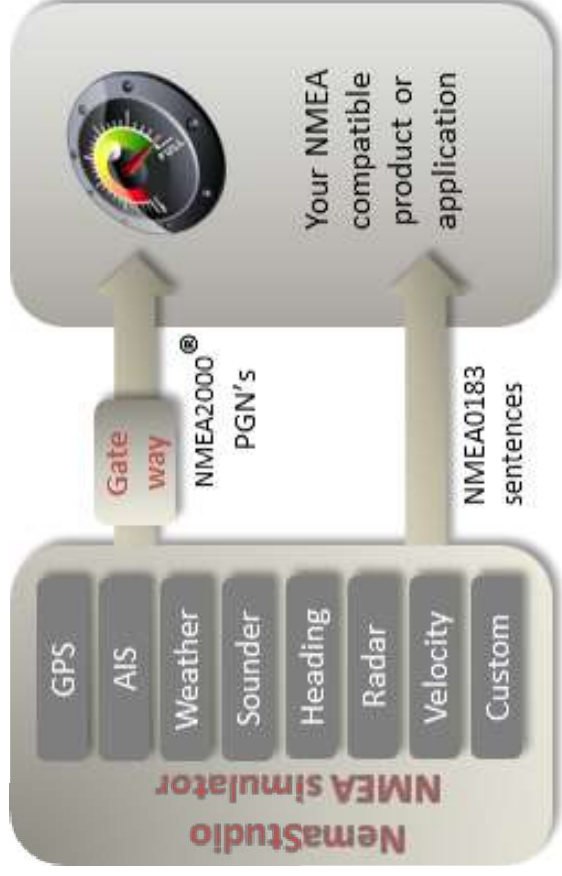


# NMEA Software Utilities

# Actisense<sup>®</sup>

# Maretron<sup>®</sup>

# SeaVee Software



# Actisense NMEA Reader



- The Actisense NMEA Reader is a great utility for testing and evaluating a NMEA 0183 or NMEA 2000™ system.
- The program is free to download from the Actisense web site and will work great with a compatible serial or USB adapter.
- This software will allow the user to view real time data flow and buffer rates.
- Certain Actisense gateways can be programmed by this software such as the NGW-1 and NGT-1.
- Manufacturer and LEN numbers can be obtained from this software for certain NMEA 2000™ devices.

# Actisense NMEA Reader



Actisense NGT-1-USB

- The Actisense NGT-1-USB is a great product to deliver NMEA 2000™ data directly into the PC for use with the NMEA Reader Software.

# Actisense NMEA Reader

The screenshot shows the Actisense NMEA Reader application window. The title bar reads 'NMEA Reader - [COM3: Actisense NGT]'. The menu bar includes 'File', 'Edit', 'View', 'Window', and 'Help'. Below the menu bar, there are several icons and a dropdown menu showing 'COM3: Actisense NGT' with the value '115200'. The main area contains a table of NMEA sentences with columns for Line, PGN, SRC, DST, Name, Time, Interval, and Data.

Line	PGN	SRC	DST	Name	Time	Interval	Data
1	130944	36	255	Manu. Proprietary fast-packet non-addres...	09:39:27:446	9.77	87 98 FF 0E 00 01 01 00 ...
2	130323	36	255	Meteorological Station Data	09:39:31:519	1.62	F0 FF FF FF FF FF FF FF ...
3	130311	36	255	Environmental Parameters	09:39:31:525	0.87	0A C1 69 73 FF 7F FC 03
4	130306	36	255	Wind Data	09:39:32:018	0.42	16 FF FF FF FF F8 FF FF
5	129540	36	255	GNSS Sats in View	09:39:31:555	1.63	FF FF 00
6	129539	36	255	GNSS DOPs	09:39:31:524	1.62	FF FB FF 7F FF 7F FF 7F
7	129033	36	255	Time & Date	09:39:31:517	1.62	FF FF FF FF FF FF FF 7F
8	129029	36	255	GNSS Position Data	09:39:31:538	1.63	FF FF FF FF FF FF FF FF ...
9	129026	36	255	COG & SOG, Rapid Update	09:39:31:523	1.62	FF FF FF FF FF FF FF FF
10	129025	36	255	Position, Rapid Update	09:39:31:520	1.62	FF FF FF 7F FF FF FF 7F
11	127505	10	255	Fluid Level	09:39:33:462	2.52	00 44 48 DE 93 00 00 FF
12	127505	12	255	Fluid Level	09:39:34:041	2.50	50 FC 53 FF FF FF FF FF
13	127505	13	255	Fluid Level	09:39:34:040	2.50	10 FC 53 FF FF FF FF FF
14	127258	36	255	Magnetic Variation	09:39:31:518	1.62	05 F5 CC 3C FF 7F FF FF
15	127257	36	255	Attitude	09:39:31:519	1.62	05 FF 7F FF 7F FF 7F FF
16	127251	36	255	Rate of Turn	09:39:31:916	0.10	34 FF FF FF 7F FF FF FF
17	127250	36	255	Vessel Heading	09:39:31:916	0.10	FF FF FF FF 7F FF 7F FF
18	127245	11	255	Rudder	09:39:35:861	0.10	00 F8 FF 7F 29 E1 FF FF
19	126998	2	255	Configuration Information	09:35:04:409		02 01 02 01 2D 01 41 63 ...
20	126998	3	255	Configuration Information	09:35:03:519		02 01 02 01 2D 01 41 63 ...
21	126998	4	255	Configuration Information	09:35:05:279		02 01 02 01 2D 01 41 63 ...
22	126998	36	255	Configuration Information	09:35:46:557		02 01 02 01 26 01 41 69 ...
23	126996	2	255	Product Information	09:35:04:190		14 05 27 6E 4E 4D 45 41 ...
24	126996	3	255	Product Information	09:35:03:320		14 05 27 6E 4E 4D 45 41 ...
25	126996	4	255	Product Information	09:35:05:059		14 05 27 6E 4E 4D 45 41 ...
26	126996	5	255	Product Information	09:35:09:980		B0 04 12 09 44 65 63 6B ...
27	126996	7	255	Product Information	09:35:14:020		B0 04 38 4D 50 61 6E 65 ...
28	126996	8	255	Product Information	09:35:05:941		B0 04 38 4D 50 61 6E 65 ...
29	126996	9	255	Product Information	09:35:18:052		B0 04 38 4D 50 61 6E 65 ...
30	126996	10	255	Product Information	09:35:21:990		14 05 FA 20 46 75 65 6C ...
31	126996	11	255	Product Information	09:35:26:030		B0 04 7C 1E 52 75 64 64 ...
32	126996	12	255	Product Information	09:35:30:061		B0 04 78 6D 57 61 74 65 ...
33	126996	13	255	Product Information	09:35:34:112		B0 04 78 6D 57 61 74 65 ...
34	126996	36	255	Product Information	09:35:46:241		BA 04 7B 22 50 42 32 30 ...
35	126992	36	255	System Time	09:39:31:516	1.62	FF F0 FF FF FF FF FF FF
36	60928	2	255	ISO Address Claim	09:35:00:478		CD B0 21 22 00 82 32 C0
37	60928	3	255	ISO Address Claim	09:35:00:477		E1 B0 21 22 00 82 32 C0
38	60928	4	255	ISO Address Claim	09:35:00:479		E3 B0 21 22 00 82 32 C0
39	60928	5	255	ISO Address Claim	09:35:00:480		58 02 21 14 00 D2 64 C0
40	60928	6	255	ISO Address Claim	09:35:00:521		22 A4 21 14 00 A0 A0 C0
41	60928	7	255	ISO Address Claim	09:35:00:481		17 00 24 14 00 A0 A0 C0
42	60928	8	255	ISO Address Claim	09:35:00:480		69 80 24 14 00 A0 A0 C0
43	60928	9	255	ISO Address Claim	09:35:00:481		38 06 25 14 00 A0 A0 C0

- The NMEA Reader is a good utility to read what sentences are located on the network.
- The data shown includes the specific PGN, Sentence Name, Transmit Interval and the actual data itself.



