



TLM Series

Tank Level Monitor

TLM100 & TLM150

Overview & Installation Guide

Maretron[®]

Vessel Monitoring & Control

Overview:

- What is a TLM100 & TLM150?
- Opening the Box
- Available accessories
- Installing the TLM Series
- Configuration using N2KAnalyzer® V3
- Configuration using DSM Display
- Data review screen on N2KView® V3
- Data review screen on MConnect
- Data review screen on DSM Series Display
- Data review on 3rd Party Displays
- Maretron Website Resources
- Prerequisites:
 - N2KAnalyzer Overview
 - N2KView Overview
 - DSM Navigation Overview

WHAT IS A TLM100 & TLM150?

Product Overview

The Maretron TLM Series of sensors allow a user to sense fluid levels of tanks by using ultrasonic technology and will transmit the fluid level to the connected NMEA 2000® network and reviewed on supported displays such as Maretron, OctoPlex and many 3rd Party MFDs (Multi-Function Displays).

➤ TLM100

- Diesel, Fresh Water, Waste-Water, Black Water and Oil
- **Up to 40"** (1.02m) in depth

➤ TLM150

- Gasoline/Petrol
- **Up to 24"** (0.61m) in depth

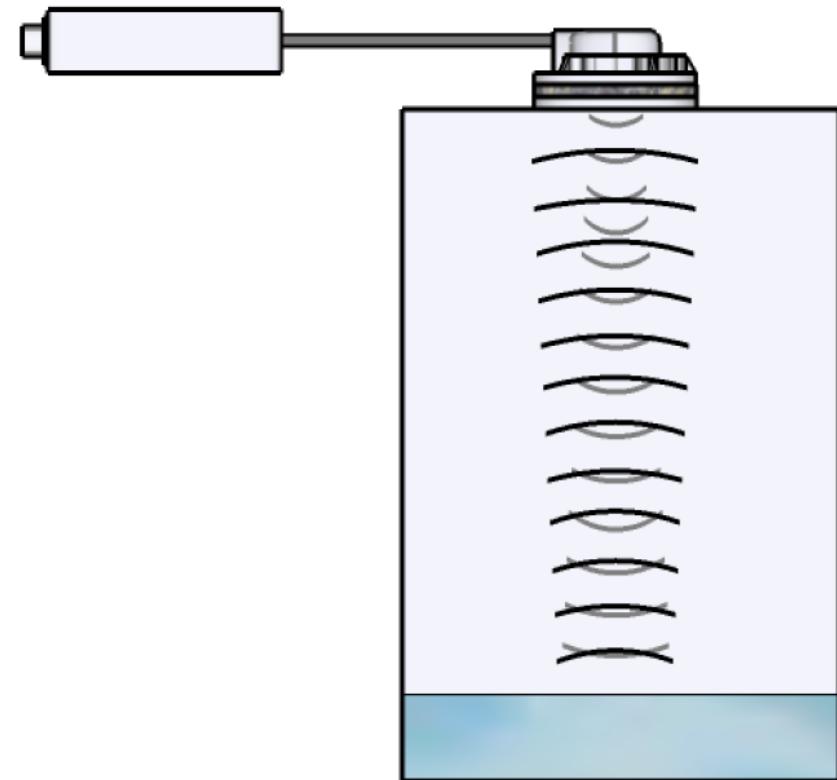


WHAT IS A TLM100 & TLM150?

Product Overview

Ultrasonic, or sound waves, are transmitted via the TLM Series sensor mounted at the top of the tank and the flight times of the sound waves to and from the fluid are measured much like a depth sensor.

Once the TLM Series Sensor calculates and transmits the fluid level over the NMEA 2000® network, you can observe tank levels anywhere on the vessel where there is an NMEA 2000® compatible display.



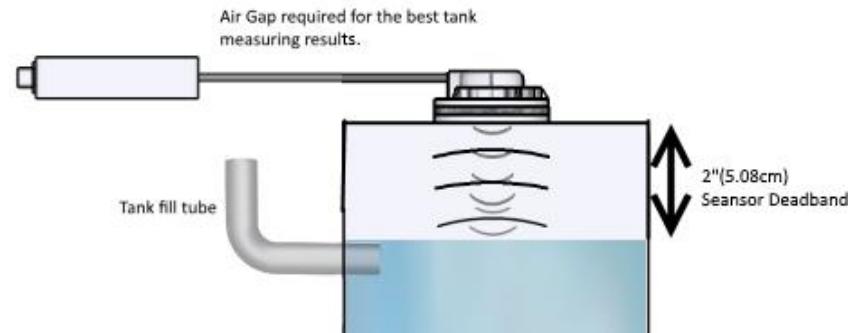
WHAT IS A TLM100 & TLM150?

Product Overview

** NOTICE **

Usage of Ultrasonic technology inherently has a “dead-band” which is the minimum distance a sensor requires to successfully transmit and receive a reading.

This is **2”** on the Maretron TLM Series products.



INSTALLATION & WIRING

Unpacking the Box

- TLM100 – Tank Level Monitor
- TLM150 – Tank Level Monitor (Gasoline)
- J1810 5-Hole Gasket
- Packet of Petroleum Jelly
- TLM100 User's Manual
- TLM150 User's Manual
- Warranty Registration Card



ACCESSORIES

Adapters & Focus Tubes



Adapters Suitable for TLM100, TLM150 and submersible pressure transducers

- TA-5H-1.5NPT 1.5" NPT Hull Tank Adapter
- TA-5H-1.25BSP 1.25" BSP Hull Tank Adapter



Focus Tubes Suitable for TLM100, TLM150 and submersible pressure transducers

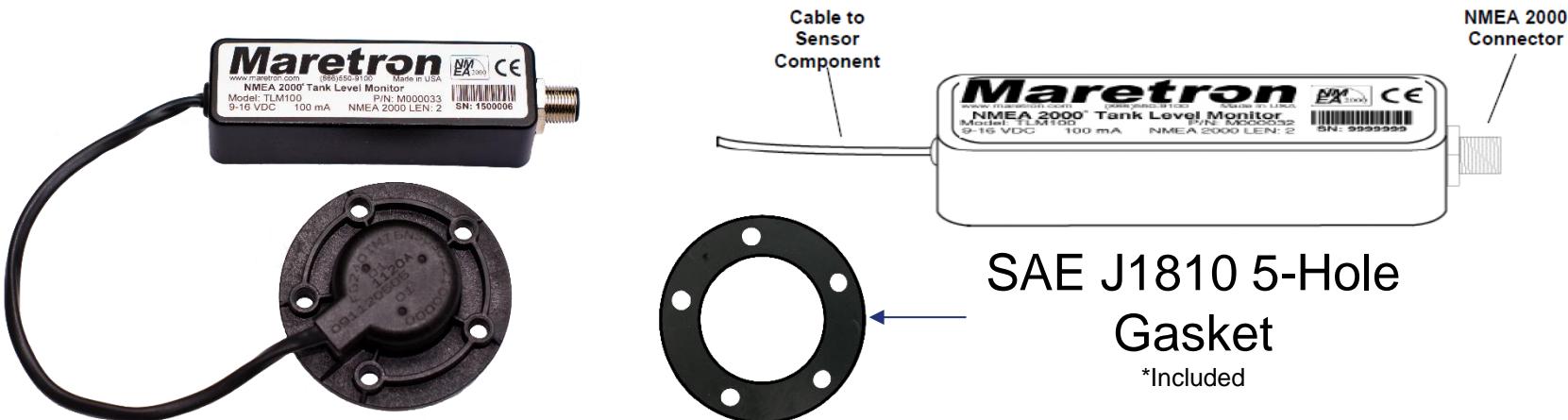
- TFT-5H SAE 5-Bolt Pattern Focus Tube
- TFT-1.5NPT 1.5" NPT Focus Tube
- TFT-1.25BSP 1.25" BSP Focus Tube
- TFTDBE-5H SAE 5-Bolt Pattern Focus Tube with Dead Band Eliminator



INSTALLATION & WIRING

Mounting Location

- The TLM Series sensors are waterproof, so they can be installed in a damp or dry locations and are ready to install onto a tank using the marine standard SAE J1810 5-Hole mounting pattern.
- Maretron offers adapters to convert from threaded tank access solutions, such as 1.5" NPT or a 1.25" BSP connection to J1810 5-Hole mounting pattern.
- The NMEA 2000® interface component of the TLM can be mounted in any orientation.



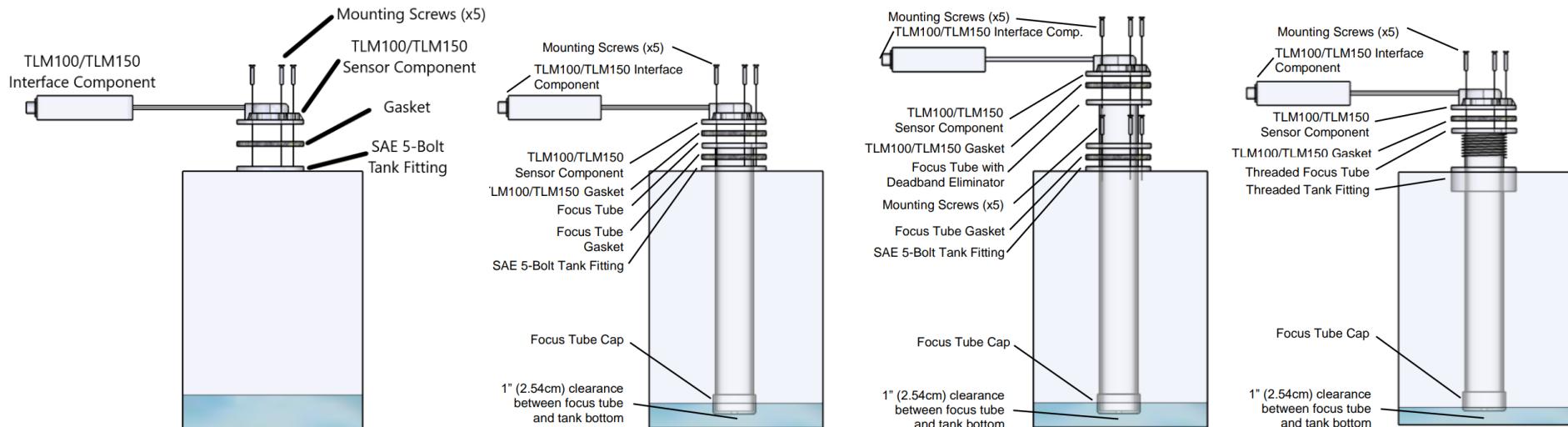
INSTALLATION & WIRING

Mounting Location

Pairing a focus tube assembly with your TLM Series Sensor will increase the performance and reliability of the measurement readout in all fluid applications and tank shapes!!

Maximum Tank Angle without a focus tube is **6°** while pairing with a focus tube offers a tolerance of **15°** and a controlled environment for increased reliability in readings regardless of vessel behavior.

Sensor Setup	Tank Angle Tolerance
Without a Focus Tube	$\pm 6^\circ$
With a Focus Tube	$\pm 15^\circ$



TANK MONITORING

Family of Product

The TLM Series Products belong to Maretron's family of Tank Monitoring solutions to best suit your installation needs.

<https://www.maretron.com/products/tank-monitoring/>



FPM100
Fluid Pressure Monitor
4-20mA Pressure Sensors



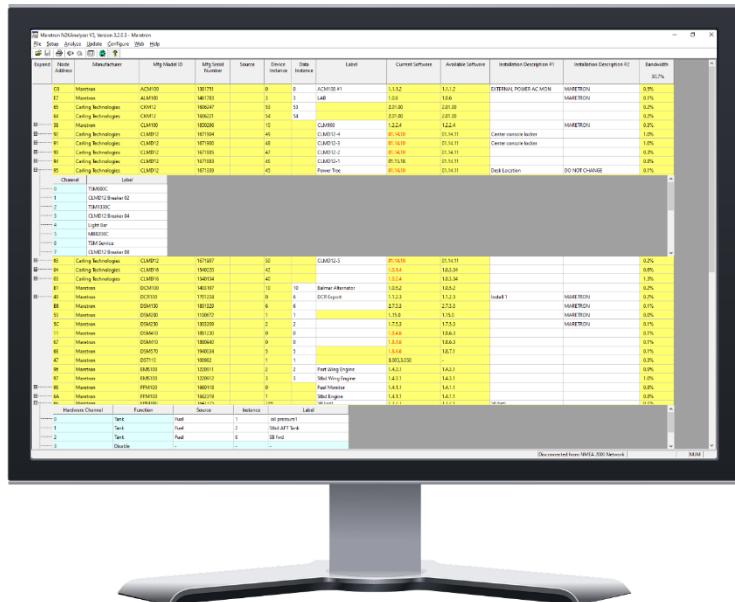
TLM100 & TLM150
Tank Level Monitors
Ultrasonic



TLA100
Tank Level Adapter
Resistive Adapter

CONFIGURATION

Device Setup



Let's get setup!

CONFIGURATION

Device Setup

Maretron products are able to be setup using either of the following methods.

- Maretron NMEA 2000® gateway, such as the USB100 (USB Interface), IPG100 (Network/IP Interface) or an MConnect paired with a Windows PC, running our free **N2KAnalyzer** application. (Recommended)
- Maretron **DSM Series displays**, such as the DSM410 and DSM570.

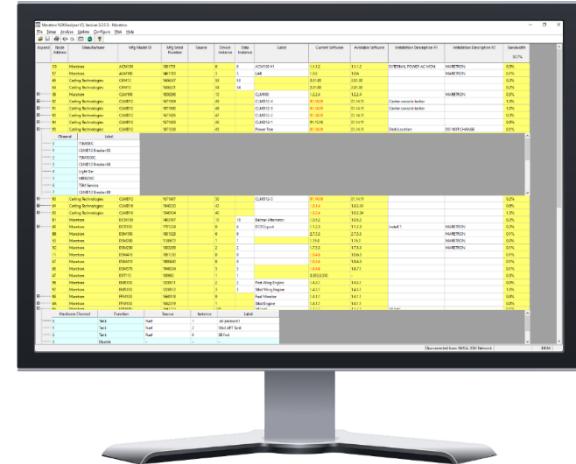
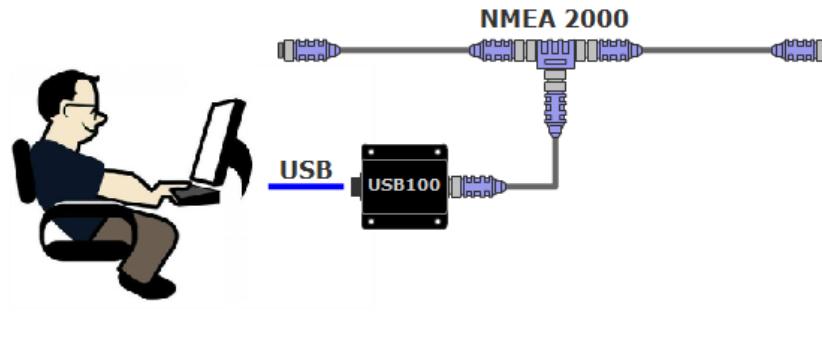
The following TLM100/TLM150 setup guide corresponds to firmware version **2.1.2.2**.



CONFIGURATION

Using N2KAnalyzer® V3

N2KAnalyzer® V3 is a Windows® PC based application that pairs with a Maretron gateway, USB100, IPG100 or MConnect, to connect the user to their NMEA 2000® network. This will allow the PC user to access all of your devices on your NMEA 2000® network.



N2KAnalyzer can be download via the following link, to complete the installation.

- <https://www.maretron.com/products/n2kanalyzer-v3-nmea-2000-analysis-software/#lqd-tab-7074>

CONFIGURATION

Using N2KAnalyzer® V3 – Gateway

USB100

Connect N2K port to an active NMEA 2000® network.

Connect opposite port via USB cable into your Windows PC.



IPG100 & MConnect

Connect N2K port to an active NMEA 2000® network.

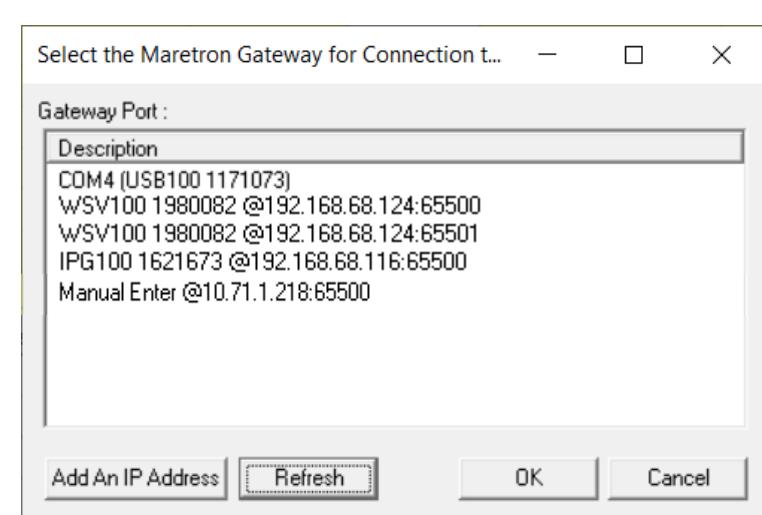
Connect ethernet port (RJ45) to your Vessel's network.



