

OMC-183 SIGNAL CONDITIONING UNIT

The signal conditioning unit OMC-183 is a multi purpose instrument for combining serial and analogue sensor signals into one serial signal RS422 and/or RS232. Further the unit is provided with several analogue outputs. The OMC-183 is often used in combination with the OMC-938/939 display units and also in cases where several sensor signals should be offered to a PC.



Features:

- Free programmable inputs
- 16 Bit conversion
- 8 analogue inputs (only available on OMC-183)
- 4 digital inputs
- Power supply for most of the sensors
- RS232 in- and output
- RS422 in- and output
- 2 analogue 4..20 mA outputs
- 6 analogue 0..10 Vdc outputs (only available on OMC-183)



Barometric pressure sensor in OMC-183



Deepwater pipelay vessel

GENERAL

The OMC-183 Signal conditionings Unit was developed to make an interface with analogue and digital sensors without the requirement to store sensor data. The data from the connected sensors is send out in one serial string or as analogue signals. The serial information contains the measured parameters of the sensors connected. The span and offset on each channel can be set via a serial port provided. All this information is stored in EEprom.

The OMC-183 consists of 2 printed circuit boards, the processor board and the analogue in/output board. The processor board and the analogue board are connected via a 34-way ribbon cable. The analogue input/output board is only required when analogue inputs and or more analogue outputs are necessary.

Processor board

The processor board accepts the information from the Obsermet wind sensors. After conversion of the digital signal to analogue signals, outputs are provided via two analogue output channels on the processor board. The output signal can be set with jumper settings to 0...1 Volt, 0...10 Volt or 4...20 mA over a range that can be set in the software.

The processor board provides RS232, RS422 or RS485 outputs with certain protocols like OMC-2900, NMEA-183. This is selectable with jumper settings on the board. A TTY output primary is provided for the transmission of all the captured input signals. The format used is identical to the OMC-2900 format. The transmission interval can be set in the software. The messages can contain the following information, Wind speed, Wind gust, Wind direction, Baro pressure, Solar radiation, Temperature, Humidity and precipitation.

The board has four digital inputs, passive switches can be connected to this inputs. The current through the contacts is ± 10 mA the voltage 15 Volts. The inputs can be used for precipitation or wind speed transmitters with pulse output. The processor board is provided with basic protection against voltage spikes caused by ElectroMagnetic Pulse.

Specifications processor board,

Input 1 : Currentloop serial info 300 baud
8N1
Input 2 : 4 x digital input
Output1 : 2 analogue out 0...1 V, 0...10 V or
4...20 mA (max load 500 Ohm)
Output2 : Currentloop serial info xxxx baud
Output3 : RS232, RS422 or RS485
NMEA-183 protocol
Supply V : 115 Vac, 220 Vac or 24 Vdc
Supply I : by 24 Vdc 400 mA

Analogue input/output board

The analogue board must be used in conjunction with the processor board. Connections between the two boards are made via a single ribbon cable. The analogue input board has 8 analogue inputs. There are two 4 channel A/D converter used, the resolution of A/D converters is 16 bits.

The board has dedicated inputs for, Baro pressure 4...20 mA or 0...5 Volt = 800...1100 Mbar

Solar radiation 0...25 mV = 0...1000 W/sqm

Temperature -500mV...+1500mV = -50...+150 deg.C

Humidity 0...1 Volt = 0...100% Wind direction (potmeter)
0...2.5 Volt = 0...359 deg.

In addition there are three 4...20 mA inputs. If necessary all inputs can be configured as 4...20 mA inputs. The inputs are passive and the current is converted over a 125 ohm resistor into a voltage signal. The board has 6 analogue outputs. An analogue output can be coupled to one of the inputs digital or analogue. The output of every channel can be set in the software. The output voltage can be set for all channels with jumpers to 0...1 volt or 0...10 volt. The D/A converter used is a 12 bits converter.

Specifications analogue in/output board

Input signal : 8 x analogue in 4...20 mA or
0...10 Volt

Output signal: 6 x analogue out 0...1 Volt or
0...10 Volt

Output load : 5 Kohm (0...10V) 1Kohm
(0...1V)

Accuracy : better than 0.15% full scale at 1
volt range