# Actisense NMEA Reader

Line	PGN	SRC	DSI	Name	Time	Interval	Data
1	130944	36	255	Manu. Proprietary fast-packet non-addres...	09:39:27:446	9.77	87 98 FF 0E 00 01 01 00 ...
2	130323	36	255	Meteorological Station Data	09:39:31:519	1.62	F0 FF FF FF FF FF FF FC ...
3	130311	36	255	Environmental Parameters	09:39:31:525	0.87	0A C1 69 73 FF 7F FC 03
4	130306	36	255	Wind Data	09:39:32:018	0.42	16 FF FF FF FF F8 FF FF
5	129540	36	255	GNSS Sats in View	09:39:31:555	1.63	FF FF 00
6	129539	36	255	GNSS DOPs	09:39:31:524	1.62	FF FB FF 7F FF 7F FF 7F
7	129033	36	255	Time & Date	09:39:31:517	1.62	FF FF FF FF FF FF FF 7F
8	129029	36	255	GNSS Position Data	09:39:31:538	1.63	FF FF FF FF FF FF FF FF ...
9	129026	36	255	COG & SOG, Rapid Update	09:39:31:523	1.62	FF FF FF FF FF FF FF FF
10	129025	36	255	Position, Rapid Update	09:39:31:520	1.62	FF FF FF 7F FF FF FF 7F
11	127505	10	255	Fluid Level	09:39:33:462	2.52	00 44 48 DE 93 00 00 FF
12	127505	12	255	Fluid Level	09:39:34:041	2.50	50 FC 53 FF FF FF FF FF
13	127505	13	255	Fluid Level	09:39:34:040	2.50	10 FC 53 FF FF FF FF FF
14	127258	36	255	Magnetic Variation	09:39:31:518	1.62	05 F5 CC 3C FF 7F FF FF
15	127257	36	255	Attitude	09:39:31:519	1.62	05 FF 7F FF 7F FF 7F FF
16	127251	36	255	Rate of Turn	09:39:31:916	0.10	34 FF FF FF 7F FF FF FF
17	127250	36	255	Vessel Heading	09:39:31:916	0.10	FF FF FF FF 7F FF 7F FF
18	127245	11	255	Rudder	09:39:35:861	0.10	00 F8 FF 7F 29 E1 FF FF
19	126998	2	255	Configuration Information	09:35:04:409		02 01 02 01 2D 01 41 63 ...
20	126998	3	255	Configuration Information	09:35:03:519		02 01 02 01 2D 01 41 63 ...
21	126998	4	255	Configuration Information	09:35:05:279		02 01 02 01 2D 01 41 63 ...
22	126998	36	255	Configuration Information	09:35:46:557		02 01 02 01 26 01 41 69 ...
23	126996	2	255	Product Information	09:35:04:190		14 05 27 6E 4E 4D 45 41 ...
24	126996	3	255	Product Information	09:35:03:320		14 05 27 6E 4E 4D 45 41 ...
25	126996	4	255	Product Information	09:35:05:059		14 05 27 6E 4E 4D 45 41 ...
26	126996	5	255	Product Information	09:35:09:980		B0 04 12 09 44 65 63 6B ...
27	126996	7	255	Product Information	09:35:14:020		B0 04 38 4D 50 61 6E 65 ...
28	126996	8	255	Product Information	09:35:05:941		B0 04 38 4D 50 61 6E 65 ...
29	126996	9	255	Product Information	09:35:18:052		B0 04 38 4D 50 61 6E 65 ...
30	126996	10	255	Product Information	09:35:21:990		14 05 FA 20 46 75 65 6C ...
31	126996	11	255	Product Information	09:35:26:030		B0 04 7C 1E 52 75 64 64 ...
32	126996	12	255	Product Information	09:35:30:061		B0 04 78 6D 57 61 74 65 ...
33	126996	13	255	Product Information	09:35:34:112		B0 04 78 6D 57 61 74 65 ...
34	126996	36	255	Product Information	09:35:46:241		BA 04 7B 22 50 42 32 30 ...
35	126992	36	255	System Time	09:39:31:516	1.62	FF F0 FF FF FF FF FF FF
36	60928	2	255	ISO Address Claim	09:35:00:478		CD B0 21 22 00 82 32 C0
37	60928	3	255	ISO Address Claim	09:35:00:477		E1 B0 21 22 00 82 32 C0
38	60928	4	255	ISO Address Claim	09:35:00:479		E3 B0 21 22 00 82 32 C0
39	60928	5	255	ISO Address Claim	09:35:00:480		58 02 21 14 00 D2 64 C0
40	60928	6	255	ISO Address Claim	09:35:00:521		22 A4 21 14 00 A0 A0 C0
41	60928	7	255	ISO Address Claim	09:35:00:481		17 00 24 14 00 A0 A0 C0
42	60928	8	255	ISO Address Claim	09:35:00:480		69 80 24 14 00 A0 A0 C0
43	60928	9	255	ISO Address Claim	09:35:00:481		38 06 25 14 00 A0 A0 C0

- The top selected item shows the com port, description and baud rate of the available NMEA 0183 or NMEA 2000™ Device.



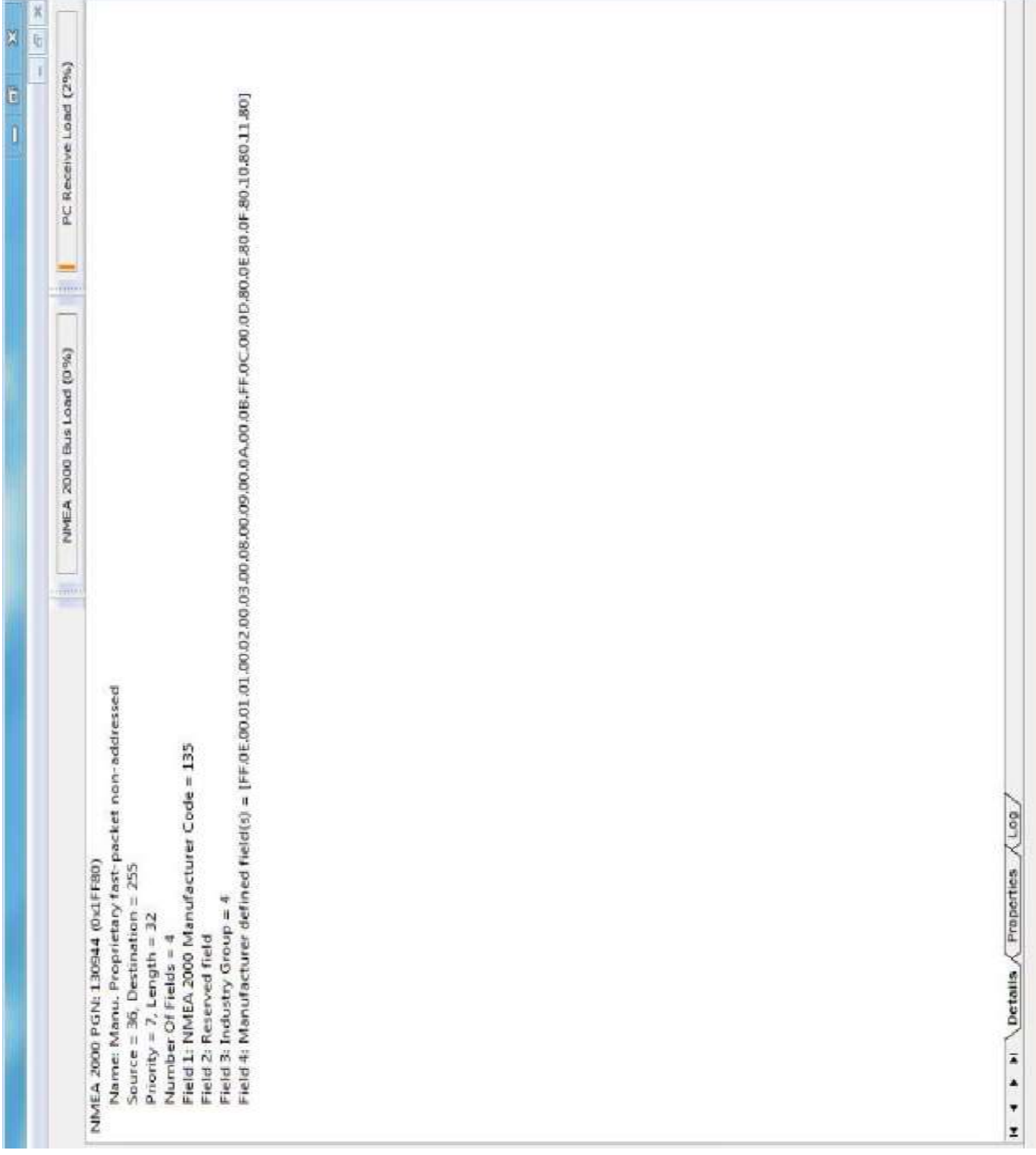
# Actisense NMEA Reader

The screenshot shows the Actisense NMEA Reader software interface. The main window displays a table of data lines. The 'Interval' column is circled in red. The table has columns for Line, PGN, SRC, DST, Name, Time, Interval, and Data. The data is organized into groups based on PGN values.

Line	PGN	SRC	DST	Name	Time	Interval	Data
1	130944	36	255	Manu. Proprietary fast-packet non-addres...	09:39:27:446	5.77	87 98 FF 0E 00 01 01 00 ...
2	130323	36	255	Meteorological Station Data	09:39:31:519	1.62	F0 FF FF FF FF FF FF FF ...
3	130311	36	255	Environmental Parameters	09:39:31:525	0.87	0A C1 69 73 FF 7F FC 03
4	130306	36	255	Wind Data	09:39:32:018	0.42	16 FF FF FF FF FF F8 FF FF
5	129540	36	255	GNSS Sats in View	09:39:31:555	1.63	FF FF 00
6	129539	36	255	GNSS DOPs	09:39:31:524	1.62	FF FB FF 7F FF 7F FF 7F
7	129033	36	255	Time & Date	09:39:31:517	1.62	FF FF FF FF FF FF FF 7F
8	129029	36	255	GNSS Position Data	09:39:31:538	1.63	FF FF FF FF FF FF FF FF ...
9	129026	36	255	COG & SOG, Rapid Update	09:39:31:523	1.62	FF FF FF FF FF FF FF FF
10	129025	36	255	Position, Rapid Update	09:39:31:520	1.62	FF FF FF 7F FF FF FF 7F
11	127505	10	255	Fluid Level	09:39:33:462	2.52	00 44 48 DE 93 00 00 FF
12	127505	13	255	Fluid Level	09:39:34:041	2.50	50 FC 53 FF FF FF FF FF FF
13	127505	12	255	Fluid Level	09:39:34:040	2.50	10 FC 53 FF FF FF FF FF FF
14	127258	36	255	Magnetic Variation	09:39:31:518	1.62	05 F5 CC 3C FF 7F FF FF
15	127257	36	255	Attitude	09:39:31:519	1.62	05 FF 7F FF 7F FF 7F FF
16	127251	36	255	Rate of Turn	09:39:31:916	0.10	34 FF FF FF 7F FF FF FF
17	127250	36	255	Vessel Heading	09:39:31:916	0.10	FF FF FF FF 7F FF FF FF
18	127245	11	255	Rudder	09:39:35:861	0.10	00 F8 FF 7F 29 E1 FF FF
19	126998	2	255	Configuration Information	09:35:04:409		02 01 02 01 2D 01 41 63 ...
20	126998	3	255	Configuration Information	09:35:03:519		02 01 02 01 2D 01 41 63 ...
21	126998	4	255	Configuration Information	09:35:05:279		02 01 02 01 2D 01 41 63 ...
22	126998	36	255	Configuration Information	09:35:46:557		02 01 02 01 26 01 41 69 ...
23	126996	2	255	Product Information	09:35:04:190		14 05 27 6E 4E 4D 45 41 ...
24	126996	3	255	Product Information	09:35:03:320		14 05 27 6E 4E 4D 45 41 ...
25	126996	4	255	Product Information	09:35:05:059		14 05 27 6E 4E 4D 45 41 ...
26	126996	5	255	Product Information	09:35:09:980		B0 04 12 09 44 65 63 6B ...
27	126996	7	255	Product Information	09:35:14:020		B0 04 38 4D 50 61 6E 65 ...
28	126996	8	255	Product Information	09:35:05:941		B0 04 38 4D 50 61 6E 65 ...
29	126996	9	255	Product Information	09:35:18:052		B0 04 38 4D 50 61 6E 65 ...
30	126996	10	255	Product Information	09:35:21:990		14 05 FA 20 46 75 65 6C ...
31	126996	11	255	Product Information	09:35:26:030		B0 04 7C 1E 52 75 64 64 ...
32	126996	12	255	Product Information	09:35:30:061		B0 04 78 6D 57 61 74 65 ...
33	126996	13	255	Product Information	09:35:34:112		B0 04 78 6D 57 61 74 65 ...
34	126996	36	255	Product Information	09:35:46:241		BA 04 7B 22 50 42 32 30 ...
35	126992	36	255	System Time	09:39:31:516	1.62	FF F0 FF FF FF FF FF FF
36	60928	2	255	ISO Address Claim	09:35:00:478		CD B0 21 22 00 82 32 C0
37	60928	3	255	ISO Address Claim	09:35:00:477		E1 B0 21 22 00 82 32 C0
38	60928	4	255	ISO Address Claim	09:35:00:479		E3 B0 21 22 00 82 32 C0
39	60928	5	255	ISO Address Claim	09:35:00:480		58 02 21 14 00 D2 64 C0
40	60928	6	255	ISO Address Claim	09:35:00:521		22 A4 21 14 00 A0 A0 C0
41	60928	7	255	ISO Address Claim	09:35:00:481		17 00 24 14 00 A0 A0 C0
42	60928	8	255	ISO Address Claim	09:35:00:480		69 80 24 14 00 A0 A0 C0
43	60928	9	255	ISO Address Claim	09:35:00:481		38 06 25 14 00 A0 A0 C0