CONFIGURATION

Using N2KAnalyzer® V3 – Connect

When launching N2KAnalyzer, you will be prompted to select your gateway solution. Select your connection and press **OK**.



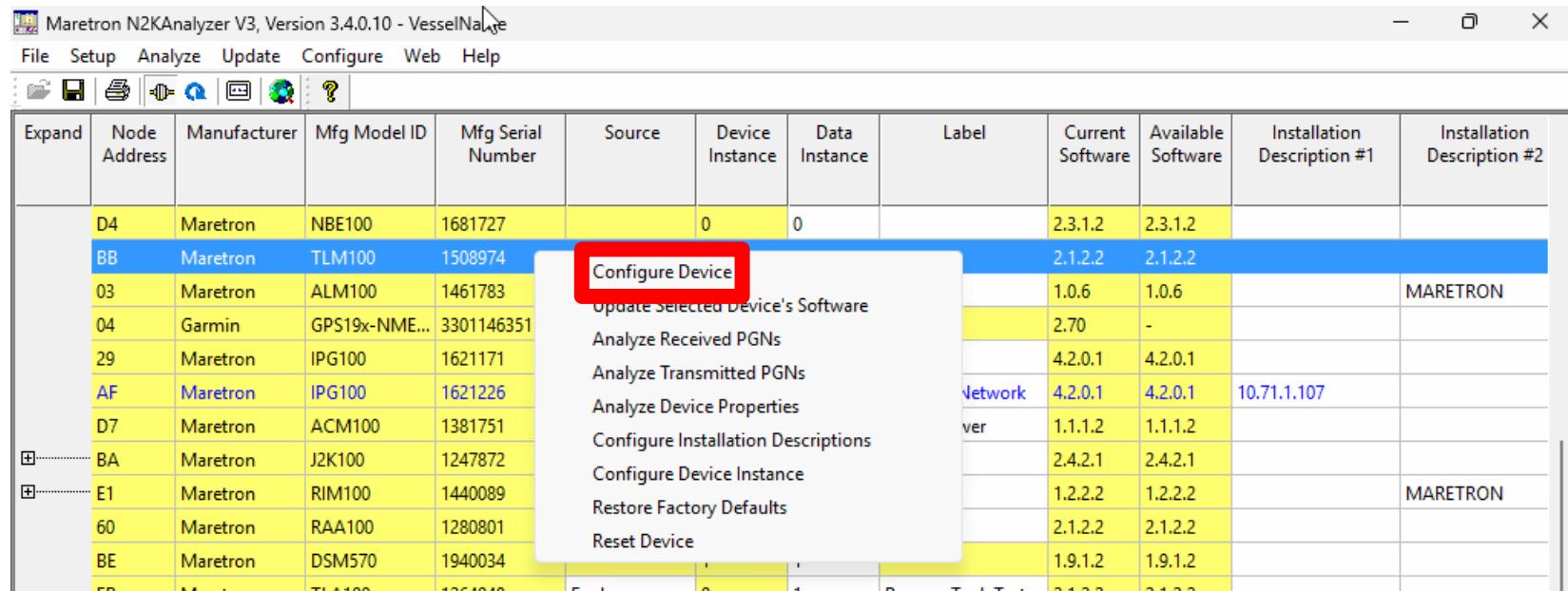
CONFIGURATION

Using N2KAnalyzer® V3 – Locate Device

Select Target Device for Setup

A list of all your connected NMEA 2000® devices will populate, locate your appropriate device.

Select the TLM100 by left-clicking once, then right-click and select **Configure Device**.



The screenshot shows the Marettron N2KAnalyzer V3 software interface. The main window displays a table of connected devices. The 'TLM100' device, which has a Node Address of 'BB', is selected. A context menu is open over this device, with the 'Configure Device' option highlighted and surrounded by a red box. The context menu also includes other options: 'Update Selected Device's Software', 'Analyze Received PGNs', 'Analyze Transmitted PGNs', 'Analyze Device Properties', 'Configure Installation Descriptions', 'Configure Device Instance', 'Restore Factory Defaults', and 'Reset Device'. The rest of the table shows other devices like 'D4' (Node Address 'D4'), '03' (Node Address '03'), and '04' (Node Address '04'). The table columns include: Expand, Node Address, Manufacturer, Mfg Model ID, Mfg Serial Number, Source, Device Instance, Data Instance, Label, Current Software, Available Software, Installation Description #1, and Installation Description #2.

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	D4	Maretron	NBE100	1681727		0	0		2.3.1.2	2.3.1.2		
	BB	Maretron	TLM100	1508974					2.1.2.2	2.1.2.2		
	03	Maretron	ALM100	1461783					1.0.6	1.0.6		MARETRON
	04	Garmin	GPS19x-NME...	3301146351					2.70	-		
	29	Maretron	IPG100	1621171					4.2.0.1	4.2.0.1		
	AF	Maretron	IPG100	1621226					4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751					1.1.1.2	1.1.1.2		
+	BA	Maretron	J2K100	1247872					2.4.2.1	2.4.2.1		
+	E1	Maretron	RIM100	1440089					1.2.2.2	1.2.2.2		MARETRON
	60	Maretron	RAA100	1280801					2.1.2.2	2.1.2.2		
	BE	Maretron	DSM570	1940034					1.9.1.2	1.9.1.2		
	BB	Maretron	TLM100	1508974					2.1.2.2	2.1.2.2		

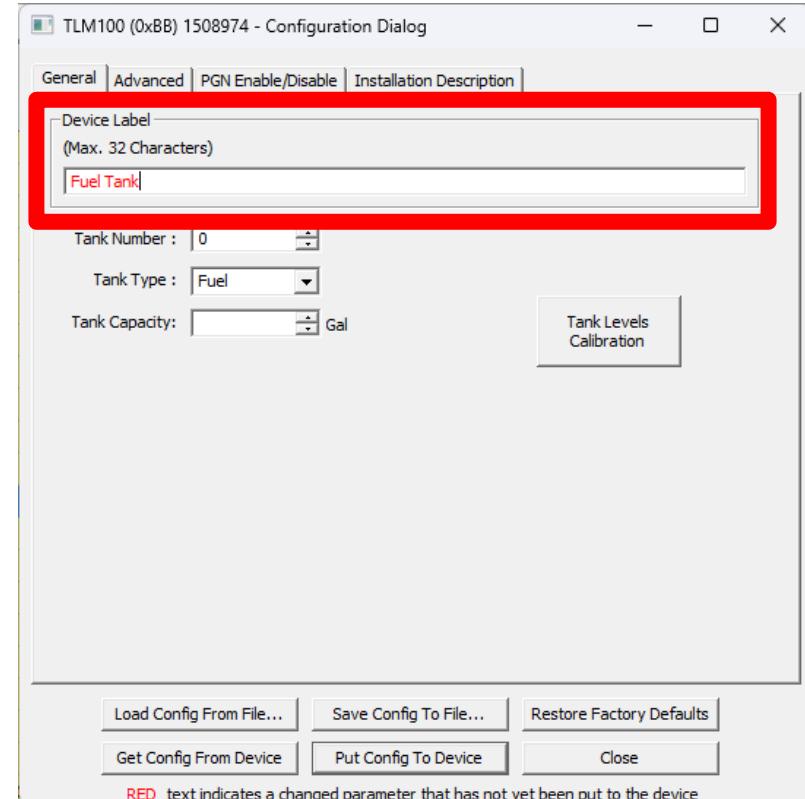
CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

TLM Configuration Dialog

Step 1: Label the Tank Monitor

- Day Tank
- Aft Fuel Tank
- Stbd F/W Tank
- Waste Tank

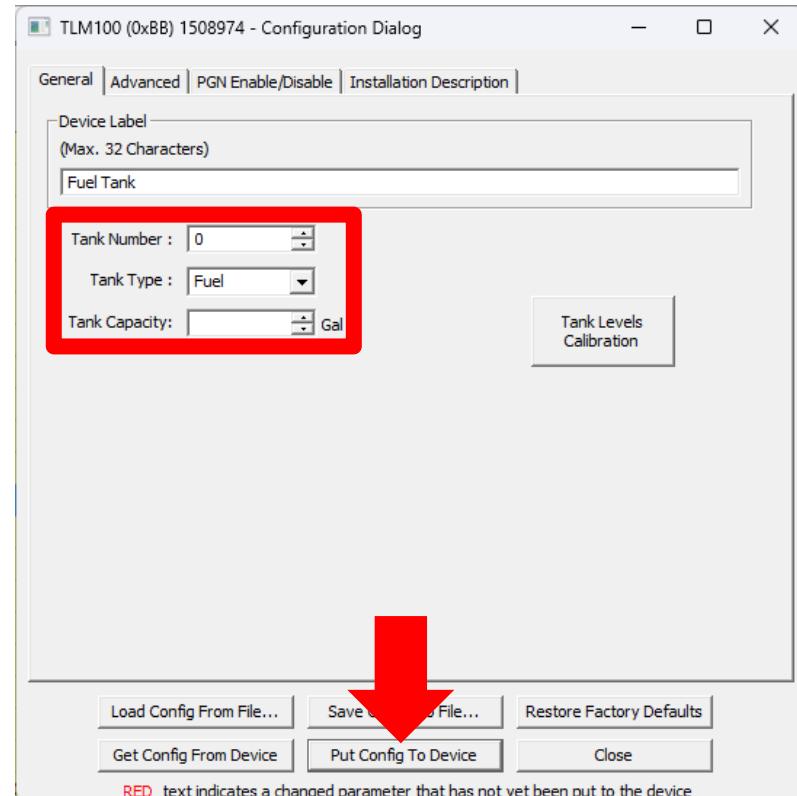


CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 2: Tank Profile Setup

- Tank / Fluid Type:
 - Fuel, Fresh Water, Gray Water, Black Water, Oil, etc...
- Tank Number / Instance:
 - 0 - 15
- Tank Capacity:
 - Gallons or Liters
- Put Config to Device to apply settings

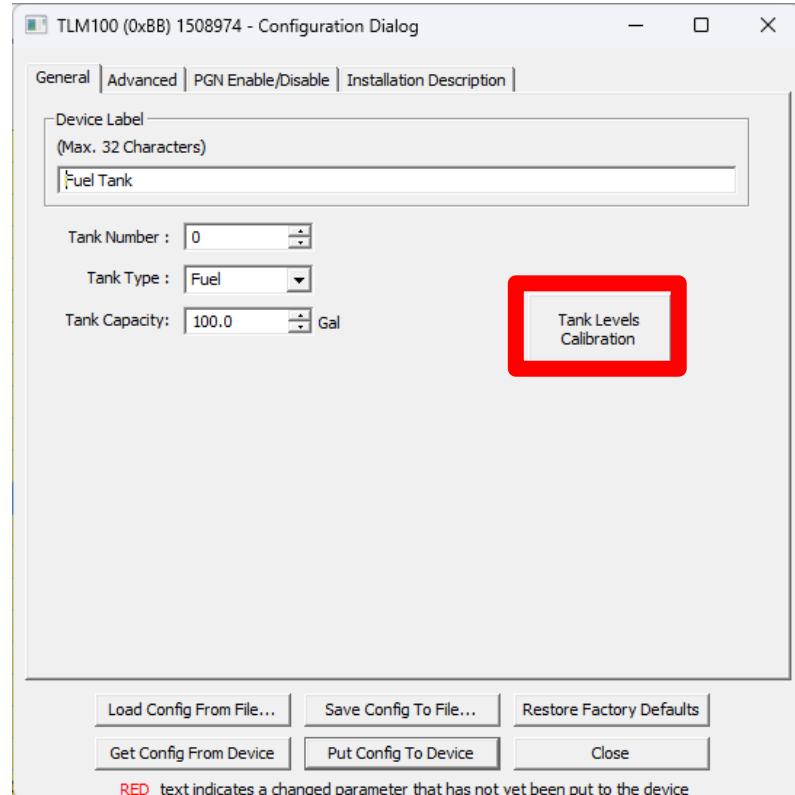


CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3: Tank Levels Calibration

- Manual Table
- Step Fill



CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3: Tank Levels Calibration, cont.

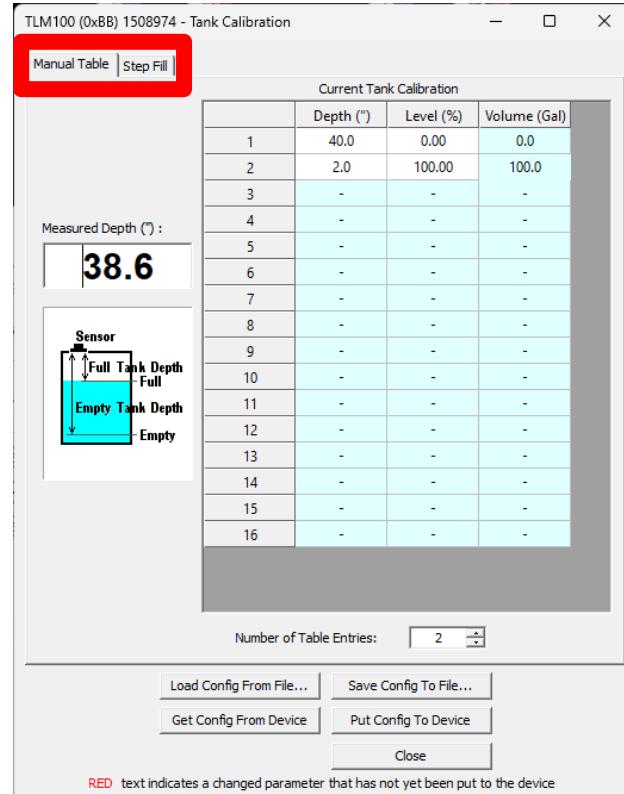
There are two methods of calibration:

- **(a) Manual Table**

- The user will enter each entry of the measured parameter (distance from sensor face to fluid surface) and the level of fluid in the tank. The table may have as few as 2 entries (for a tank with rectangular cross-section) or as many as 16 entries (for a tank with a complex cross-section).

- **(b) Step Fill**

- The user will start with an empty tank, and then fill the tank with fluid, stopping at intermediate points to enter the amount of fluid put into the tank thus far, ending once the tank is full. You may enter between two and sixteen calibration points.



CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3a: Manual Table

- This section is available if known values of tank height to volume are known, typically, provided from tank manufacturer.
- Up to 16 steps are available to create a proper “curve” to more accurately represent the true volume.
- Entry could be as simple as empty and full height measurements.
- Note: Sensor measures distance/depth from the top of the tank to the top of the height of the fluid.

	Depth (")	Level (%)	Volume (Gal)
1	40.0	0.00	0.0
2	2.0	100.00	100.0
3	-	-	-
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-

Measured Depth (") : **38.6**

Sensor

Full Tank Depth

Empty Tank Depth

Number of Table Entries: **2**

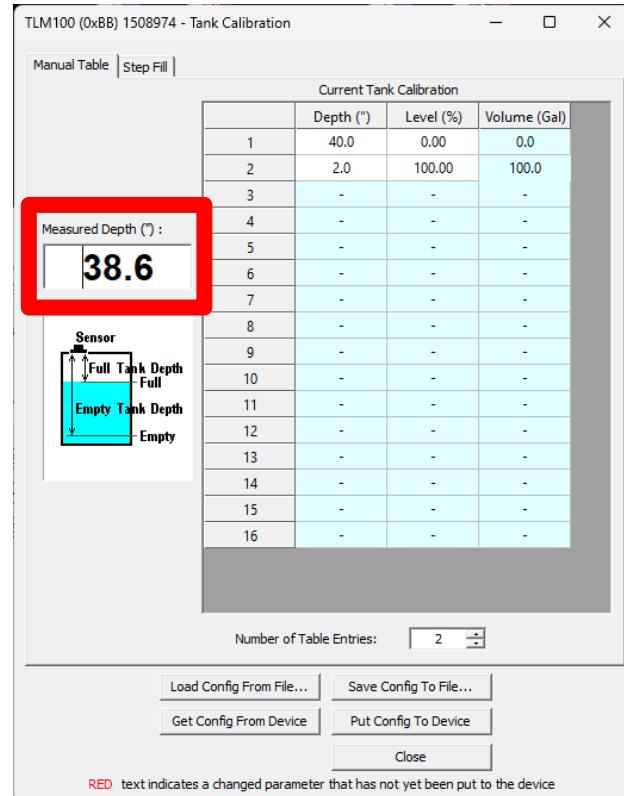
RED text indicates a changed parameter that has not yet been put to the device

CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3a: Tank Levels Calibration, cont.

