

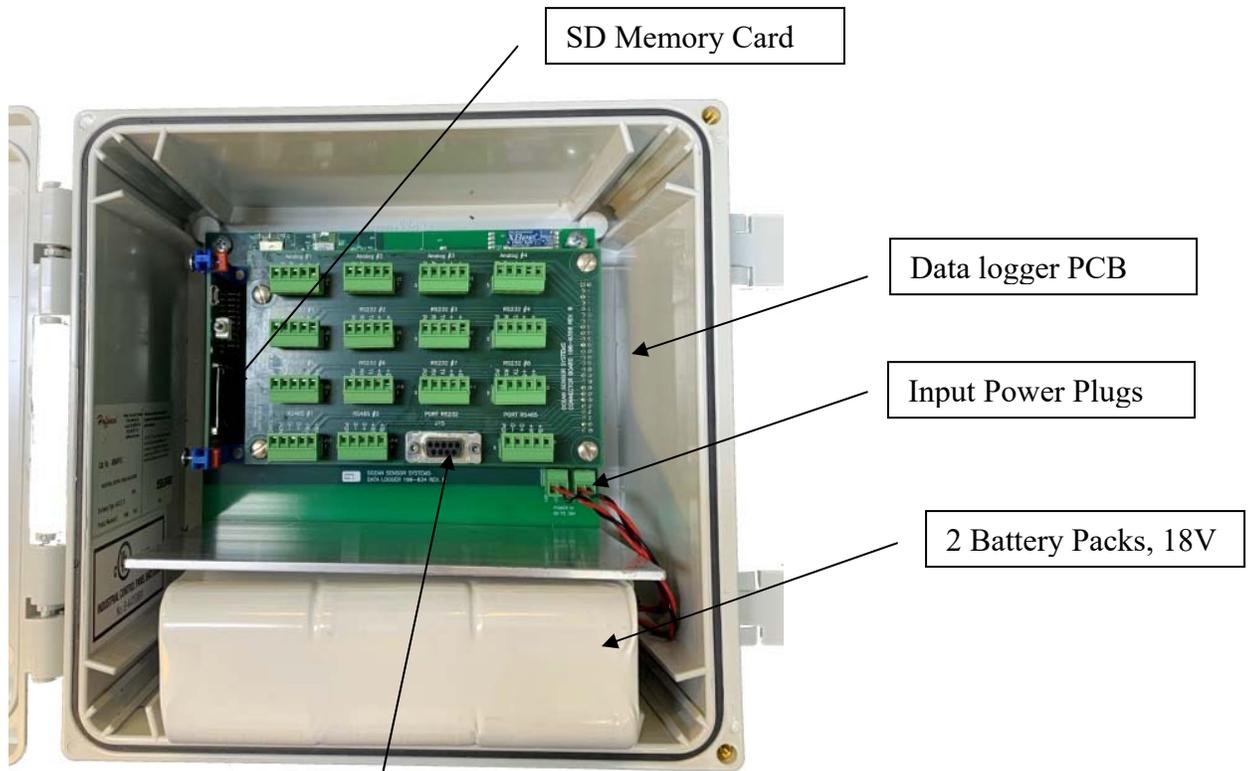


# OSSI-012-015 Data Logger User Manual

**Introduction:** The OSSI-012-015 Data Logger is designed to take synchronous samples from our wired and wireless sensors. It can also log Analog Voltages and Generic Serial Data. Synchronized Sampled Data is time tagged and stored on a SD memory card. The Memory Card is easily removed and can be read on any PC using a standard SD Memory Card Reader. The data may then be displayed and analyzed with the new version 3 OSSI Interface Program. Sample Data may also be streamed out to a PC using the RS232 port, Rs485 port, Bluetooth or the optional 1-watt RF modem.

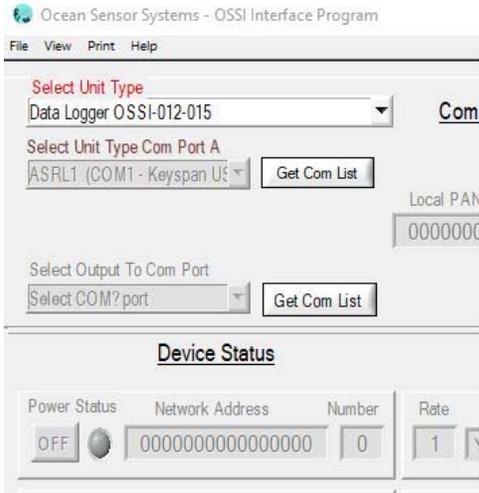
Please see the data sheet available on our web site at [www.oceansensorsystems.com](http://www.oceansensorsystems.com) for additional detailed information.

