



# 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 3<sup>rd</sup> 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 3<sup>rd</sup> 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



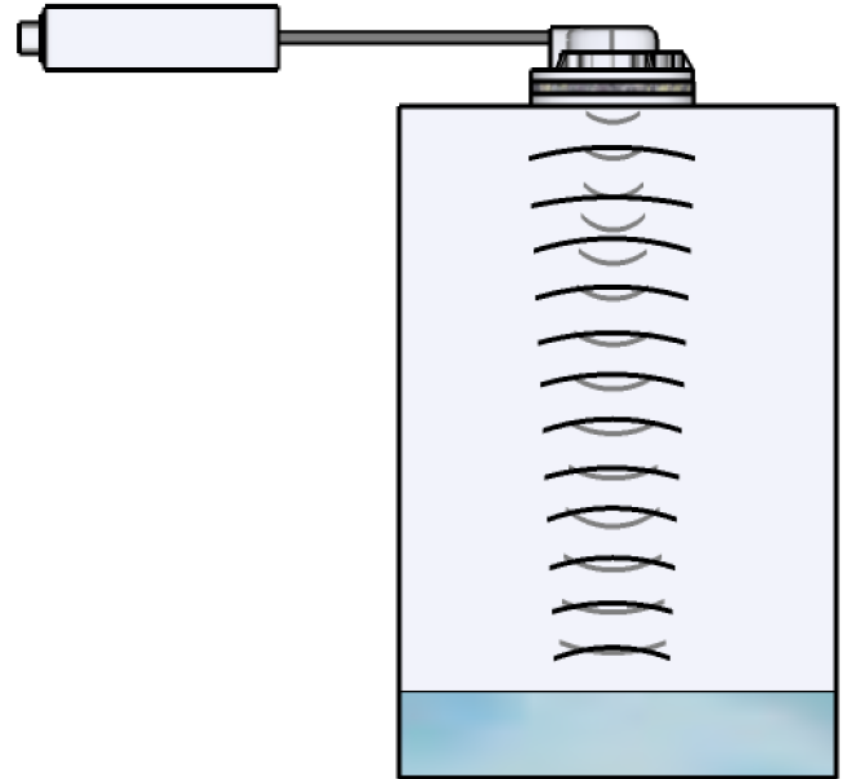
# WHAT IS A TLM100 & TLM150?

## 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?

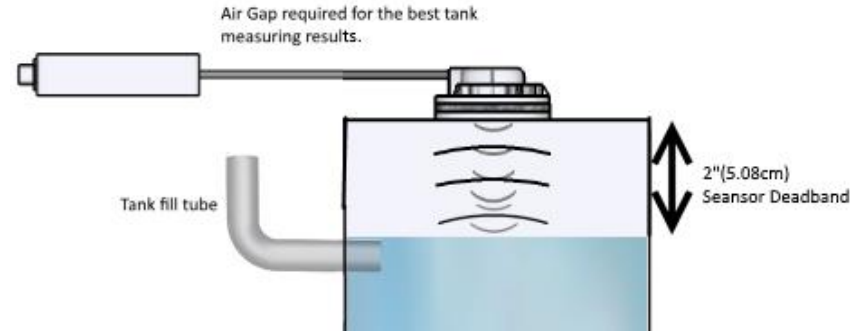
## Product Overview

---

### **\*\* 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**

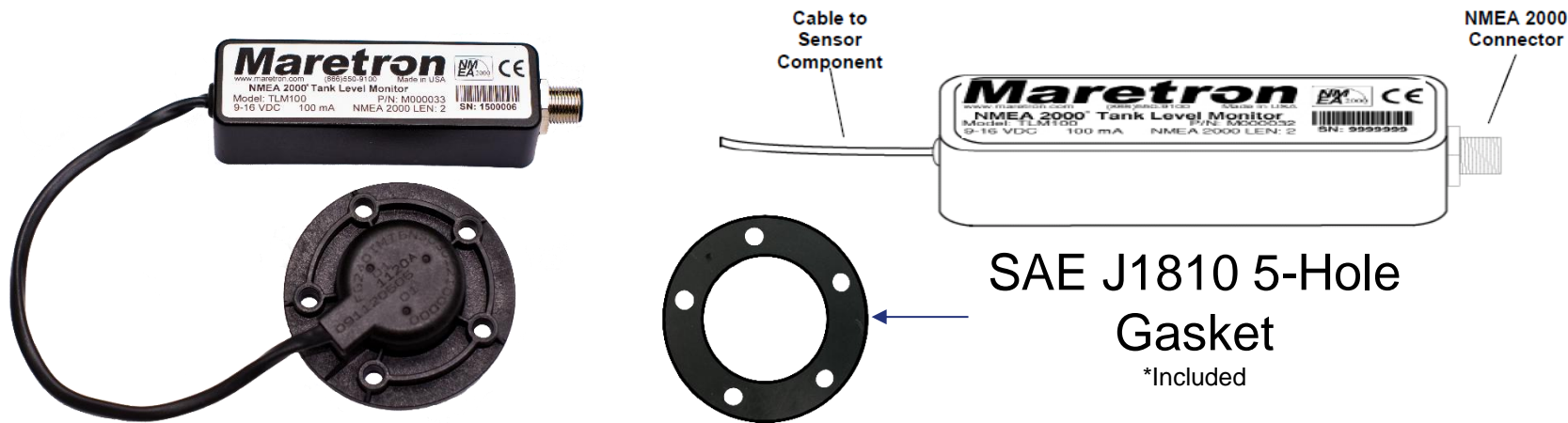
- TFT-5H SAE 5-Bolt Pattern Focus Tube
- TFT-1.5NPT 1.5" NPT Focus Tube
- TFT-1.25BSP 1.25" BSP Focus Tube
- TFTDBE-5H SAE 5-Bolt Pattern Focus Tube with Dead Band Eliminator



# 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.





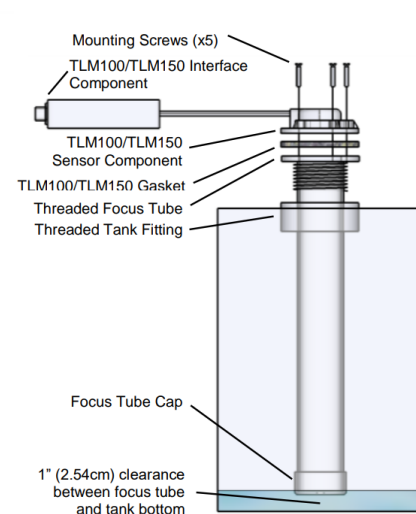
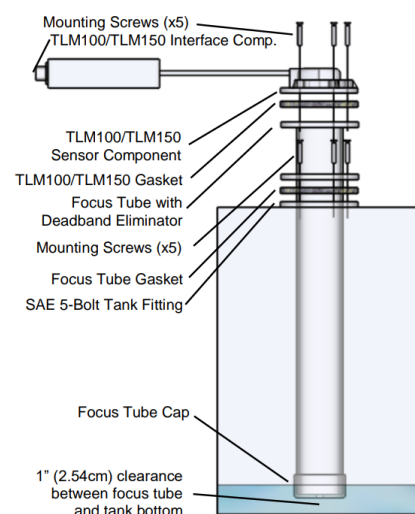
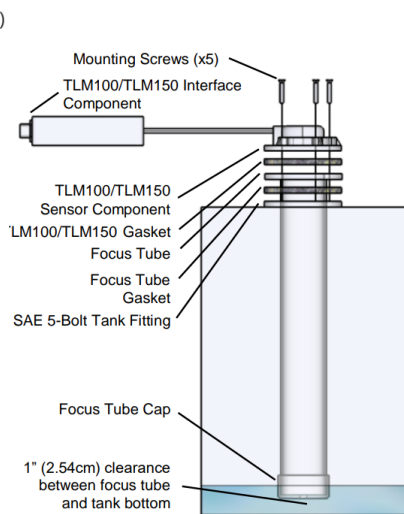
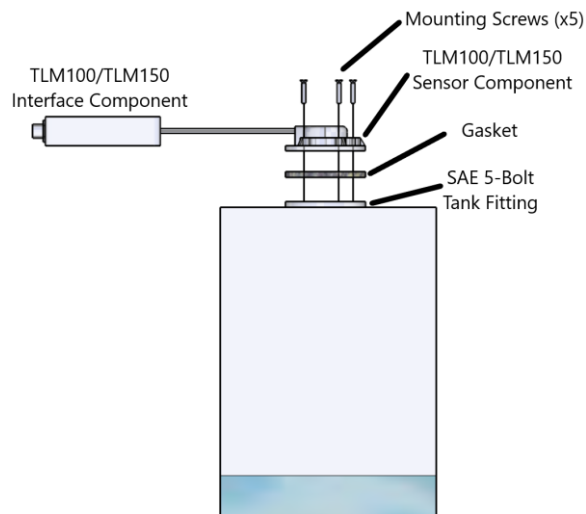
# INSTALLATION & WIRING

## 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

## Device Setup



# CONFIGURATION

## Device Setup

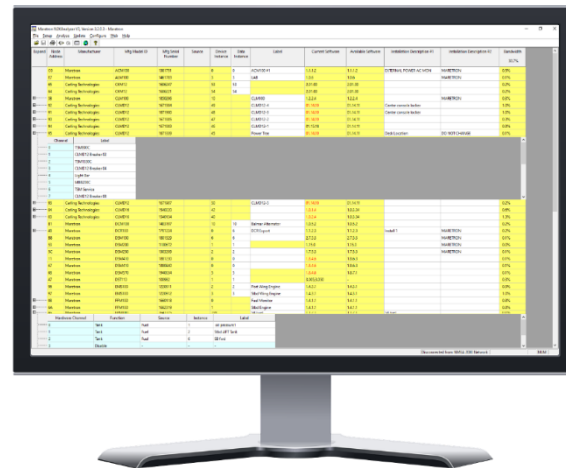
Maretron products are able to be setup using either of the following methods.

- 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**.



## Using N2KAnalyzer® V3



- <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

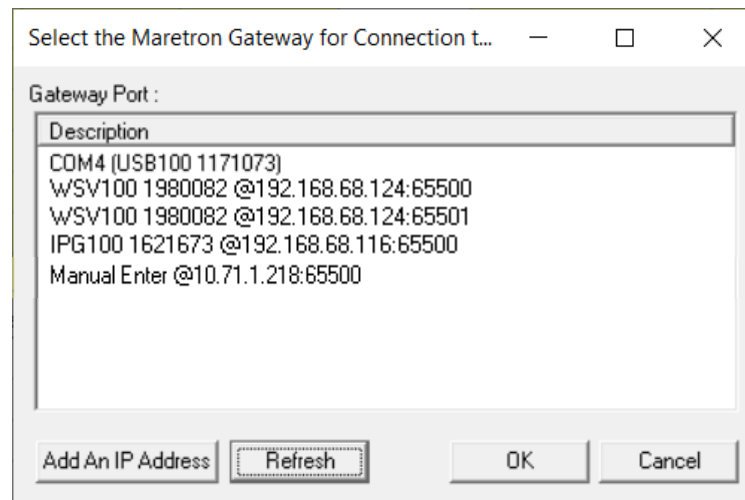
Using N2KAnalyzer® V3 – Connect



**N2KAnalyzer**

When launching N2KAnalyzer, you will be prompted to select your gateway solution.

Select your connection and press **OK**.