- Live Depth readout on the left pane

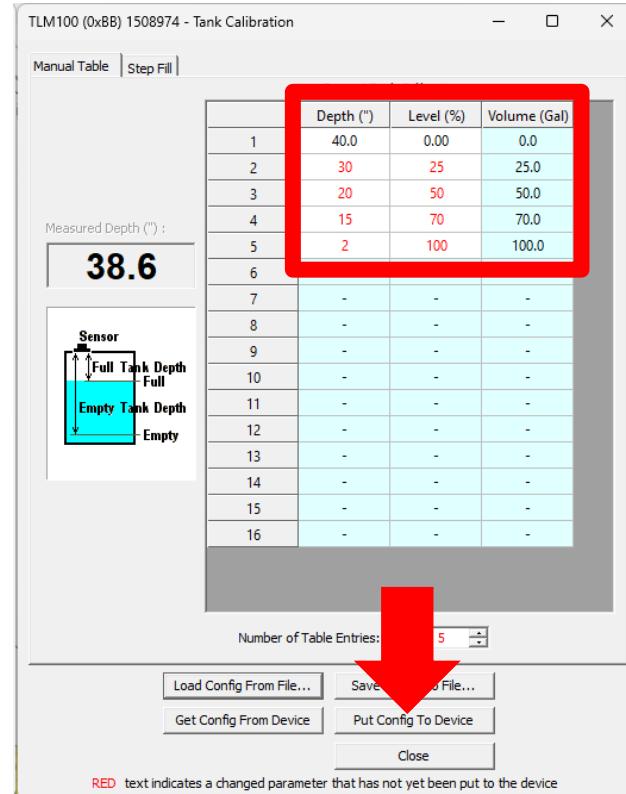
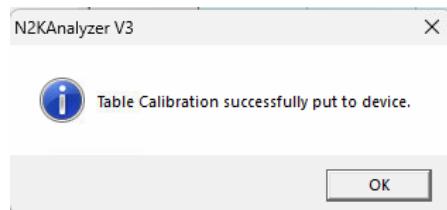


CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3a: Manual Table Calibration, cont.

- Once you have completed all of your table entries
Press **Put Config to Device** to apply the settings



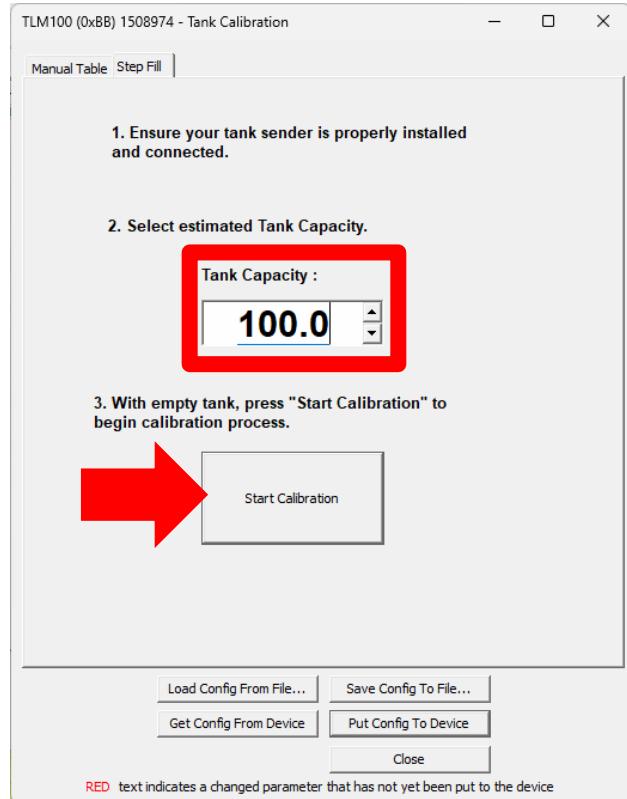
CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3b: Step Fill

This operation requires an empty tank

- Estimated Tank Capacity
- Incremental fill up to 16 steps



CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3b: Step Fill Calibration, cont.

Step 1 – Empty tank mark

Break your Steps into a reasonable increment, per your specific setup
i.e., 10-, 25- or 50-gallon increments.
Up to 15 additional Steps.

Tank Calibration - Step Fill Calibration

Entry	Depth (")	Level (%)	Volume (Gal)
1	40.0	-	0.0
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-

Tank Capacity (Gal) : **100.0**

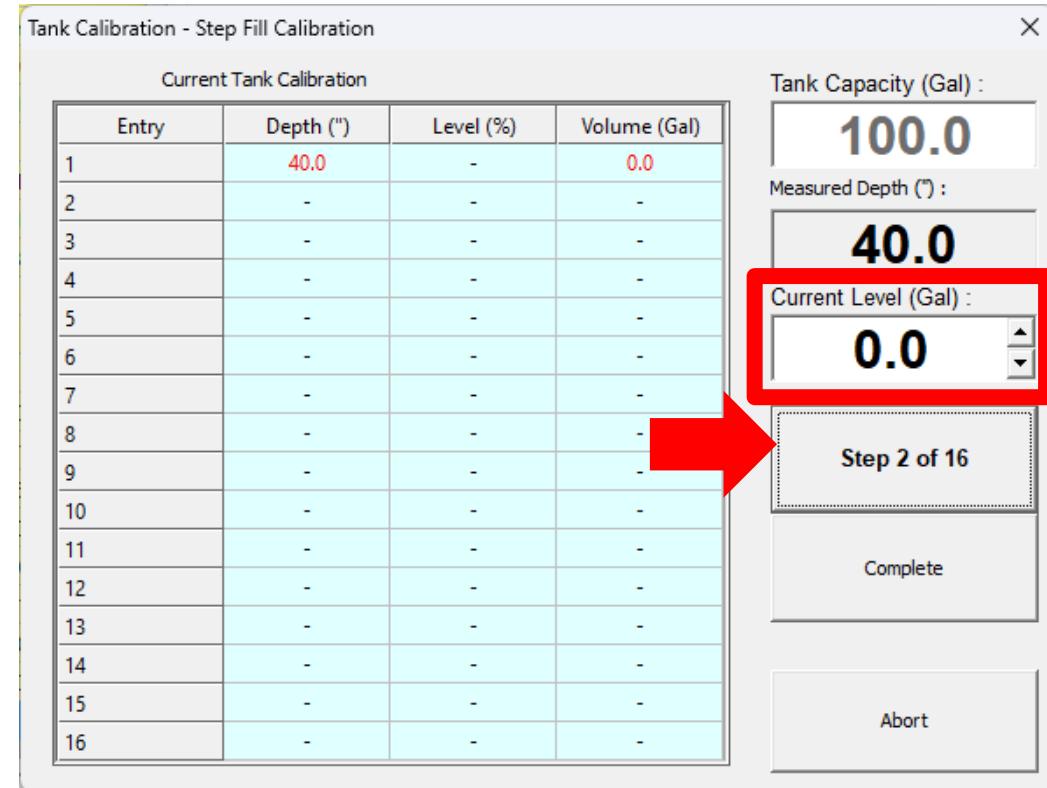
Measured Depth (") : **40.0**

Current Level (Gal) : **0.0**

Step 2 of 16

Complete

Abort



A red arrow points from the 'Current Level (Gal)' input field to the 'Step 2 of 16' button, indicating the next step in the calibration process.

CONFIGURATION

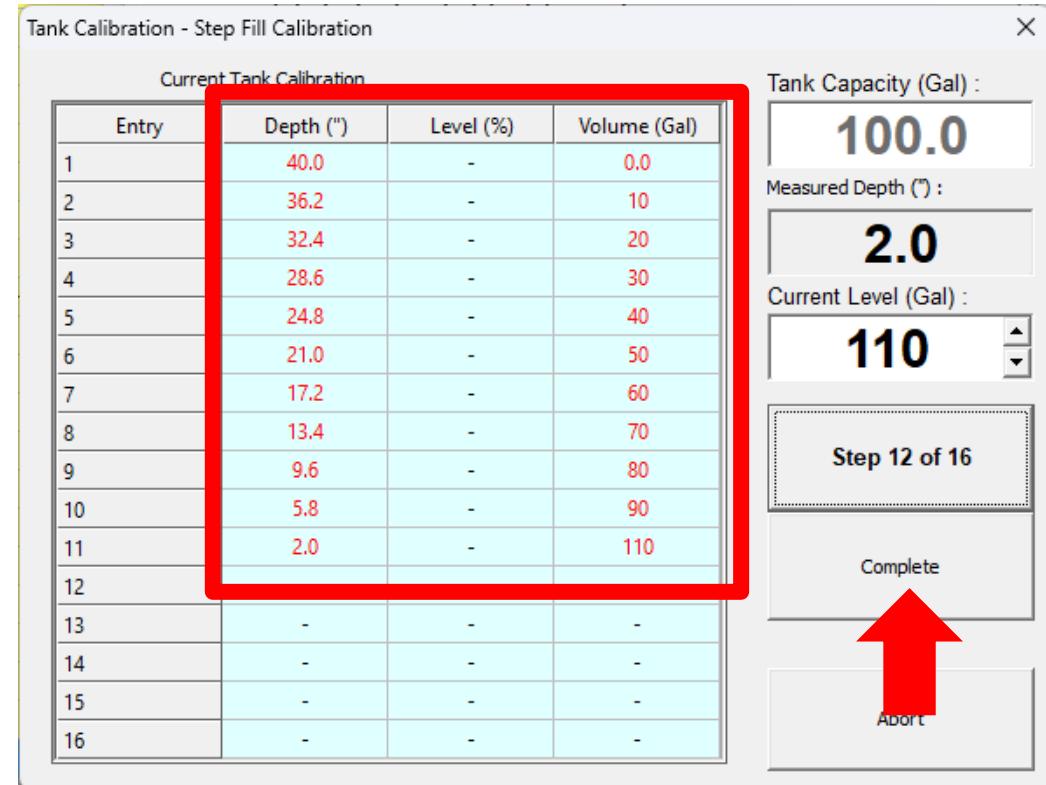
Using N2KAnalyzer® V3 – Device Setup

Step 3b: Step Fill Calibration, cont.

Press Complete when entering your Final Step.

** Note **

While filling the tank and you notice you have a different capacity amount that previously stated, the system will now allow you to set that value as your new tank capacity.



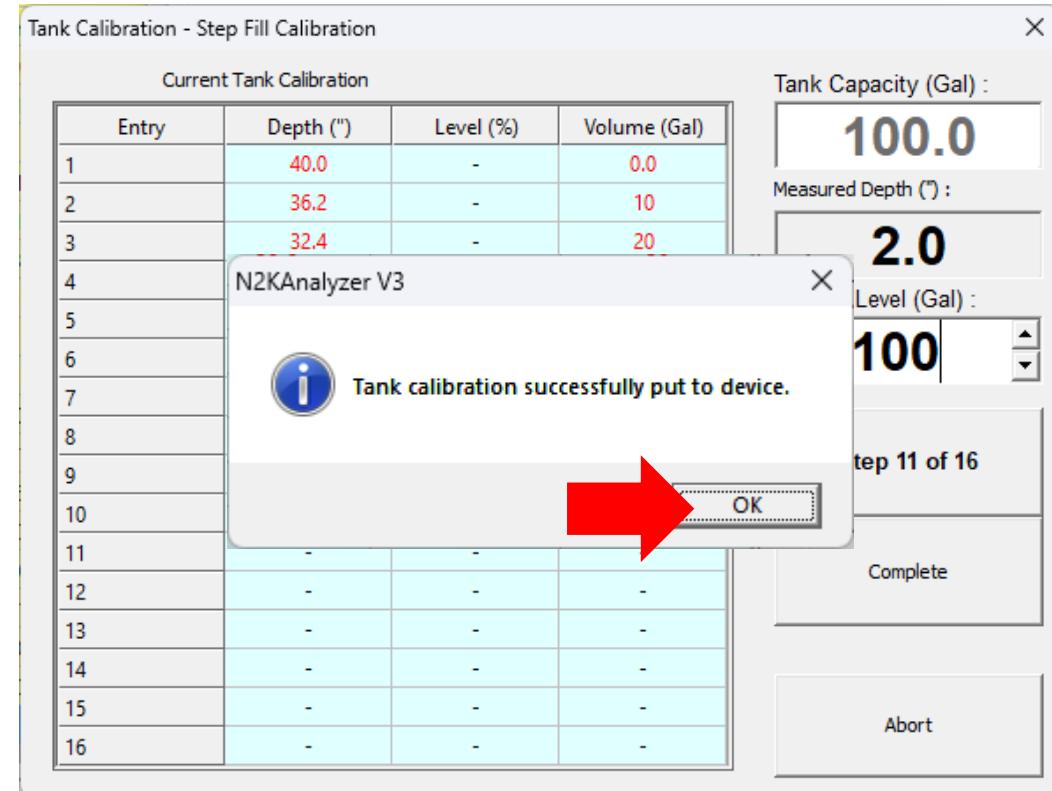
CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 3b: Step Fill Calibration, cont.

Press OK to continue.

Close the calibration window.



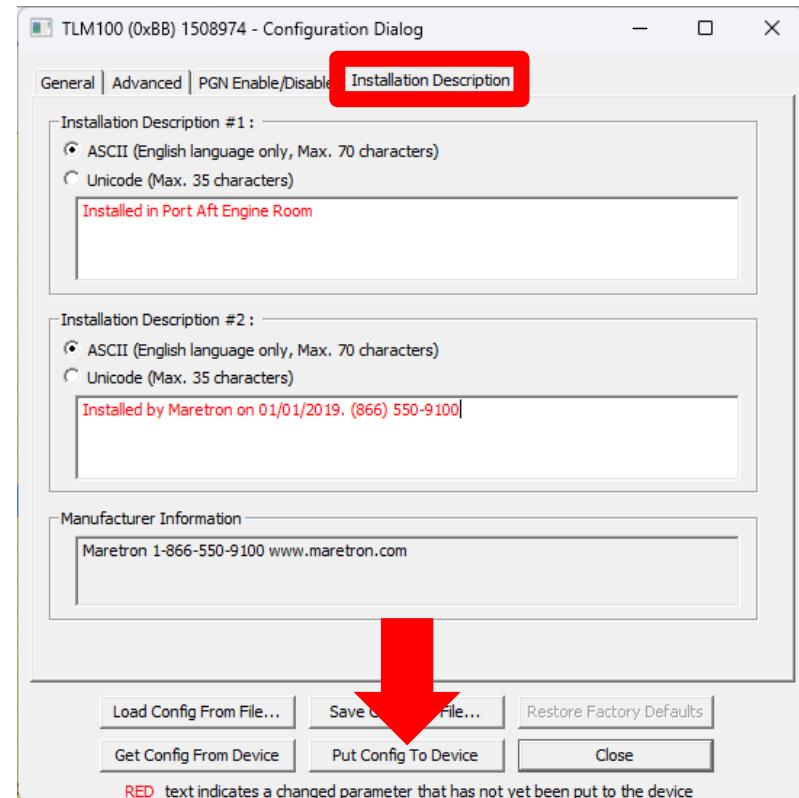
CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 4: Installation Details

Help your future self and colleagues by labelling the location of the device on a vessel and for Installers, a place to put your contact details for future business.

Put Config to Device when complete.

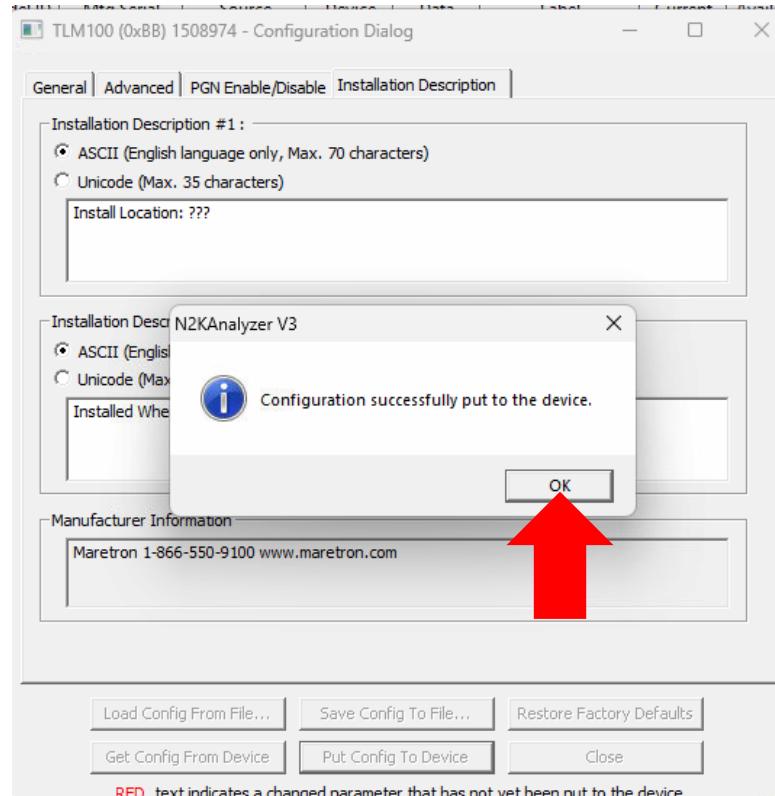


CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

Step 5: Close

Press OK and close the Configuration Dialog box.

