

II.5 ELECTRICAL INTERFACE

II.5.1 DESCRIPTION OF THE FRONT PANEL

All OCTANS inputs/outputs are made via one sealed connector located on the OCTANS front panel. A 16-pin SUBCONN connector, reference MCBH16M is delivered as a standard. A 13-pin Burton connector can also be mounted as an option. The top panel of the OCTANS unit holding the connector is shown in Figure II-4.



Figure II-4 : OCTANS Subsea 6000 front panel

II.5.2 LISTING OF INTERFACES

Electrical interfaces available for OCTANS Subsea 6000 depend on the connector type and are listed in Table II-1.

These interfaces can be user configured through the Installation and Repeater Software installed on a PC connected to OCTANS. Refer to Part 3 of OCTANS User Guide for detail.

Interface	Subconn 16 pin connector (standard)	Burton 13 pins connector (optional)
Power Supply	20 to 30 V DC, 24 V nominal	
Repeater and configuration port	RS 232 level	
Analogue Outputs	4, user configurable	1, user configurable
Serial Input	1, user configurable RS 232/422	1 user configurable RS 232/422
Serial Output	1, user configurable RS 232/422	1 user configurable RS 232/422 1 user-configurable RS 232 only

Table II-1 : list of electrical interfaces available on OCTANS Subsea model

II.5.3 SUBCONN 16 PINS CONNECTOR (STANDARD)

The pin assignment on the Subconn connector is described in Table II-2.

Pin	Signal	Pin	Signal
1	VDC (20 V to 30 V)	9	AnaOutCSig
2	GROUND	10	SerGnd
3	SerOutAV+/232	11	AnaOutDSig
4	SerOutAV-	12	ConfigIn-
5	SerInAV+232/SerInAV-422	13	AnaOutBSig
6	SerInAGND232/SerInAV+422	14	ConfigIn+
7	AnaOutASig	15	ConfigOutV+
8	AnaOutGnd	16	ConfigOutGnd

Table II-2 : pin assignment for Subconn connector

II.5.3.1 POWER SUPPLY : PINS 1 AND 2

OCTANS is powered with a standard 24 V DC supply. It is possible however to supply power with any voltage between 20 V and 30 V. Maximal power consumption is 12 W in all cases.

Wiring for power supply on the Subconn connector is detailed on Table II-3.

Pin	Signal
1	24 V DC (20 V to 30 V)
2	GROUND

Table II-3 : power supply pin assignment on Subconn connector

IMPORTANT:

- OCTANS does not possess an on/off switch. As soon as it is powered, it begins to seek geographical North. Any interruption of the power supply, even brief, will return the system to its initial condition and it will begin to seek North again.
- At powering, the power supply must have reached its operating voltage (20-30 V) in less than 100 ms.

II.5.3.2 CONFIGURATION AND MONITORING : PINS 12, 14, 15 AND 16

II.5.3.2.1 Communication between OCTANS and PC

Pins 12, 14, 15, 16 are used to link OCTANS Subsea directly to a PC serial port for monitoring and configuration purposes using iXRepeater Software. Refer to Part 3 of the OCTANS User Guide for detail on the software.

Table II-4 describes the connection between the OCTANS connector pins and the SUB D9 connector for connection to PC serial port.

OCTANS Subconn connector		PC SUB D9 connector	
Pin	Signal	Pin	Signal
16	ConfigOUT GND	5	PC GND
15	ConfigOUT +	2	PC Rx
12	ConfigIN -	5	PC GND
14	ConfigIN +	3	PC Tx

Table II-4 : Communication cable between OCTANS and PC

Note : pins 16 and 12 need to be connected to Pin 5 of DB9 for the communication to work properly.

II.5.3.2.2 Specifications for communication between OCTANS and PC

OCTANS can be connected to a PC for configuration, installation and display purposes. Data flows in and out in RS 232 format with the following characteristics :

- protocol used : OCTANS Standard (see the OCTANS library documentation for a description of OCTANS Standard data frame output)
- Baudrate : 19.2 kBauds
- Flow Control : Odd, 2 stop bits
- Refresh rate : 5 Hz (200 ms)

II.5.3.3 ANALOG OUTPUTS : PINS 8, 7, 9, 11 AND 13

Pin	Signal	Pin	Signal
7	AnaOutASig	8	AnaOutGnd
13	AnaOutBSig		
9	AnaOutCSig		
11	AnaOutDSig		

Table II-5 : Configuration of the analog outputs on Subconn connector

Four ± 10 V analog outputs are available on the Subconn connector for OCTANS Subsea. These outputs offer 14-bit resolution at 100 Hz and are identified by the signals AnaOut_Gnd and AnaOutXSig (X = A, B, C or D).

The analog outputs can be user configured (signal and scale factor). For more detail on configuration, refer to the Part 3 of the OCTANS user guide.

II.5.3.4 DIGITAL I/O

One user-configurable serial I/O is available on the Subconn connector and is referenced as Port A. This port is user configurable through the OCTANS repeater software (see Part 3 of OCTANS User Guide) in terms of output electrical level (RS 232 or 422), parity, stopbits, baudrate, output frequency (up to 100 Hz) and protocol interface. The following sections provide the wiring for the 2 electrical levels RS232 and RS422.

II.5.3.4.1 Pin Assignment in RS232 Format

Assignment of the Subconn connector pins for the digital I/O port A with RS232 electrical level is reported in Table II-6.

RS 232	Ground	Signal +
Input A	pin 6 (SerInAGND232)	pin 5 (SerInAV+)
Output A	pin 10 (SerGND)	pin 3 (SerOutAV+)

Table II-6 - pin assignment for the Subconn digital I/O in RS232 format

RS232 input signal should provide a voltage higher than 4 V when loaded.