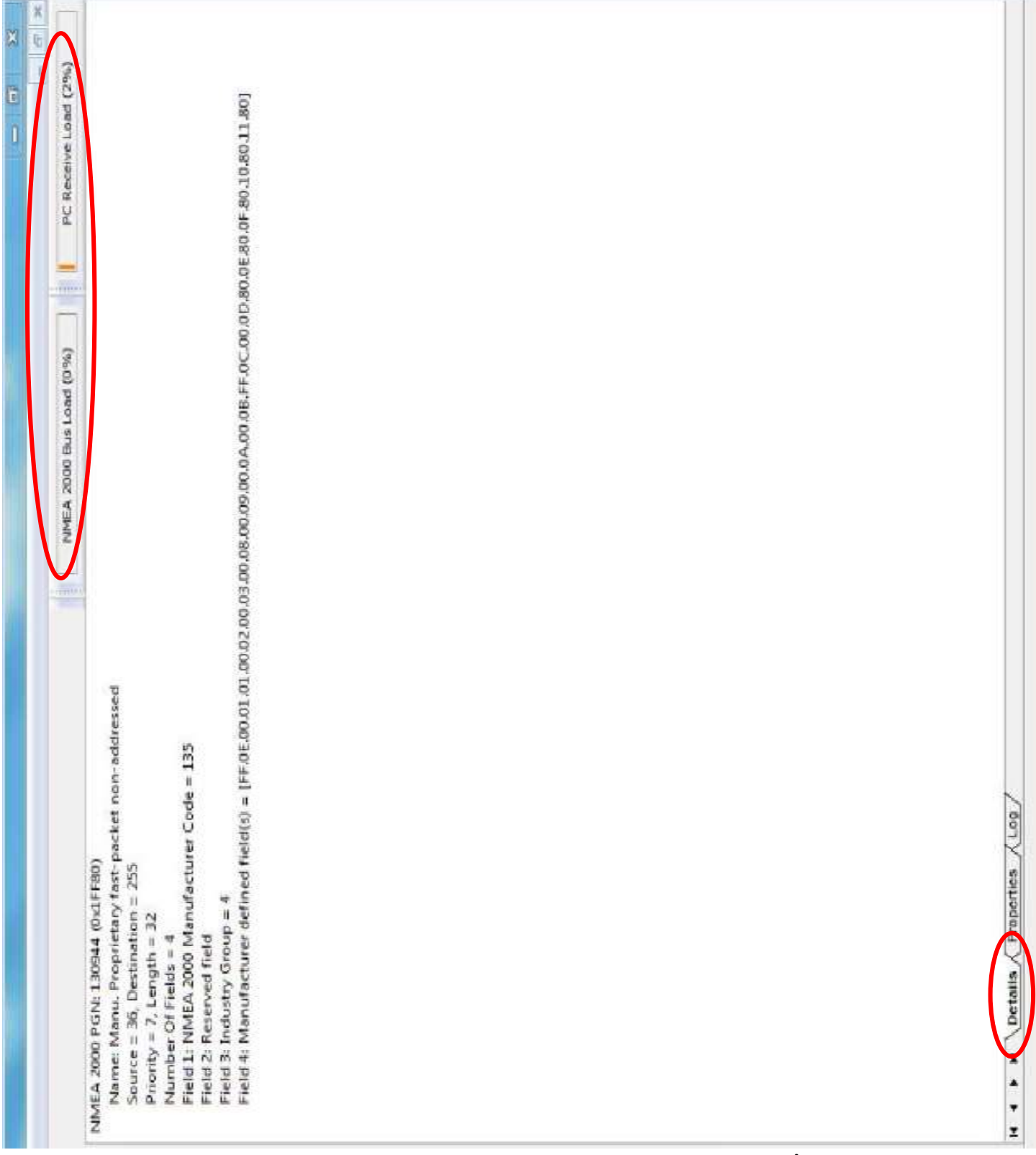
- The interval shows how often the data is being sent from the device. This allows the user to know how fast a sender is transmitting.

# Actisense NMEA Reader



- Pictured here are the details of each individual data PGN.
- This will list what data is present on the specific device as well as what makes up the sentence structure.
- Also located on this page is the NMEA 2000™ Bus Load as well as the PC Load through the Gateway.

# Actisense NMEA Reader



- The bus load can be used to check how many devices on the network.
- If the NMEA 2000™ network is not functioning correctly it could be due to excess load or a defective sender.
- The NMEA 0183 version allows for the same reading.



# Actisense NMEA Reader

NMEA Reader (COM3: Actisense N07) PC Receive Load (2%)

COM3: Actisense N07 NMEA 2000 Bus Load (0%)

Names: Mains: Proprietary fast-packet non-addressed  
 Source = 36, Destination = 253  
 Priority = 7, Length = 32  
 Number Of Fields = 4  
 Field 1: NMEA 2000 Manufacturer Code = 125  
 Field 2: Reserved Field  
 Field 3: Industry Group = 4  
 Field 4: Manufacturer defined field(s) = [F7:0E:00:11:01:00:01:03:30:08:04:09:00:0A:20:0E:FC:00:00:80:1E:30:2F:80:16:80:11:80]

Line	PGN	SRC	DST	Name	Time	Interval	Data
1	130344	36	253	Mains, Proprietary fast-packet non-addressed...	09:35:27:146	9.77	01 30 FF 0E 00 01 01 0E ...
2	130323	36	253	Meteorological Station Data	09:35:31:119	1.62	F3 FF FF FF FF FF FF FF ...
3	130311	36	253	Environmental Parameters	09:35:31:125	0.87	0A C1 69 73 FF 7F FC 43
4	130306	36	253	Wind Data	09:35:32:119	0.42	16 FF FF FF FF F8 FF FF
5	129540	36	253	GNSS Sats in View	09:35:31:155	1.63	FF FF 00
6	129539	36	253	GNSS DOPs	09:35:31:124	1.62	FF FB FF FF FF FF FF FF
7	129323	36	253	Time & Date	09:35:31:117	1.62	FF FF FF FF FF FF FF FF
8	129329	36	253	GNSS Position Data	09:35:31:138	1.53	FF FF FF FF FF FF FF FF
9	129326	36	253	CDG & SOG, Rapid Update	09:35:31:123	1.62	FF FF FF FF FF FF FF FF
10	129325	36	253	Position, Rapid Updates	09:35:31:120	1.62	FF FF FF FF FF FF FF FF
11	127300	10	253	Fluid Level	09:35:33:162	2.52	00 48 48 DE 30 00 00 FF
12	127505	12	253	Fluid Level	09:35:34:141	2.50	50 FC 50 FF FF FF FF FF
13	127505	13	253	Fluid Level	09:35:34:140	2.50	10 FC 50 FF FF FF FF FF
14	127258	36	253	Magnetic Variation	09:35:31:118	1.62	05 15 0C 3C FF 7F FF FF
15	127257	36	253	Altitude	09:35:31:110	1.62	05 FF 7F FF 7F FF FF FF
16	127251	36	253	Rate of Turn	09:35:31:115	0.10	34 FF FF FF FF FF FF FF
17	127250	36	253	Vessel Heading	09:35:31:115	0.10	FF FF FF FF FF FF FF FF
18	127245	11	253	Rudder	09:35:35:161	0.10	00 F8 FF FF 29 E1 FF FF
19	126948	2	253	Configuration Information	09:35:04:109		02 01 02 01 20 01 41 63 ...
20	126938	3	253	Configuration Information	09:35:03:110		02 01 02 01 20 01 41 63 ...
21	126938	4	253	Configuration Information	09:35:05:179		02 01 02 01 20 01 41 63 ...
22	126938	6	253	Configuration Information	09:35:46:157		02 01 02 01 26 01 41 69 ...
23	126936	2	253	Product Information	09:35:04:190		14 05 27 6E 4E 4D 45 41 ...
24	126936	3	253	Product Information	09:35:03:120		14 05 27 6E 4E 4D 45 41 ...
25	126936	4	253	Product Information	09:35:05:100		14 05 27 6E 4E 4D 45 41 ...
26	126936	5	253	Product Information	09:35:09:180		E0 14 12 09 44 05 13 68 ...
27	126936	7	253	Product Information	09:35:11:120		E0 14 38 4D 50 61 1E 65 ...
28	126936	8	253	Product Information	09:35:05:141		E0 14 38 4D 50 61 1E 65 ...
29	126936	9	253	Product Information	09:35:15:152		E9 14 38 4D 50 61 1E 65 ...
30	126936	10	253	Product Information	09:35:21:190		14 05 FA 20 46 75 15 6C ...
31	126936	11	253	Product Information	09:35:26:130		E0 14 7C 1E 51 75 64 64 ...
32	126936	12	253	Product Information	09:35:30:161		E0 14 78 4D 51 61 74 65 ...
33	126936	13	253	Product Information	09:35:34:112		E0 14 78 4D 51 61 74 65 ...
34	126936	36	253	Product Information	09:35:46:141		E8 14 78 22 98 42 32 30 ...
35	126932	36	253	System Time	09:35:31:116	1.62	FF F9 FF FF FF FF FF FF
36	69328	2	253	ISO Address Claim	09:35:00:178		CD 90 21 22 00 12 32 CD
37	69328	3	253	ISO Address Claim	09:35:00:177		E1 80 21 22 00 12 32 C9
38	69328	4	253	ISO Address Claim	09:35:00:179		E3 80 21 22 00 12 32 C9
39	69328	5	253	ISO Address Claim	09:35:00:180		56 02 21 14 10 02 64 C9
40	69328	6	253	ISO Address Claim	09:35:00:121		22 A4 21 14 00 A0 A0 CD
41	69328	7	253	ISO Address Claim	09:35:00:181		11 00 24 14 10 A0 A0 CD
42	69328	8	253	ISO Address Claim	09:35:00:180		69 80 24 14 10 A0 A0 CD
43	69328	9	253	ISO Address Claim	09:35:00:180		7F 09 26 14 10 A0 A0 CD

