
 - 5 * 9600 baud.
- Select option :

The displays on the left side of the display have been given the letters A, B, C and D.

The information received from the OMC-183 contains measured values identified by letters. The following letters are used,

Wind speed	= V
Wind direction	= D
Temperature	= T
Baro pressure	= B
Baro QFE	= F
Baro QNH	= N
Rain	= P
Water temperature	= t
Solar radiation	= R

Be careful letters are case sensitive.

The identifiers must be set in the OMC-938 display as follows,

The upper display is "A". If on the upper display the temperature should be displayed the identifier letter in the information string received from the OMC-183 must be coupled to display "A"

Select "2" and a new menu will be shown,

Select "4" and a press "T",

To set the digits behind the decimal point,

Select "5" and press "1" to set one digit behind the decimal point.

Select "0" to return to the previous menu,

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Instrument input device.

0 - menu back.
1 - input 1 cl/rs422/rs485.
2 - Display A.
3 - Display B.
4 - Display C.
5 - Display D.
Select option :

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Software version 1.1 Serial nr : 93800001

Input A settings. (Top display on the left of the display)

0 - menu back.
1 * Show external sensor.
2 - Show wind direction.
3 - Show actual wind speed.
4 - Input identifier [T].
5 - Digits after decimal point [1].
Select option :

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Instrument input device.

0 - menu back.
1 - input 1 cl/rs422/rs485.
2 - Sensor A.
3 - Sensor B.
4 - Sensor C.
5 - Sensor D.
Select option :

When there are less than four parameters to display it is possible to show some wind information on the displays that are not used.

Select "1", a new menu will be shown,

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Input D settings.

- 0 - menu back.
 - 1 * Show external sensor.
 - 2 - Show wind direction.
 - 3 - Show actual wind speed.
 - 4 - Input identifier [-].
 - 5 - Digits after decimal point [1].
- Select option :

Select what ever must be shown on the lower display, it is possible to show two different wind parameters and well numeriek wind direction and the actual wind speed. Both are not shown on the right part of the display (wind display).

select "0" to return to the previous menu

- 0 - menu back.
 - 1 - Show external sensor.
 - 2 * Show wind direction.
 - 3 - Show actual wind speed.
- Select option :

When all settings are set for the input devices, press "0" to return to the previous window.

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Instrument input device.

- 0 - menu back.
 - 1 - input 1 cl/rs422/rs485.
 - 2 - Sensor A.
 - 3 - Sensor B.
 - 4 - Sensor C.
 - 5 - Sensor D.
- Select option :

5.2 Select output device

If the information received from the OMC-183 is needed elsewhere the OMC-938 can be set to transmit the received information as a currentloop signal or as a RS422 signal.

Output ports can be set as follows,

Select "2", a new window will be shown,

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

Select "1" or "2" to go to the next window.

On output port 1 it is possible to select currentloop or RS422 as an output signal.

Output port 2 can only be used for RS422 output signals.

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Instrument output device.

- 0 - menu back.
 - 1 - output 1 cl/rs422.
 - 2 - output 2 rs422.
- Select option :

For output port 1 the choice must be made with jumper settings on the printed circuit boards. The jumpers are set for currentloop output on port number 1.

Select a baudrate by pressing the correct number, press "0" to return to the previous window.

The format of the message should also be selected here. This will be normally the Obsermet message but on special customer request the message can be different. When this is it must be selected here. Special message could be the NMEA output format.

Select "0" to return to the previous window.

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Software version 1.1 Serial nr : 93800001

Output 1 settings. (CL/RS422)

- 0 - menu back.
 - 1 * 1200 baud.
 - 2 - 2400 baud.
 - 3 - 4800 baud.
 - 4 - 9600 baud.
 - 5 * Standard Obsermet message daisy chain
 - 6 - Special message on request
- Select option :

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Instrument output device.