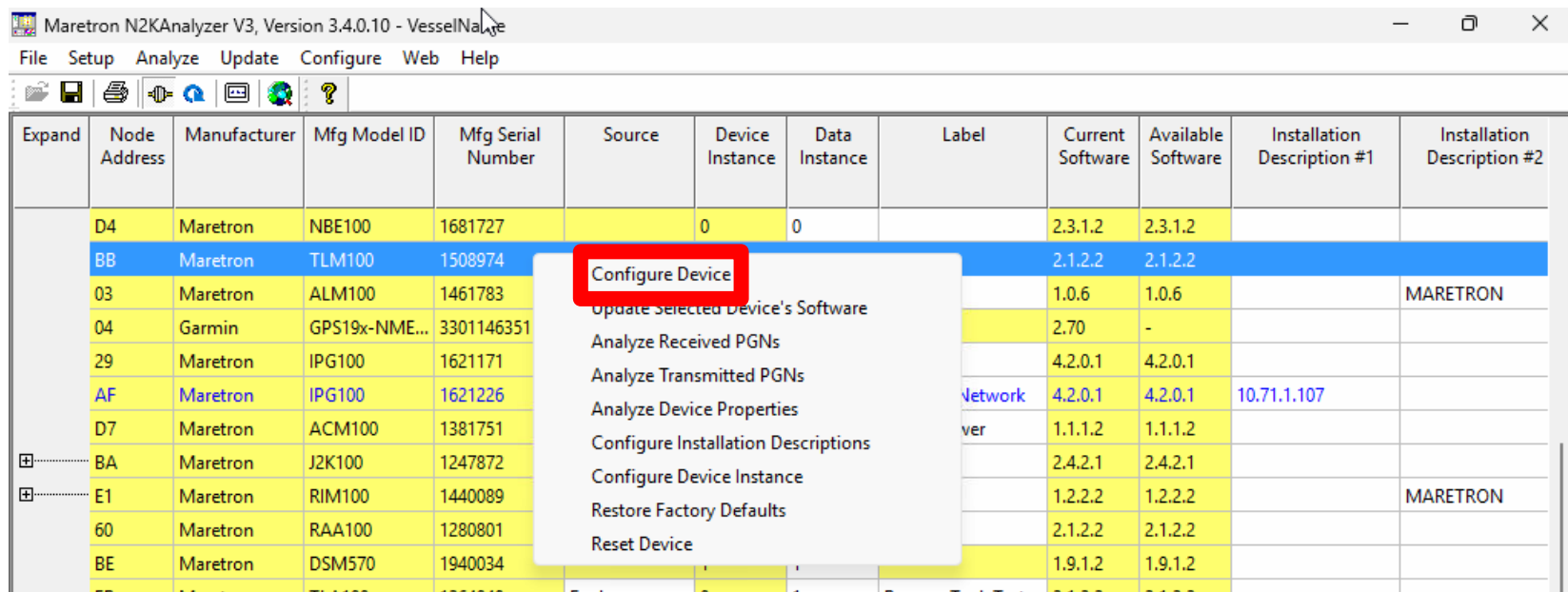
# CONFIGURATION

## 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**.



Maretron N2KAnalyzer V3, Version 3.4.0.10 - VesselName

File Setup Analyze Update Configure Web Help

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

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				Network	4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751				ver	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		
	ED	Maretron	TLM100	1364048					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



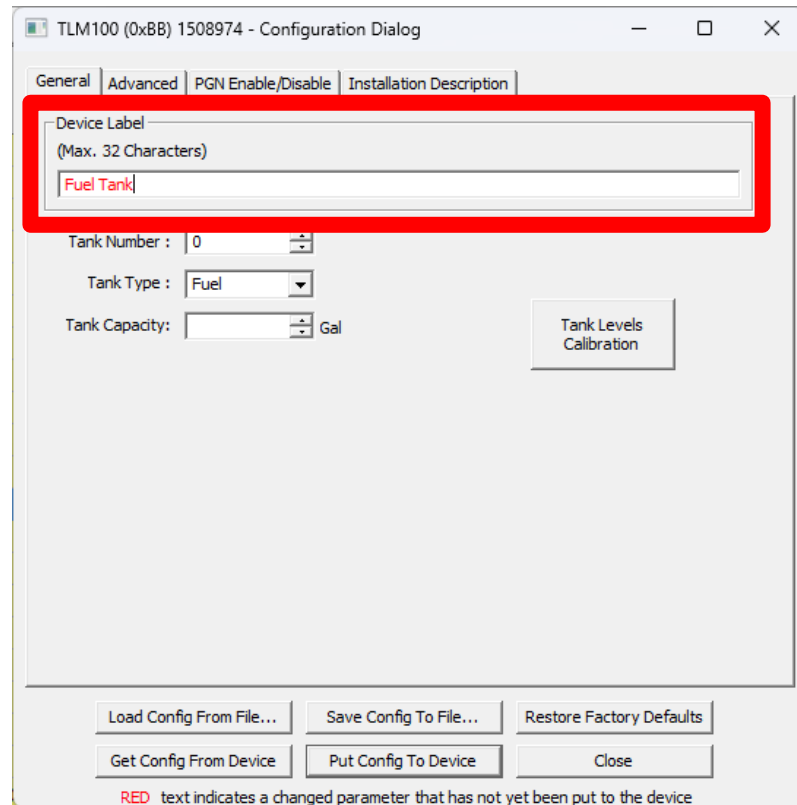
# CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

## TLM Configuration Dialog

### Step 1: Label the Tank Monitor

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

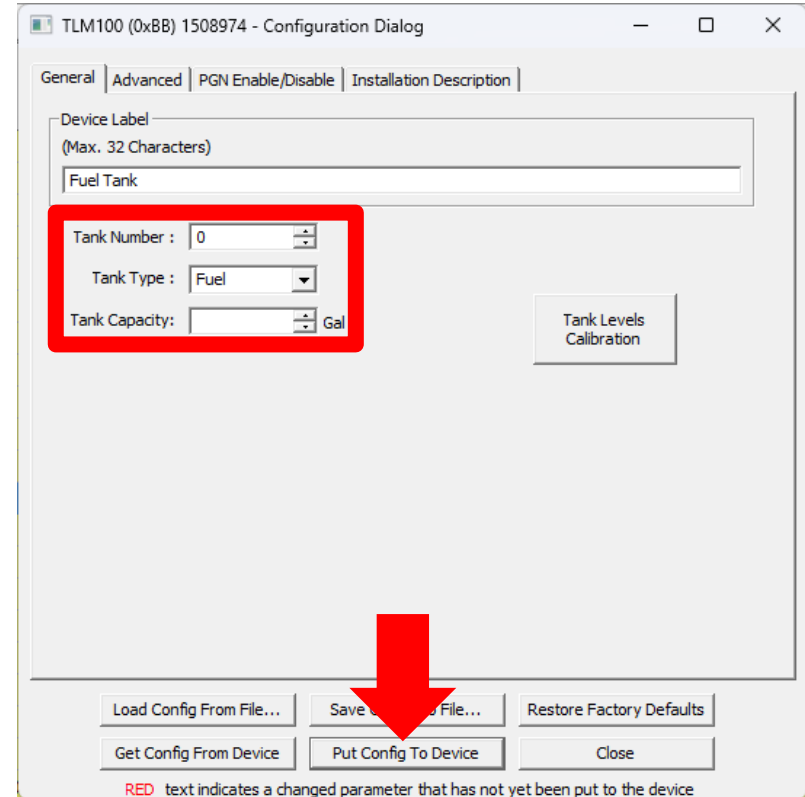


# CONFIGURATION

## 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

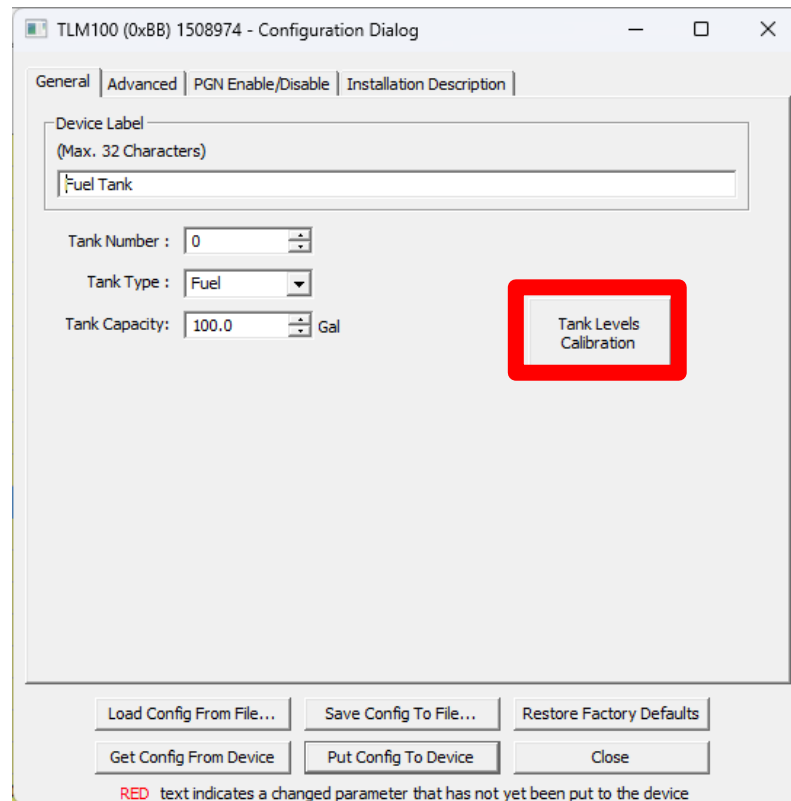


# CONFIGURATION

## 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.

TLM100 (0xBB) 1508974 - Tank Calibration

Manual Table | Step Fill

Current Tank Calibration

	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

Full

Empty Tank Depth

Empty

Number of Table Entries: 2

Load Config From File... Save Config To File...

Get Config From Device Put Config To Device

Close

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

# CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

## Step 3a: Manual Table

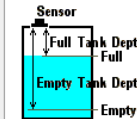
- This section is available if known values of tank height to volume are known, typically, provided from tank manufacturer.
- Up to 16 steps are available to create a proper “curve” to more accurately represent the true volume.
- Entry could be as simple as empty and full height measurements.
- Note: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

TLM100 (0xBB) 1508974 - Tank Calibration

Manual Table | Step Fill

	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**



Number of Table Entries: 2

Load Config From File... Save Config To File...  
Get Config From Device Put Config To Device  
Close

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

TLM100 (0xBB) 1508974 - Tank Calibration

Manual Table | Step Fill |

Current Tank Calibration

	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

Full

Empty Tank Depth

Empty

Number of Table Entries: 2

Load Config From File... Save Config To File...

Get Config From Device Put Config To Device

Close

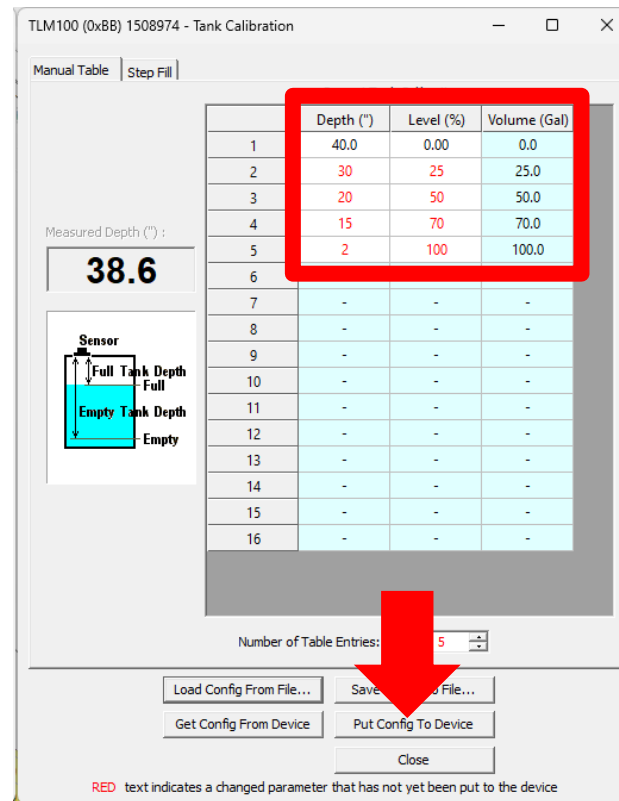
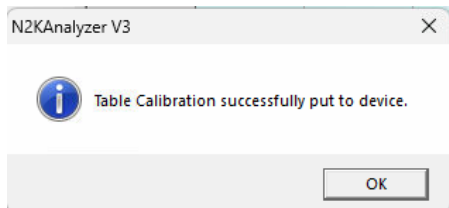
RED text indicates a changed parameter that has not yet been put to the device