COM3: 11236 Data View | Refresh View | Refresh Config | Refresh Receiver All

# Actisense NMEA Reader

SRC	Manufacturer	Device Function	Serial Num	D. Instance	Firmware
0	Airmar	Gateway (130)	101094	0	1.090, 2.190
2	Actisense	Gateway (130)	ID: 110797	0	1.100, 2.180
3	Actisense	Gateway (130)	ID: 110817	0	1.100, 2.176
4	Actisense	Gateway (130)	ID: 110819	0	1.100, 2.176
5	Offshore Systems UK	Gauge Small (210)	0066136	...	V1.01
6	Offshore Systems UK	General Purpose Displays (...)	...	0	...
7	Offshore Systems UK	General Purpose Displays (...)	0262167	...	V1.01
8	Offshore Systems UK	General Purpose Displays (...)	0295017	...	V1.01
9	Offshore Systems UK	General Purpose Displays (...)	0327736	...	V1.01
10	Offshore Systems UK	Transducer/general (190)	0001704	...	V4.14
11	Offshore Systems UK	Transducer/general (190)	0109536	...	V1.00
12	Offshore Systems UK	Transducer/general (190)	0131800	...	V4.12
13	Offshore Systems UK	Transducer/general (190)	0131801	...	V4.12
36	Airmar	Weather Instruments (180)	1641965	0	1.009, 3.611

- This item shows which instance is assigned to the device allowing for the user to match it on the display.
- Also pictured are the serial number and function which can be helpful for identification of the device.

# Actisense NMEA Reader

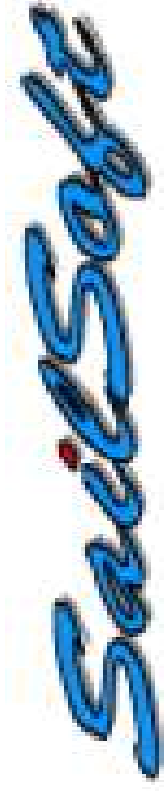
The screenshot displays the Actisense NMEA Reader software interface. The top window shows the configuration for the 'COM3: Actisense NACT' device, with 'TX PGN Enable List' and 'RX PGN Enable List' tabs. The 'TX PGN Enable List' is active, showing a list of PGNs with checkboxes for enabling them. The 'Enabled: 430' status is shown at the bottom of this window. The 'Serial Bus of Role' is set to '115200' and 'ABP Codes' are set to 'HF - Frames permanently disabled'. The 'Port Config' window shows 'Apply defaults to hardware' and an 'Apply' button.

The bottom window shows the 'NMEA 2000 Bus Load (11%)' and a log of operations. The log table is as follows:

Line	Time	Action	Result
0	09:34:59	Update Operating Mode	Passed
1	09:34:59	Change Operating Mode	Passed
2	09:34:59	Get Lists Params	Passed
3	09:35:00	Download Rx PGN Enable List	Passed
4	09:35:00	Download Tx PGN Enable List	Passed
5	09:35:00	Get Port P. Code	Passed
6	09:35:00	Get Port Baudrate	Passed
7	09:35:00	Get Hardware Baudrate	Passed
8	09:35:01	Update CAN Name	Passed
9	09:35:01	Requesting Address Claim Info	Passed
10	09:35:01	Get Lists Params	Passed
11	09:35:01	Download Rx PGN Enable List	Passed
12	09:35:01	Download Tx PGN Enable List	Passed
13	09:35:02	Get Port P. Code	Passed
14	09:35:02	Get Port Baudrate	Passed
15	09:35:02	Get Hardware Baudrate	Passed
16	09:35:02	Update Product Information	Passed
17	09:35:03	Update Configuration Information	Passed
18	09:35:03	Update Configuration Information	Passed
19	09:35:03	Update Configuration Information	Passed
20	09:35:04	Update Product Information (remote device)	Passed
21	09:35:04	Update Configuration Information (remote device)	Passed
22	09:35:05	Update Product Information (remote device)	Passed
23	09:35:05	Update Configuration Information (remote device)	Passed
24	09:35:05	Update Product Information (remote device)	Passed
25	09:35:05	Update Configuration Information (remote device)	Passed
26	09:35:05	Update Product Information (remote device)	Passed
27	09:35:07	Update Configuration Information (remote device)	Timeout
28	09:35:08	Update Configuration Information (remote device)	Timeout
29	09:35:10	Update Product Information (remote device)	Passed
30	09:35:11	Update Configuration Information (remote device)	Timeout
31	09:35:12	Update Configuration Information (remote device)	Timeout
32	09:35:14	Update Product Information (remote device)	Passed
33	09:35:15	Update Configuration Information (remote device)	Timeout
34	09:35:15	Update Configuration Information (remote device)	Timeout
35	09:35:16	Update Product Information (remote device)	Passed
36	09:35:19	Update Configuration Information (remote device)	Timeout
37	09:35:20	Update Configuration Information (remote device)	Timeout
38	09:35:22	Update Product Information (remote device)	Passed
39	09:35:23	Update Configuration Information (remote device)	Timeout
40	09:35:24	Update Configuration Information (remote device)	Timeout
41	09:35:25	Update Product Information (remote device)	Passed
42	09:35:27	Update Configuration Information (remote device)	Timeout



# Sail Soft NEMA Studio



- The Sail Soft program will allow data to be sent from a PC via NMEA 0183 on a user selected Com Port.
- This will allow for testing of displays or networks by sending out select amounts of data which is controlled through the software.
- The data that is being transmitted via NMEA 0183 can then be converted to NMEA 2000™ using either an NGW-1, AT-10 or any other NMEA approved device.

# Sail Soft NEMA Studio



Actisense NGW-1

- The Actisense NGW-1 is a great way to convert the data sent from the Sail Soft program into a NMEA 2000™ Format. It can also send AIS information into a Bus with the proper Firmware update provided from the Actisense website.

# Sail Soft NEMA Studio

File Edit View Settings Help

Available Objects

- AIS
- Custom
- GPS
- Heading
- Radar
- Sounder
- Velocity
- Weather

Object Control Center

- Altitude (meters)
- Course (degrees)
- Velocity (knots)
- Rudder (angle in deg)

GPS1

Settings

Longitude: 007.00 56779.6    Latitude: 0107.10 06802.0    Course: 0.0    Velocity: 0.0    Altitude: 0.0

UTC Date: 30/08/12    UTC Time: 3:41:25 PM    Offset (hrs): 0.0    Magn. Var.: 0.0    W

POOP: HDOP    VDOP    GDOP    SDOP    Satellites    GPS fix quality    GPS    DGP2

Subsides used (ISA)

GPS (WMA5)

Autotemplates

Port Config

Port Name: 4800.8.Nova One    Port Update: 1.0    second    Transmit: 1.00    second