## Data Logger

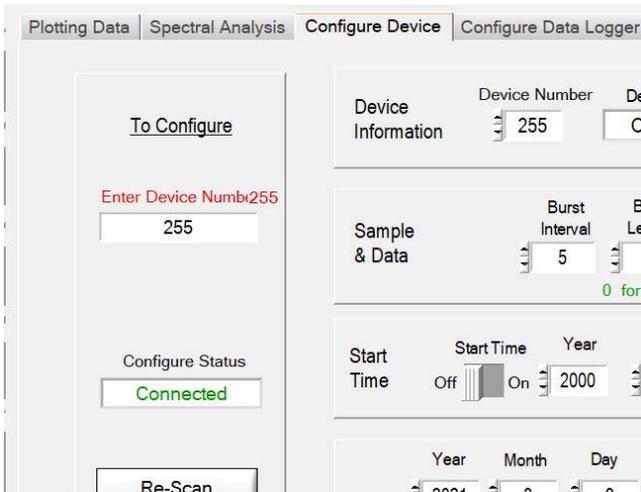


1. *Install the USB to Serial adapter here.*

2. Download, from our web site, the OSSI Interface Program V3.0 and install it on a PC.
3. Connect the USB adapter to the PC and run the OSSI Interface Program.
4. Apply power to the Data Logger.
5. Set the Unit Type to Data Logger OSSI-012-015 and the Com Port A to the port with the USB adapter.



6. On the Configure Device Tab enter Device Number 255.



7. The Data Logger's Configuration should now be displayed on the 3 configure tabs.

## Connecting to the Data Logger's Sensor Input Ports:

### RS232 Sensor Input #1 to #8:

Used for Wave Staffs, Wave Staff IIIs, Wave Staff Synchronizers, Wave Staff RV-2s, Sonic Wave Sensor RV-2s and Generic RS232 Serial Data.

Wiring, J5 to J12:

Pin 1 B+ Source from Battery input voltage and current limited with 1 amp. fuse.

Pin 2 +6V with 3 amp. Current limiting.

Pin 3 TX RS232 Transmit output to sensor.

Pin 4 RX RS232 Receive input from sensor.

Pin 5 PGND Power ground (0 volt).

Typical Wiring example, Wave Staff to RS232 port:

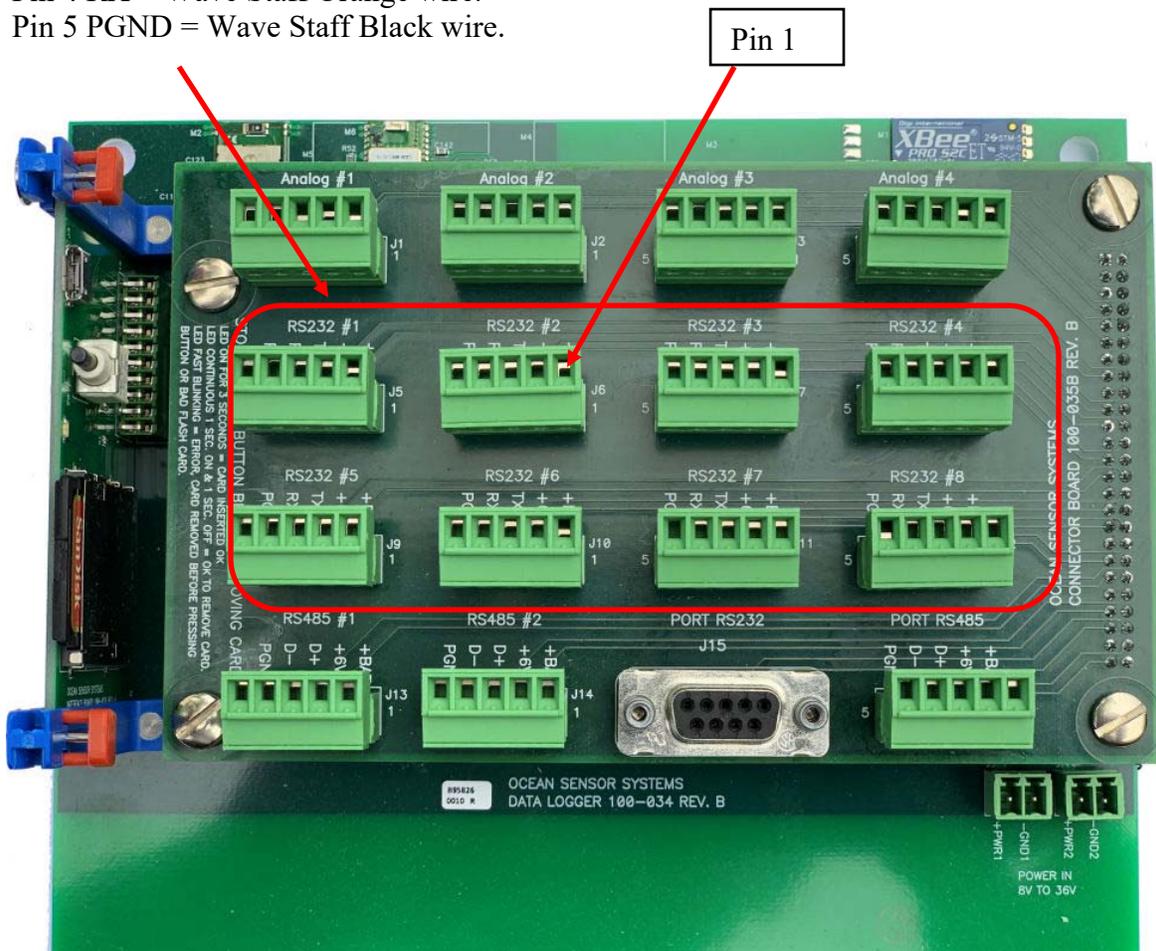
Pin 1 B+ = no connection

Pin 2 +6V = Wave Staff Red wire.

Pin 3 TX = Wave Staff Green wire.

Pin 4 RX = Wave Staff Orange wire.

Pin 5 PGND = Wave Staff Black wire.



**RS232 Sensor Input #1 to #8:**

Device numbers are automatically assigned to data.

Wave Staffs, Wave Staff IIIs, Wave Staff RVs, Sonic Wave Sensor RV and Generic Serial Data:

RS232 #1 = Device #100

RS232 #2 = Device #106

RS232 #3 = Device #112

RS232 #4 = Device #118

RS232 #5 = Device #124

RS232 #6 = Device #130

RS232 #7 = Device #136

RS232 #8 = Device #142

Wave Staff Synchronizers:

RS232 #1 = Device #100, #101, #102, #103, #104, and #105

RS232 #2 = Device #106, #107, #108, #109, #110, and #111

RS232 #3 = Device #112, #113, #114, #115, #116, and #117

RS232 #4 = Device #118, #119, #120, #121, #122, and #123

RS232 #5 = Device #124, #125, #126, #127, #128, and #129

RS232 #6 = Device #130, #131, #132, #133, #134, and #135

RS232 #7 = Device #136, #137, #138, #139, #140, and #141

RS232 #8 = Device #142, #143, #144, #145, #146, and #147

### Analog Input #1 to #4:

Programable ranges +/-10.24V to +/-0.64V and 10.24V to 1.28V

Wiring, J1 to J4:

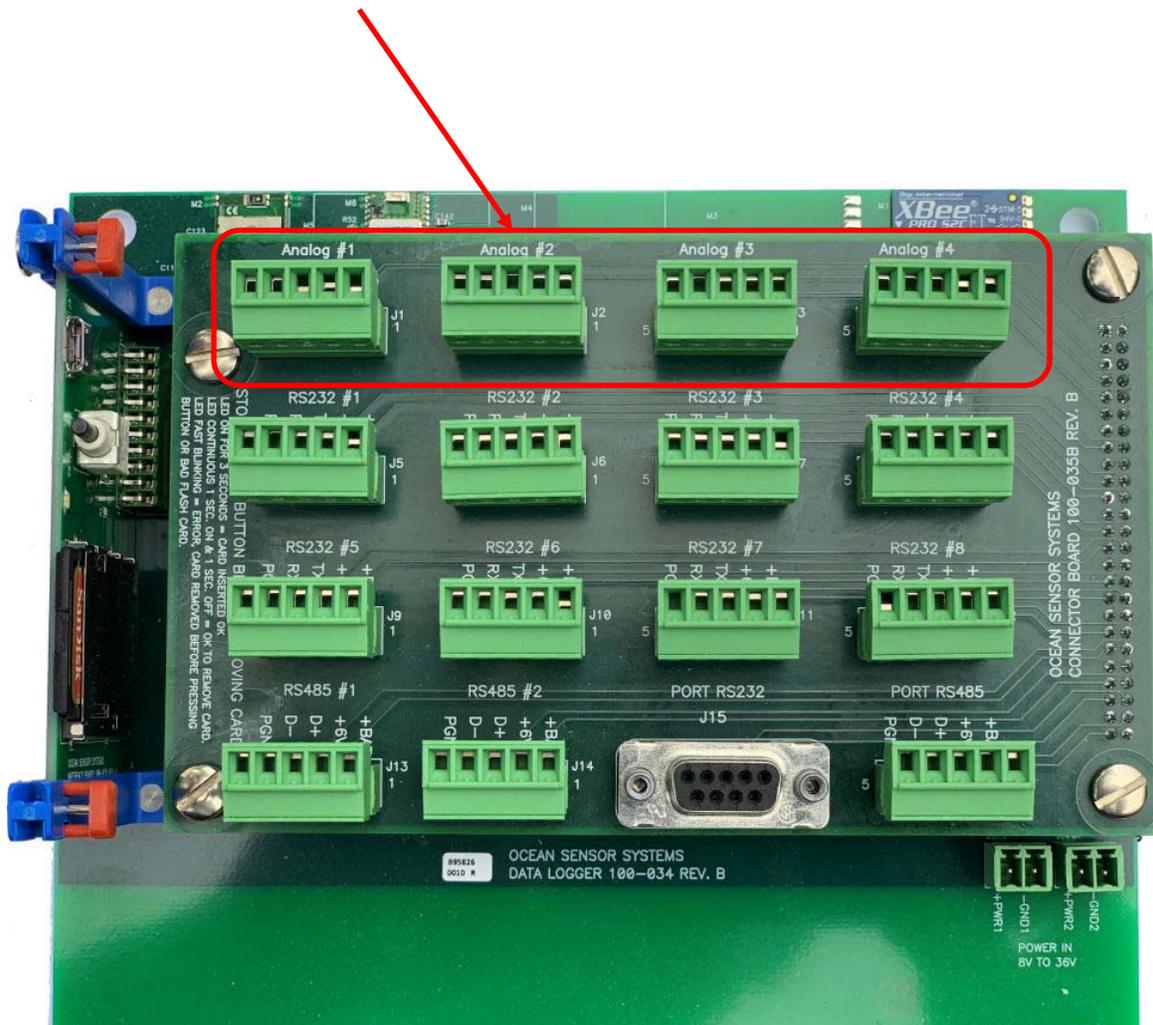
Pin 1 B+ Source from Battery input voltage and current limited with 1 amp. fuse.

Pin 2 +6V with 3 amp. Current limiting.

Pin 3 +ANA is the + Analog input

Pin 4 AGND is the Analog Common input, 0 volts.

Pin 5 PGND is the Power Ground.



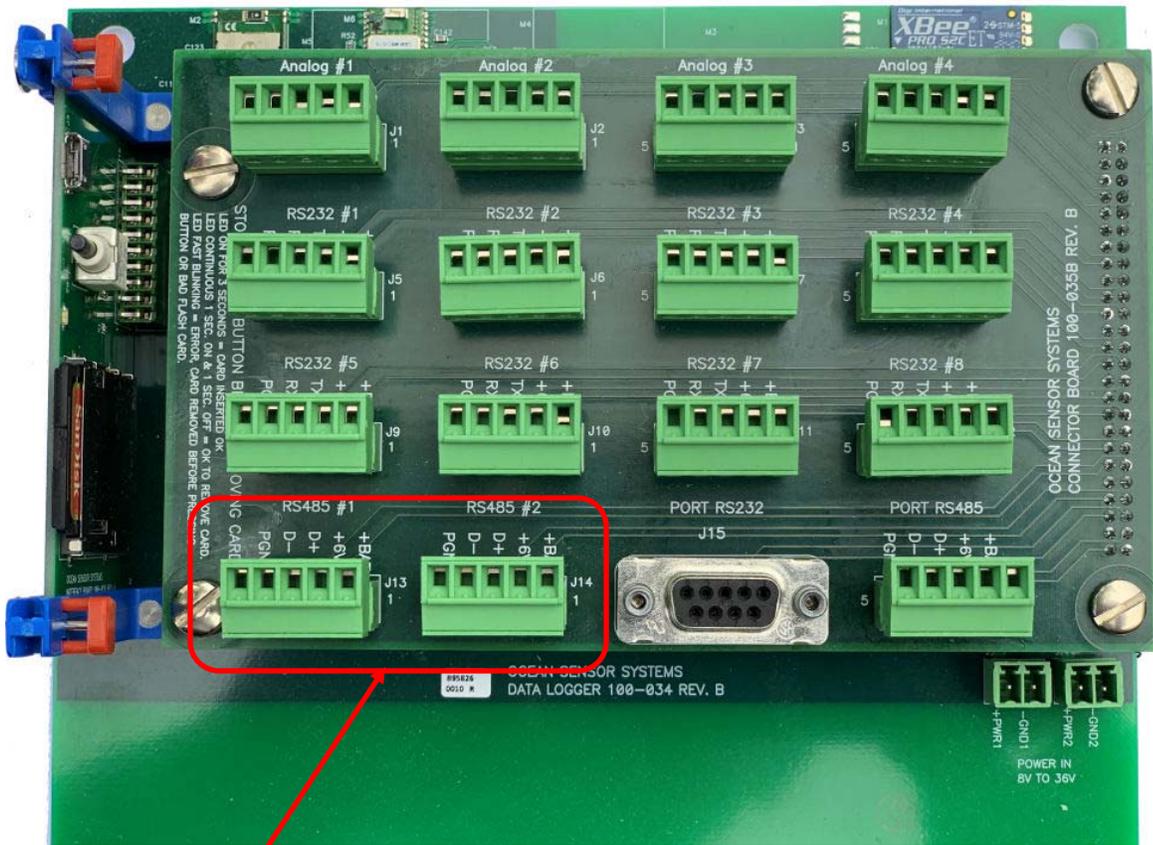
Device numbers are automatically assigned to data.