# 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



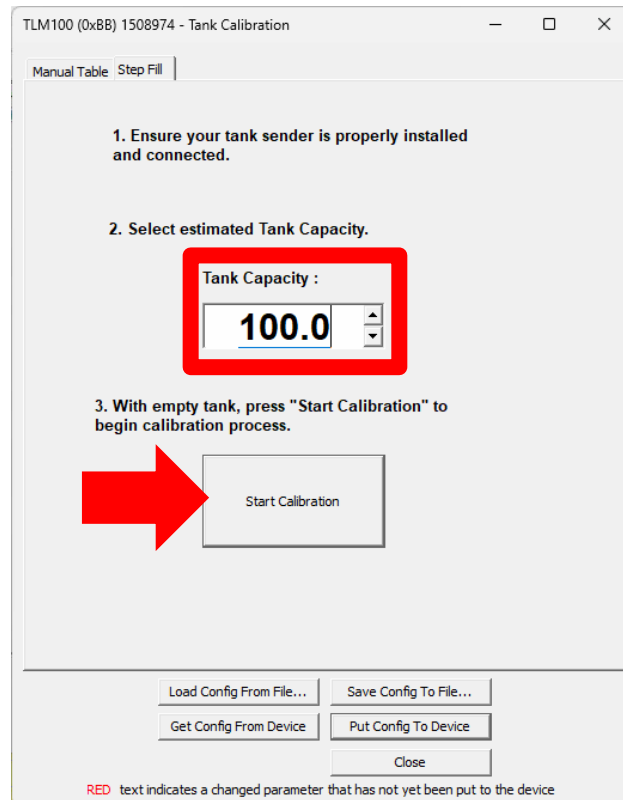
# CONFIGURATION

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

Current Tank 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



# CONFIGURATION

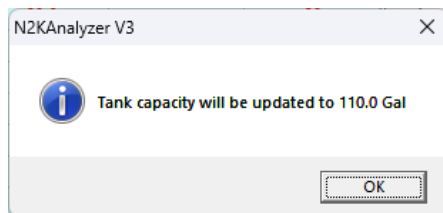
## Using N2KAnalyzer® V3 – Device Setup

### 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.



**Tank Calibration - Step Fill Calibration**

Current Tank Calibration

Entry	Depth (")	Level (%)	Volume (Gal)
1	40.0	-	0.0
2	36.2	-	10
3	32.4	-	20
4	28.6	-	30
5	24.8	-	40
6	21.0	-	50
7	17.2	-	60
8	13.4	-	70
9	9.6	-	80
10	5.8	-	90
11	2.0	-	110
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-

Tank Capacity (Gal) : **100.0**

Measured Depth (") : **2.0**

Current Level (Gal) : **110**

Step 12 of 16

Complete

Abort

A red rectangle highlights the table rows from Entry 1 to 11. A red arrow points to the "Complete" button.

# CONFIGURATION

Using N2KAnalyzer® V3 – Device Setup

## Step 3b: Step Fill Calibration, cont.

Press OK to continue.

Close the calibration window.

Tank Calibration - Step Fill Calibration

Current Tank Calibration

Entry	Depth (")	Level (%)	Volume (Gal)
1	40.0	-	0.0
2	36.2	-	10
3	32.4	-	20
4			
5			
6			
7			
8			
9			
10			
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-

Tank Capacity (Gal) : 100.0

Measured Depth (") : 2.0

Level (Gal) : 100

Step 11 of 16

Complete

Abort

N2KAnalyzer V3

Tank calibration successfully put to device.

OK

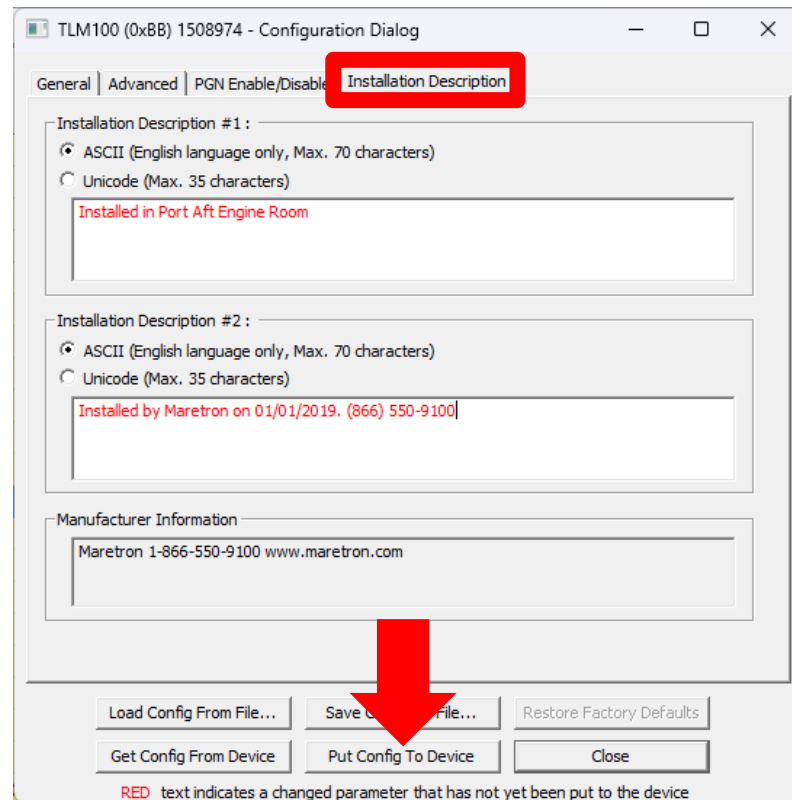
# CONFIGURATION

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.

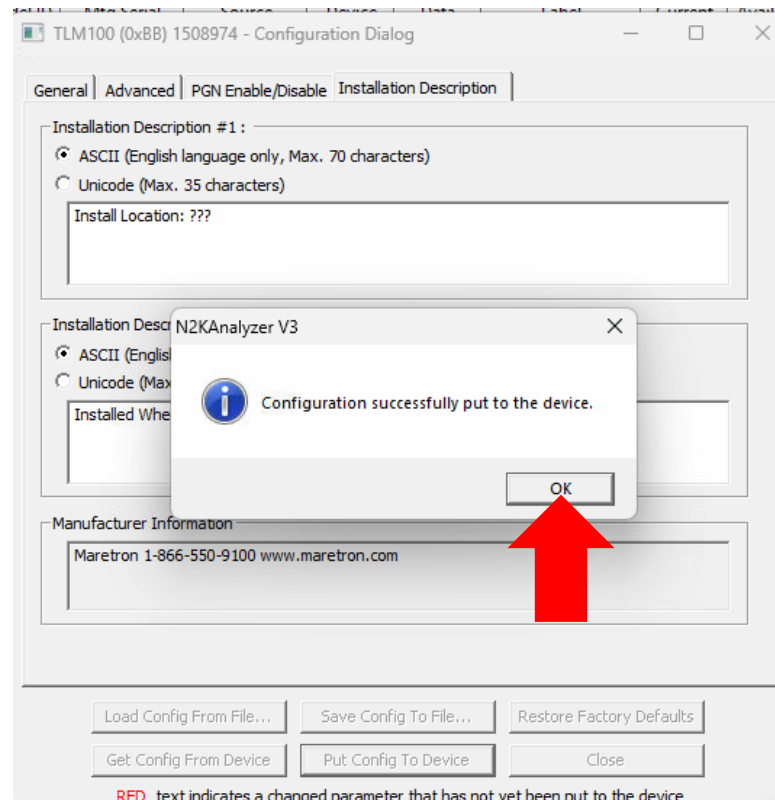


# CONFIGURATION

## 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

Maretron N2KAnalyzer V3, Version 3.4.0.10 - VesselName

File Setup Analyze Update Configure Web Help

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				Network	4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751				er	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		
	ED	Maretron	TLM100	1364048			1	D	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 – 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, Version 3.4.0.10 - VesselName window. The interface includes a menu bar (File, Setup, Analyze, Update, Configure, Web, Help) and a toolbar with icons for file operations, settings, and help. Below the toolbar is a table listing various devices. The table has columns: 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. A right-click context menu is open over the TLM100 device (Node Address BB), with the option 'Analyze Transmitted PGNs' highlighted by a red rectangle. The menu also includes options like 'Configure Device', 'Update Selected Device's Software', 'Analyze Received PGNs', 'Analyze Device Properties', 'Configure Installation Descriptions', 'Configure Device Instance', 'Restore Factory Defaults', and 'Reset Device'.

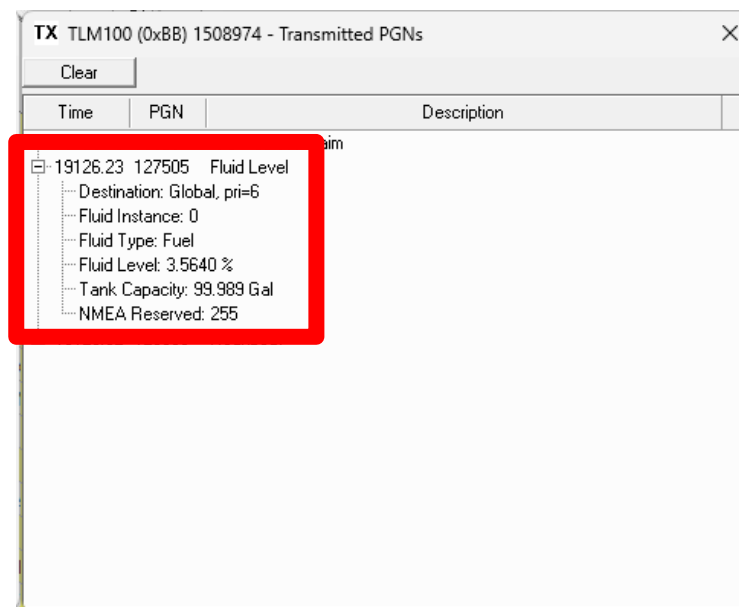
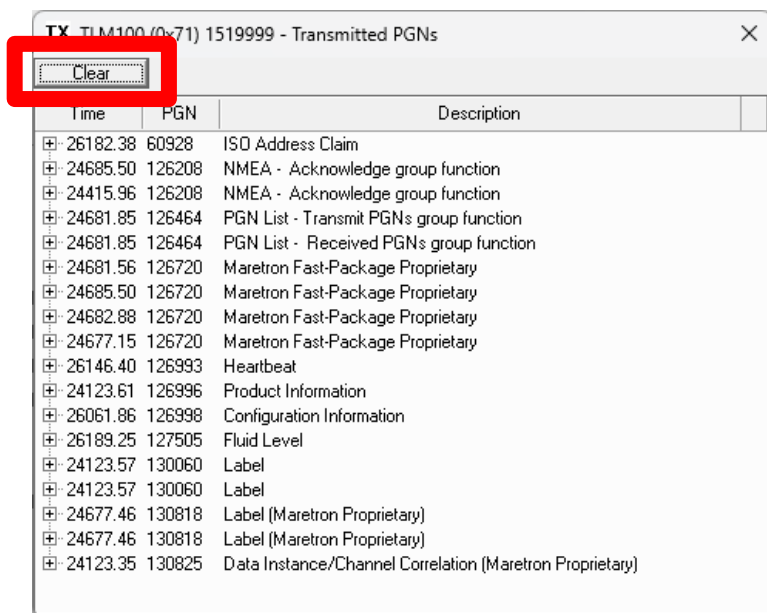
Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
	D4	Maretron	NBE100	1681727		0	0		2.3.1.2	2.3.1.2		
	BB	Maretron	TLM100	1508974					2.1.2.2	2.1.2.2		
	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				Network	4.2.0.1	4.2.0.1	10.71.1.107	
	D7	Maretron	ACM100	1381751				ver	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		
	ED	Maretron	TLM150	1364048					2.1.2.2	2.1.2.2		