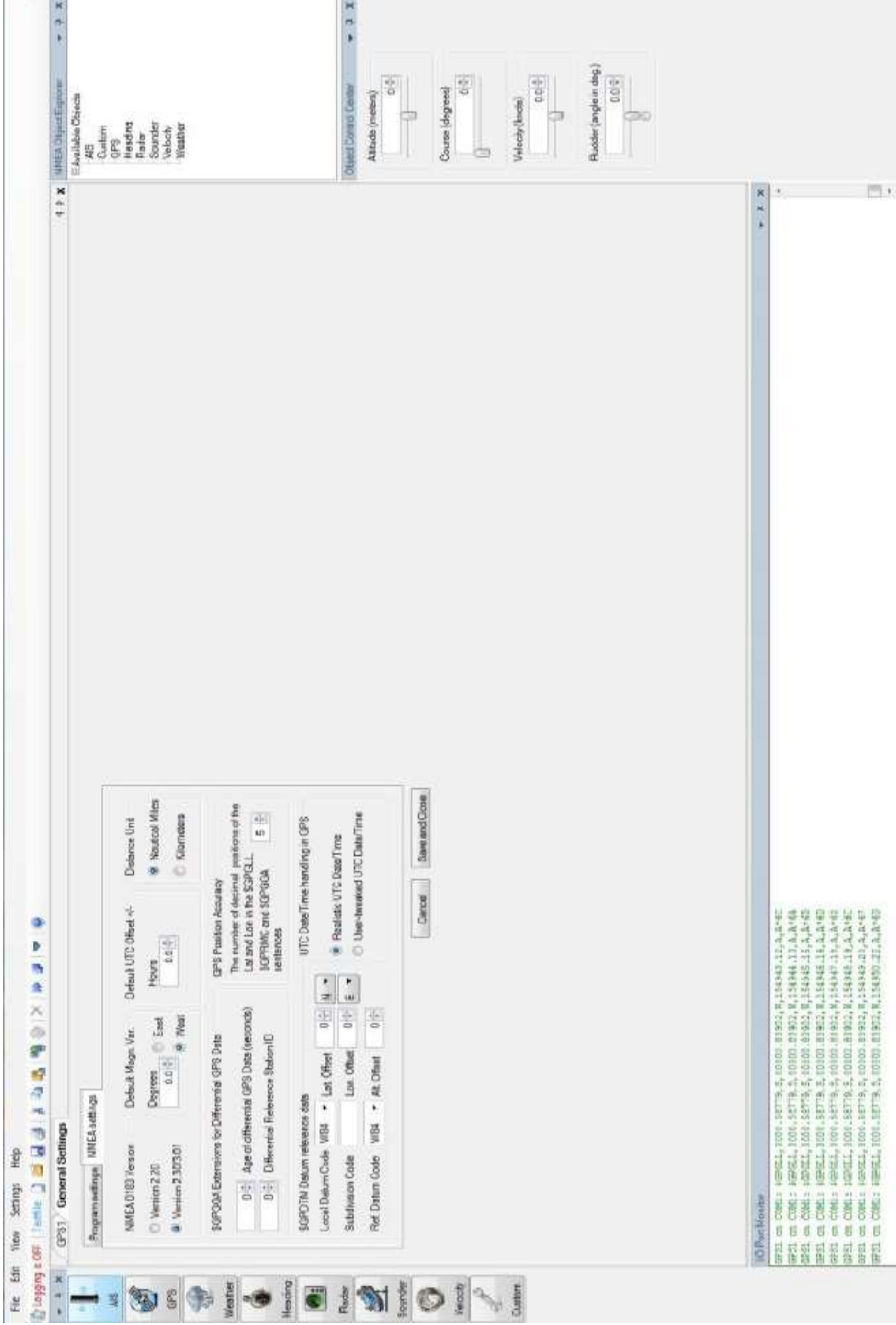
IO Port Monitor

```
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.122,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.164,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.115,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.117,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.118,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.120,E,1.463
SP11.00:COM1:42PRL,1000.18779,S,30010.00102,N,151831.122,E,1.463
```

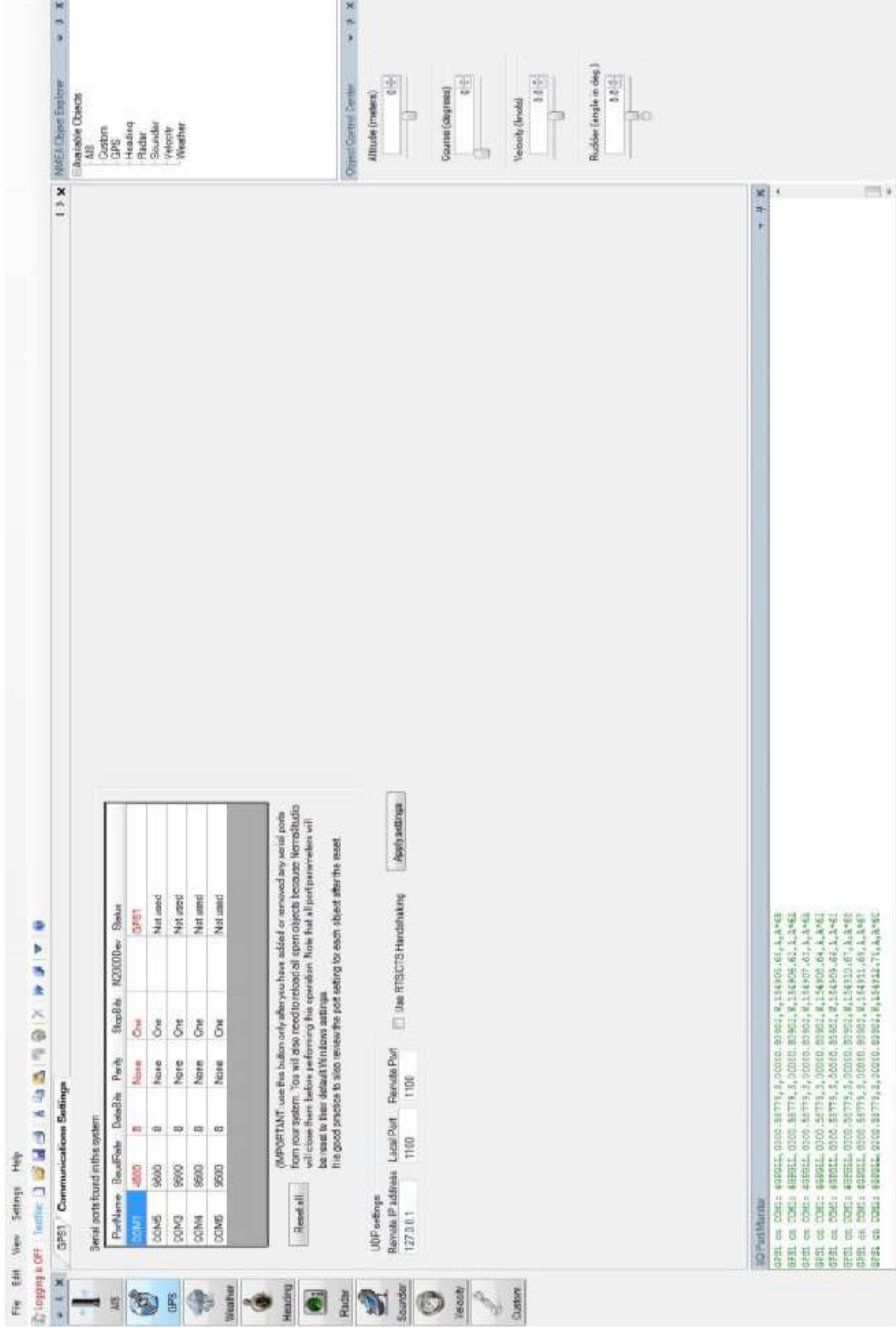
Sentences waiting in bytes buffer: 0    Yes: 0



# Sail Soft NEMA Studio



# Sail Soft NEMA Studio



# Maretron N2KAnalyzer

# Maretron<sup>®</sup>

- The Maretron N2KAnalyzer Software is free to download from the Maretron Web site and offers many valuable options for network evaluation and testing.
- The N2KAnalyzer requires the use of a Maretron USB100 Gateway to properly connect to a NMEA 2000™ system.
- Maretron's software will allow a user to assign device instances to components directly.
- The software also shows software version, manufacturer, serial numbers and much more data specific to a sensor.



# Maretron N2KAnalyzer

USB100 Gateway



- The Maretron USB100 Gateway will allow the NMEA 2000™ network to be accessed by the N2KAnalyzer to show what devices are attached. The Gateway will also allow devices to be programmed for instances and queried for transmitted and received PGN's.

# Maretron N2KAnalyzer

## N2KAnalyzer Software Device Page

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	99	Sanshin Indu...				1			-		
	98	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	97	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	96	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	41	Sanshin Indu...	TELEFLEX	YG2790900023		0		SW0208Rev1	-		
	60	Maretron	DCM100	1400531		0	Pilot House B...	1.0.4	-		
	28	Maretron	IP6100	1620099		0		3.4.6	-		
	9A	Sanshin Indu...				2			-		
	23	Airmar	P8200 Weath...	2236344		0		1.601.1.611.1.001.1.611.000	-		
	9A	Sanshin Indu...				1			-		
	98	Sanshin Indu...	6AV8591400			1		10006AV-00_ENG_86_P02	-		

- The Main Device page will show what devices are connected to the Network and the specific information of that device.

# Maretron N2KAnalyzer

## N2KAnalyzer Software Device Page

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	99	Sanshin Indu...				1			-		
	98	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	97	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	96	Sanshin Indu...	6AV8591400			0		10006AV-00_ENG_86_P02	-		
	41	Sanshin Indu...	TELEFLEX	YG2790900023		0		SW0208Rev1	-		
	60	Maretron	DCM100	1400531		0	Pilot House B...	1.0.4	-		
	28	Maretron	IP6100	1620099		0		3.4.6	-		
	9A	Sanshin Indu...				2			-		
	23	Airmar	PB200 Weath...	2236344		0		1.601.1.611.1.001.1.611.000	-		
	9A	Sanshin Indu...				1			-		
	98	Sanshin Indu...	6AV8591400			1		10006AV-00_ENG_86_P02	-		

- The unique instance tab allows for the user to view and assign specific instances to a sender if there are multiple versions of the same unit on the network.

# Maretron N2KAnalyzer

The screenshot displays the Maretron N2KAnalyzer interface. A table lists various device instances with columns for Node Address, Manufacturer, Mfg Model ID, Mfg Serial Number, Source, Unique Instance, Label, Current Software, Available Software, Installation Description #1, and Installation Description #2. The row for Node Address 1A (Maretron DSM250) is highlighted in blue. A dialog box titled 'Device Instance Properties' is open over this row, showing details for NA: 0x1A (26), Model: DSM250, Device Class: Instrumentation/general systems (80), and a Device Instance number of 0. The dialog includes 'OK' and 'Cancel' buttons.