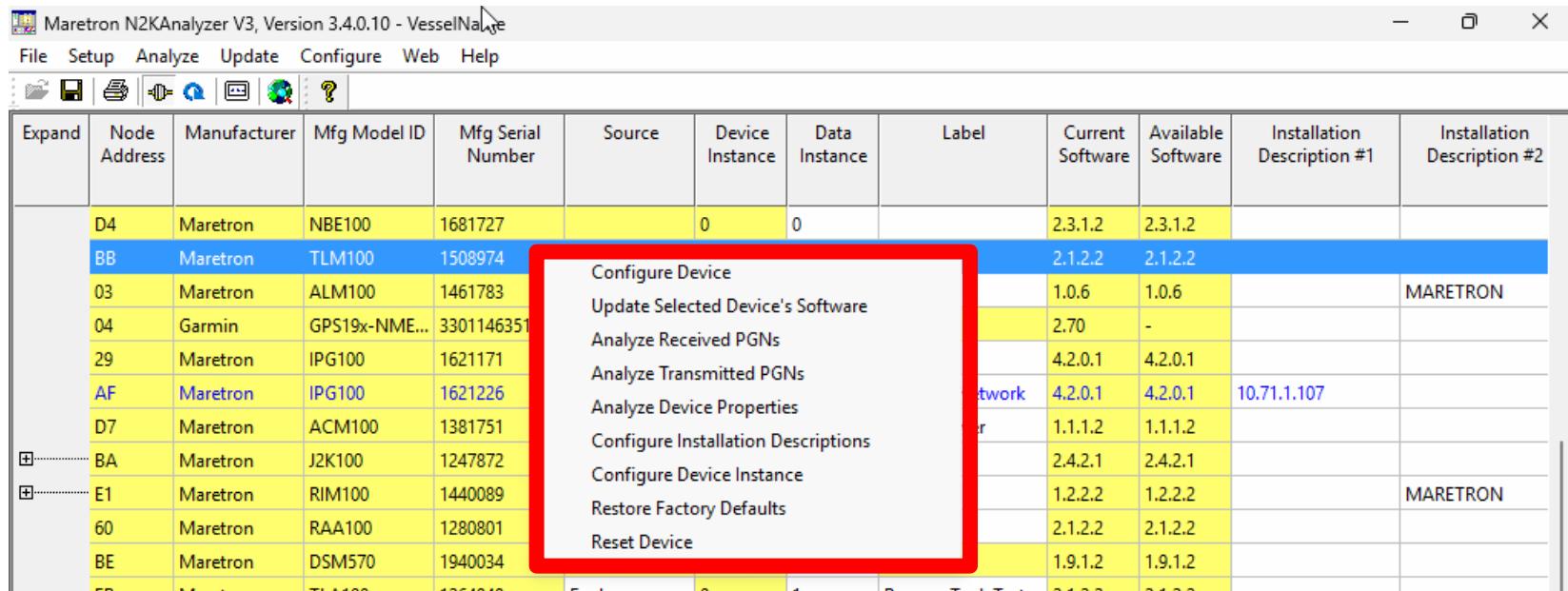


CONFIGURATION

Using N2KAnalyzer® V3 – Tools

Additional powerful tools exclusively within N2KAnalyzer

- Review live Transmitted PGN data
- Update equipment, such as Maretron, MPower and OctoPlex branded products



The screenshot shows the N2KAnalyzer V3 software interface. The main window displays a table of devices with columns for Node Address, Manufacturer, Mfg Model ID, Mfg Serial Number, Source, Device Instance, Data Instance, Label, Current Software, Available Software, Installation Description #1, and Installation Description #2. A context menu is open over a row for a Maretron device (Node Address D4, Manufacturer Maretron, Model ID NBE100, Serial 1681727). The menu, highlighted with a red box, contains the following options: Configure Device, Update Selected Device's Software, Analyze Received PGNs, Analyze Transmitted PGNs, Analyze Device Properties, Configure Installation Descriptions, Configure Device Instance, Restore Factory Defaults, and Reset Device.

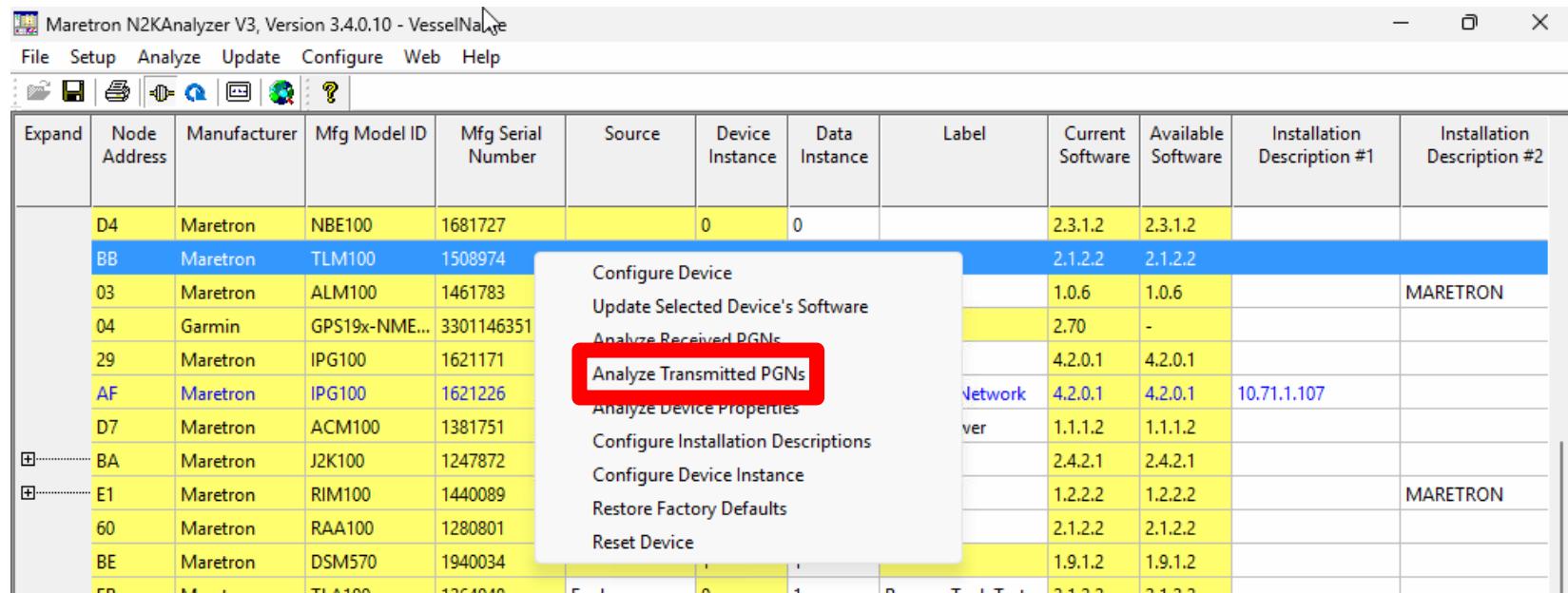
Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	D4	Maretron	NBE100	1681727		0	0		2.3.1.2	2.3.1.2		
	BB	Maretron	TLM100	1508974					2.1.2.2	2.1.2.2		
	03	Maretron	ALM100	1461783					1.0.6	1.0.6		MARETRON
	04	Garmin	GPS19x-NME...	3301146351					2.70	-		
	29	Maretron	IPG100	1621171					4.2.0.1	4.2.0.1		
	AF	Maretron	IPG100	1621226					4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751					1.1.1.2	1.1.1.2		
+	BA	Maretron	J2K100	1247872					2.4.2.1	2.4.2.1		
+	E1	Maretron	RIM100	1440089					1.2.2.2	1.2.2.2		MARETRON
	60	Maretron	RAA100	1280801					2.1.2.2	2.1.2.2		
	BE	Maretron	DSM570	1940034					1.9.1.2	1.9.1.2		
	BB	Maretron	TLM100	1264149					2.1.2.2	2.1.2.2		

CONFIGURATION

Using N2KAnalyzer® V3 – Verify Output

Verify data output of TLM100/TLM150.

Select the TLM Device by left-clicking once, then right-click and select Analyze Transmitted PGNs.



The screenshot shows the Maretron N2KAnalyzer V3 interface. A list of network devices is displayed in a table. The 'TLM100' device, with Node Address D4, Manufacturer Maretron, and Model ID NBE100, is selected and highlighted in yellow. A context menu is open over this device, with the 'Analyze Transmitted PGNs' option highlighted with a red box.

Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	D4	Maretron	NBE100	1681727		0	0		2.3.1.2	2.3.1.2		
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	03	Maretron	ALM100	1461783					1.0.6	1.0.6		MARETRON
	04	Garmin	GPS19x-NME...	3301146351					2.70	-		
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	AF	Maretron	IPG100	1621226					4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751					1.1.1.2	1.1.1.2		
+	BA	Maretron	J2K100	1247872					2.4.2.1	2.4.2.1		
+	E1	Maretron	RIM100	1440089					1.2.2.2	1.2.2.2		MARETRON
	60	Maretron	RAA100	1280801					2.1.2.2	2.1.2.2		
	BE	Maretron	DSM570	1940034					1.9.1.2	1.9.1.2		
	BB	Maretron	TLM100	1264040					2.1.2.2	2.1.2.2		

Configure Device
Update Selected Device's Software
Analyze Received PGNs
Analyze Transmitted PGNs
Analyze Device Properties
Configure Installation Descriptions
Configure Device Instance
Restore Factory Defaults
Reset Device

CONFIGURATION

Using N2KAnalyzer® V3 – Transmitted PGNs

Clear & View transmitted list.

Press the **Clear** to refresh the list to view data that is actively being transmitted from the device.

TX TLM100 (0x71) 1519999 - Transmitted PGNs		
Time	PGN	Description
26182.38	60928	ISO Address Claim
24685.50	126208	NMEA - Acknowledge group function
24415.96	126209	NMEA - Acknowledge group function
24681.85	126464	PGN List - Transmit PGNs group function
24681.85	126464	PGN List - Received PGNs group function
24681.56	126720	Maretron Fast-Package Proprietary
24685.50	126720	Maretron Fast-Package Proprietary
24682.88	126720	Maretron Fast-Package Proprietary
24677.15	126720	Maretron Fast-Package Proprietary
26146.40	126993	Heartbeat
24123.61	126996	Product Information
26061.86	126998	Configuration Information
26189.25	127505	Fluid Level
24123.57	130060	Label
24123.57	130060	Label
24677.46	130818	Label (Maretron Proprietary)
24677.46	130818	Label (Maretron Proprietary)
24123.35	130825	Data Instance/Channel Correlation (Maretron Proprietary)

TX TLM100 (0xBB) 1508974 - Transmitted PGNs		
Time	PGN	Description
19126.23	127505	Fluid Level Destination: Global, pri=6 Fluid Instance: 0 Fluid Type: Fuel Fluid Level: 3.5640 % Tank Capacity: 99.999 Gal NMEA Reserved: 255

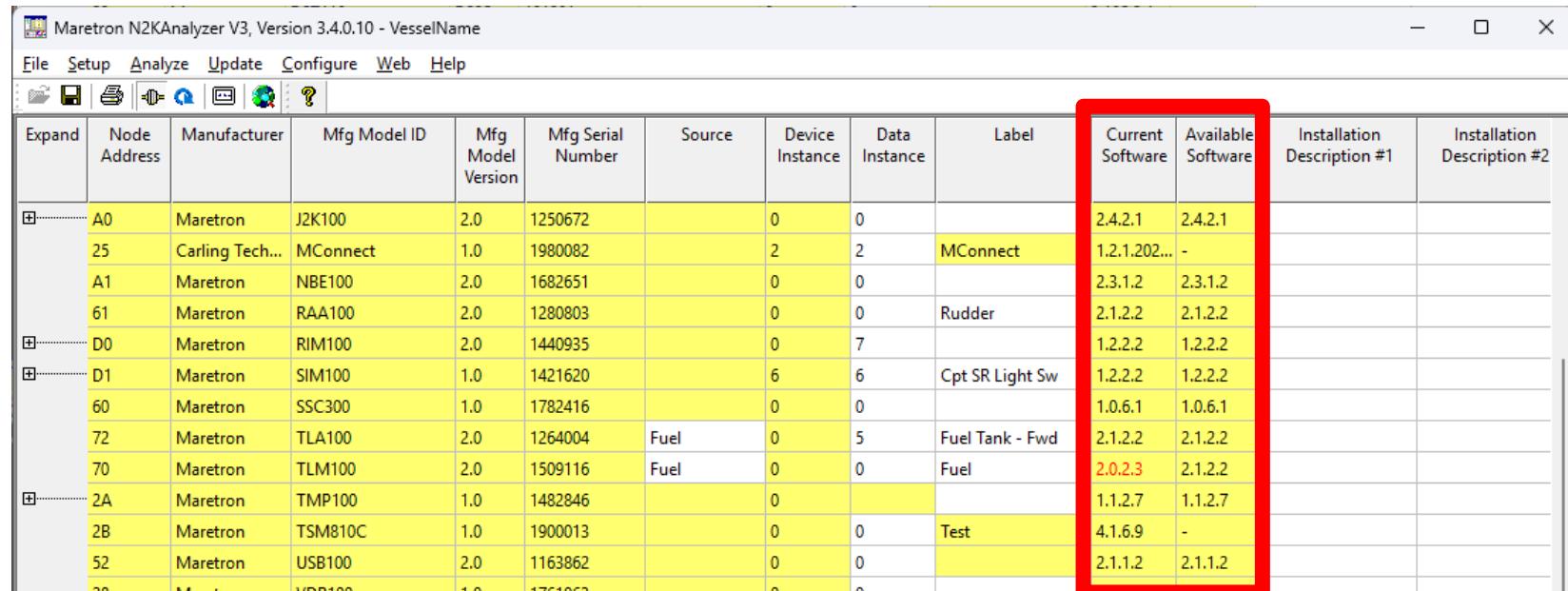
CONFIGURATION

Using N2KAnalyzer® V3 – Verify Output

Update Maretron equipment.

Reviewing your tank monitoring products Current Software version versus currently Available Software.

If Current Software is illustrated in **RED** text, this implies that an update is available for your product.

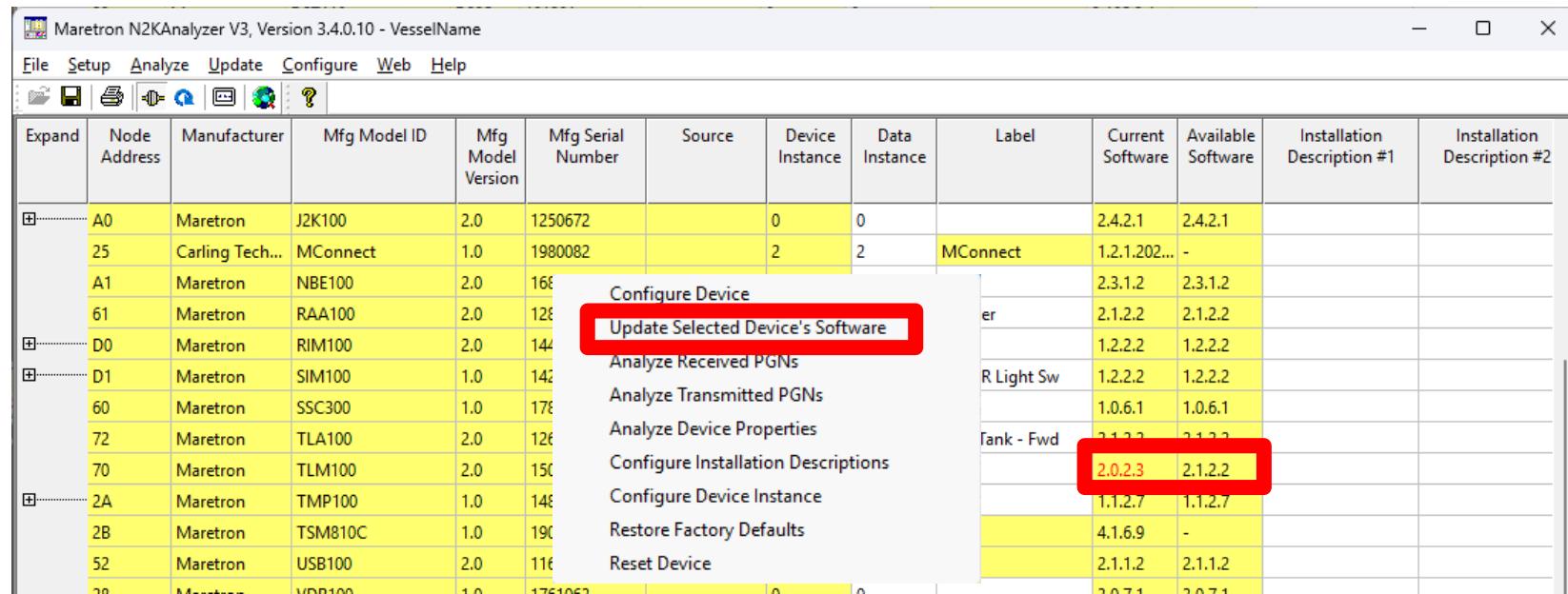


Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Model Version	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
A0	A0	Maretron	J2K100	2.0	1250672		0	0		2.4.2.1	2.4.2.1		
	25	Carling Tech...	MConnect	1.0	1980082		2	2	MConnect	1.2.1.202...	-		
	A1	Maretron	NBE100	2.0	1682651		0	0		2.3.1.2	2.3.1.2		
D0	61	Maretron	RAA100	2.0	1280803		0	0	Rudder	2.1.2.2	2.1.2.2		
	D0	Maretron	RIM100	2.0	1440935		0	7		1.2.2.2	1.2.2.2		
D1	D1	Maretron	SIM100	1.0	1421620		6	6	Cpt SR Light Sw	1.2.2.2	1.2.2.2		
	60	Maretron	SSC300	1.0	1782416		0	0		1.0.6.1	1.0.6.1		
	72	Maretron	TLA100	2.0	1264004	Fuel	0	5	Fuel Tank - Fwd	2.1.2.2	2.1.2.2		
2A	70	Maretron	TLM100	2.0	1509116	Fuel	0	0	Fuel	2.0.2.3	2.1.2.2		
	2A	Maretron	TMP100	1.0	1482846		0			1.1.2.7	1.1.2.7		
	2B	Maretron	TSM810C	1.0	1900013		0	0	Test	4.1.6.9	-		
	52	Maretron	USB100	2.0	1163862		0	0		2.1.1.2	2.1.1.2		
	20	Maretron	VPB100	1.0	1761052		0	0					

CONFIGURATION

Using N2KAnalyzer® V3 – Verify Output

Select the TLM Device by left-clicking once, right-click and select **Update Selected Device's Software**.