# 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.





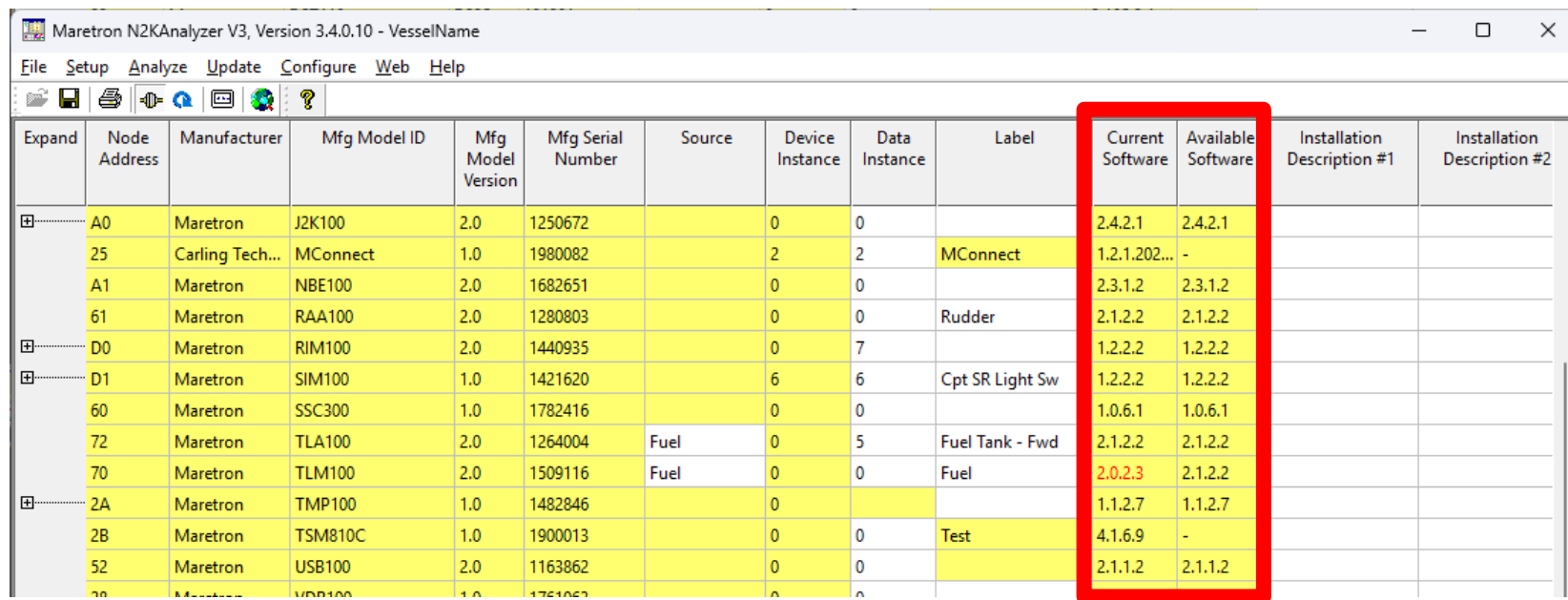
# CONFIGURATION

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.



Maretron N2KAnalyzer V3, Version 3.4.0.10 - VesselName

File Setup Analyze Update Configure Web Help

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	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		
	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	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		
	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		
	28	Maretron	VDP100	1.0	1751053		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, Version 3.4.0.10 - VesselName window. The interface includes a menu bar (File, Setup, Analyze, Update, Configure, Web, Help) and a toolbar. A table lists various devices with columns for 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, and Installation Description #2. A right-click context menu is open over the table, listing options such as 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, and Reset Device. The 'Update Selected Device's Software' option is highlighted with a red box. The 'Current Software' column for the selected device (TLM100) is also highlighted with a red box, showing the value 2.0.2.3.

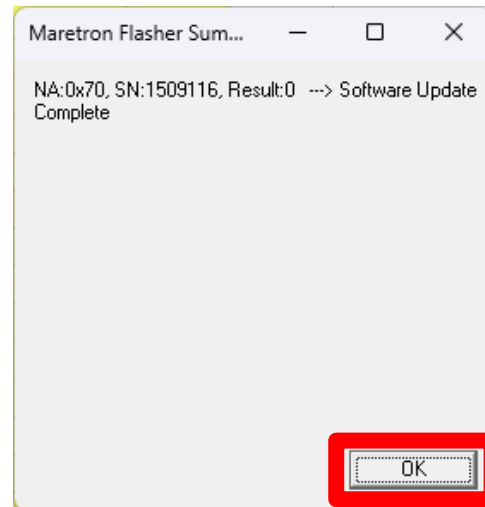
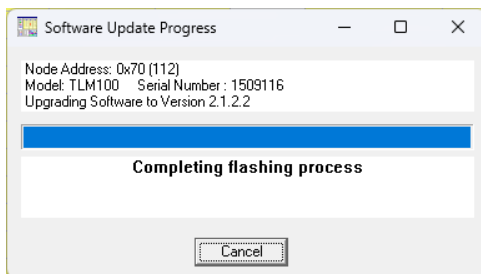
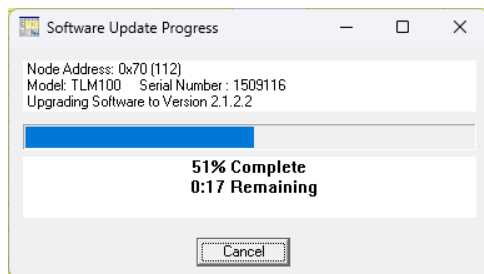
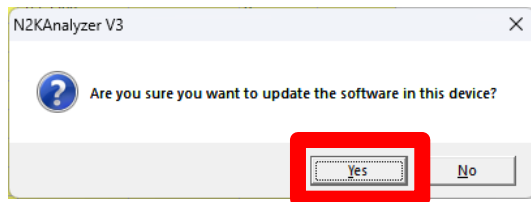
Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Model Version	Mfg Serial Number	Source	Device Instance	Data Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2
+	A0	Maretron	J2K100	2.0	1250672		0	0		2.4.2.1	2.4.2.1		
	25	Carling Tech...	MConnect	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				er	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				R Light Sw	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				Tank - Fwd	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		
	28	Maretron	VDP100	1.0	1751053		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.

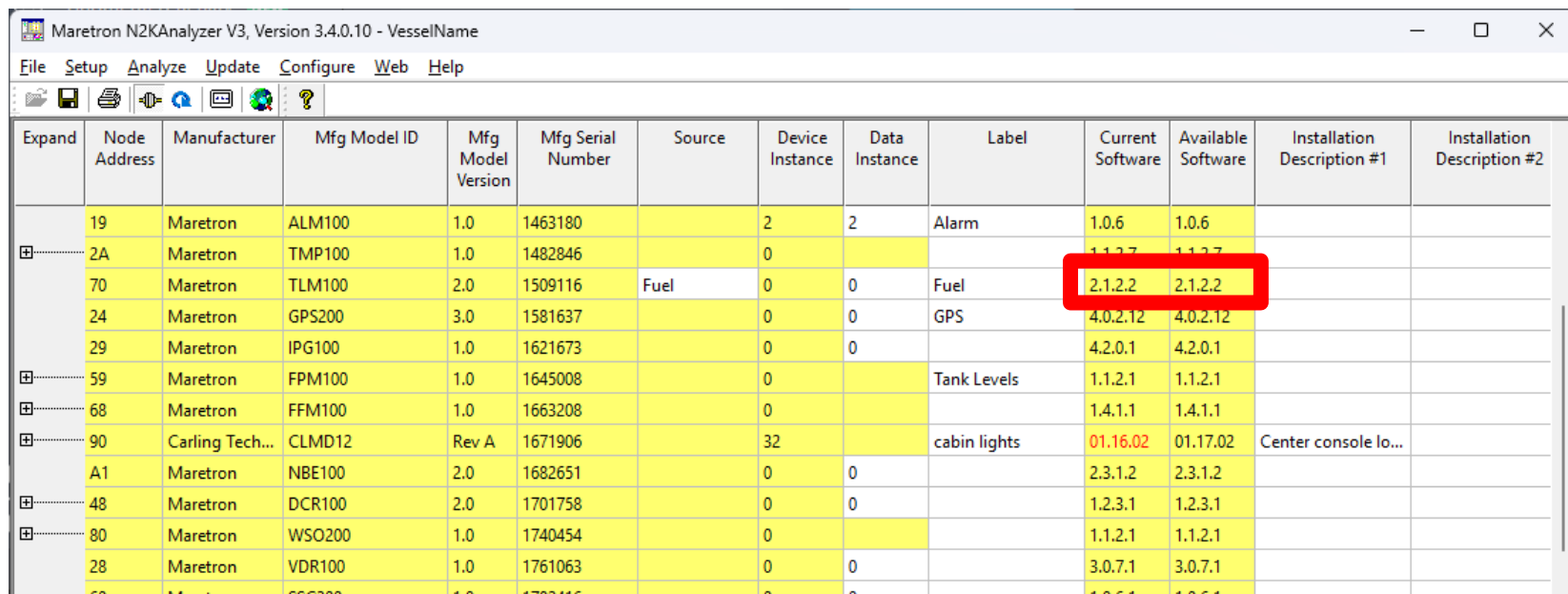


# CONFIGURATION

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		
	50	Maretron	SSC200	1.0	1782116		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

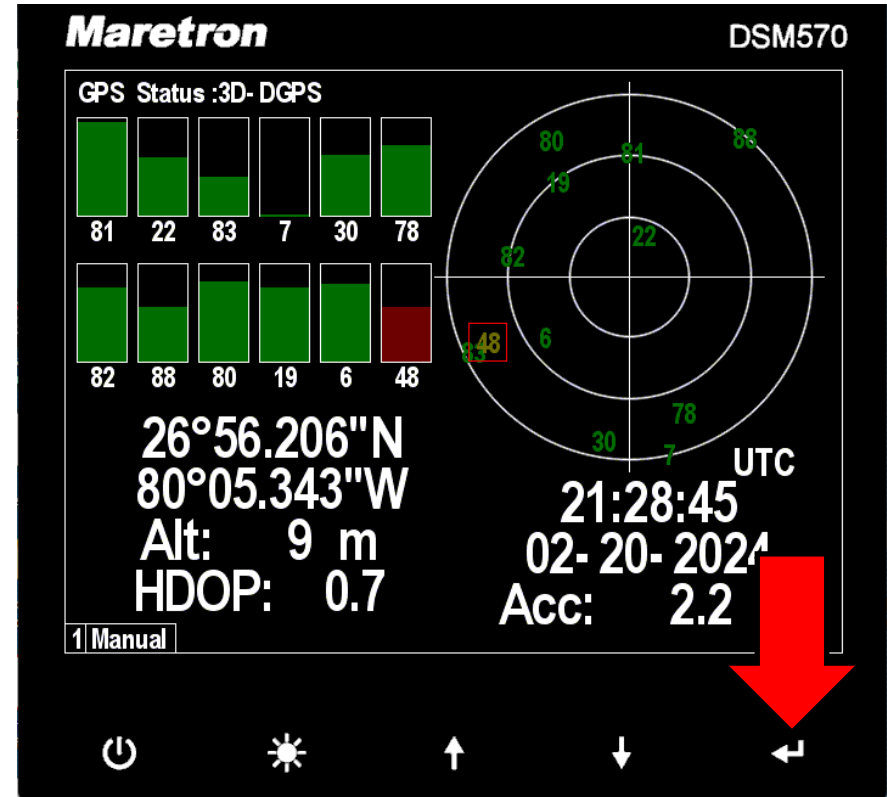


# CONFIGURATION

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.