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	08	Simrad	iGPS	001649#		0		01000_E...			
	12	Simrad	MFD	001649#		0		01000_E...			
	1B	Garmin	GMM10	3829486641							
	1E	DNA Group, I...	Powergate 20...	Serial# 1							
	-	Airmar	PB200 Weath...	2262798							
	24	Airmar	DST200	2254145							
	23	Airmar	H2183	2260237							
	1A	Maretron	DSM250	1300100				1.4.153			
	0A	#481	SeaSmart An...	130942							
	03	#481	SeaSmart N...	126154							
	01	Actisense	NMEA 2000 <...	121609						Demo for NMEA E...	
	00	Actisense	NMEA 2000 P...	120828				1.100, 2...		Supplied by Geme...	
	04	Faria Instrum...				0					
	52	Maretron	USB100	1160678		0		1.8.3	1.8.3		
	CC	Westerbeke ...	RC20	2247		0		52749.A.8			
	71	Maretron	TLA100	1260116				1.6.12	1.6.15		
	7A	Beyond Meas...	Fish Display 1...	396-B23085		0		1.53			
	32	Beyond Meas...	FishGate 100	396-A0001012		0		1.2.1			

- The Instancing tool is as simple as setting the number for any applicable device.



# Maretron N2KAnalyzer

## N2KAnalyzer Software Properties Page

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Device Function	System Instance	MMEA 2000 Version	MMEA 2000 Certification Level	LEN
	99	Serohin Indu...				1				Engine Controller		65.535	-	255
	98	Serohin Indu...	SAW05FLA00			0		1006AW_06_ENG_86_P02		Engine Controller		1.111	-	0
	97	Serohin Indu...	SAW05FLA00			0		1006AW_09_ENG_86_P02		Engine Controller		1.111	-	0
	96	Serohin Indu...	SAW05FLA00			0		1006AW_09_ENG_86_P02		Engine Controller		1.111	-	0
	41	Serohin Indu...	TELEFLEX	YG779900023		0		SW03089-6d		Engine Gateway		1.111	6	4
	80	Marathon	DCM100	140953L		0	Pilot House Batteries 1.04			General Sensor Bus		1.210	A	1
	81	Marathon	IPR100	102009		1	2.1.5			Gateway		1.30	A	1
	94	Serohin Indu...				2				Engine Controller		65.535	-	255
	23	Avimac	PK000 Weather...	228344		0	1.611.611.1.11.411.A00			Weather Instruments		1.210	6	13
	94	Serohin Indu...				1				Engine Controller		65.535	-	255
	98	Serohin Indu...	SAW05FLA00			1		1006AW_06_ENG_86_P02		Engine Controller		1.111	-	0

**RX PGN (0x28) 1620099 - Received PGNs**

- PGN 59332: ISO Acknowledgment
  - Control Byte
  - Group Function Value
  - Reserved Bits
  - PGN of Requested Information
- PGN 59904: ISO Request
  - PGN being requested
  - Sequence number of multi-packet frame
  - Multi-packet packetized data
- PGN 60160: ISO Transport Protocol, Data Transfer
  - ISO Transport Protocol, Connection
  - Sequence number of multi-packet frame
  - Multi-packet packetized data
  - RTS Group Function Code
  - Total message size, bytes
  - Total number of frames to be transmitted
  - Reserved Bits
  - PGN of multi-packet message
  - ISO Address Claim
  - Unique Number (ISO Identity Number)
  - Manufacturer Code
  - Device Instance Lower (ISO ECU Instance)
  - Device Instance Upper (ISO Function Instance)
- PGN 60415: ISO Transport Protocol, Connection
- PGN 60928: ISO Address Claim
- Unique Number (ISO Identity Number)
- Manufacturer Code
- Device Instance Lower (ISO ECU Instance)
- Device Instance Upper (ISO Function Instance)

The PGN Page shows all transmitted and received sentences to ensure proper operation.

# Maretron N2KAnalyzer

## N2KAnalyzer Software Properties Page



Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Device Function	System Instance	IMA/EA 2000 Version	IMA/EA 2000 Certification Level	LEN
	99	Serohin Indu...				1			-	Engine Controller	6	65.535	-	255
	98	Serohin Indu...	5A/W/S9L/A00			0		10006AW_08_ENG_86_P02	-	Engine Controller	6	1.111	-	0
	97	Serohin Indu...	5A/W/S9L/A00			0		10006AW_08_ENG_86_P02	-	Engine Controller	6	1.111	-	0
	96	Serohin Indu...	5A/W/S9L/A00			0		10006AW_08_ENG_86_P02	-	Engine Controller	6	1.111	-	0
	41	Serohin Indu...	TELEFLEX	YG.77909M023		0		5W03288v6	-	Engine Gateway	6	1.111	6	4
	90	Maytron	DCM100	1409538		0	Pilot House Batteries 1.0.4		-	General Sensor Bus	6	1.210	A	1
	3	Maytron	PG100	1620099		0	3.1.6		-	Gateway	6	1.30	A	3
	94	Serohin Indu...				2			-	Engine Controller	6	65.535	-	255
	23	Arrma	PK020 Weather...	228344		0		1.6011.011.M11.011.M0	-	Weather Instruments	6	1.210	6	13
	94	Serohin Indu...				1			-	Engine Controller	6	65.535	-	255
	98	Serohin Indu...	5A/W/S9L/A00			1		10006AW_08_ENG_86_P02	-	Engine Controller	6	1.111	-	0

The Received PGN Page shows the specifics of what data is being sent and specifics of that data.



# Maretron N2KAnalyzer

## N2KAnalyzer Software Properties Page

The screenshot displays the N2KAnalyzer software interface. The top window, titled 'TX DST200 (0x24) 2254145 - Transmitted PGNs', lists various PGNs with their time, PGN number, and description. The bottom window, titled 'N2KAnalyzer Software Properties Page', shows a table of software versions and installation details.

PGN	Time	Description
146216...	60928	ISO Address Claim
146222...	65408	Unknown (65408)
146222...	65409	Unknown (65409)
146222...	65410	Unknown (65410)
62541.88	126208	NMEA - Read Fields - group function
90103.72	126208	NMEA - Read Fields - group function
63998.56	126464	PGN List - Received PGN's group function
63998.58	126464	PGN List - Received PGN's group function
90103.72	126720	Moritz DCR Channel Lock Status
146217...	126996	Product Information
62514.07	126998	Configuration Information
146222...	128259	Speed, Water referenced
146222...	128267	Water Depth

PGN	Time	Description	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
01000_E ...	-	-	-	01000_E ...	-	-	-
01000_E ...	-	-	-	01000_E ...	-	-	-
3.50	-	-	-	3.50	-	-	-
1.0 Mod A	-	-	-	1.0 Mod A	-	-	-
1.601,1.6...	-	-	-	1.601,1.6...	-	-	-
1.004,1.0...	-	-	-	1.004,1.0...	-	-	-
1.201,1.2...	-	-	-	1.201,1.2...	-	-	-
1.4.15.3	-	-	-	1.4.15.3	1.4.15.3	-	-
1.100, 2...	-	-	-	1.100, 2...	-	-	-
1.100, 2...	-	-	-	1.100, 2...	-	-	-
1.100, 2...	-	-	-	1.100, 2...	-	-	-
1.100, 2...	-	-	-	1.100, 2...	-	-	-
1.100, 2...	-	-	-	1.100, 2...	-	-	-
1.8.3	-	-	-	1.8.3	1.8.3	-	-
52749.A.8	-	-	-	52749.A.8	-	-	-
1.6.12	-	-	-	1.6.12	1.6.15	-	-
1.53	-	-	-	1.53	-	-	-

The transmitted PGN Page will allow for the user to view the live data coming from a sensor which will show if it is actually transmitting and if the data is correct.



# Maretron N2KAnalyzer

N2KAnalyzer Software Properties Page

N2KAnalyzer also offers the ability to simulate a DSM250 display through the software to view live data as well as change settings just as if a live display were onboard.

Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	01000_E...	-		
	01000_E...	-		
	3.50	-		
	1.0 Mod A	-		
	1.601.1.6...	-		
	1.004.1.0...	-		
	1.201.1.2...	-		
	1.4.153	1.4.153		
	1.100.2...	-		
	1.100.2...	-		
	1.100.2...	-	Demo for NMEA E...	
	1.100.2...	-	Supplied by Geme...	
	1.8.3	1.8.3		
	52749.A.8	-		
	1.6.12	1.6.15		
	1.53	-		
	1.2.1	-		

DSM250

Maretron

Alert Setup...  
Alert Status...  
Configuration...  
Display Settings...  
Favorite Screens Mode: Manual  
Favorite Screens Setup...  
Units...