Analog #1 = Device #201

Analog #2 = Device #202

Analog #3 = Device #203

Analog #4 = Device #204



### RS485 Sensor Input #1 to #2:

Auto Connect to Wave Staff RVs and Sonic Wave Sensor RVs.

Wiring, J13 to J14:

Pin 1 B+ Source from Battery input voltage and current limited with 1 amp. fuse.

Pin 2 +6V with 3 amp. Current limiting.

Pin 3 D+ RS485 + Transceiver line

Pin 4 D- RS485 - Transceiver line

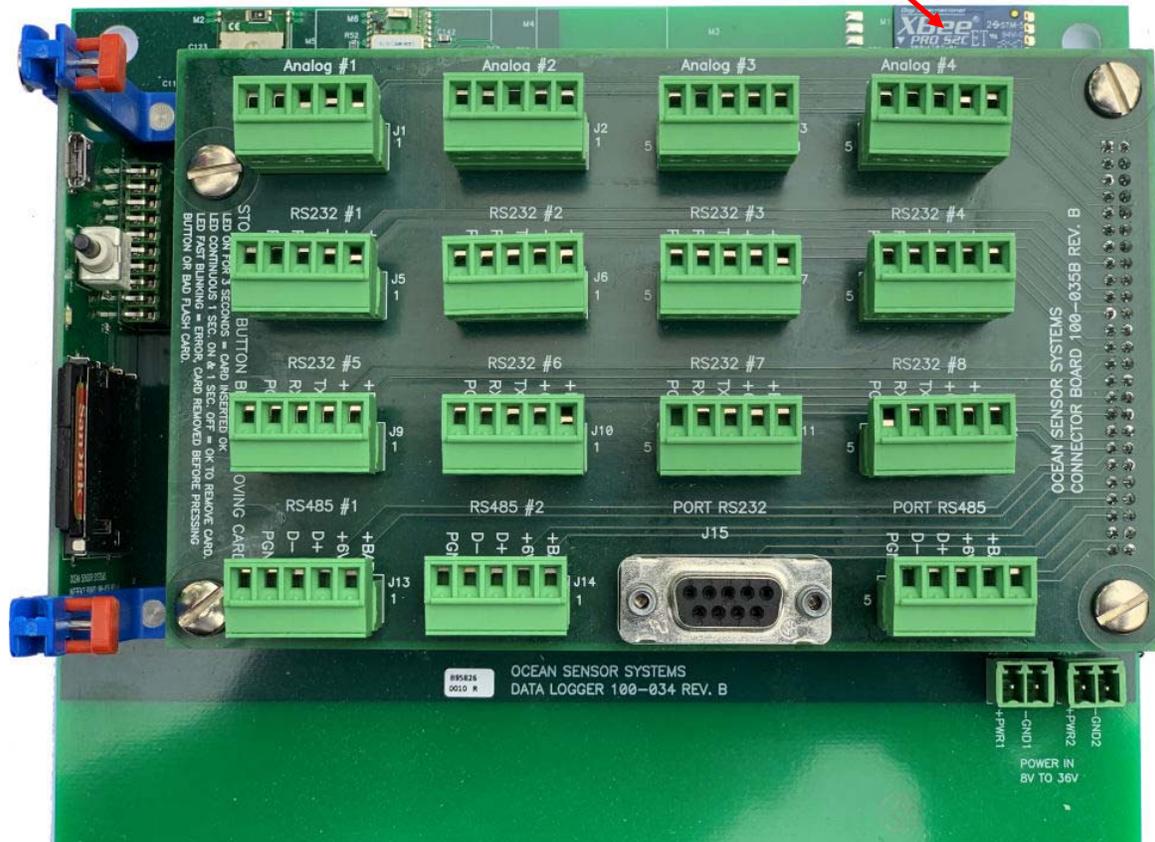
Pin 5 PGND Power ground (0 volt)

Device number must be preset from 1 to 99 by connecting the device separately to the OSSI Interface Program.