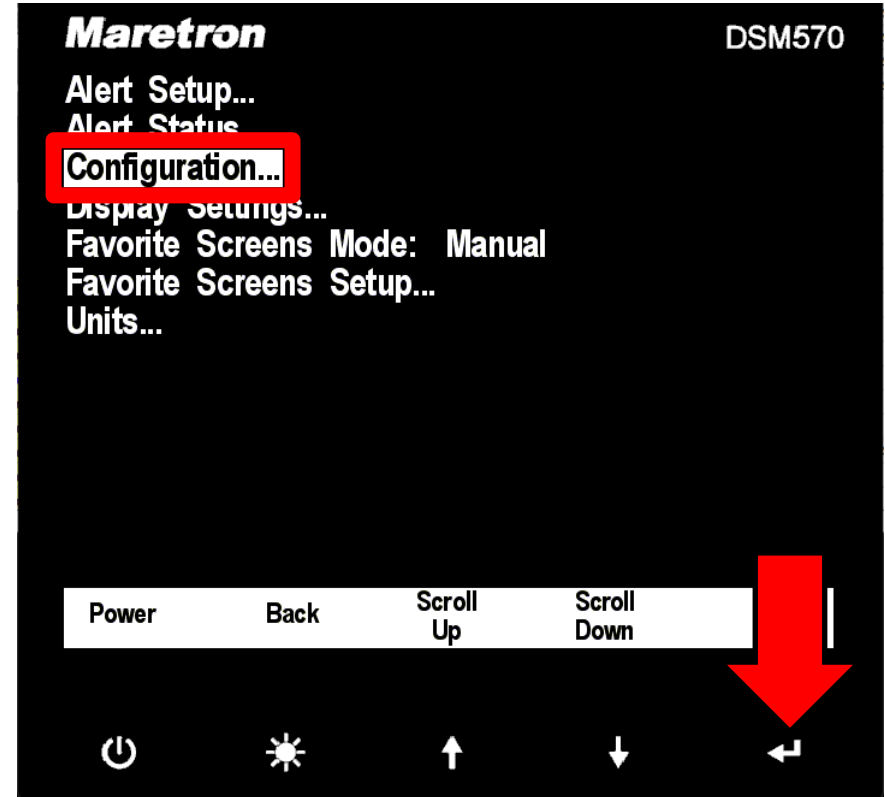


# CONFIGURATION

Using DSM Series Displays

## Step 2: Access Configuration Menu

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

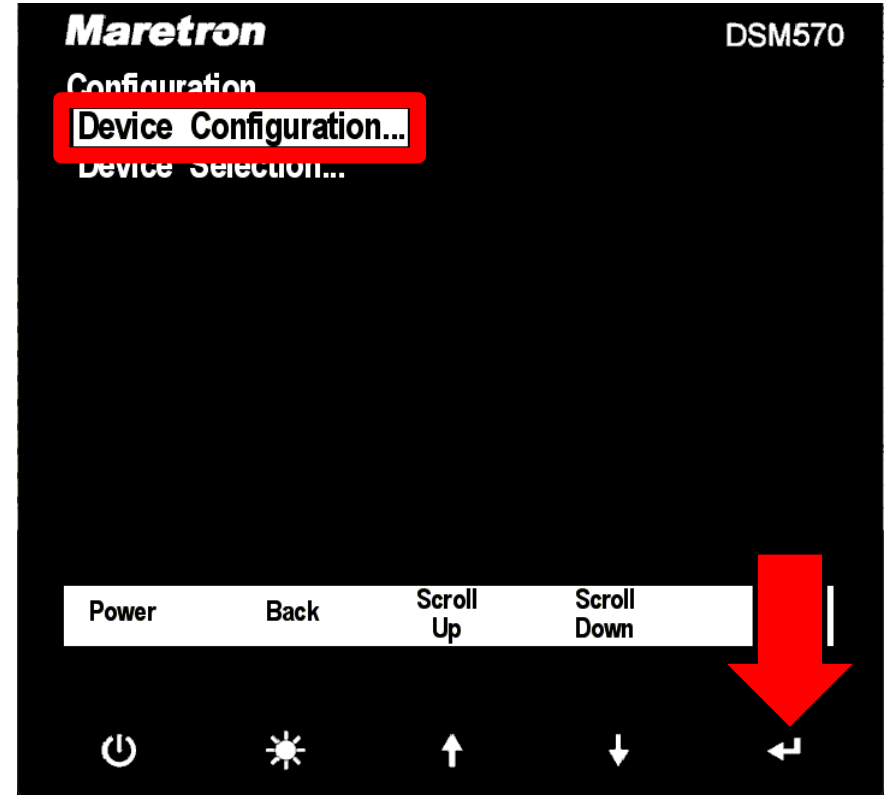


# CONFIGURATION

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.





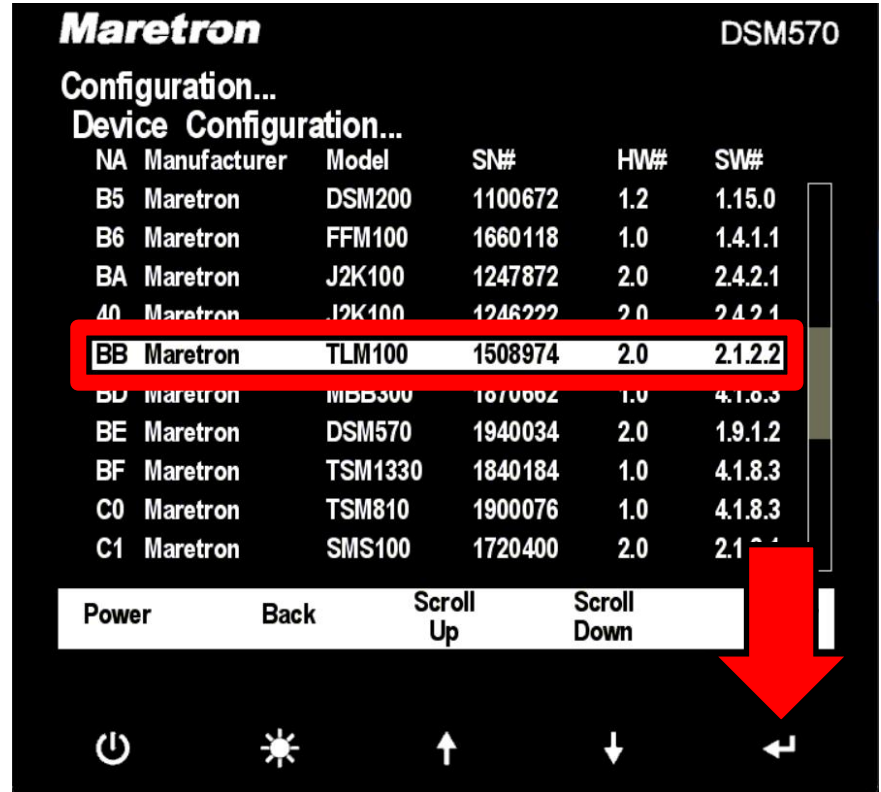
# CONFIGURATION

## 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.

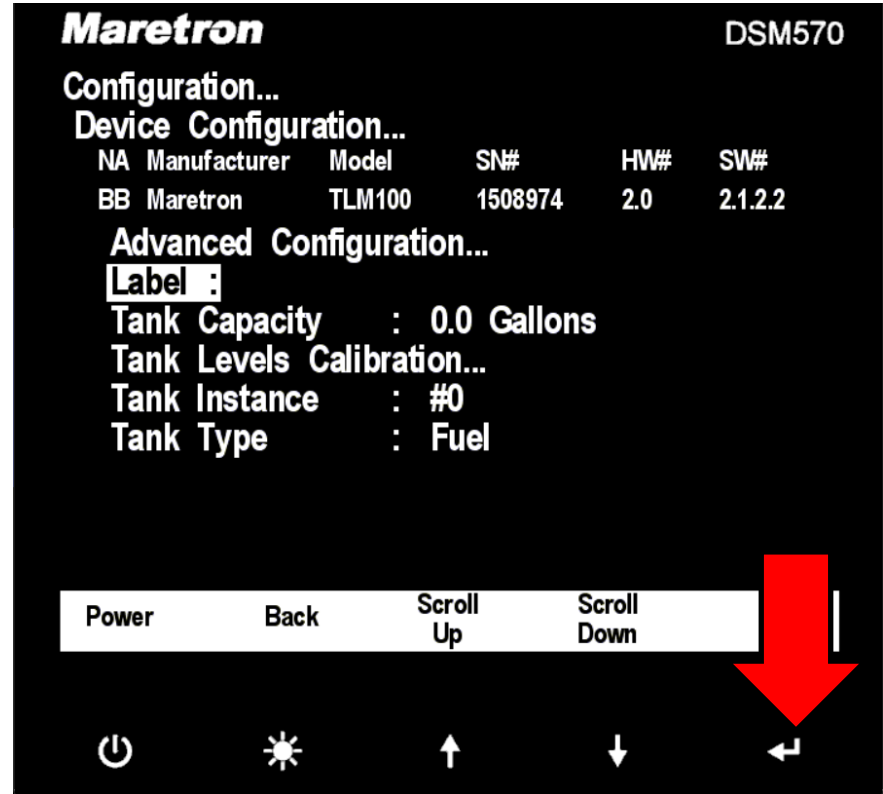


# CONFIGURATION

Using DSM Series Displays

## Step 5: Label Device

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



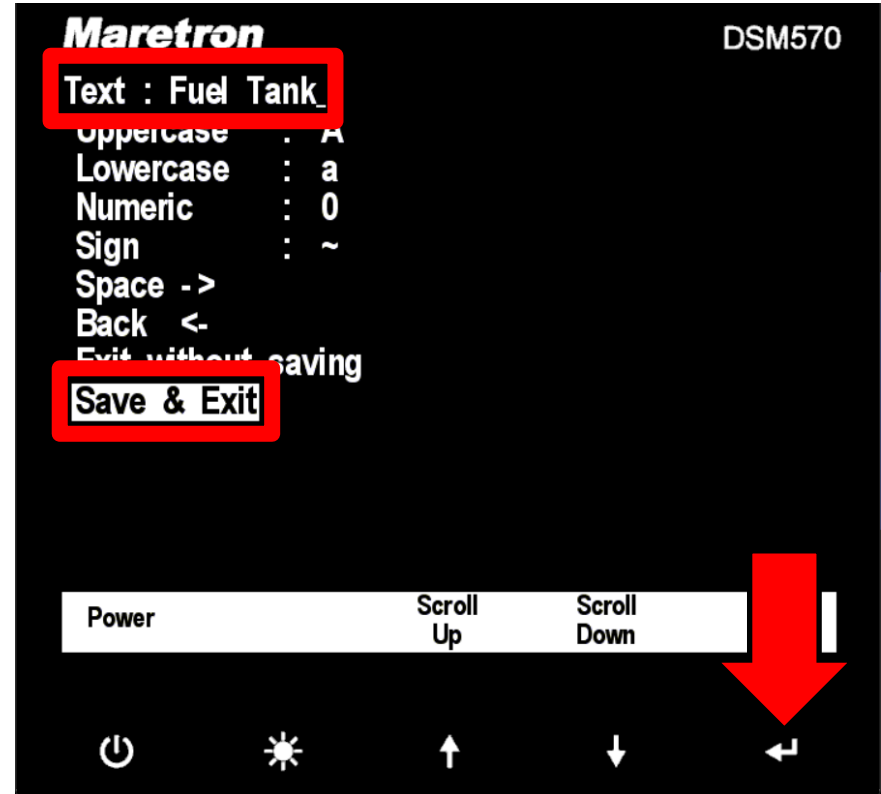
# CONFIGURATION

## 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.



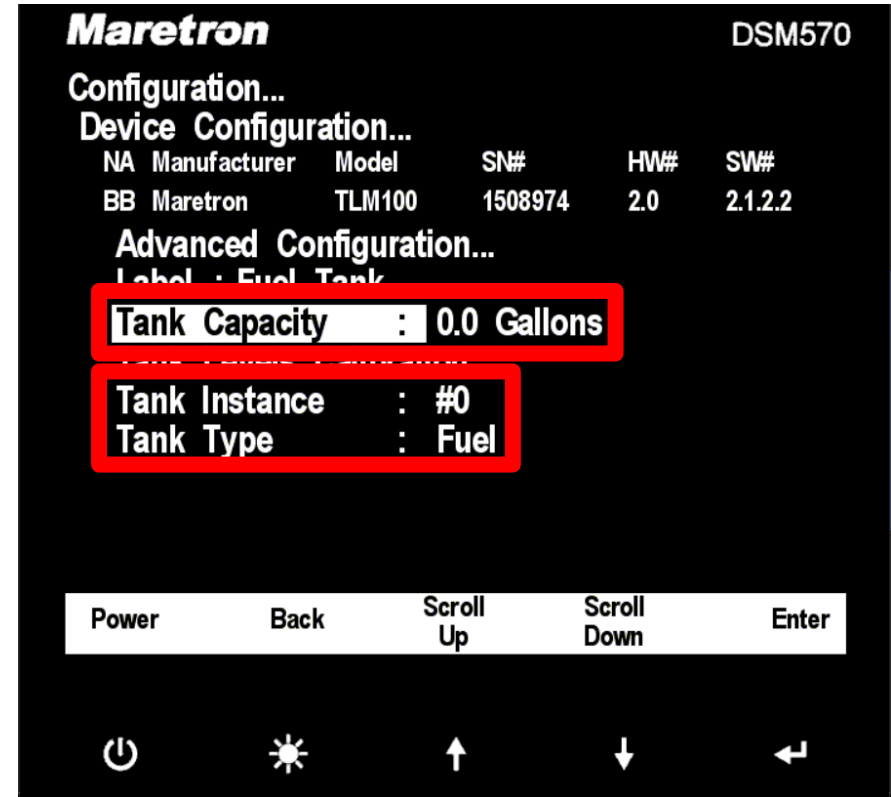
# CONFIGURATION

## 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

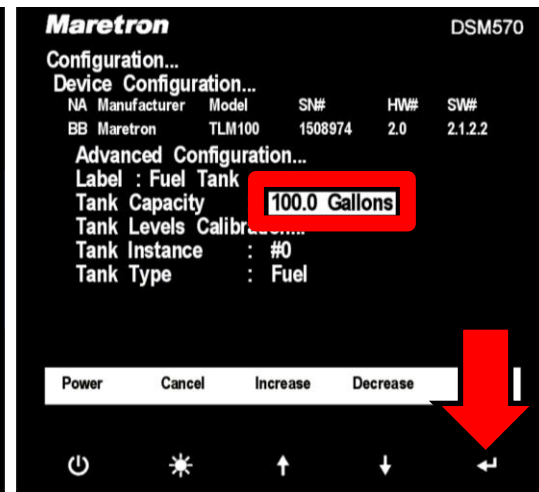
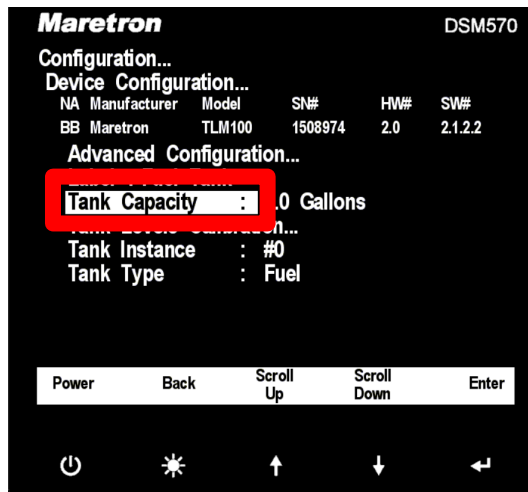
## Using DSM Series Displays