Power Back Scroll Up Scroll Down Enter

7L Maretron TLAD00 1260116

7A Beyond Meas... Fish Display L... 396-623085 0

32 Beyond Meas... FishGate 100 396-40001012 0

Connected to NMEA 2000 Network COM5 NUM

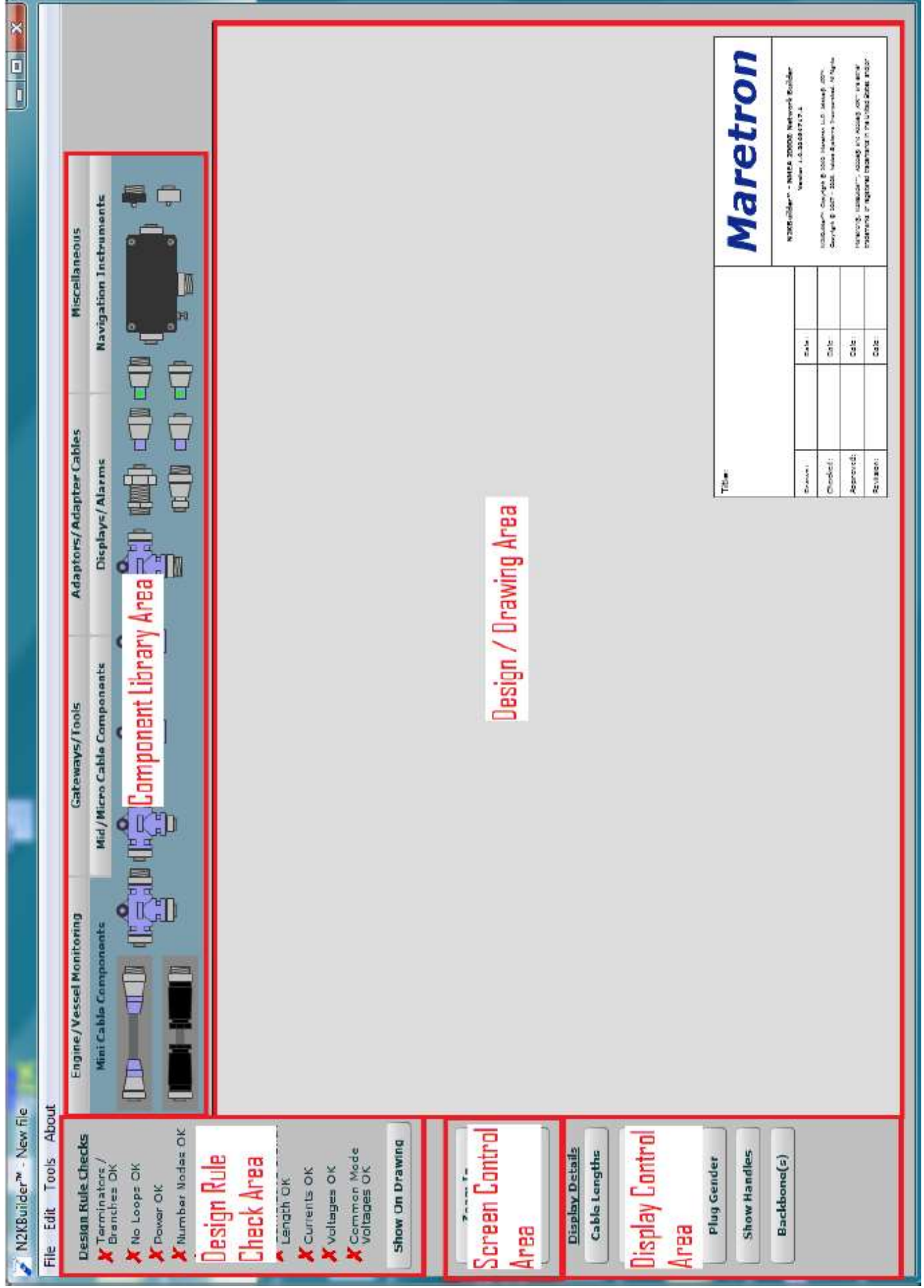


# Maretron N2KBuilder

## **N2KBUILDER NMEA 2000™ NETWORK DESIGN SOFTWARE**

- Maretron's unique N2KBuilder program allows dealers and installers to design and test networks before any cable is pulled through the vessel.
- The software will calculate voltage drop, connector gender, and cable lengths as well as allow the use of custom parameters to meet most design needs.
- When used properly, a configuration file can be generated to create a bill of material that will include all Maretron parts used in the build that makes ordering parts much more efficient.

# Maretron N2KBuilder



# Maretron N2KBuilder

**Design Rule Checks**

- Terminators / Branches OK
- No Loops OK
- Power OK
- Number Nodes OK
- Cable Lengths OK
- Trunk Length OK
- Branch Length OK
- Cumulative Branch Length OK
- Currents OK
- Voltages OK
- Common Mode Voltages OK

[Show On Drawing](#)

**Navigation: Instruments**

Miscellaneous

**Displays / Alarms**

Adapters / Adapter Cables

**Mini Cable Components**

Engine / Vessel Monitoring

Mid / Micro Cable Components

Gateways / Tools

**Maretron**

Text

Picture

The diagram shows a central power source labeled "10.72Volts" connected to a network of DSM250 displays. The displays are connected to various power sources, including "10.66Volts", "10.68Volts", and "9.65Volts". The displays are labeled "DSM250" and show voltage readings: "8.2Volts", "7.72Volts", "7.4Volts", and "7.24Volts".

**Display Details**

- Cable Lengths
- Currents
- Voltages
- Plug Gender
- Show Handles
- Backbone(s)

**Title:**

**Tutorial 3**

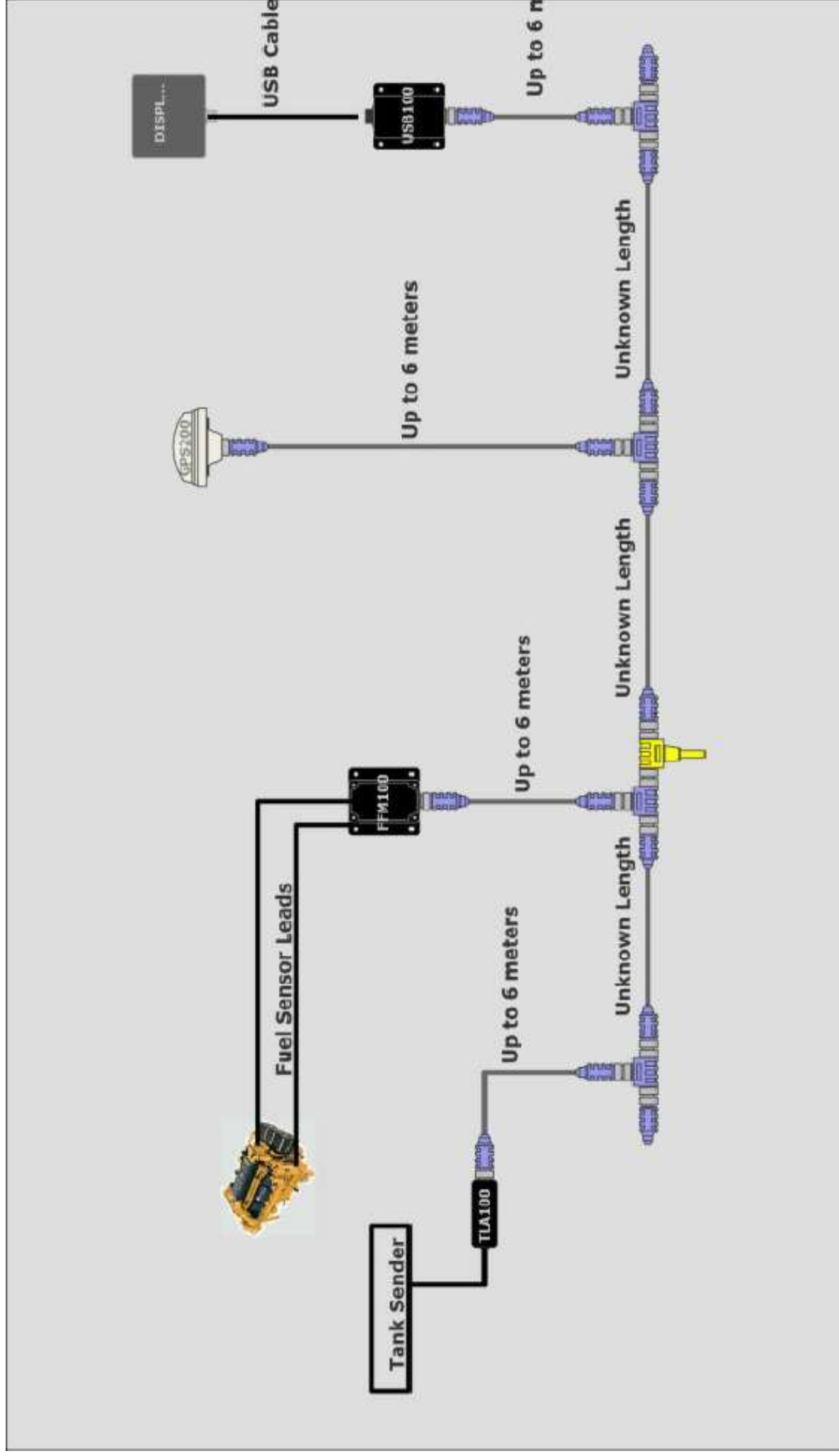
Drawn:	Date:
Checked:	Date:
Approved:	Date:
Revised:	Date:

**Maretron**

N2KBuilder™ - NMEA 2002 Network Builder  
Version 1.0.0.100702

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Maretron Inc. 2007 - 2008. All Rights Reserved. All Rights Reserved.

