

Programme 8, projet 8

Observatoires fond de mer pluridisciplinaires



NEPTUNE CANADA : PIEZOMETER test procedure

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|---------------------------|---------------------|------------------------|----------------------------|---------------|
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|---------------------------|---------------------|------------------------|----------------------------|---------------|

Diffusion :

| IFREMER | NEPTUNE CANADA |
|------------------------|---|
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Diffusion :

confidentielle

restreinte

libre

DOCUMENT VERSIONS

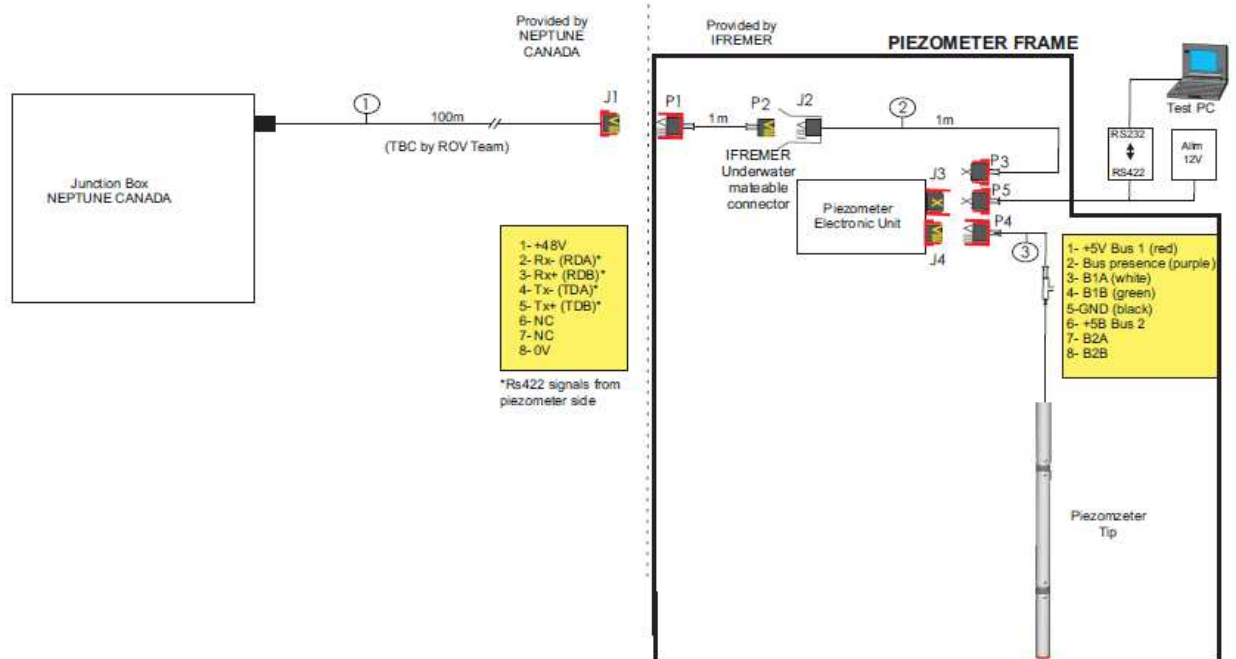
| Version | Date | Description | Reference secretariat |
|---------|------------|-------------------|-----------------------|
| A | 03/05/2011 | Document creation | RDT/EIM/11-12 |
| B | 05/05/2011 | §3 modification | RDT/EIM/11-12 |
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SUMMARY

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The piezometer is shipped in different parts :

- The electronic housing,
- The cable 2 from the housing to the C/DC,
- The cable from the C/DC to your cable (1),
- The sensors,
- The cable from the housing to the first sensor,
- The other cables between each sensors.