### 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

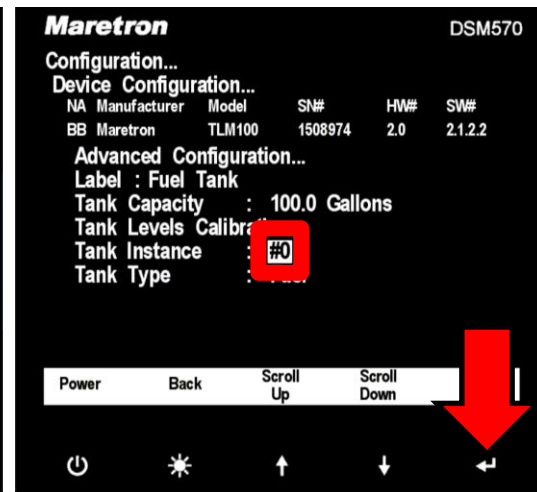
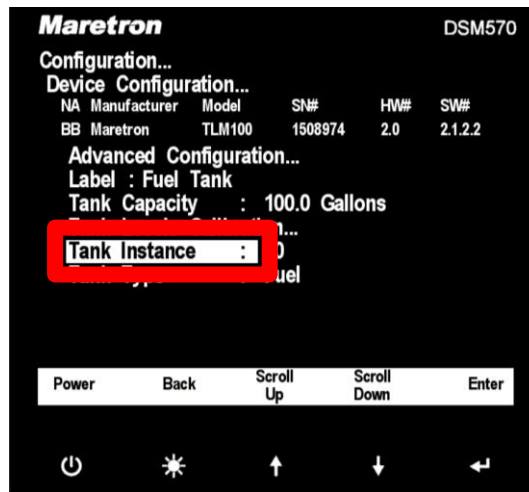
## Using DSM Series Displays

### 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

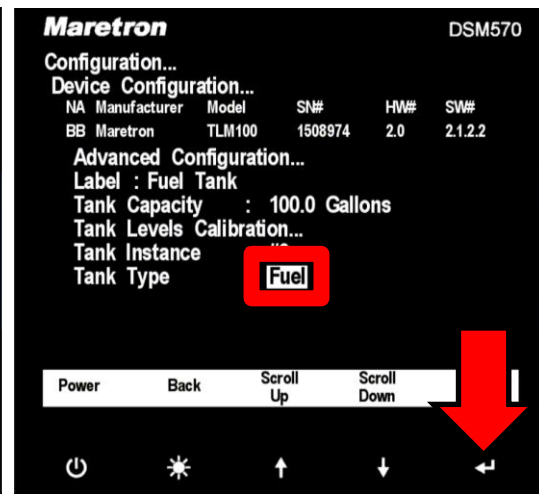
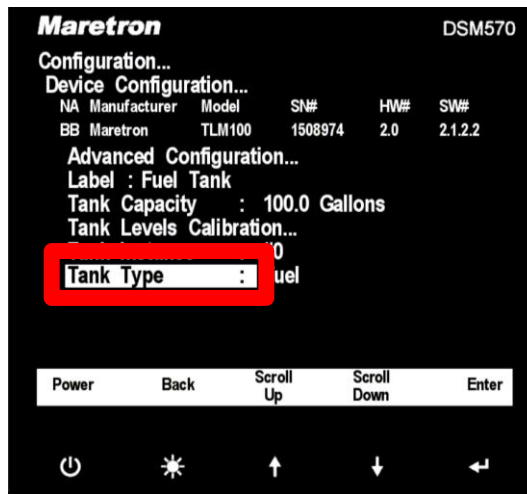
### Step 6c: Tank Profile Setup, cont.

#### 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 3<sup>rd</sup> 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:

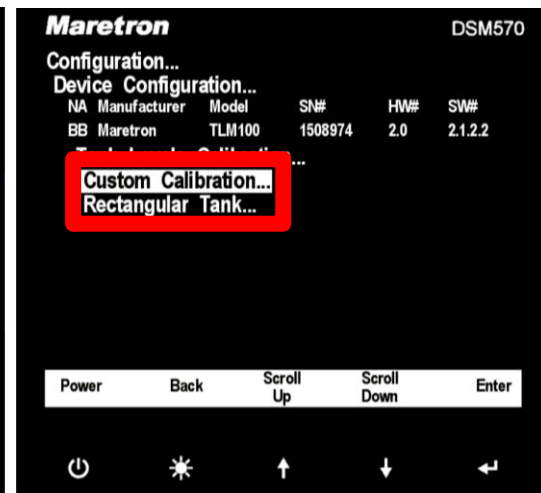
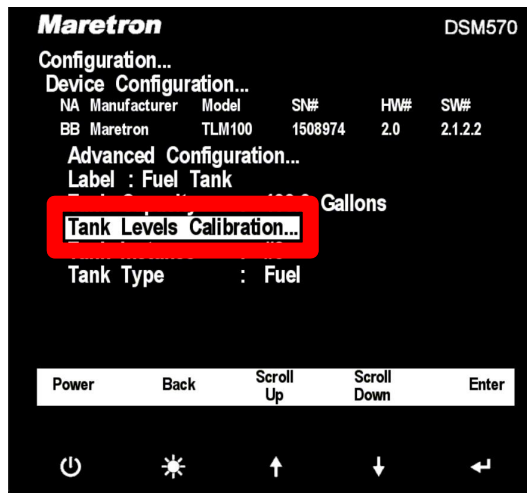
- **Rectangular Tank**

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.





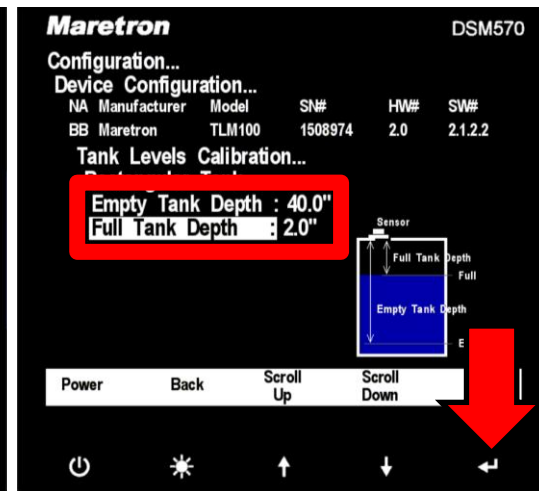
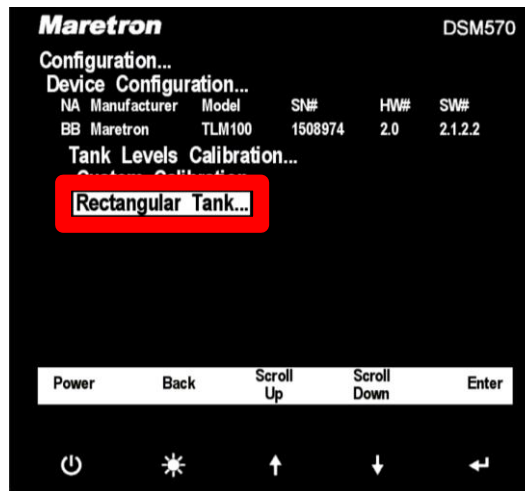
# CONFIGURATION

## 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

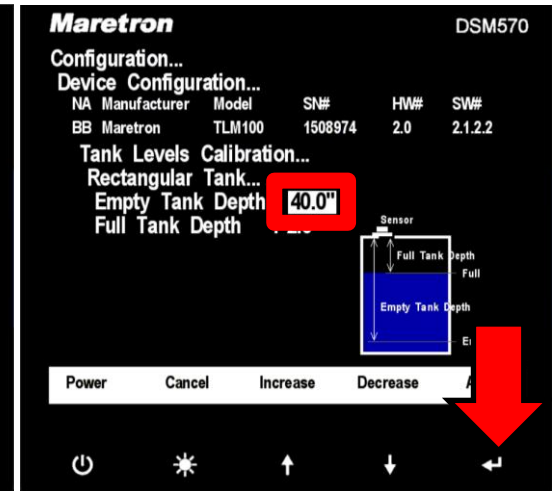
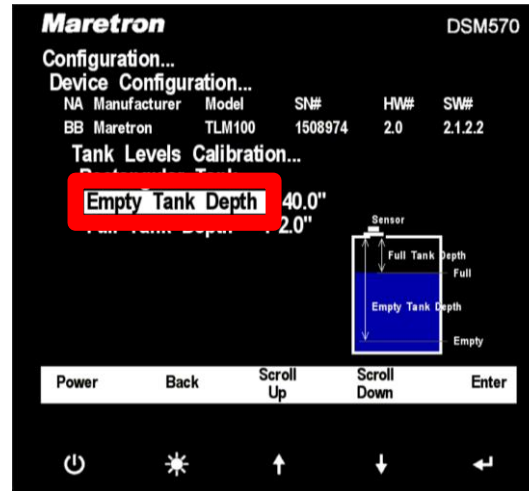
## Using DSM Series Displays