The screenshot shows the Maretron N2KAnalyzer V3 software interface. The main window displays a table of network devices. A context menu is open over a row for a TLM100 device (Node Address A1). The menu options are:

- Configure Device
- Update Selected Device's Software** (highlighted with a red box)
- Analyze Received PGNs
- Analyze Transmitted PGNs
- Analyze Device Properties
- Configure Installation Descriptions
- Configure Device Instance
- Restore Factory Defaults
- Reset Device

The table data for the selected TLM100 device is as follows:

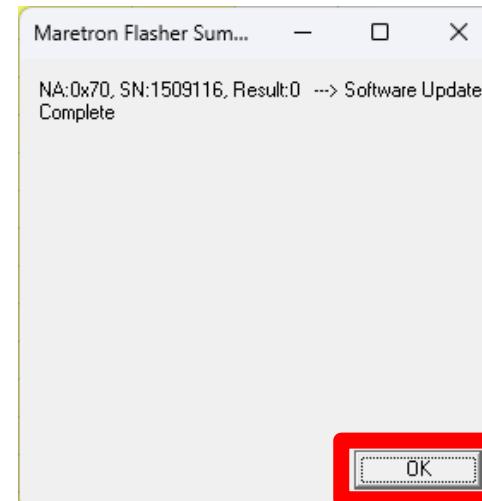
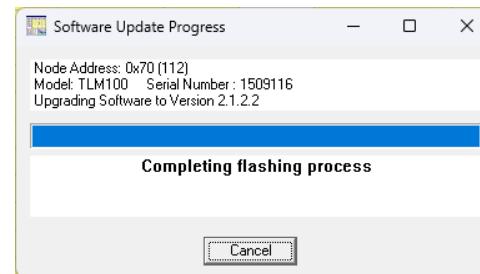
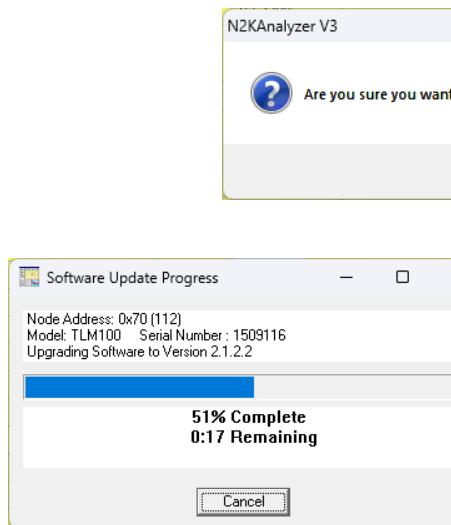
Node Address	Manufacturer	Mfg Model ID	Mfg Model Version	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
A0	Maretron	J2K100	2.0	1250672		0	0		2.4.2.1	2.4.2.1		
25	Carling Tech...	MConnect	1.0	1980082		2	2	MConnect	1.2.1.202...	-		
A1	Maretron	NBE100	2.0	168					2.3.1.2	2.3.1.2		
61	Maretron	RAA100	2.0	128					2.1.2.2	2.1.2.2		
D0	Maretron	RIM100	2.0	144					1.2.2.2	1.2.2.2		
D1	Maretron	SIM100	1.0	142					1.2.2.2	1.2.2.2		
60	Maretron	SSC300	1.0	178					1.0.6.1	1.0.6.1		
72	Maretron	TLA100	2.0	126					2.1.2.2	2.1.2.2		
70	Maretron	TLM100	2.0	150					2.0.2.3	2.1.2.2		
2A	Maretron	TMP100	1.0	148					1.1.2.7	1.1.2.7		
2B	Maretron	TSM810C	1.0	190					4.1.6.9	-		
52	Maretron	USB100	2.0	116					2.1.1.2	2.1.1.2		
20	Maretron	VPB100	1.0	1761062		0	0		2.0.7.1	2.0.7.1		

CONFIGURATION

Using N2KAnalyzer® V3 – Verify Output

Follow the on-screen prompts until the update is complete, the unit will power cycle when complete.

Press OK to close the menu.

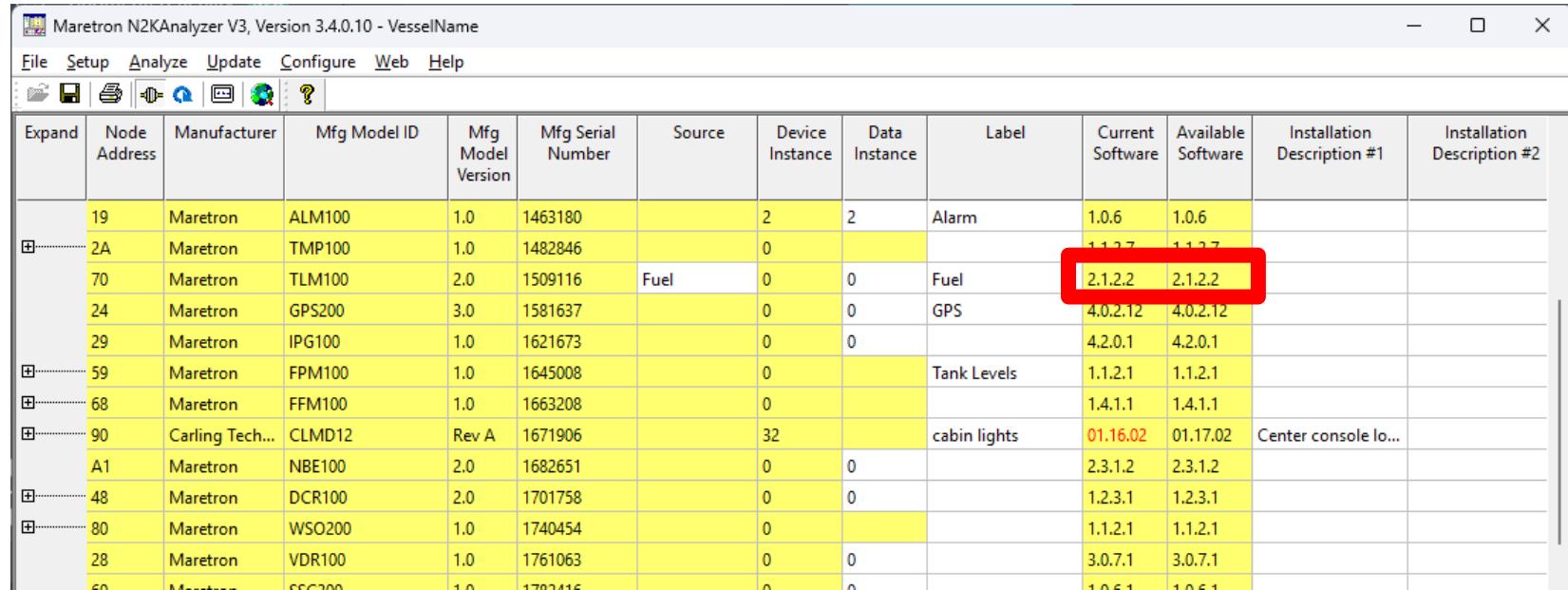


CONFIGURATION

Using N2KAnalyzer® V3 – Verify Output

Confirming software is up to date!!

** Keeping N2KAnalyzer up to date will also offer the latest supported release of software for Maretron, MPower and OctoPlex branded products!



Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Model Version	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	19	Maretron	ALM100	1.0	1463180		2	2	Alarm	1.0.6	1.0.6		
+	2A	Maretron	TMP100	1.0	1482846		0			1.1.2.7	1.1.2.7		
	70	Maretron	TLM100	2.0	1509116	Fuel	0	0	Fuel	2.1.2.2	2.1.2.2		
	24	Maretron	GPS200	3.0	1581637		0	0	GPS	4.0.2.12	4.0.2.12		
	29	Maretron	IPG100	1.0	1621673		0	0		4.2.0.1	4.2.0.1		
+	59	Maretron	FPM100	1.0	1645008		0		Tank Levels	1.1.2.1	1.1.2.1		
+	68	Maretron	FFM100	1.0	1663208		0			1.4.1.1	1.4.1.1		
+	90	Carling Tech...	CLMD12	Rev A	1671906		32		cabin lights	01.16.02	01.17.02	Center console lo...	
	A1	Maretron	NBE100	2.0	1682651		0	0		2.3.1.2	2.3.1.2		
+	48	Maretron	DCR100	2.0	1701758		0	0		1.2.3.1	1.2.3.1		
+	80	Maretron	WSO200	1.0	1740454		0			1.1.2.1	1.1.2.1		
	28	Maretron	VDR100	1.0	1761063		0	0		3.0.7.1	3.0.7.1		
	60	Maretron	SSC200	1.0	1782416		0	0		1.0.5.1	1.0.5.1		

CONFIGURATION

Using DSM Series Display

Setting up your TLM100/TLM150 using a Maretron DSM Series display.

The DSM Series displays not only view NMEA 2000® data from your connected network, but they also offer built in tools for configuring many of the Maretron sensors.

DSM150



DSM250



DSM410



DSM570

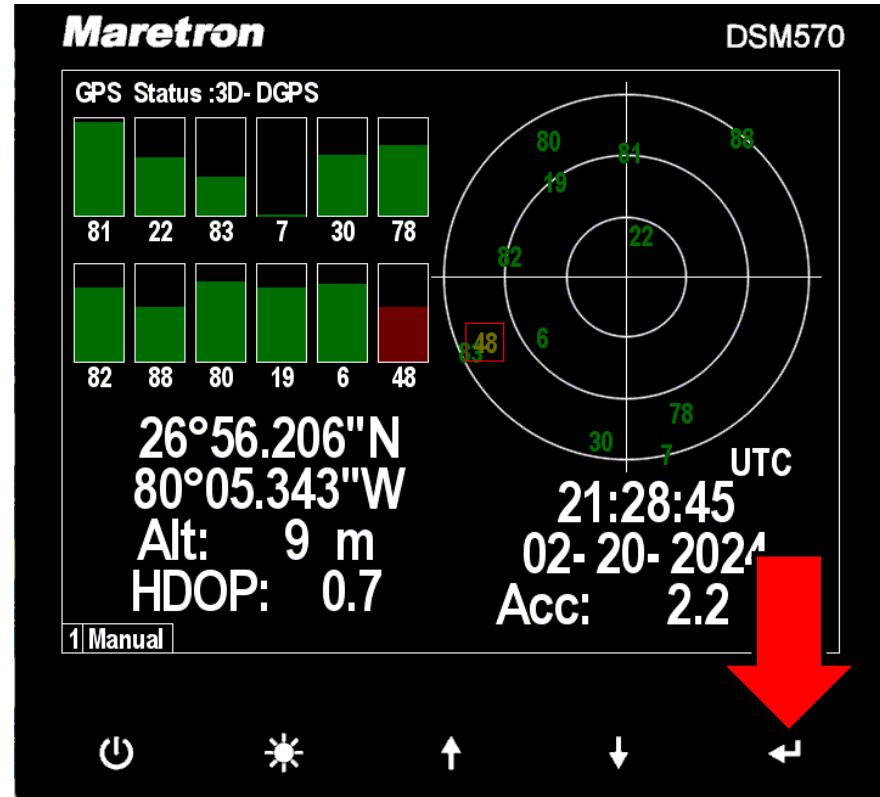


CONFIGURATION

Using DSM Series Displays

Step 1: Access Settings Menu

Press the Enter button on your DSM Display to access the settings menu of the device.

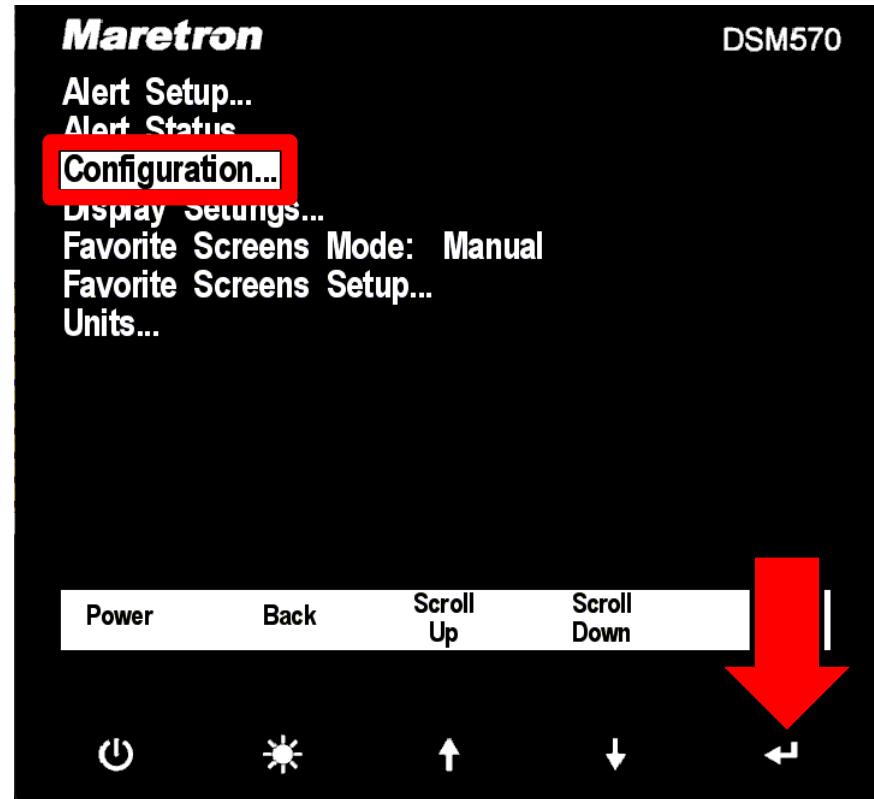


CONFIGURATION

Using DSM Series Displays

Step 2: Access Configuration Menu

Using the Up / Down Arrow keys to highlight option labeled **Configuration...** and press Enter.

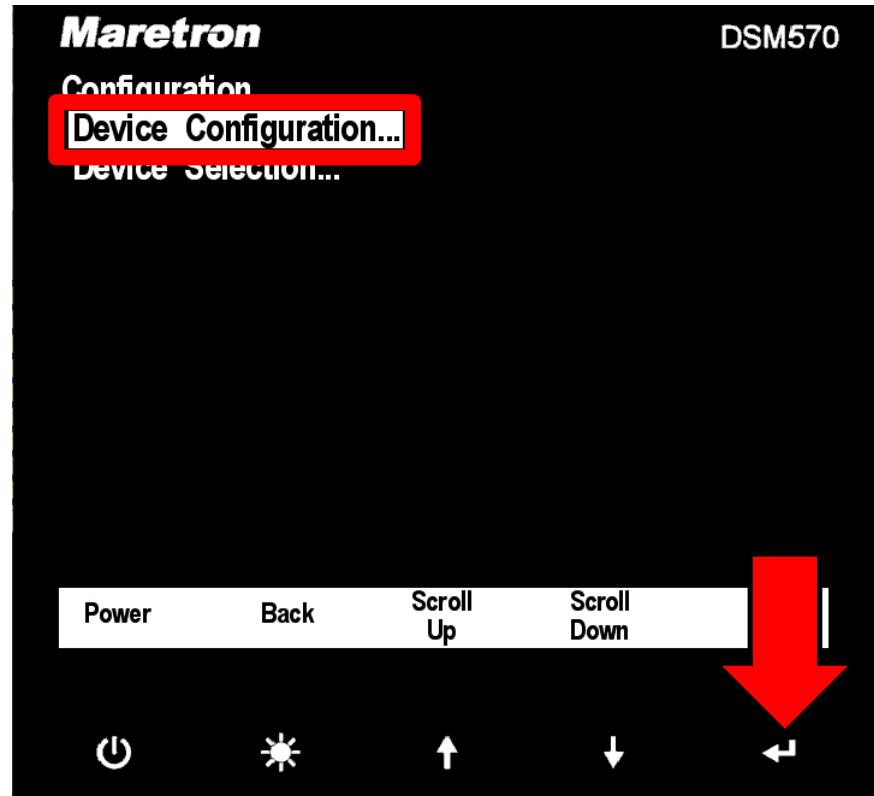


CONFIGURATION

Using DSM Series Displays

Step 3: Access Device Configuration Menu

Using the Up / Down Arrow keys to highlight option labeled **Device Configuration...** and press Enter.