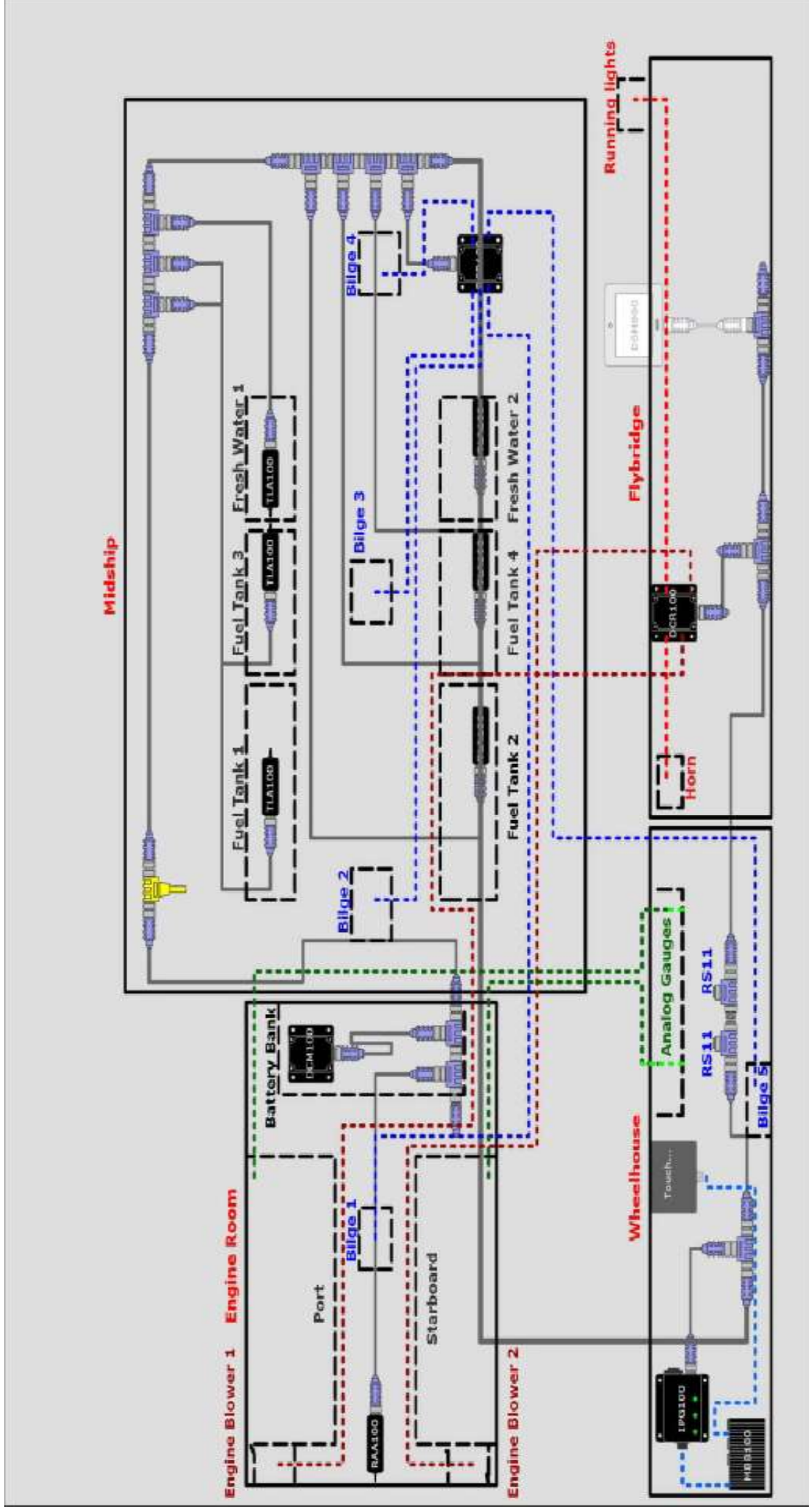
# Maretron N2KBuilder



- This build file shows a system where the end user supplies specifics to be used to generate a complete network. It is a useful program to start a system and explain to customers not familiar with NMEA 2000™ how the parts are utilized.



# Maretron N2KBuilder



- Attached is a detailed view of how the system can be used to partition specific sections of a vessel and show possible connection and integration points. The more detailed a customer's requirements are, the more data can be added to the builder file. This also helps generate a very specific BOM to give an accurate estimate of what parts will be required as well as total component cost.

# Maretron N2KBuilder

Bill of Materials Report for C:\Documents and Settings\johnd\Desktop\N2K Builder Files\Marine Tech 2.n2b

Manufacturer	Part Number	Description	Quantity
Maretron		Micro Double Ended Console - M to F - 7m Gray	18
Maretron	CF-SPWRDS-CF	Micro/Mid 5m Power Tap Tee	1
Maretron	CM-CF-CF	Micro Tee	14
Maretron	DCM100-01	Direct Current Monitor	1
Maretron	DOR100-01	DC Relay	2
Maretron	IPS100-01	Internet Protocol Gateway	1
Maretron	MBH100	Black Box Vessel Monitoring and Control	1
Maretron	RAA100-01	Rudder Angle Adapter	1
Maretron	TLA100-01	Tank Level Adapter	6
Maretron	TR-CM	Micro Termination Resistor Male	2

- The Bill of Materials that is generated from the Builder file is an excellent way to control cost of the build as well as to generate equipment costs for a job.

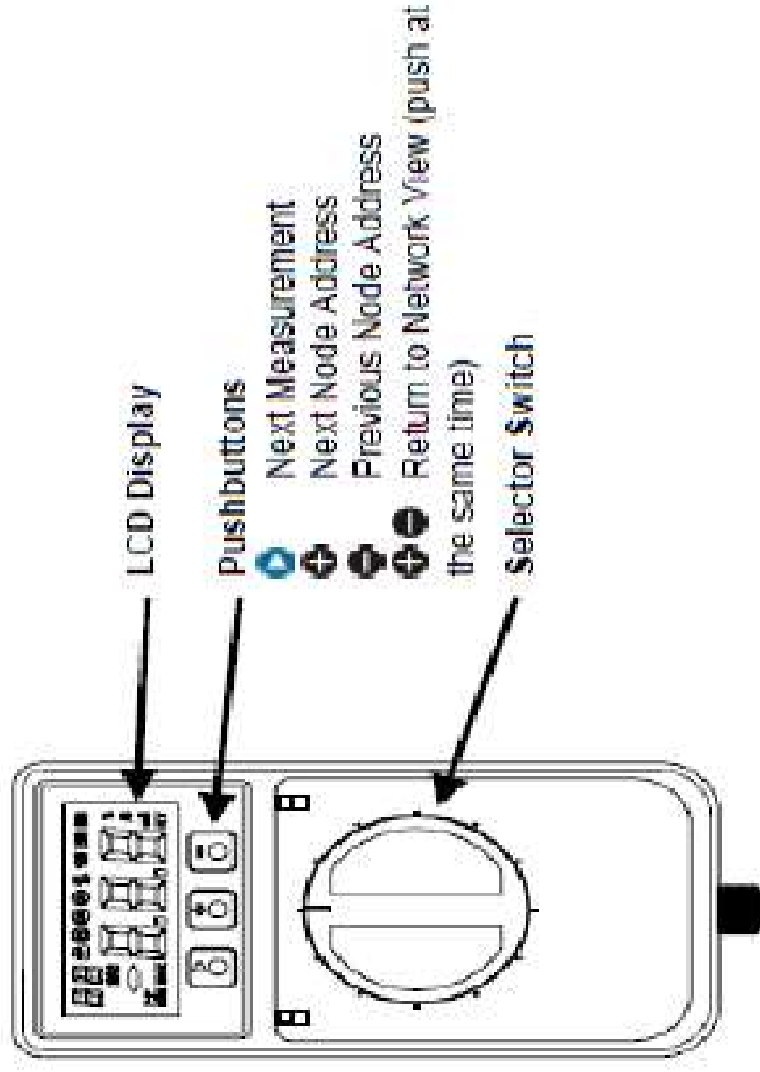
# Maretron N2KMeter



- The N2KMeter has the capability to test the physical aspects of a network.
- Faults that can be detected by the N2KMeter include:
  - Opens and Shorts
  - Incorrect Topology
  - Bad Nodes
  - Bad Termination
  - Improper Shield Connection
  - Intermittent Problems
  - Excessive Scan Rate
  - Common Mode Voltage

# Maretron N2KMeter

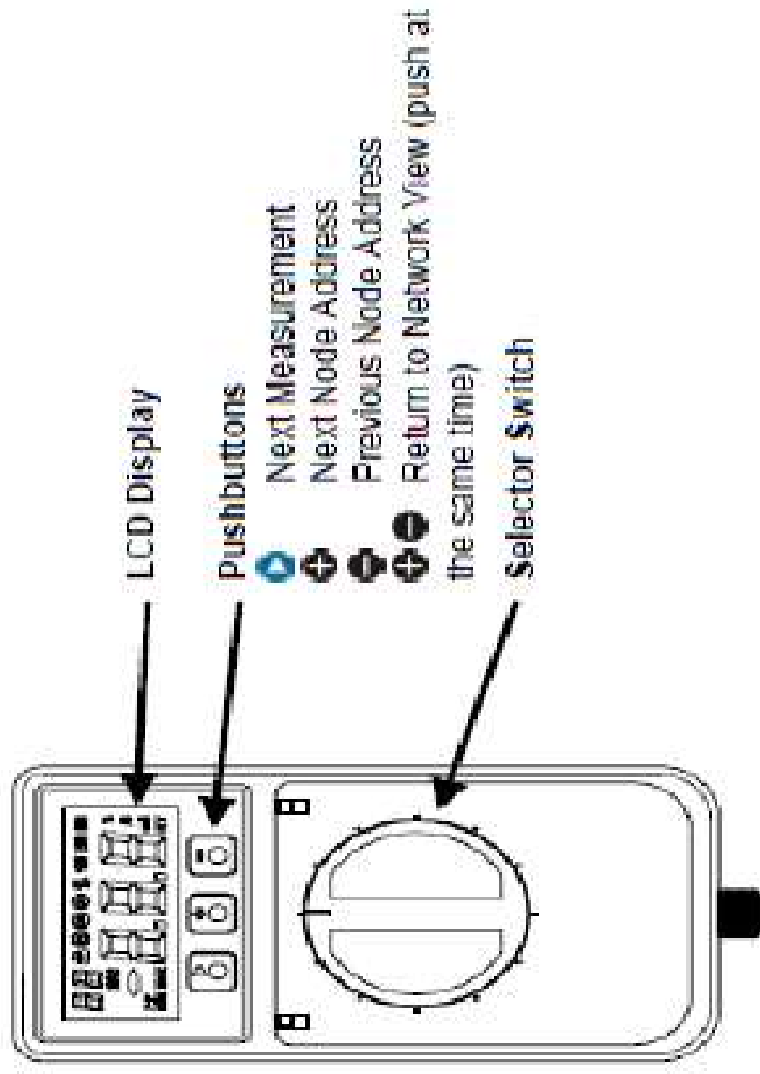
- The meter offers the ability to use an Auto-Search tool that will allow the dealer to locate faults.
- It works by examining all measurements and then pinpointing any that exceed or are close to specified limits.
- The N2KMeter tracks network data transmission errors in real-time and lets you know if the error rate is acceptable, marginal or unacceptable with the use of a simple signal interface.





# Maretron N2KMeter

- The automated error detection of the N2KMeter allows the user to view issues on the backbone live.
- The technician will be able to determine if the error was an isolated event or if it is recurring which would indicate a problem on the NMEA 2000™ network.
- The error detection will scroll numerically as issues arise from the time it is connected to a node.



# Maretron N2KMeter

- Any error rate greater than zero is undesirable (although your network may still function since CAN automatically retransmits after errors).
- An error rate greater than 10/s indicates a problem that should be investigated.
- The N2KMeter uses unique technology to accurately determine which node was attempting to transmit when a bus error occurs.