### 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.



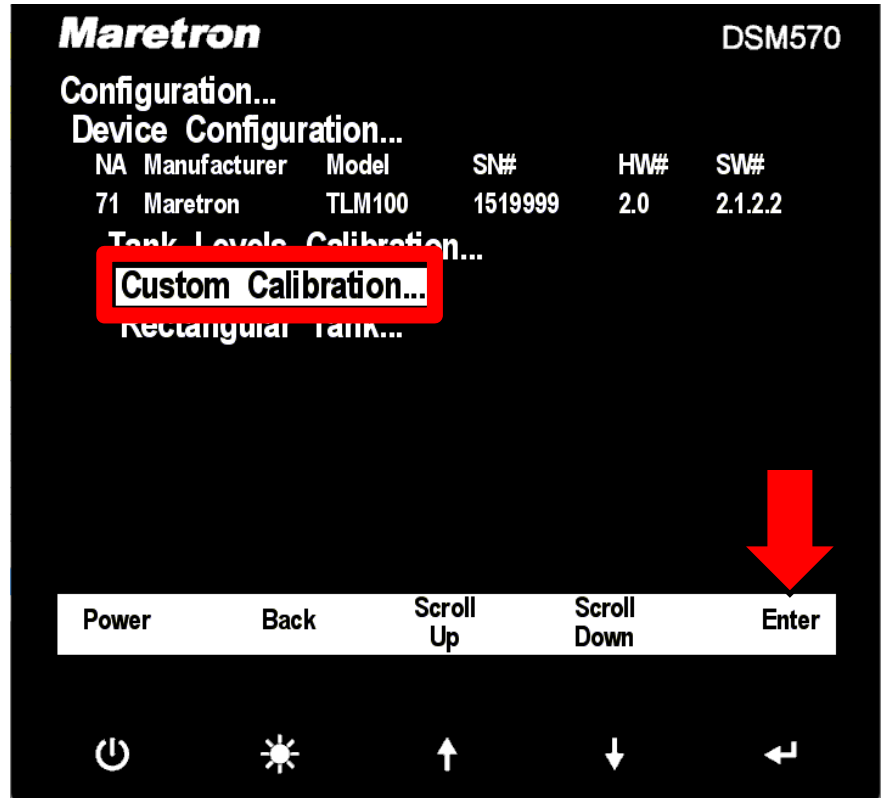
# CONFIGURATION

Using DSM Series Displays

## Step 7b: Custom Calibration

This operation requires an empty tank

- Estimated Tank Capacity
- Incremental fill up to 16 steps

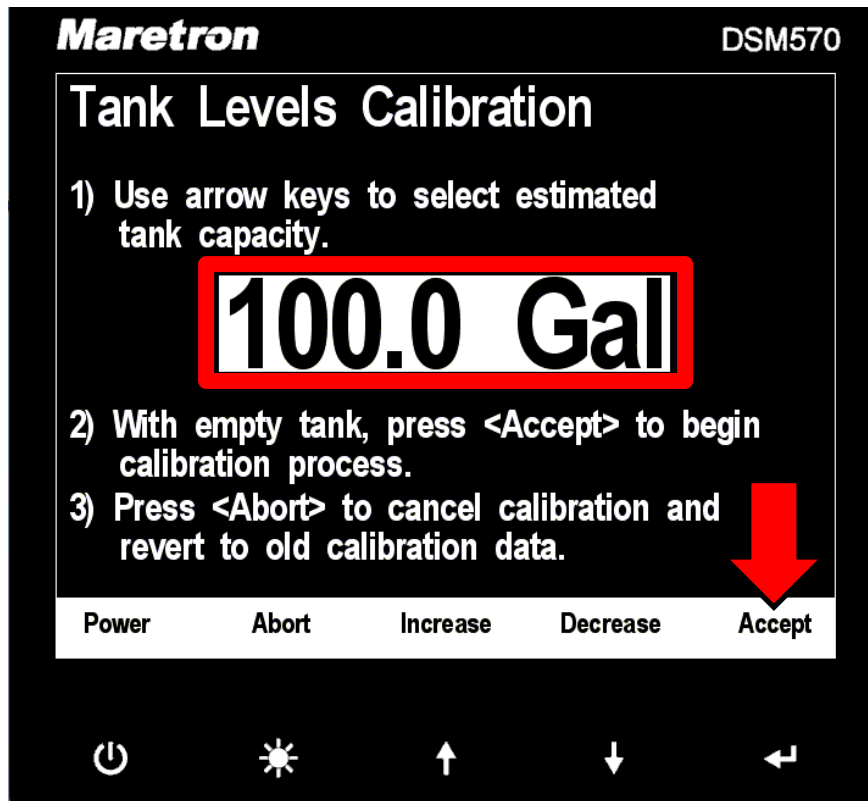


# CONFIGURATION

## 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

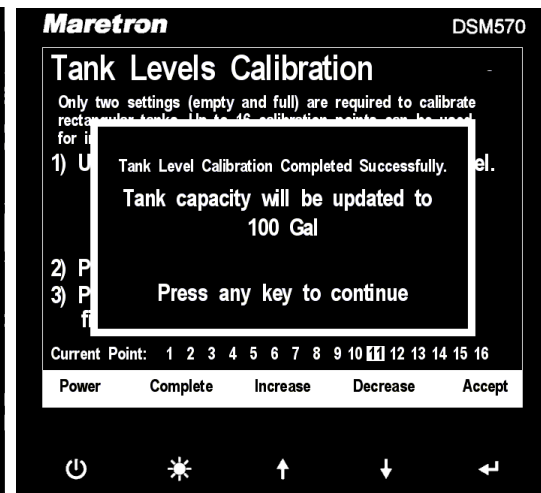
## Using DSM Series Displays

### 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 that previously stated, the system will now allow you to set that value as your new tank capacity.



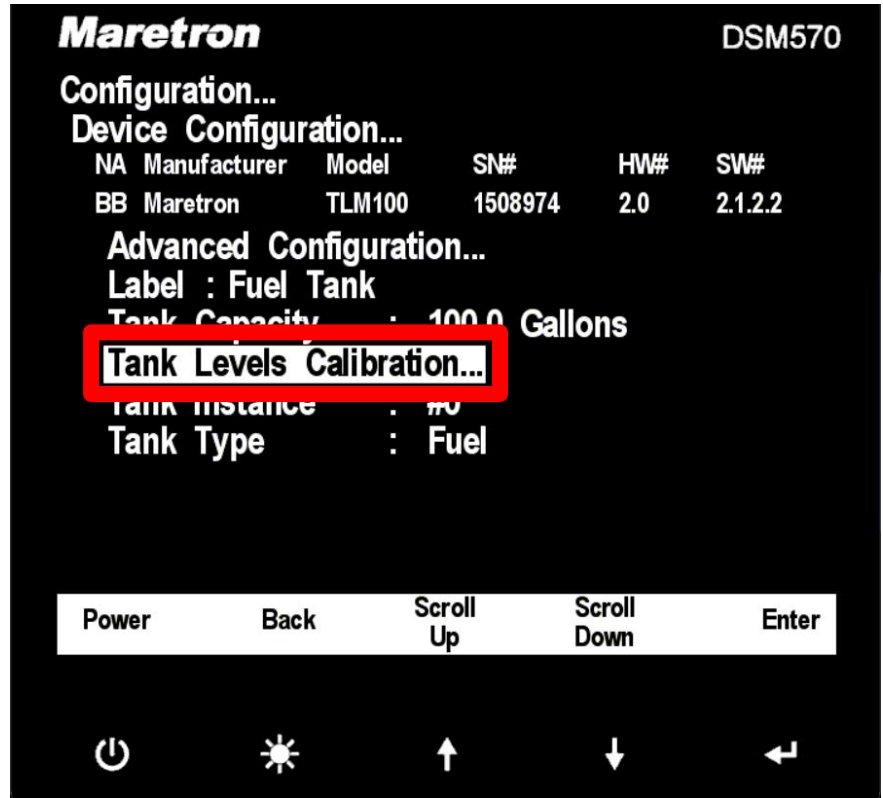
# CONFIGURATION

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.



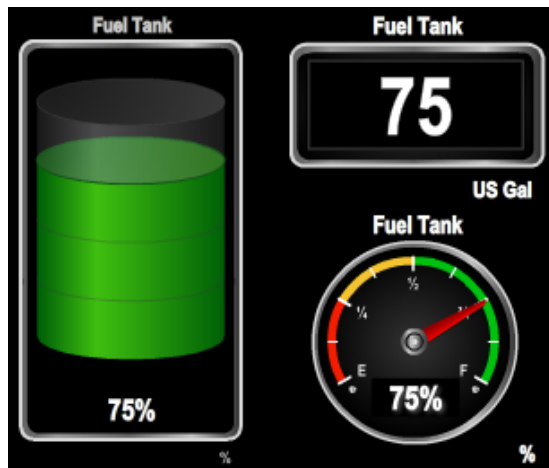


# DATA REVIEW

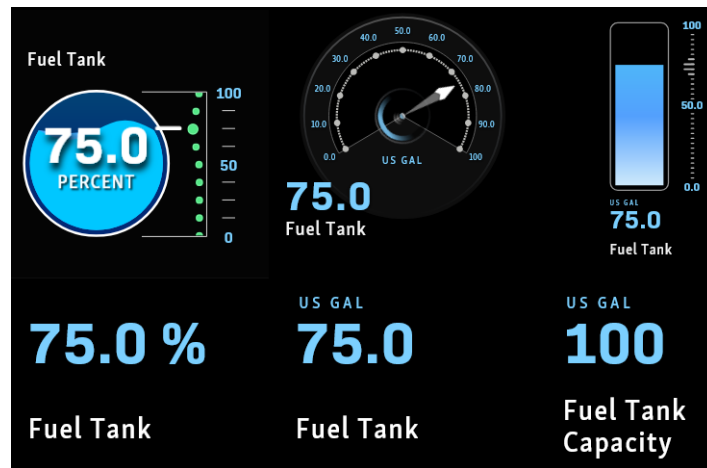
Using N2KAnalyzer® V3 – Transmitted PGNs

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.

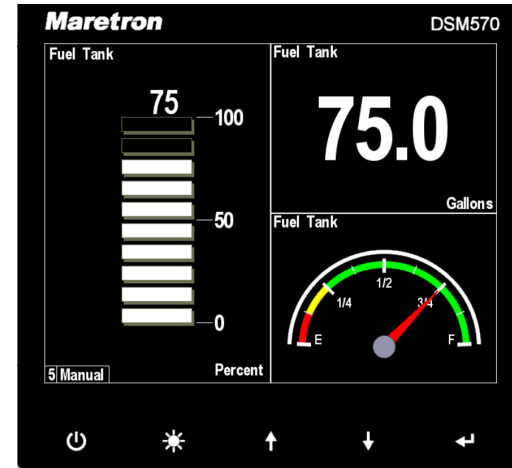
## N2KView



## MConnect



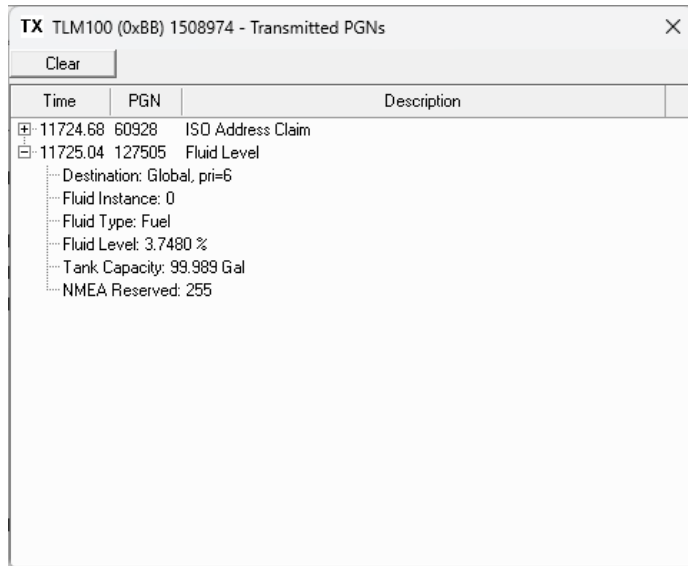
## DSM Display



# DATA REVIEW

## TLM100/TLM150 - Transmitted PGNs

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



Time	PGN	Description
11724.68	60928	ISO Address Claim
11725.04	127505	Fluid Level <ul style="list-style-type: none"><li>Destination: Global, pri=6</li><li>Fluid Instance: 0</li><li>Fluid Type: Fuel</li><li>Fluid Level: 3.7480 %</li><li>Tank Capacity: 99.989 Gal</li><li>NMEA Reserved: 255</li></ul>