RS232 output signal is ± 9 V level unloaded.

Notes :

- It is possible to connect SerGND and SerInAGND232 to allow for the use of one single SubD9 connector
- SerGND, ConfigOutGND and AnaOutGND are internally connected.

II.5.3.4.2 Pin Assignment in RS422 format

Assignment of the Subconn connector pins for the digital I/O with RS422 electrical level is reported in Table II-7.

RS 422	Ground	Signal +	Signal -
Input A	pin 10 (SerGND)	pin 6 (SerInAV+422)	Pin 5 (SerInAV-422)
Output A	pin 10 (SerGND)	pin 3 (SerOutAV+)	Pin 4 (SerOutAV-)

Table II-7 - pin assignment for the Subconn digital I/O in RS 422 format

RS422 input signal should provide at least 4 V differential voltage when loaded.

RS422 output signal provides 5 V differential voltage unloaded.

II.5.4 BURTON 13 PINS CONNECTOR (OPTIONAL)

The Burton connector pin assignment is described in Table II-8.

Pin	Signal	Pin	Signal
1	VDC (19 V to 35 V)	8	AnaOutGND
2	GROUND	9	SerOutBV+
3	SerOutAV+	10	SerGND
4	SerOutAV-	11	ConfigOutV+
5	SerInAV+232/V-422	12	ConfigInV-
6	SerInAGND232/V+422	13	ConfigInV+
7	AnaOutASig		

Table II-8 : pin assignment for Burton connector

II.5.4.1 POWER SUPPLY : PINS 1 AND 2

OCTANS is powered with a standard 24 V DC supply. It is possible however to supply power with any voltage between 20 V and 30 V. Maximal power consumption is 12 W in all cases.

Wiring for power supply is detailed on Table II-9.

Pin	Signal
1	24 V DC (20 V to 30 V)
2	GROUND

Table II-9 : power supply pin assignment on Burton connector

IMPORTANT : OCTANS does not possess an on/off switch. As soon as it is powered, it begins to seek geographical North. Any interruption of the power supply, even brief, will return the system to its initial condition and it will begin to seek North again. The alignment phase will start over.

II.5.4.2 CONFIGURATION AND MONITORING

II.5.4.2.1 Communication between OCTANS and PC

Pins 10, 11, 12, 13 are used to link OCTANS Subsea directly to a PC serial port for monitoring and configuration purposes using iXRepeater Software. Refer to Part 3 of the OCTANS User Guide for detail on the software.

Table II-10 describes the connection between the Burton connector pins and the SUB D9 connector.

OCTANS Burton connector		PC SUB D9 connector	
Pin	Signal	Pin	Signal
10	SerGND	5	PC GND
11	ConfigOUT +	2	PC Rx
12	ConfigIN-	5	PC GND
13	ConfigIN +	3	PC Tx

Table II-10 : Communication cable between OCTANS and PC

Note : pins 10 and 12 have to be connected to pin 5 of DB9 for proper communication.

II.5.4.2.2 Specifications for communication between OCTANS and PC

OCTANS can be connected to a PC for configuration, installation and display purposes. Data flows in and out in RS 232 format with the following characteristics :

- protocol used : OCTANS Standard (see the OCTANS library documentation for a description of OCTANS Standard data frame output)
- Baudrate : 19.2 kBauds
- Flow Control : Odd, 2 stop bits
- Refresh rate : 5 Hz (200 ms)

II.5.4.3 ANALOG OUTPUT : PINS 7 AND 8

Pin	Signal	Pin	Signal
7	AnaOutASig	8	AnaOutGnd

Table II-11 : Configuration of the analog output on Burton connector

The ± 10 V analog output offers 14-bit resolution at 100 Hz. It can be user configured (signal and scale factor). For more detail on configuration, refer to Part 3 of the OCTANS user guide.

II.5.4.4 DIGITAL I/O

One user-configurable serial I/O is available on the Burton connector. It is referenced as port A. One additional user-configurable RS232 is also available, and is referenced as port B. On port B, the electrical level has to be set to RS232. Serial ports A and B are user-configured through the OCTANS Repeater software (see Part 3 of OCTANS User Guide).

II.5.4.4.1 RS232 Input (Port A) / Outputs (Port A and Port B)

Assignment of the Burton connector pins for the digital I/O with RS232 electrical level is reported in Table II-12.

RS 232	Ground	Signal +
Input A	pin 6 (SerInAGND232)	pin 5 (SerInAV+232)
Output A	pin 10 (SerGND)	pin 3 (SerOutAV+)
Output B	pin 10 (SerGND)	pin 9 (SerOutBV+)

Table II-12 - pin assignment for the Burton digital I/Os in RS232 format

RS232 input signal should provide a voltage higher than 4 V when loaded.

RS232 output signal is ± 9 V level unloaded.

Notes :

- It is possible to connect SerGND and SerInAGND232 to allow for the use of one single SubD9 connector on port A
- SerGND and AnaOutGND are internally connected.

II.5.4.4.2 RS422 Input (Port A)/ Output (Port A only)

Assignment of the Burton connector pins for the digital I/O on port A with RS422 electrical level is reported in Table II-13.

RS 422	Ground	Signal +	Signal -
Input A	pin 10 (SerGND)	pin 6 (SerInAV+422)	Pin 5 (SerInAV-422)
Output A	pin 10 (SerGND)	pin 3 (SerOutAV+)	Pin 4 (SerOutAV-)

Table II-13 - pin assignment for the Burton digital I/O in RS 422 format

RS422 input signal should provide at least 4 V differential voltage when loaded.

RS422 output signal provides 5 V differential voltage unloaded.