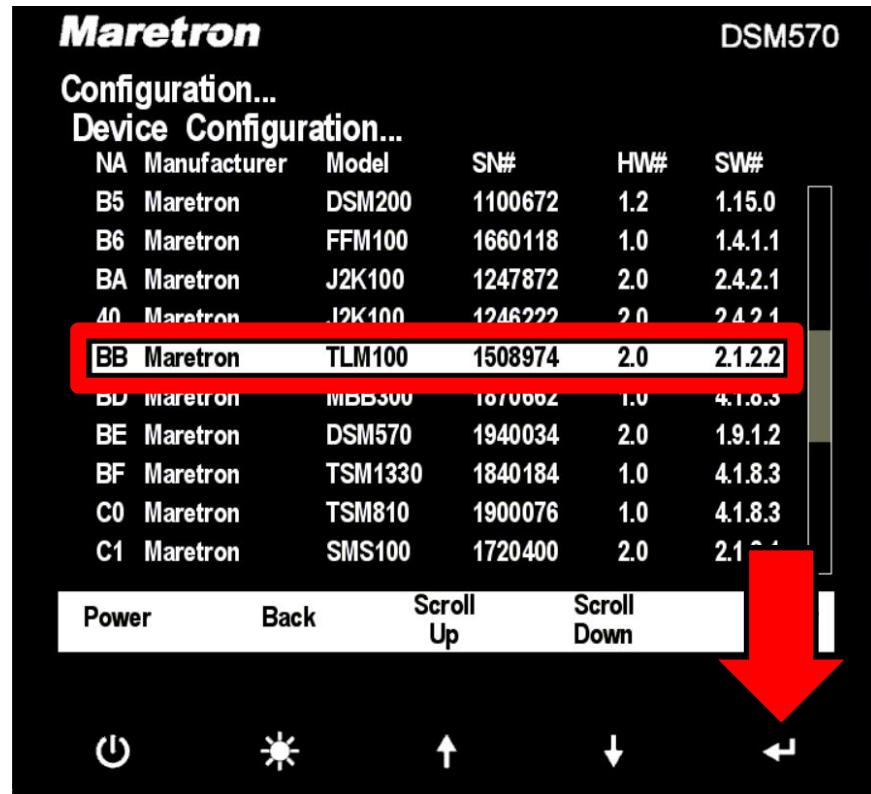
CONFIGURATION

Using DSM Series Displays

Step 4: Locate Device

Using the Up / Down Arrow keys to locate and highlight your **TLM100/TLM150** and press Enter.

This will give you access to the unique settings for this device.



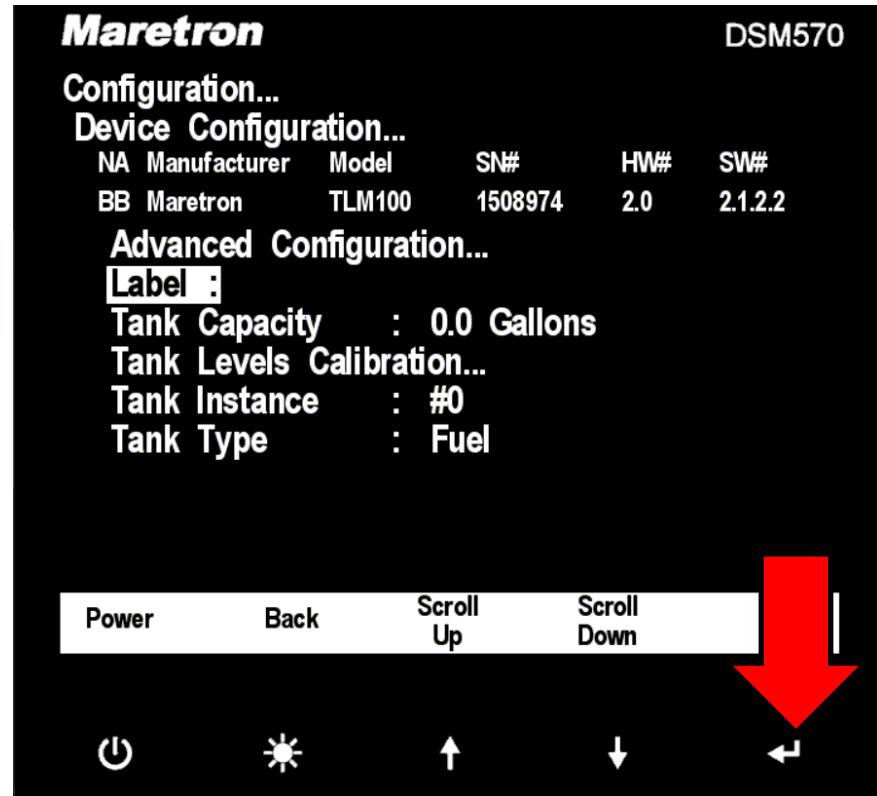
CONFIGURATION

Using DSM Series Displays

Step 5: Label Device

Using the Up / Down Arrow keys to highlight

Label, then press Enter.



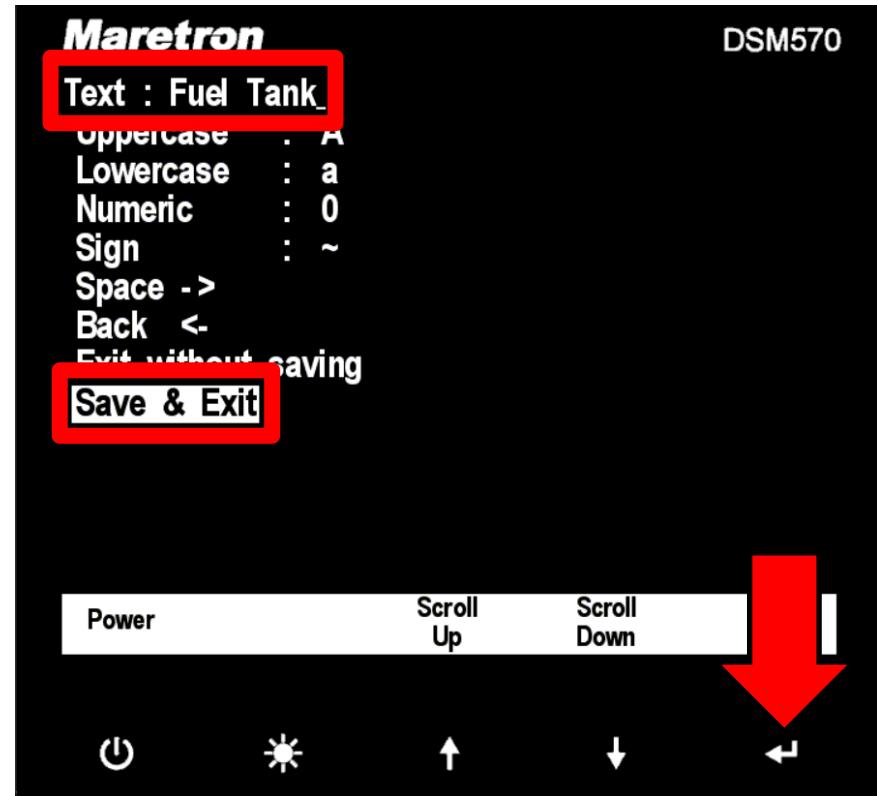
CONFIGURATION

Using DSM Series Displays

Step 5: Label Device, cont.

Label this Tank Monitoring location by using the character fields.

Once completed, select the **Save & Exit** option and press Enter.



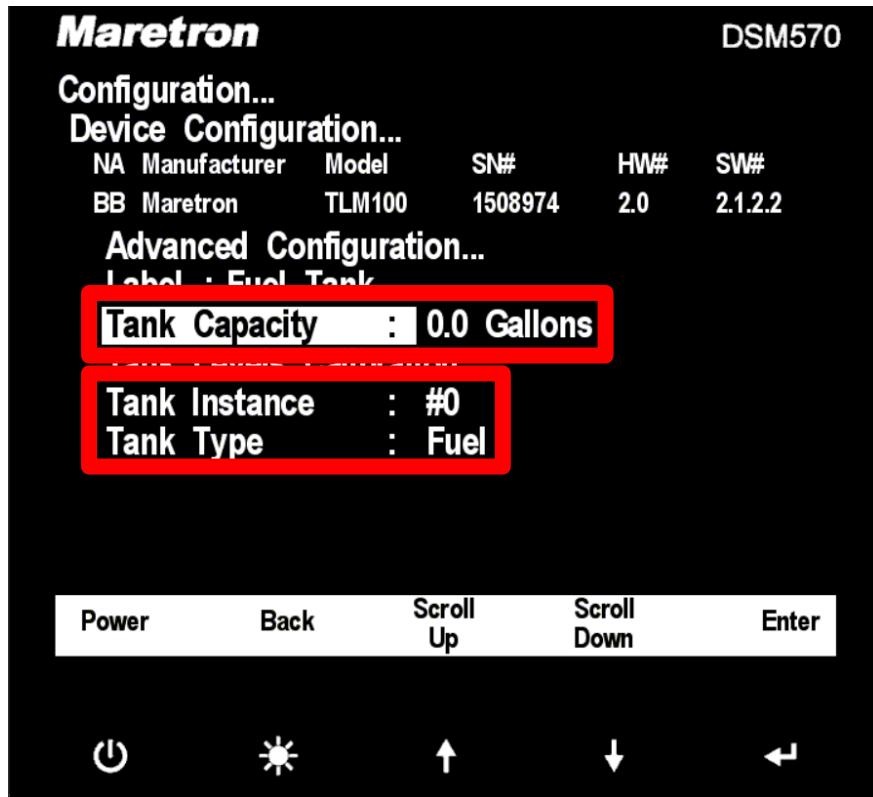
CONFIGURATION

Using DSM Series Displays

Step 6: Tank Profile Setup

Let's define the tank properties.

- Tank / Fluid Type:
 - Fuel, Fresh Water, Gray Water, Black Water, Oil, etc...
- Tank Instance / Number:
 - 0 - 15
- Tank Capacity:
 - Gallons or Liters



CONFIGURATION

Using DSM Series Displays

Step 6a: Tank Profile Setup, cont.

Tank Capacity

Using the Up / Down Arrow keys to highlight **Tank Capacity**, then press Enter.

Using the Up / Down Arrow keys to Increase / Decrease to set the Tank Capacity value, then press Enter to accept the value.



CONFIGURATION

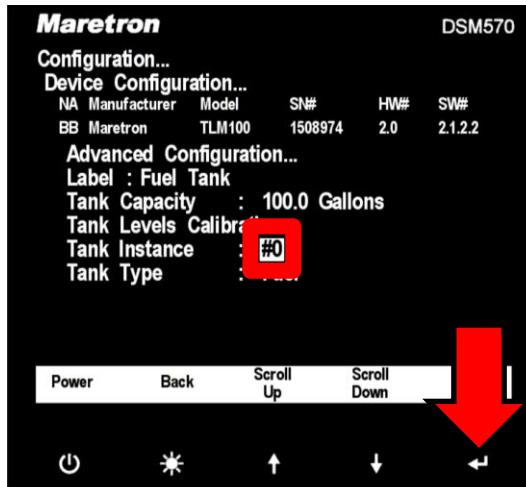
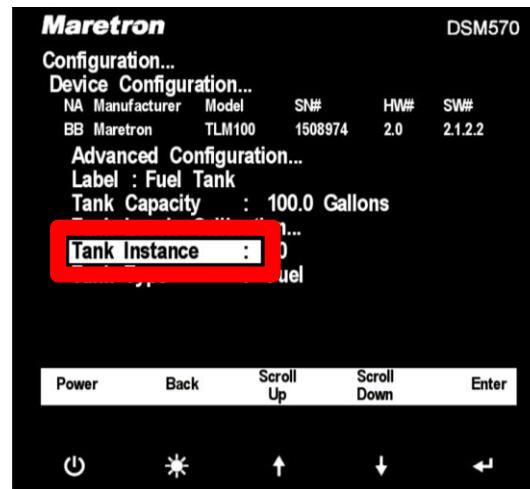
Using DSM Series Displays

Step 6b: Tank Profile Setup, cont.

Tank Instance

Using the Up / Down Arrow keys to highlight **Tank Instance**, then press Enter.

Using the Up / Down Arrow keys to Increase / Decrease to set the Tank Instance value, 0 – 15 then press Enter to accept the value.



CONFIGURATION

Using DSM Series Displays

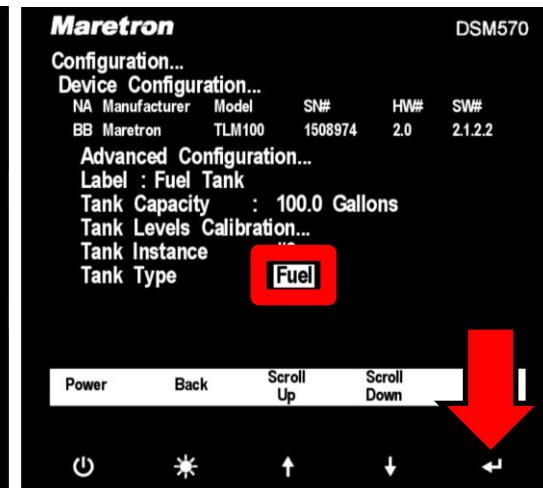
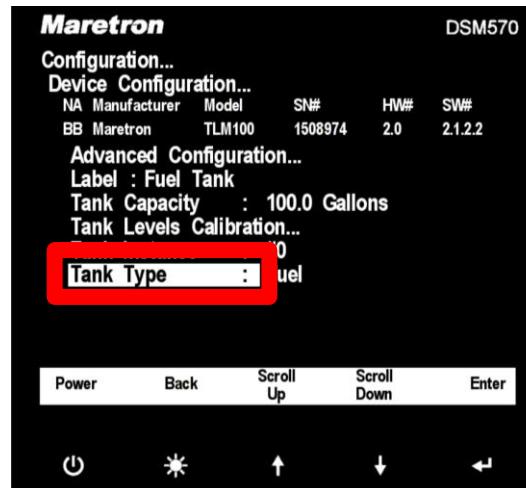
Step 6c: Tank Profile Setup, cont.

Tank Type

Using the Up / Down Arrow keys to highlight **Tank Type**, then press Enter.

Using the Up / Down Arrow keys to select your Fluid Type, then press Enter.

** Please note that many 3rd party MFDs have not updated the supported fluid list, therefore, newer types such as Diesel, Gasoline, LPG and LPN are not detected. Please use **Fuel** Tank Type.



CONFIGURATION

Using DSM Series Displays

Step 7: Tank Levels Calibration

There are two methods of calibration:

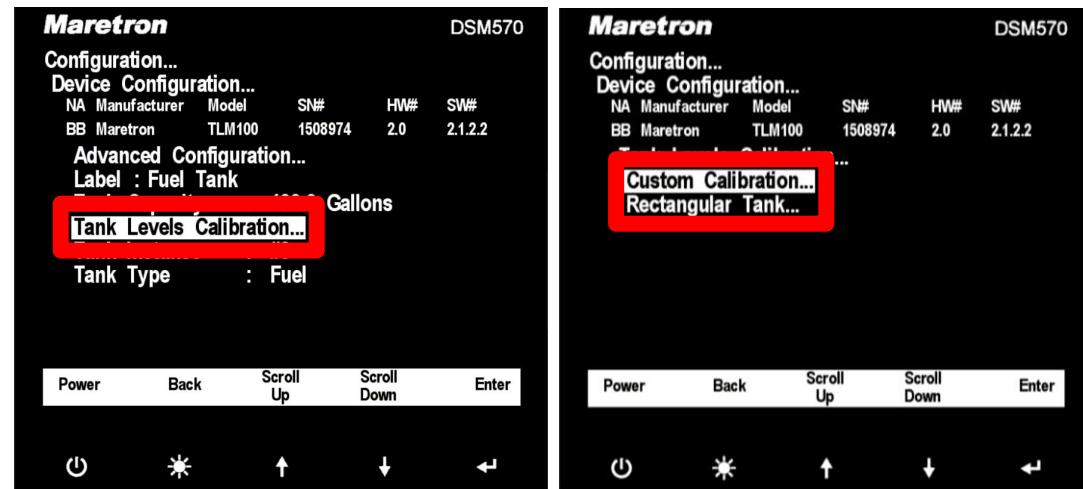
- **Rectangular Tank**

The user will enter each entry of the measured parameter (distance from sensor face to fluid surface) for the values of Empty and Full height readings.

- **Custom Calibration**

The user will start with an empty tank, and then fill the tank with fluid, stopping at intermediate points to enter the amount of fluid put into the tank thus far, ending once the tank is full.

You may enter between 2 – 16 calibration points.



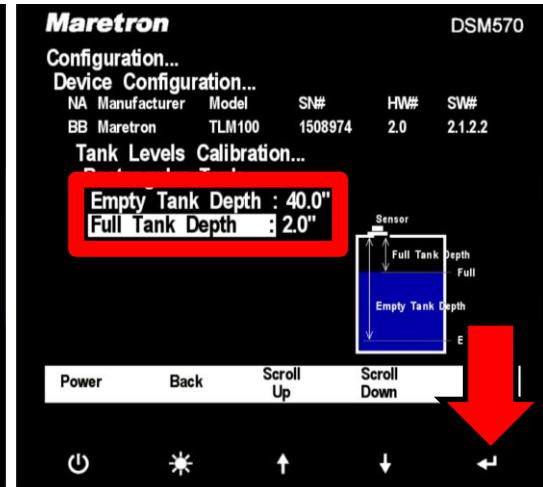
CONFIGURATION

Using DSM Series Displays

Step 7a: Rectangular Tank...

Using the Up / Down Arrow keys to highlight **Rectangular Tank**, then press Enter.

You will be prompted to enter the measured height from sensor for empty and full measurements.