- 0 - menu back.
 - 1 - output 1 cl/rs422.
 - 2 - output 2 rs422.
- Select option :

5.3 Set averaging of channels

The wind display part of the OMC-938 has the possibility to select a interval over which the wind speed and direction is calculate.

Most users will select the standard 2 or 10 minute interval, but the display provide the possibility to select a users set interval.

With "set averaging of channels" the user interval time can be set.

Press "3", a new menu is shown.

Select an option by pressing the number in front of the option, give the new averaging time in seconds.

If the analogue outputs are installed the possibility exists to set an average time for the analogue signal. Select "5" or "6" and enter a new time in seconds.

Select "0" to return to the previous menu.

With choice "4" of the menu we can set some of the available options.

Select "4" to go the next menu.

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Software version 1.1 Serial nr : 93800001

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

OMC 137 Obsermet Enhanced Wind display unit
Software version 1.0

Serial nr : 000000

Averaging of channels.

- 0 - menu back.
 - 1 - Direction [3].
 - 2 - Variation direction [3].
 - 3 - Speed [3].
 - 4 - Analog output direction[3].
 - 5 - Analog output speed[3].
 - 6 - Max windspeed reset time[0].
- Select option :

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

5.4 Device options

The display can be delivered with some options, some of those options are free other options have to be ordered. When "4" is selected the menu on the right is shown.

Sometimes the display is installed on places difficult to reach, if this is the case and the brightness of the display have to be adapted sometimes the option is there to use the

windspeed pulse input as brightness control. This option is set on when ordered.

If the display has been installed on a moving object (drill platform) it is possible to adjust the alignment of the windsensor without going into the tower. With option "2" the deviation to the North can be set.

Press "0" to return to the previous menu.

To look at all the settings that have been made select "5" of the menu.

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Device Options.

0 - menu back.
1 - Dim on distance [off]. (not free of charge)
2 - Deviation [0 deg]. (free to be used)
Select option :

OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001

1 - Select input device.
2 - Select output device.
3 - Set averaging of channels.
4 - Set options.
5 - Show all settings.
6 - Test instrument.

5.5 Show all settings

When all settings are made or to check the existing settings press "5" a new window is shown as below,

```
OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr : 93800001
```

- 1 - Select input device.
- 2 - Select output device.
- 3 - Set averaging of channels.
- 4 - Set options.
- 5 - Show all settings.
- 6 - Test instrument.

In the window shown right all the important settings are shown. This window has no function then just give an overview what the settings are.

Information received on port 1 communication speed 9600 bps.

Output 1, all information transmitted with a communication speed of 1200 bps

Output 2, all information transmitted with a communication of 1200 bps

The first three displays are showing external information with the identifiers "T", "F" and "N"

All information is shown wit 1 digit behind the decimal point.

```
OMC 938/939 Obsermet Mini weather display unit
Software version 1.1 Serial nr. 93800001
```

```
Input 1 C\RS422 baudrate : 9600
Output 1 C\RS422 baudrate : 1200
Output 2 RS422 baudrate : 1200
Display 1 show Extern      Id = T   Digits after dp = 1
Display 2 show Extern      Id = F   Digits after dp = 1
Display 3 show Extren      Id = N   Digits after dp = 1
Display 4 show              Dir Avg
```

```
Average direction : 3 sec
Average variation direction : 3 sec
Average speed : 3 sec
Average analog out direction : 60 sec
Average analog out speed : 60 sec
Max windspeed reset time : 3 sec
```

```
Dim on distance : Disabled
Deviation : 0 deg
```

```
Press a key
```

The fourth display show information calculated internal, in this case the average wind direction.

If "user" has been selected with the push buttons on the front panel the information shown in the wind display is calculated over the set values, in this case 3 seconds.

The analogue outputs provide the information averaged over 60 seconds.

Brightness control on distance is disabled and the deviation (adjustment for wind direction) is set to zero degrees.

If all settings are correct, disconnect the cable, the display is ready for use.