CONNECTORS

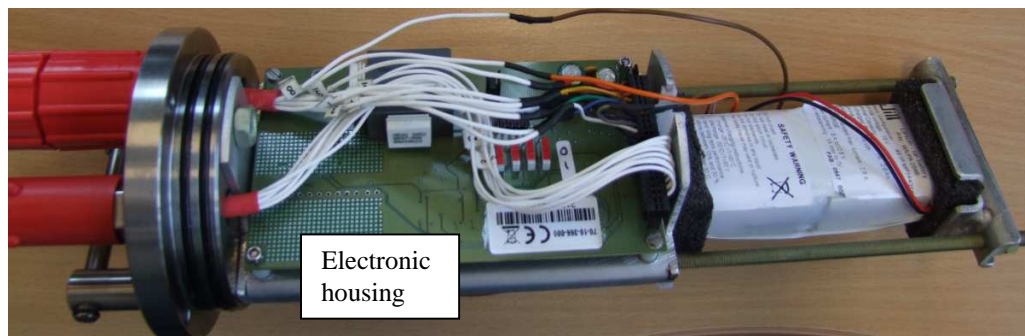
| |
|--|
| J1 - SUBCONN MCPBOF8F or MCIL8F + MCDLSM |
| J2 - SUBCONN MCBH8M |
| J3 - SUBCONN MCBH10FTI + MCDLSF |
| P3 - SUBCONN MCPBOF10M + MCDLSM |
| J4 - SUBCONN MCBH8FTI + MCDLSM |
| P4 - SUBCONN MCPBOF8M + MCDLSF |
| P5 - SUBCONN MCPBOF10M + MCDLSM |

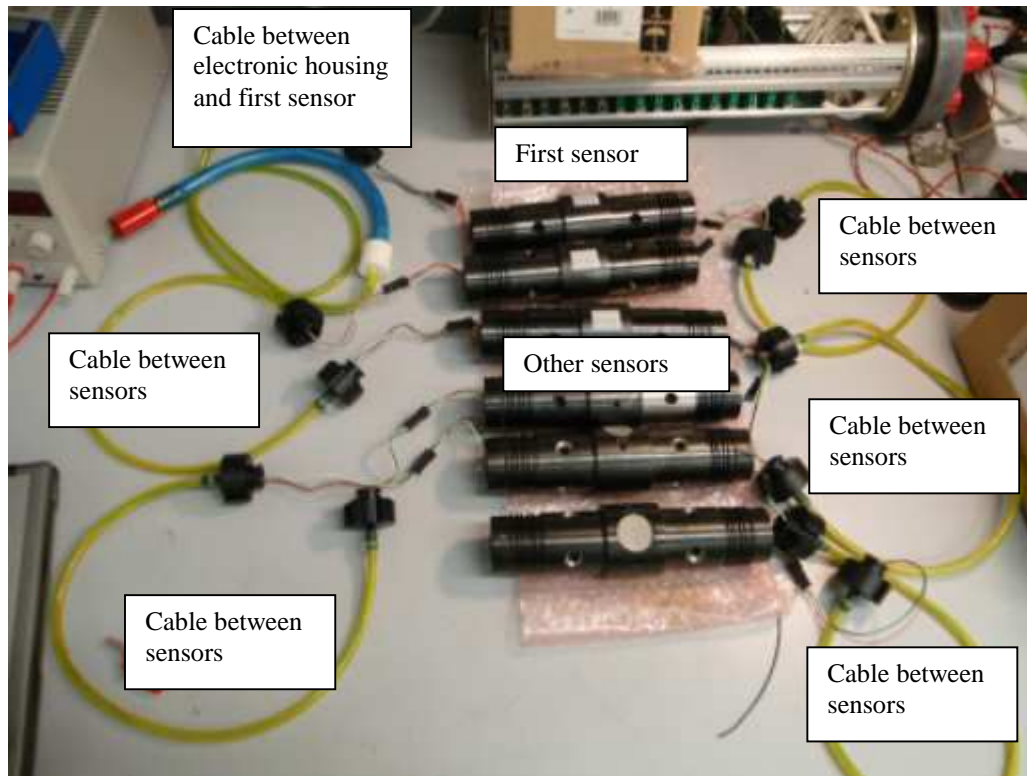
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|--|--|-------------------------|--|-------------------------------------|--|------------------------|--|------|--|
| Ifremer | | Indice: | | modifications: | | date: | | par: | |
| INSTITUT FRANÇAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER | | dir. A. Ferant | | ENSEMBLE: Piezometer NEPTUNE Canada | | | | | |
| 54 rue de la Mer - 91000 Evry - France | | Dessiné par: J. Legrand | | Date: janv 2010 | | TITRE: Synoptic wiring | | | |
| N° Annuaire: 01 69 22 42 42 | | Materiel: | | Format: A3 | | Echelle: | | 1 | |