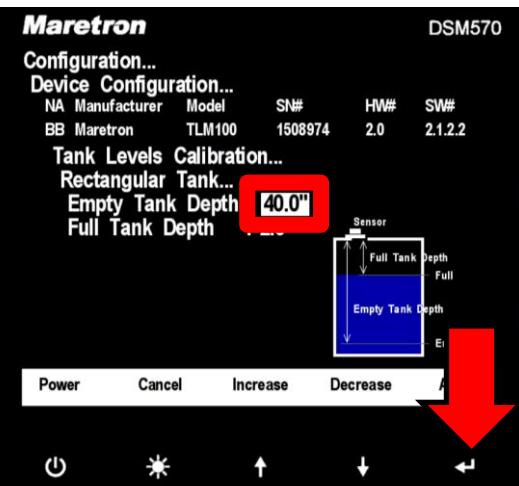
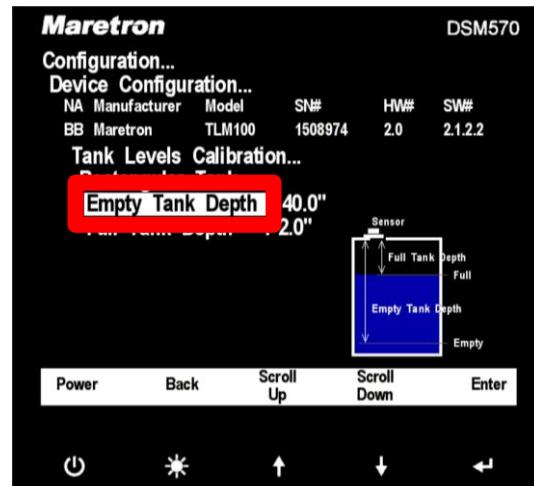
CONFIGURATION

Using DSM Series Displays

Step 7a: Rectangular Tank, cont.

Using the Up / Down Arrow keys to highlight **Tank Type**, then press Enter.

Using the Up / Down Arrow keys to Increase / Decrease to set the Tank Capacity value, then press Enter to accept the value.



Press the Back key to return to the TLM settings menu.

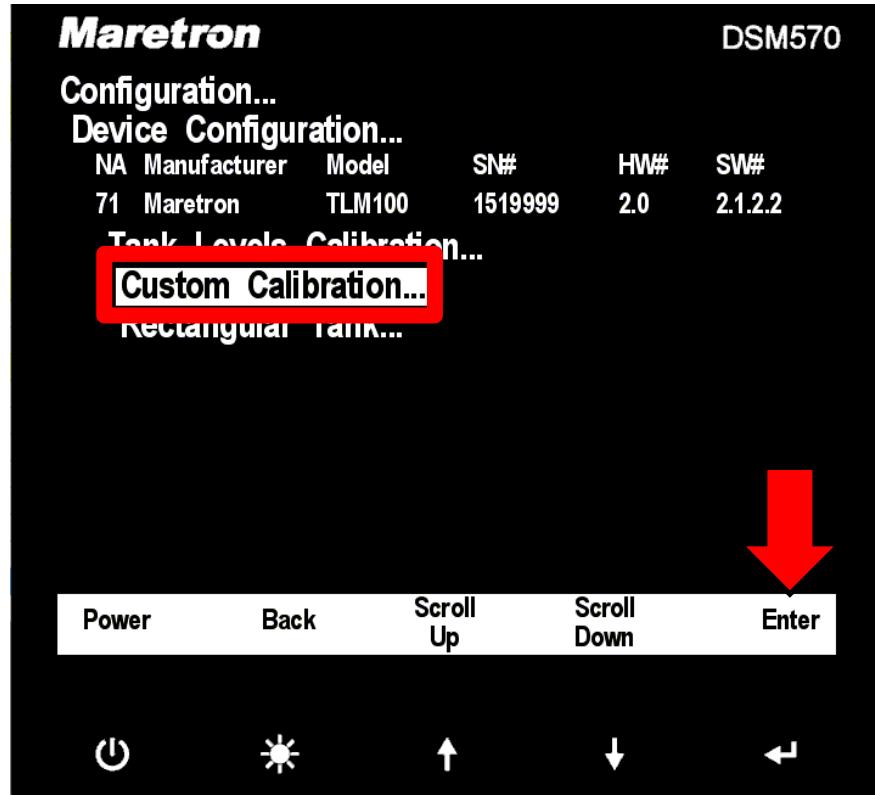
CONFIGURATION

Using DSM Series Displays

Step 7b: Custom Calibration

This operation requires an empty tank

- Estimated Tank Capacity
- Incremental fill up to 16 steps

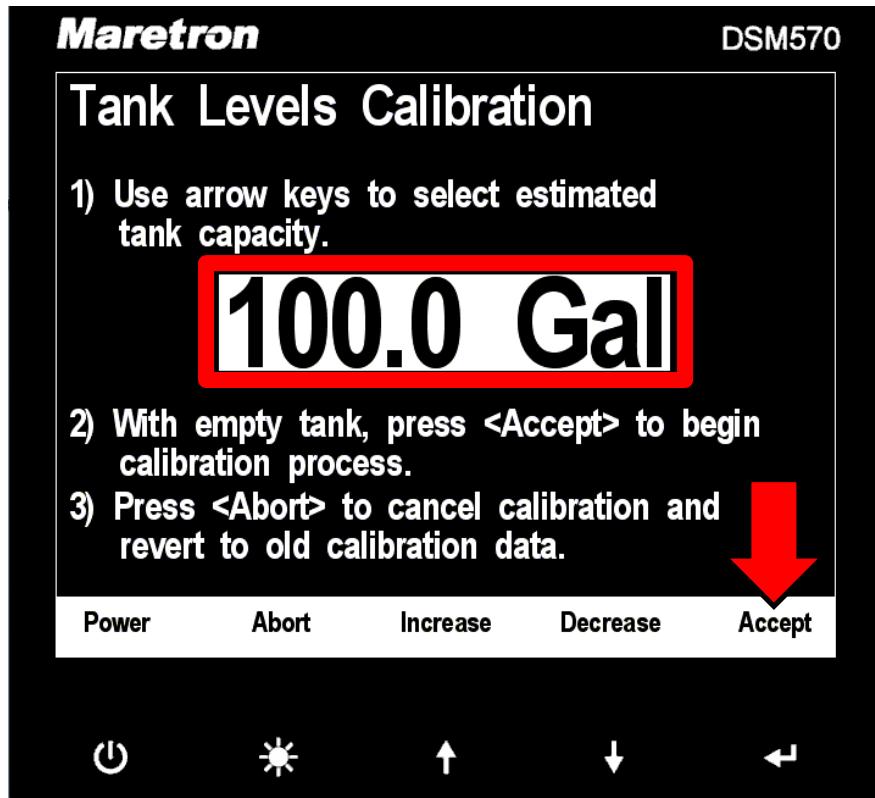


CONFIGURATION

Using DSM Series Displays

Step 7b: Custom Calibration, cont.

Confirming the estimated Tank Capacity we have defined in Step 6, select the **Accept** key to start the filling process.



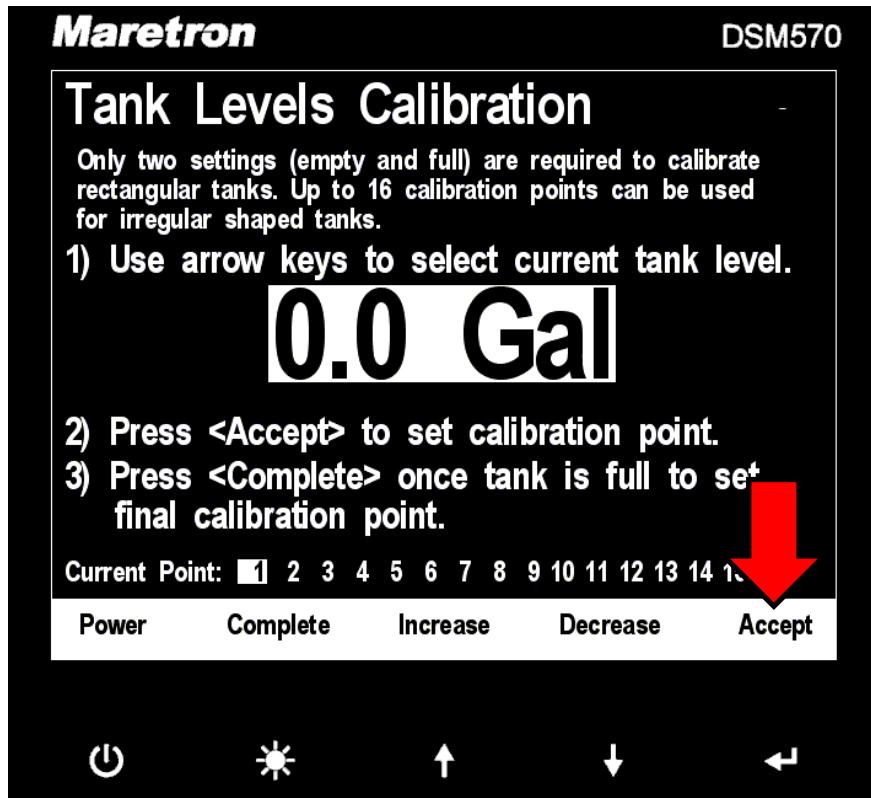
CONFIGURATION

Using DSM Series Displays

Step 7b: Custom Calibration, cont.

Step 1

- Will be our starting point, **0** gal/ltr.
- Press **Accept** to proceed to the next Step.

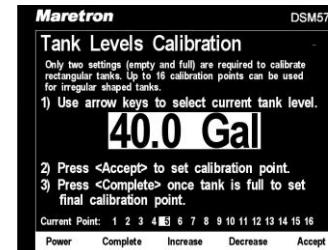
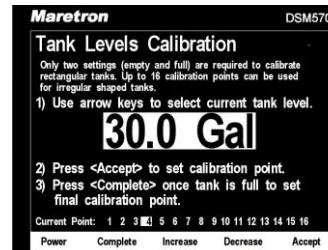


CONFIGURATION

Using DSM Series Displays

Step 7b: Custom Calibration, cont.

We will continue filling and populating these steps in desired intervals, up to 16 Steps, you do not have to use all 16, but more measured points will typically increase the accuracy of your Tank Monitoring solution.



CONFIGURATION

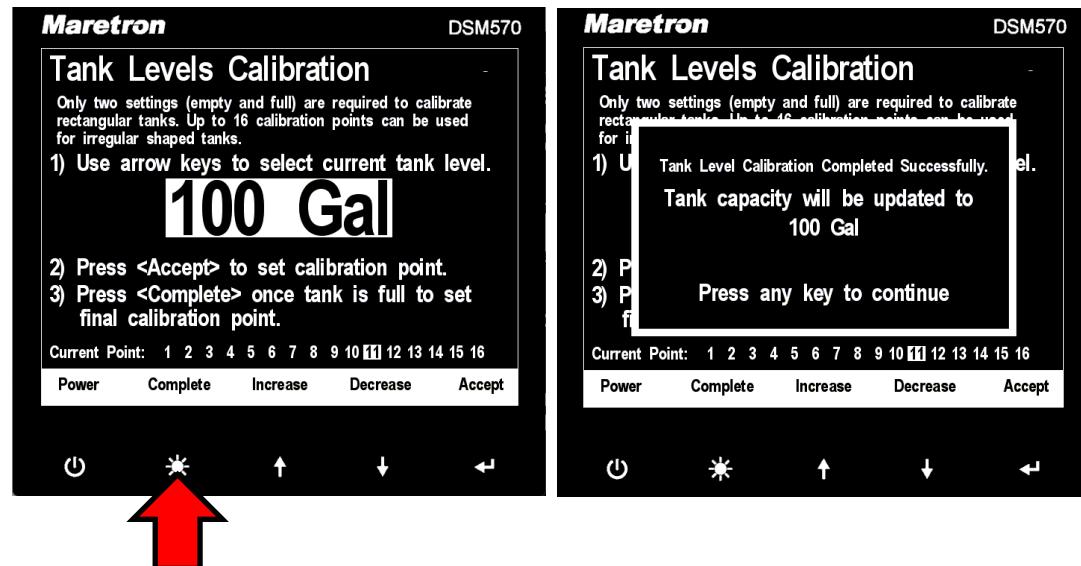
Using DSM Series Displays

Step 7b: Custom Calibration, cont.

Once your fill process has been completed, press the Complete key to apply these calibration settings to the device.

** Note **

While filling the tank and you notice you have a different capacity amount than previously stated, the system will now allow you to set that value as your new tank capacity.



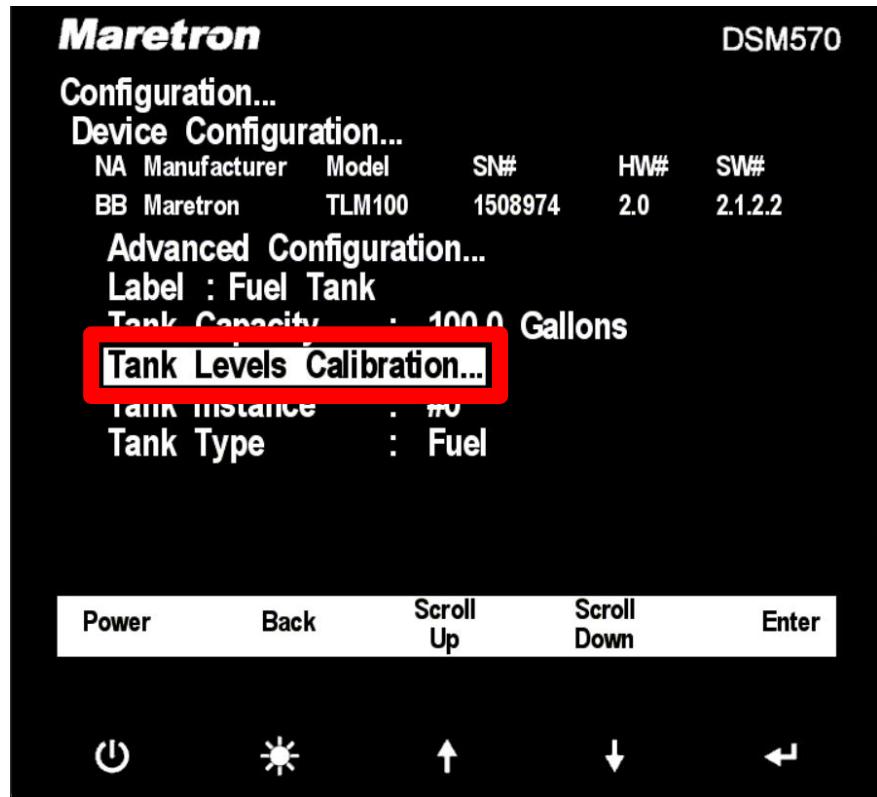
CONFIGURATION

Using DSM Series Displays

Step 7b: Custom Calibration, cont.

Your Custom Calibration is complete!!

You will now be returned back to the Tank Levels Calibration menu.

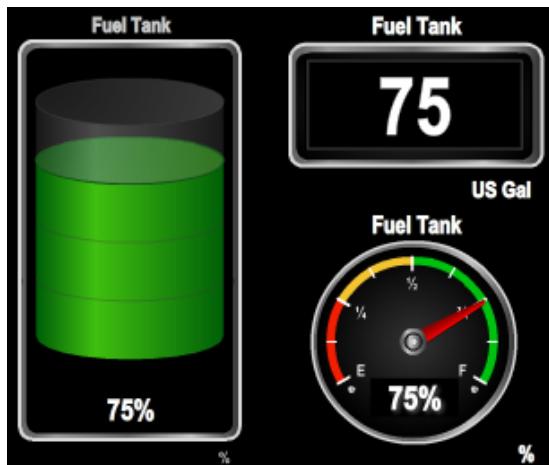


DATA REVIEW

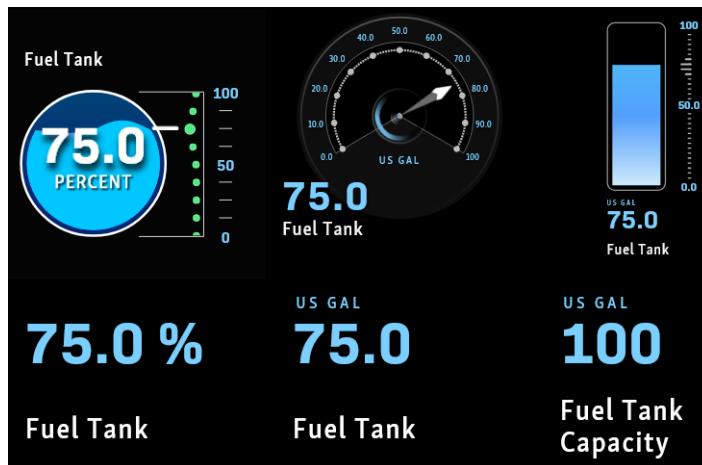
Using N2KAnalyzer® V3 – Transmitted PGNs

With our TLM Sensor setup complete, we are able to review the data on your NMEA 2000® network using multiple types of viewing platforms. Keep in mind that each setup process is unique to its platform type/OS but will all support the same type of Data provided by our TLM Series Sensor for Fluid Level.