# DATA REVIEW

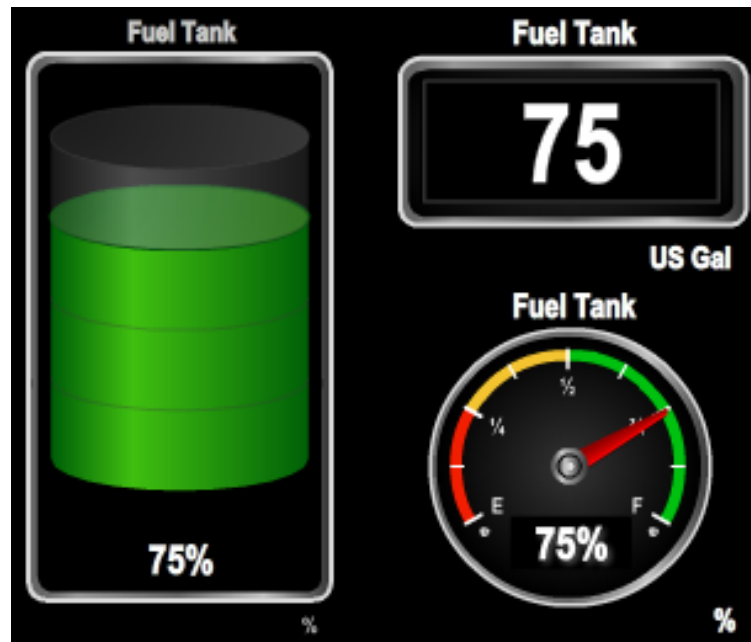
Maretron N2KView

## 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

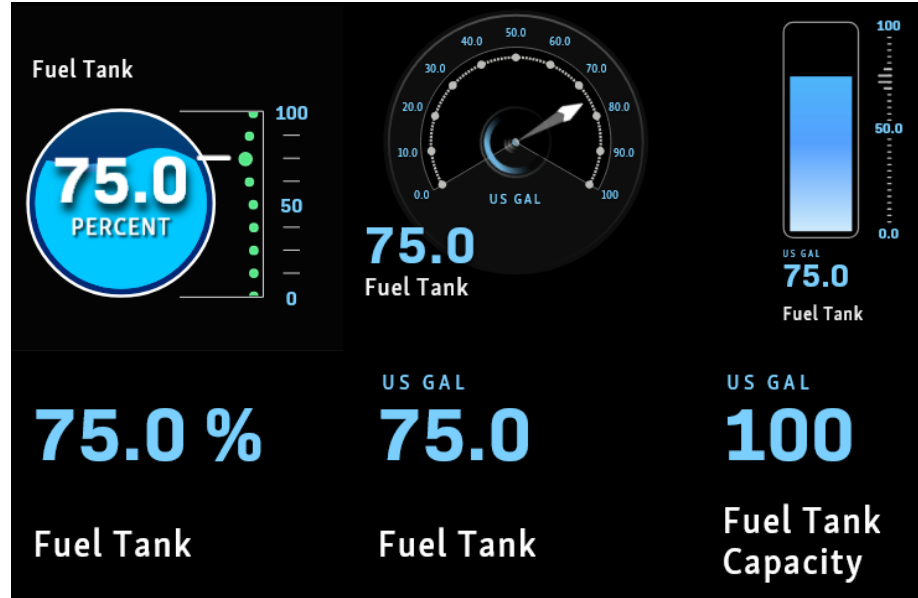
**MConnect®**

**Vessel Monitoring and Control System**

**Web Server**

Compatible on:

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



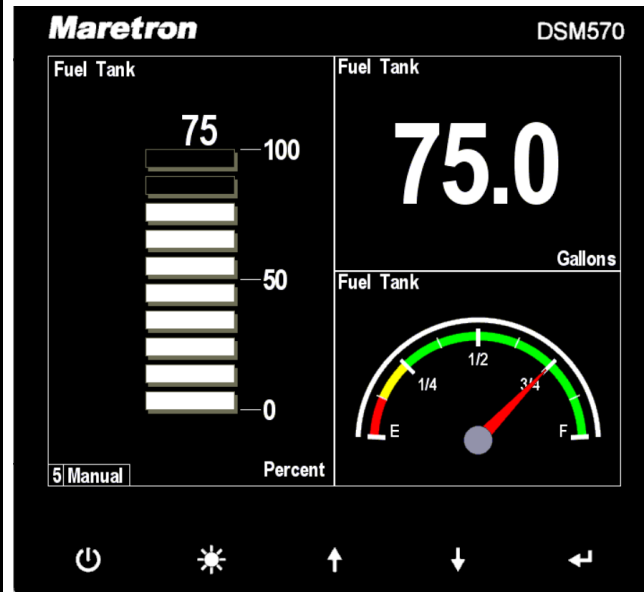
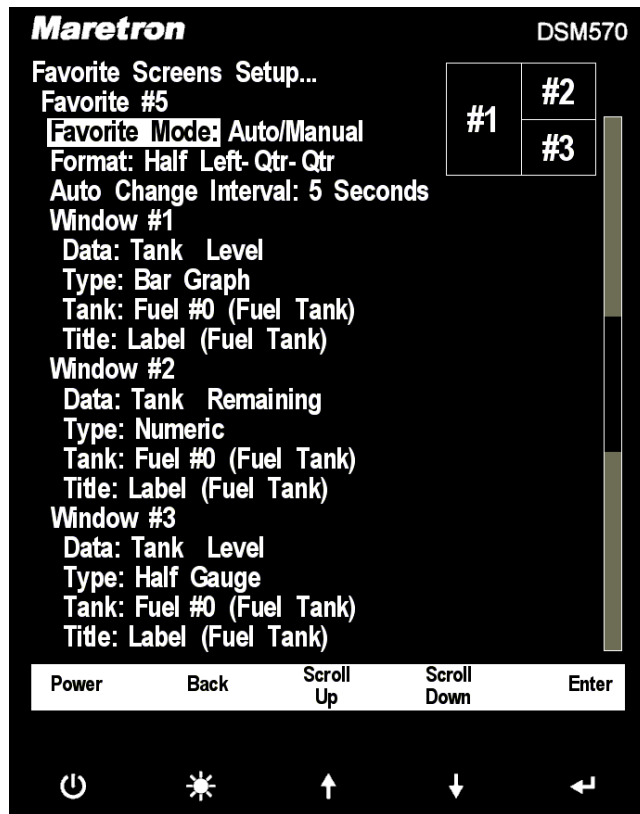
<https://www.maretron.com/products/mconnect/>

# 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 3<sup>rd</sup> Party Displays

### 3<sup>rd</sup> 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.

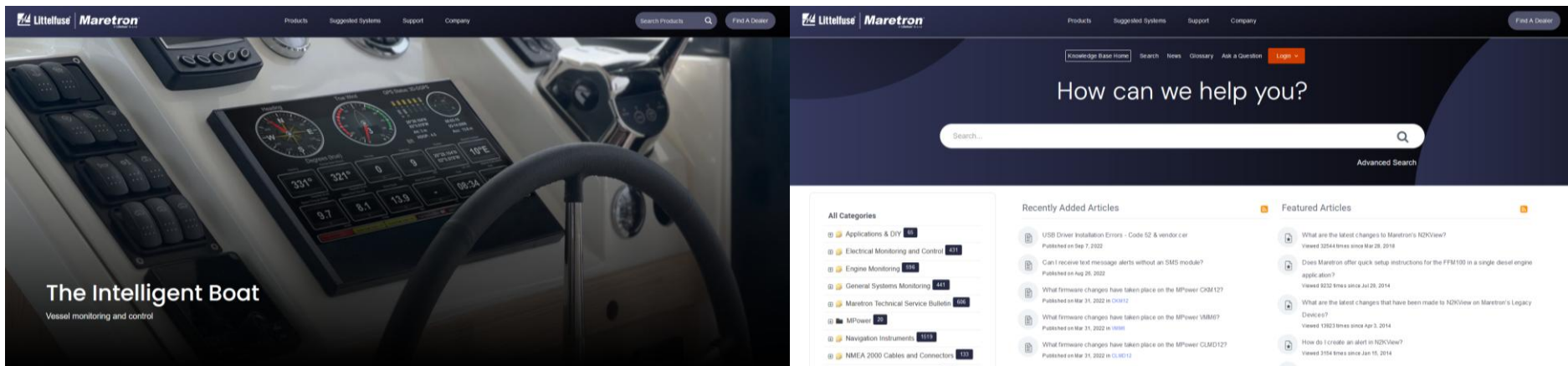
- Fluid Level (PGN: 127505)



# 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!!



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

# WEBSITE RESOURCES

## N2KAnalyzer - Training Videos

Overview

Applications

Documentation

Downloads

Videos



N2KAnalyzer Introduction - Part I

9C	Maretron	SSC200	1120707	0	Primary Heading	5.0.3	5.0.4.1	Midship	Installed 2013
AD	Maretron	QK100	1241404	0	ICE Maker	1.0.13.2	1.2.1.1		Installed 2013
BA	Garmin	GPS17x-NME	3431140010	3		2.40			
30	Maretron	GPS100	1140232	2				Backup 1	Installed 2013
7C	Maretron	TLM100	1500082	0	Starboard Water				Installed 2013
74	Maretron	TLM150	1529901	0	Gasoline Tank				Installed 2013
B5	Maretron	WSO100	1201734		Wind Sensor				Installed 2013
72	Maretron	DST110	*	0		1.003.1.0...		Port Sounder	Installed 2013
71	Maretron	ALM100	1469902	5	Engine Room	1.0.6	1.0.6	Engine Room	Installed 2013
20	Maretron	GPS200	15266	0	Primary	3.5	3.7.1.1	Primary GPS Ante...	Installed 2013
CF	Maretron	DCM100	1400046	1	N2Kpower	1.0.4	1.0.5.2	System Power	Installed 2013
73	Maretron	TLM200	1540111	2	Day Tank	1.1.6	1.1.8.3		Installed 2013
23	Armar	HT200	11902103	2		4.000.4.0...		Sea water temp	Installed 2013
26	Maretron	VDR100	1760014	0	Primary Data Rec...	2.0.3.4	3.0.3.1	Connected Fuel Bus	Installed 2013
08	Lowrance Ele...	EP-DOS	316	5		1.0.0.50...			
1A	Maretron	AI-M100	1480041	0	Deck Alarm	1.0.6	1.0.6	Located Abnove De...	Installed 2013



N2KAnalyzer Introduction - Part II

M250	1.0		1300176	1	Deck Display	1.4.17.5	1.6.3.4		Installed 2013
C200	2.0		1389904	0	Primary Heading	5.0.3	5.0.4.1	Midship	Installed 2013
CM100	1.0		1389904	0	A/C Bus	1.0.8.2	1.0.9.2	Main A/C Bus A	Installed 2013
C100	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		1.6.13.0	2.3.0.1	Backup 1	Installed 2013
M100	1.0		1500082	0	Fresh Water	1.1.6	1.1.8.3		Installed 2013
M150	1.0		1529901	0	Fuel	1.1.6	1.1.8.3	Tender Gasoline T...	Installed 2013
SO100	2.0		1201734			2.0.13	2.0.13		Installed 2013
IT110	D235-S1-TS-A-02/06	*		0	Wind Sensor			Port Sounder	Installed 2013
M100	1.0		1469902	5	Engine Room	1.0.6	1.0.6	Engine Room	Installed 2013
S200	2.0		15266	0	Primary	3.5	3.7.1.1	Primary GPS Ante...	Installed 2013
CM100	1.0		1400046	1	N2Kpower	1.0.4	1.0.5.2	System Power	Installed 2013
M200	1.0		1540111	2	Day Tank	1.1.6	1.1.8.3		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 2



### Maretron N2KView Basic Operation - Component Types



### 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



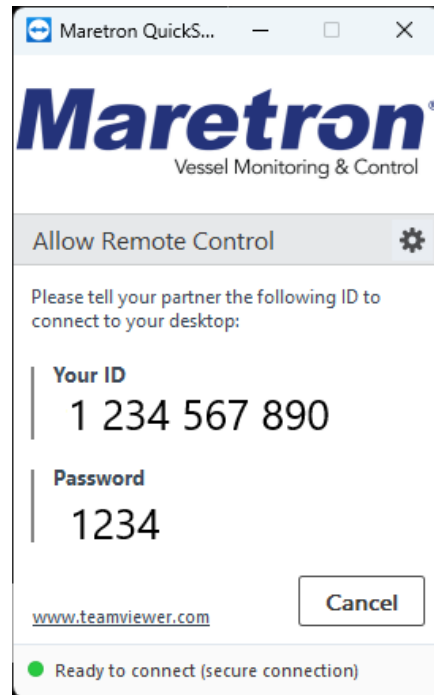
### Add to Contacts



### Knowledge Base

[Raymarine](#)

[Maretron](#)



[maretron.com/remotesupport](https://maretron.com/remotesupport)

# **Maretron®**

Vessel Monitoring & Control

[www.Maretron.com](http://www.Maretron.com)

*This document is provided by Maretron for informational and guideline purposes only. Maretron assumes no liability for errors or omissions in this document or for any of the information contained herein. Information is provided on an "as is" and "with all faults" basis for evaluation purposes only. Applications described are for illustrative purposes only and Maretron makes no representation that such applications will be suitable for the customer's specific use without further testing or modification. Maretron expressly disclaims all warranties, whether express, implied or statutory, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, and non-infringement. It is the customer's sole responsibility to determine suitability for a particular system or use based on their own performance criteria, conditions, specific application, compatibility with other components, and environmental conditions. Customers must independently provide appropriate design and operating safeguards to minimize any risks associated with their applications and products.*