**XBee/XBee Pro Wireless Sensor Input:**

Auto connect to Wave Staff XBs and Sonic Wave Sensors with same PAN ID. Device number must be preset from 1 to 99 by connecting the device separately to the OSSI Interface Program.

XBee Transceiver



8. Select the Configure Data Logger tab and set up the sensor port types etc.

Example sensor port configuration:

The screenshot shows the 'Configure Data Logger' interface with the following configurations:

- Group 1 Inputs (Sample Rate: 32 Hz):**
  - RS232 #1 Type (Device # 100): Wave Staff OSSI-010-002-
  - RS232 #2 Type (Device # 106): None
  - RS232 #3 Type (Device # 112): None
  - RS232 #4 Port (Device # 118): None
- Group 2 Inputs (Sample Rate: 8 Hz):**
  - RS232 #5 Port (Device # 124): None
  - RS232 #6 Port (Device # 130): Generic (128 bytes per frame), Baud: 9600
  - RS232 #7 Port (Device # 136): Sonic Wave Sensor RV OSSI-010-036-2
  - RS232 #8 Port (Device # 142): Wave Staff Synchronizer OSSI-012-012

Device#	Staff Length Meters
145	1.0
146	2.0
147	1.5
- Group 3 Inputs (Sample Rate: 16 Hz):**
  - RS485 #1 (Device# 1 to 99): Sonic Wave Sensor RV OSSI-010-036-1 or -3
  - RS485 #2 (Device# 1 to 99): Sonic Wave Sensor RV OSSI-010-036-1 or -3
  - Wireless XBee (Device# 1 to 99): Wave Staff XB OSSI-010-025, Sonic Wave Sensor XB OSSI-010-035, XBee Power: Off
  - XB PAN ID: 0000000011111111

*The Device numbers must be preset by connecting the unit separately to the Staff & Sonic Products Interface program.*
- Group 4 Inputs (Sample Rate: 32 Hz):**
  - Analog # 1 (Device #201): ±5.12 Volt Input Range
  - Analog # 2 (Device #202): Power Down
  - Analog # 3 (Device #203): Power Down
  - Analog # 4 (Device #204): ±10.24 Volt Input Range
- Streaming Data Out:**
  - RS232: Off
  - XBee 1 Watt: Off
  - Bluetooth: Off
  - RS485: Off

*Set off to save battery life*

9. On the Streaming Data Out section switch on the serial port connected to the PC.

This close-up shows the 'Streaming Data Out' section where the RS232 switch is now turned 'On', while XBee 1 Watt, Bluetooth, and RS485 remain 'Off'.

10. The Streaming output will now be displayed on the Monitoring section.

Example Output Monitoring:

Device Status				Output Data Monitoring				
Power Status	Network Address	Number	Rate	Date and Time	Offset mSec	Data meters	ZeroAbs	
ON	0551170511010000	12	16	2021-03-10T17:50:46	2000	-1.06473	Abs	
ON	0551170511010000	100	32	2021-03-10T17:50:49	1000	00.00000	Abs	
ON	0551170511010000	136	8	2021-03-10T17:50:44	4000	99.99990	Abs	
ON	0551170511010000	142	8	2021-03-10T17:50:44	4000	00.00000	Abs	
ON	0551170511010000	143	8	2021-03-10T17:50:44	4000	00.00000	Abs	
ON	0551170511010000	144	8	2021-03-10T17:50:44	4000	00.00000	Abs	
ON	0551170511010000	145	8	2021-03-10T17:50:44	4000	00.00000	Abs	
ON	0551170511010000	146	8	2021-03-10T17:50:44	4000	00.00000	Abs	

Display Lines 1-8-

The streaming sensor data may now be plotted and analyzed etc.