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1 - Sensors connection

You have to connect the first sensor (the only sensor with a 6 pins microfit connector) to the electronic housing, using the cable 3 (Subconn micro male 8 pins to microfit 6 pins). (blue cable on the picture below).





Then you can connect the other side of the first sensor to the second one with a yellow cable (Microfit 4 pins to microfit 4 pins).

Repeat the same operation for the other sensors. The last sensor is not connected on one side.

2 - Connection to your Network

Connect the electronic housing to the C/DC using the cable 2 (Subconn micro male 10 pins to C/DC),

Connect the 1m extension cable (P1 to P2, special Subconn micro female 8 pins to Subconn 8 pins male) to your 100m cable (1).

You are now ready to connect the Piezometer on NEPTUNE network via a RS485/Ethernet converter and test it with the driver developed by Tim.

3 – Piezometer configuration with terminal

After powered up, the piezometer has to be configured to run in automatic mode and allow data retrieve from your driver.

A series of command has to be sent to the piezometer. This can be done with a terminal or with the piezometer HMI “WinPIEZO2.0” (See chapter 4)

For a better comprehension, 2 different colours are used to detail the frames sent to the piezometer (**blue**) and the frame received from the piezometer (**green**).

3.1 –Clock synchronisation

Send the command `<NULL><NULL>man_sync= aa/mm/jj hh:mm:ss<CR><LF>`

The piezometer answers :

#manual synchronization of the date : aa/mm/jj hh:mm:ss<CR><LF>

3.2 - Detect sensors connected to MDS

Send the command `<NULL><NULL>detect<CR><LF>`

The piezometer answers :

```
#bus 1 detection ...  
#bus 1 listing :  
#bus 1 detection in progress...  
#bus 1 listing  
B1;N01;MPT Keller;SN 00002  
B1;N02;MPT Keller;SN 00015  
B1;N03;MPT Keller;SN 00035  
B1;N04;MPT Keller;SN 00037  
B1;N05;MPT Keller;SN 00038  
#end of bus 1 listing<CR><LF>
```

3.3 - Edit experiment

Send the command `<NULL><NULL>experiment=NEPTUNE<CR><LF>`

The piezometer answers :

```
#experiment: NEPTUNE<CR><LF>
```

3.4- Edit deployment

Send the command `<NULL><NULL>deployment=ODP1027<CR><LF>`
`deployment=ODP1027<CR>”`

The piezometer answers :

```
#deployment: ODP1027<CR><LF>
```

3.5- Edit sample period

Send the command `<NULL><NULL>sample=5<CR><LF>`

The piezometer answers :

```
#sampling interval: 5s<CR><LF>
```

3.6- Edit start date

Send the command `<NULL><NULL>dt_start=aa/mm/jj hh:mm:ss<CR><LF>`

The piezometer answers :

```
#the start date is set to: aa/mm/jj hh:mm:ss<CR><LF>
```

3.7- Edit stop date

Send the command `<NULL><NULL>dt_stop=aa/mm/jj hh:mm:ss<CR><LF>`

The piezometer answers :

```
#the stop date is set to: aa/mm/jj hh:mm:ss<CR><LF>
```

3.8- Edit Settings

You can check the different parameters set with the command

`<NULL><NULL>settings<CR><LF>`

The piezometer answers :

```
#experiment : NEPTUNE
# deployment : ODP1027
#maximum size for data file: 1024 Ko
#sampling interval for supply voltage : 30mn
#sampling interval for tilt angle : 30mn
#sampling interval : 5s
#dt_start : 07/01/01 00:00:00
#dt_stop : 07/01/15 23:59:59<CR><LF>
```

3.9 - Start Record

The piezometer is now ready to start record
 Send the command <NULL><NULL>rec<CR><LF>
 The piezometer answers :
 #recording starting<CR><LF>

3.10 – Data retrieve

Once the piezometer is configured, the protocol to retrieve data is the following (commands implemented in the NEPTUNE driver written by Tim).