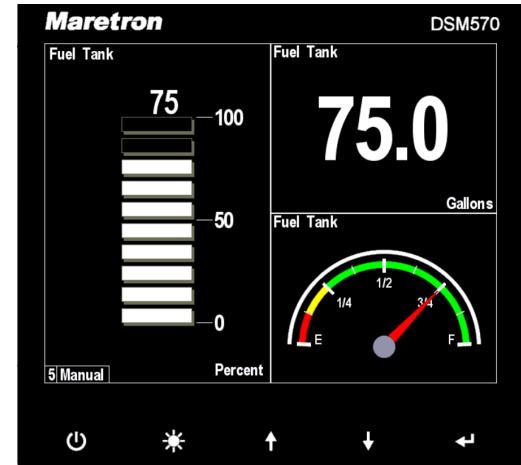
N2KView



MConnect



DSM Display



DATA REVIEW

TLM100/TLM150 - Transmitted PGNs

The TLM Series products will output NMEA 2000® PGN **127505** – Fluid Level

TX TLM100 (0xBB) 1508974 - Transmitted PGNs		
Time	PGN	Description
11724.68	60928	ISO Address Claim
11725.04	127505	Fluid Level Destination: Global, pri=6 Fluid Instance: 0 Fluid Type: Fuel Fluid Level: 3.7480 % Tank Capacity: 99.989 Gal NMEA Reserved: 255

DATA REVIEW

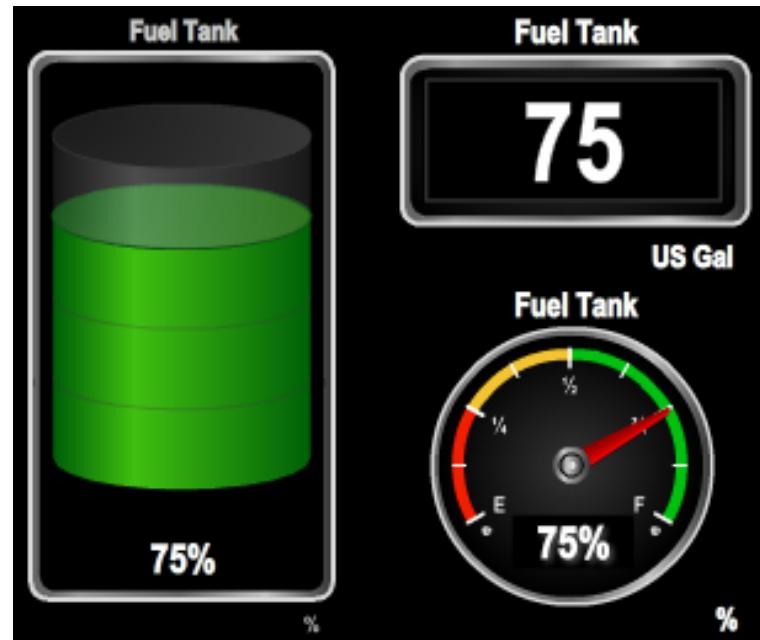
Maretron N2KView

N2KView®

Vessel Monitoring and Control System

Compatible on:

- PC (Windows and Mac OS)
 - Requires License Key and Maretron Gateway
USB100 (Windows) or IPG100 (Windows/Mac)
- Mobile (Android and iOS)
 - Requires IPG100
- Maretron TSM Series Displays
- Maretron MBB Series Black Box Computers



<https://www.maretron.com/products/n2kview-vessel-monitoring-and-control-software/>

DATA REVIEW

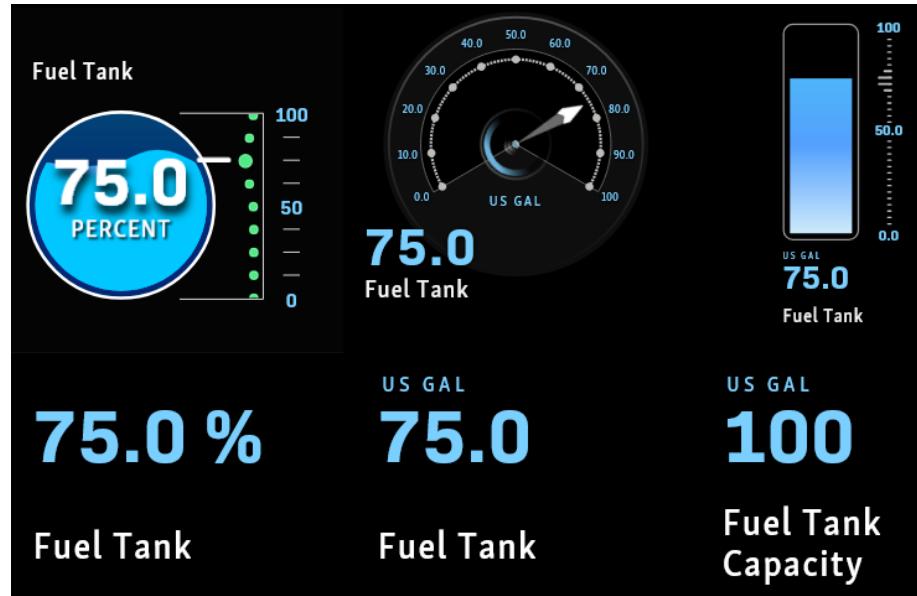
MConnect

MConnect®

Vessel Monitoring and Control System Web Server

Compatible on:

- PC (Windows and Mac OS)
- Mobile (Android and iOS)
- MFDs (HTML5 Apps)



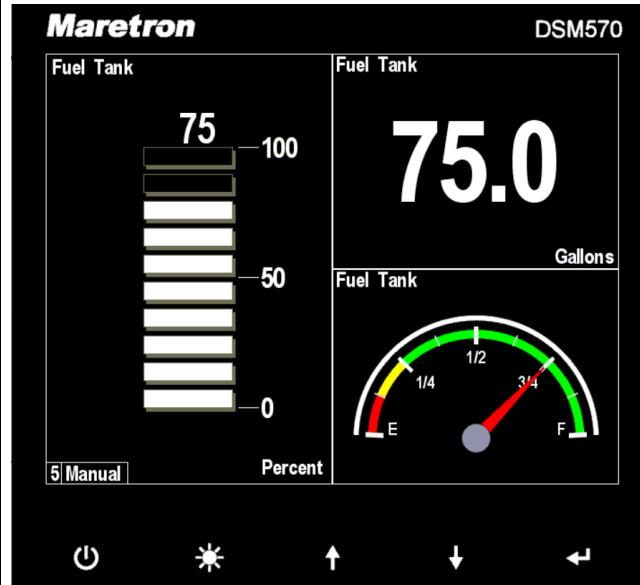
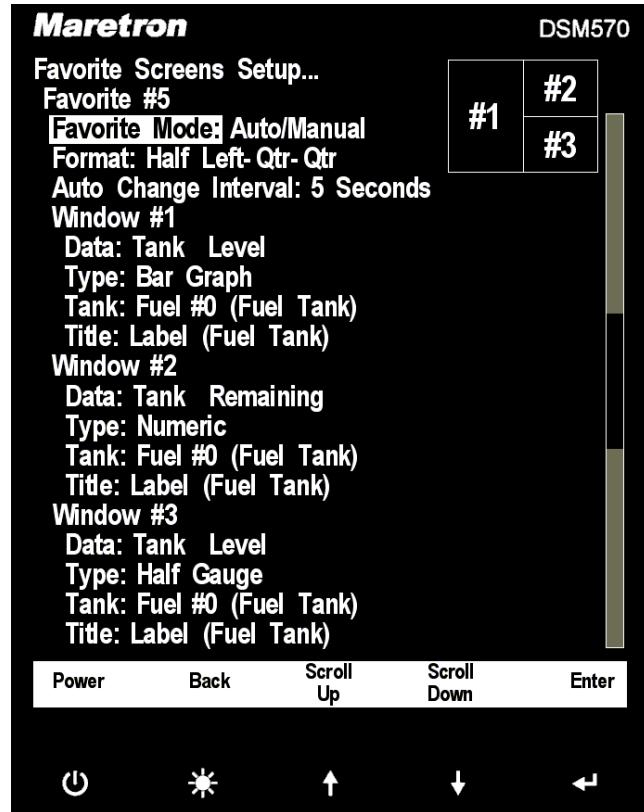
<https://www.maretron.com/products/mconnect/>

DATA REVIEW

Using DSM Series Displays

While in your Favorite Screens Setup, select the appropriate we have multiple solutions for viewing your Tank Level data. Up to 4 parameters on a single Screen can be displayed, which could include different views or multiple tanks!!

Additionally, you are able to provide a unique Title name to each of the parameters for best representation of the value.



CONFIGURATION

Using 3rd Party Displays

3rd Party Integration

This will require reviewing the supported PGNs of the reviewing display, typically located within displays user manual under NMEA 2000® PGNs Receive (Rx) list.

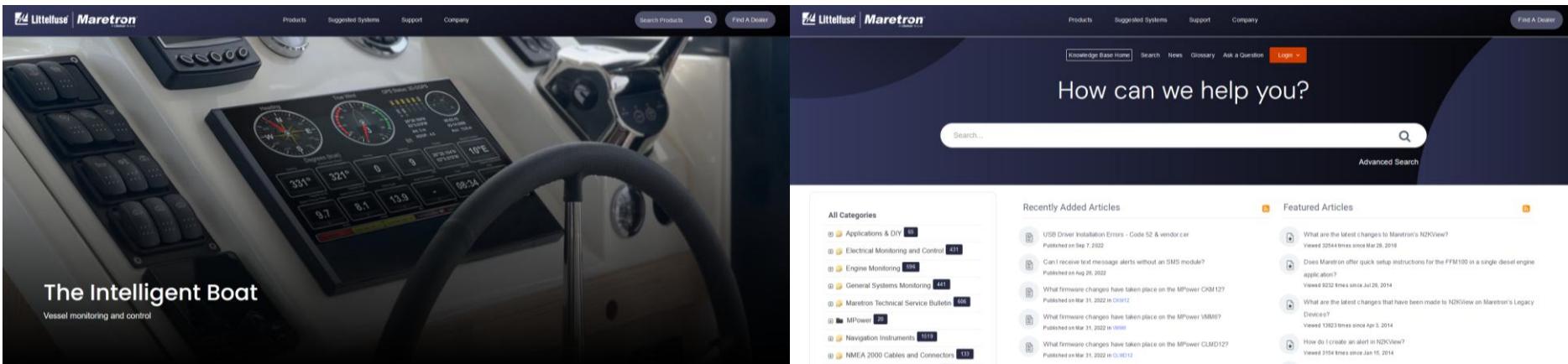
- Fluid Level (PGN: 127505)



CONFIGURATION

Website Resources

The Maretron website has been recently updated to offer our users access to all of the latest technical materials with the ease of navigation. Datasheets, Manuals, Training Videos, Software, Knowledge Base and Sample Systems and more at your fingertips!!



The Intelligent Boat
Vessel monitoring and control

How can we help you?

Search... Advanced Search

All Categories

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- Electrical Monitoring and Control
- Engine Monitoring
- General Systems Monitoring
- Maretron Technical Service Bulletin
- MPower
- Navigation Instruments
- NMEA 2000 Cables and Connectors

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- USB Driver Installation Errors - Code 52 & vendor error
- Can I receive text message alerts without an SMS module?
- What firmware changes have taken place on the MPower CRM12?
- What firmware changes have taken place on the MPower VMMR?
- What firmware changes have taken place on the MPower CLMD12?

Featured Articles

- What are the latest changes to Maretron's N2KView?
- Does Maretron offer quick setup instructions for the FFM100 in a single diesel engine application?
- What are the latest changes that have been made to N2KView on Maretron's Legacy Devices?
- How do I create an alert in N2KView?

<https://www.maretron.com/>

<https://www.maretron.com/wp-content/phpkbv95/>

WEBSITE RESOURCES

N2KAnalyzer - Training Videos

Overview

Applications

Documentation

Downloads

— Videos



LN	Manufacturer	Part Number	Serial Number	Bus	Address	Engine Room	Cabin Temperature	1.0	1.0.2	Engine Room Power	Installed 2013
9C	Maretron	SSC200	1120707	0	Primary Heading	5.0.3	5.0.4.1	Midship		Installed 2013	
89	Maretron	HDN100	1500004	0	A/C Bus	1.0.1.0	1.0.1.2	Midship A/C Bus		Installed 2013	
A0	Maretron	12K100	1241404	0	ICE Maker	1.0.13.2	1.2.1.1			Installed 2013	
8A	Garmen	GPS17x-NME...	3431140010	3		2.40	-				
30	Maretron	GPS100	1140232	2	Starboard Water	1.0.1.0	1.0.1.2	Backup 1		Installed 2013	
7C	Maretron	TLM100	1500002	Fresh Water	0	Gasoline Tank	1.0.1.0	1.0.1.2	Tender Gasoline T...	Installed 2013	
74	Maretron	TLM150	1529901	Fuel	0	Wind Sensor	2.0.13	2.0.1.0		Installed 2013	
86	Maretron	WSG100	1201734	*		1.0.0.1.0...	-			Port Sounder	Installed 2013
72	Maretron	DST110	*	0		1.0.0.1.0...	-			Engine Room	Installed 2013
71	Maretron	ALM100	1469902	5		1.0.0.1.0...	-			Primary	Installed 2013
20	Maretron	GPS200	15266	0		1.0.4	1.0.5.2			N2Kpower	Installed 2013
CF	Maretron	DCM100	1400046	1		4.000.40...	-			System Power	Installed 2013
73	Maretron	TLM200	1504111	Fuel	2		4.000.40...	-		Sea water temp	Installed 2013
23	Almar	HT200	11002103	2		Primary Data Rec.	2.0.0.4	3.0.3.1		Connected Fuel Bus	Installed 2013
28	Maretron	VDR100	1760004	0		1.0.0.50...	-				
08	Lowrance Ele...	EP-DOS	316	5		1.0.0.50...	-				
14	Maretron	ALM100	1460004	0		1.0.4	1.0.6			Dark Alarm	Installed 2013



LN	Manufacturer	Part Number	Serial Number	Bus	Address	Deck Display	1.4.17.5	1.6.3.4		Installed 2013		
C21	Maretron	M250	1300176	1	Primary Heading	5.0.3	5.0.4.1	Midship		Installed 2013		
M10	Maretron	1.0	1389904	0	A/C Bus	1.0.8.2	1.0.9.2	Main A/C Bus A		Installed 2013		
R100	1.0	1241404	0	ICE Maker	1.0.13.2	1.2.1.1				Installed 2013		
S17x-NME...	1.00	3431140010	3			2.40	-					
S100	1.1	1140232	2			1.6.13U	2.3.0.1	Backup 1		Installed 2013		
M100	1.0	1500002	Fresh Water	0		1.1.6	1.1.8.3			Engine Room	Installed 2013	
M150	1.0	1529901	Fuel	0		1.1.6	1.1.8.3	Tender Gasoline T...		Installed 2013		
SO100	2.0	1201734				2.0.13	2.0.1.3			Wind Sensor	Installed 2013	
T110	D235-S1-TS-A-02/06	*		0		1.003,1.0...	-			Port Sounder	Installed 2013	
M100	1.0	1469902	5			1.0.6	1.0.6	Engine Room		Engine Room	Installed 2013	
S200	2.0	15266	0			3.5	3.7.1.1	Primary GPS Ante...			Primary	Installed 2013
M100	1.0	1400046		1		1.0.4	1.0.5.2	System Power			N2Kpower	Installed 2013
M200	1.0	1504111	Fuel	2		1.1.6	1.1.8.3			Day Tank	Installed 2013	

<https://www.maretron.com/products/n2kanalyzer-v3-nmea-2000-analysis-software/>

WEBSITE RESOURCES

N2KView - Training Videos

- Overview
- Applications
- Alerts
- Videos**
- Documentation
- Application Design
- BNWAS
- Video Cameras
- Screenshots
- Downloads
- Anchoring

Maretron N2KView Basic Operation – Overview



Maretron N2KView Basic Operation – Component Types



Maretron N2KView Basic Operation – Component Types 2



Maretron N2KView Basic Operation – Alerts



<https://www.maretron.com/products/n2kview-vessel-monitoring-and-control-software/>

WEBSITE RESOURCES

MConnect - Training Videos

- Overview
- Key Features
- Specifications
- Documentation
- Diagram
- Videos**
- Configurations
- Updates
- Software Revision History



<https://www.maretron.com/products/mconnect/>

MARETRON WEB PAGES

Technical Support

Maretron Technical Support (Maretron, MPower and OctoPlex Brands)

Monday – Friday 830am - 5pm (EST)

End-User Support: (603) 324-7900

Inquiries & RMAs



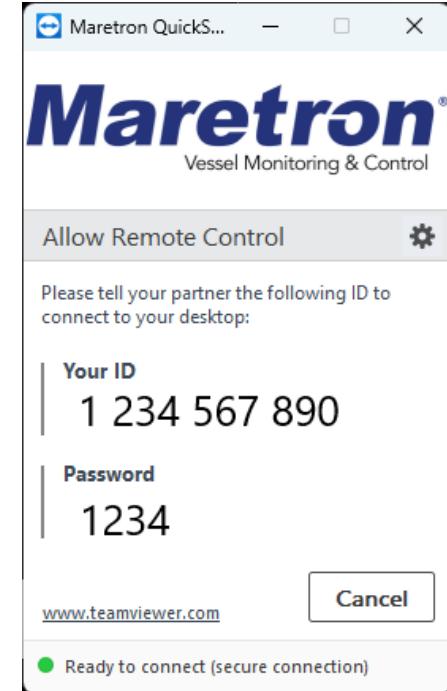
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