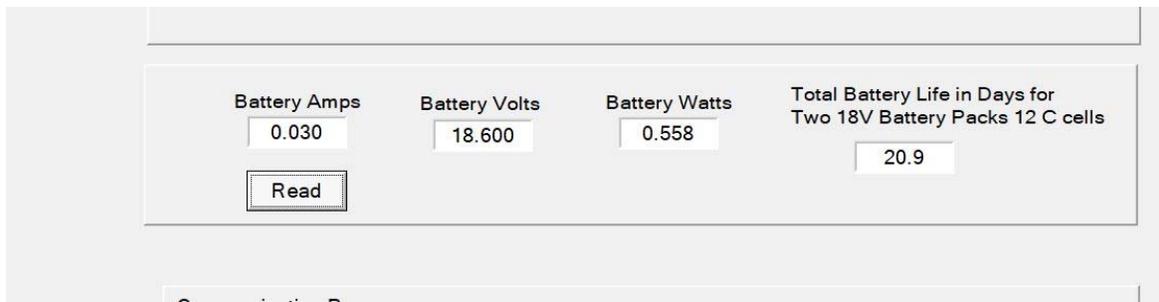
## Operating Power:

The operating power may be read with the following steps.

11. *Select the Configure Data Logger Cont. tab.*
12. *Enter 255 again to update the voltage and Current values.*

The displayed battery life is based on two 18V 12C cell packs. Each pack has a typical capacity of 140 Whrs totaling 289 Whrs. Battery life hours (for continuous operation) = 280 / watts.

Example:



The screenshot shows a data logger interface with the following fields and values:

Battery Amps	Battery Volts	Battery Watts	Total Battery Life in Days for Two 18V Battery Packs 12 C cells
0.030	18.600	0.558	20.9

Below the fields is a "Read" button.

When only wireless XB sensors are used, the battery life is typical 45 days.

For longer operating days we recommend using an external power source like the following:

- Remote Power System OSSI-596-003:
- 2.5W Continuous Remote Power System.
- 10W integrated Solar Panel. Die Cast Aluminum Enclosure.
- 12V 9Ah Battery
- Tycon Systems RPDC12-9-10



The Data Logger power input voltage range is 8VDC to 36VDC. Either or both connectors may be used. They are Reverse Polarity Protection and Smart Diode Ored.

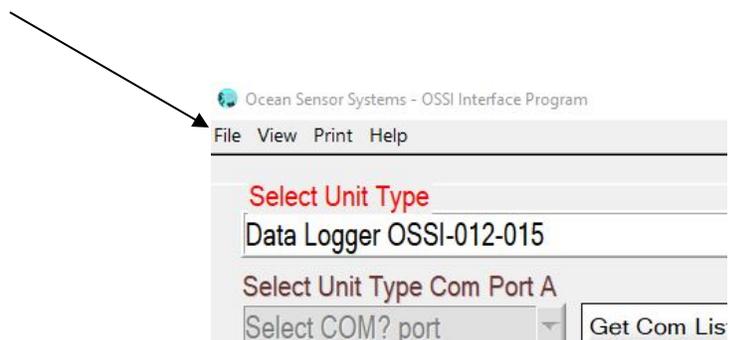
## Logging Sensor Data on the SD memory card.

Data may be logged on the SD memory card with or without streaming data out. Use the SD memory card supplied with the Data Logger or any other SDHC card. Insert the card in the SD Memory slot by pressing it down one time. To remove the card pressing it down again. Remember to always press the black button before removing the card. Below are the steps to log data with the memory card and the LED indications.

13. *Insert the SD memory card in the card slot and view the Red LED.*
  - Red LED lights for 3 seconds, all is OK. All sensor data will be stored on the card.
  - Red LED is fast blinking (3 times a seconds) an error has occurred, sensor data will not be stored on the card.
14. *When ready to remove the memory card always press the black button first to close the last open file.*
  - The Red LED will continuously blink 1 second on and 1 second. This indicates the card is ready to be removed. Now press the card down and release again to remove it. The blinking will stop when the card was removed.
  - If the Red LED is fast blinking (3 times a seconds) the card was removed before the black button was pressed.

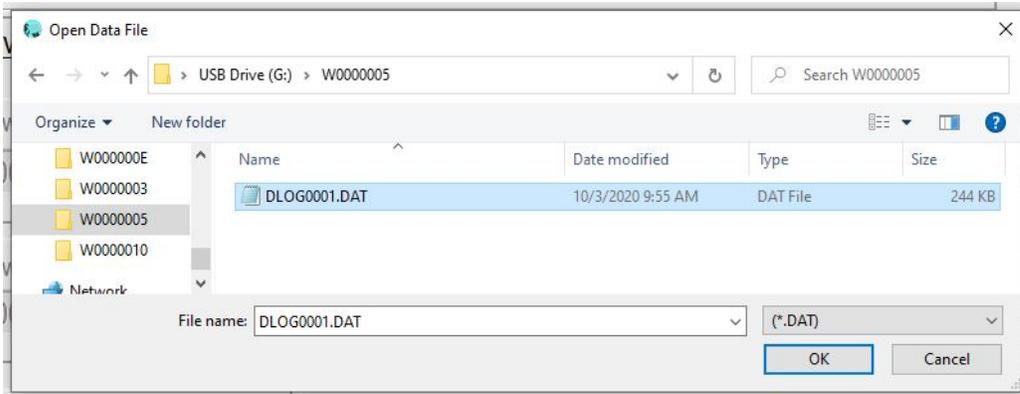
## Using the OSSI Interface program to view and analyze the SD memory card.