The following command allows to retrieve all data stored in the piezometer memory. This command should be used only the first time when the driver starts :

```
<NULL><NULL>data=1;n<CR><LF> retrieve all the measurements
```

After a few seconds, the piezometer answers :

```
#all data<CR><LF>
YYMMDDHHMMSS<CR><LF>
B1;N01;P1;D1;Q1;C1<CR><LF>
B1;N02;P2;D2;Q2;C2<CR><LF>
B1;N03;P3;D3;Q3;C3<CR><LF>
B1;N04;P4;D4;Q4;C4<CR><LF>
B1;N05;P5;D5;Q5;C5<CR><LF>
B1;N06;P6;D6;Q6;C6<CR><LF>
.....
#end of data, CHK: xxxxxxxxxxxx<CR><LF>
```

} n times (1 per measurement)

Where

YYMMDDHHMMSS is the Date & Time ,
 B1 is the bus number (Always B1 for NEPTUNE CANADA deployment),
 N01 to N06 are the sensor number (see table),
 P is the physical temperature value from the sensor (in °C),
 D is the raw temperature value from the sensor,
 Q is the physical pressure value from the sensor (in kPa),
 C is the raw pressure value from the sensor.

NB:

P and Q have the following format : +/-XXX.YYY
 D and C have the following format : +/-XXXXX

After that, periodically (period to be defined), the following command allows to retrieve only the last measurements which have not been retrieved yet :

<NULL><NULL>data=1;y<CR><LF>

retrieve last measurements

The response format is the same that for the “data=1;n” command.

Example :

<NUL><NUL>data=1;y<CR>

Last Data recovery command

#all data<CR><LF>

Response from the piezometer

100225095818 <CR><LF>

B1;N01;+015.977;27112;+000.743;30191<CR><LF>

B1;N02;+016.426;26531;+002.904;31729<CR><LF>

B1;N03;+016.085;27078;+002.199;31243<CR><LF>

B1;N04;+016.226;26856;+001.015;32170<CR><LF>

B1;N05;+016.388;26701;+000.676;32988<CR><LF>

B1;N06;+016.278;26799;+000.404;33017<CR><LF>

100225095848 <CR><LF>

B1;N01;+015.987;27100;+000.743;30191<CR><LF>

B1;N02;+016.430;26525;+002.904;31729<CR><LF>

B1;N03;+016.088;27074;+002.199;31243<CR><LF>

B1;N04;+016.230;26851;+001.015;32170<CR><LF>

B1;N05;+016.389;26700;+000.676;32988<CR><LF>

B1;N06;+016.283;26794;+000.404;33017<CR><LF>

100225095918 <CR><LF>

B1;N01;+015.994;27091;+000.743;30191<CR><LF>

B1;N02;+016.434;26521;+002.894;31728<CR><LF>

B1;N03;+016.092;27069;+002.207;31244<CR><LF>

B1;N04;+016.234;26847;+001.015;32170<CR><LF>

B1;N05;+016.394;26693;+000.676;32988<CR><LF>

B1;N06;+016.285;26791;+000.404;33017<CR><LF>

#end of data, CHK: 0000036557<CR><LF>

\$

Wake-up problem :






If the piezometer does not answer to a command or send the following error frame :



*Error: wrong char<CR><LF>

Please wait 1 second and send again the command, this can be the result of a wake-up problem.

4 – Piezometer configuration with WINPiezo software

The different commands described in chapter 3 can be sent with the WINPiezo2.0 software.

- Launch the software by clicking the WINPiezo2.0.exe ,
- Click on Settings and choose the port number and the baud rate (115200) ,
- Connect to the MDS ,
- Synchronise the clock ,
- Detect the sensors ,

- Configure the parameters 
- Start the recording 
-

If you want to stop the recording, use 