14. *Insert the SD memory card in a card reader connected to your PC.*
15. *With the OSSI Interface Program select File and Open File to Plot.*

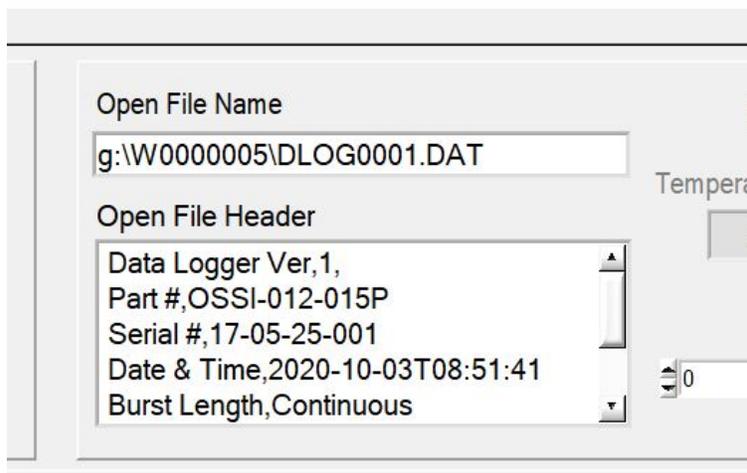


16. Change the file extension type to \*.DAT.

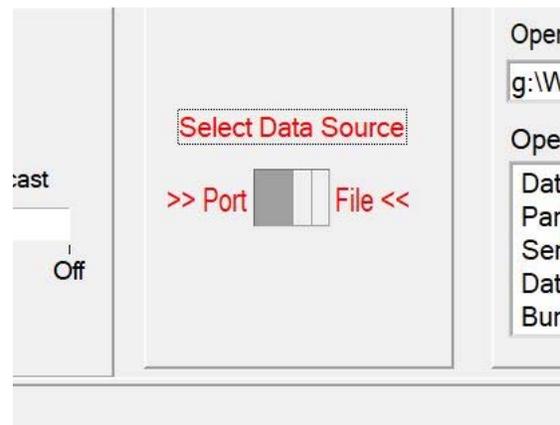
17. Select and open the SD memory card file.



The open file Header is now displayed:



18. Set the Select Data Source switch to File.



19. Press the Start Plotting button to display and analyze the SD card Data.

The screenshot displays a software interface with three main sections: Device Status, Output Data Monitoring, and Plotting Data. The Device Status section shows a table of device information. The Output Data Monitoring section shows a table of monitoring data. The Plotting Data section includes a 'Plot Control' panel with a 'Start Plotting' button and six trace device number input fields.

Device Status			Output Data Monitoring				
Power Status	Network Address	Number	Rate	Date and Time	Offset mSec	Data meters	ZeroAbs
ON	0551170511010000	100	32	2020-10-03T08:54:40	1000	00.00000	Abs
ON	0551170511010000	101	32	2020-10-03T08:54:40	1000	00.00000	Abs
ON	0551170511010000	102	32	2020-10-03T08:54:40	1000	00.00000	Abs
ON	0551170511010000	103	32	2020-10-03T08:54:39	1000	00.00000	Abs
ON	0551170511010000	104	32	2020-10-03T08:54:39	1000	00.00000	Abs

The Plotting Data section includes a 'Plot Control' panel with the following fields:

- Start Plotting (button)
- Trace 1 Device No.: 100
- Trace 2 Device No.: 102
- Trace 3 Device No.: 201
- Trace 4 Device No.: 0
- Trace 5 Device No.: 0
- Trace 6 Device No.: 0

20. Use the Read File Control to change the display speed and move about the SD card file location.

The screenshot shows the 'Read File Control' interface. It features three main components: a temperature display, a file read speed slider, and a file position slider.

- Temperature in C:** A digital display showing 25.0.
- File Read Speed: KBytes Per Second:** A slider ranging from -100.00 to 100.00, with a current value of 14.99.
- File Position in KB:** A slider ranging from 0 to 243, with a current value of 57.

21. You may also save any section of the file with the File / Save Output Data to File. The saved file section will be a .csv fixed ASCII format.