35 Ft. Center Console System Example - Features

This system example depicts a 35ft vessel featuring a wireless keyfob and a split power NMEA 2000 network.
The feature set of this vessel example is focused on the vessel's two main states: everything being powered ON and "Sleep Mode".
"Sleep Mode" indicating a mode where most everything is powered OFF and minimal power consumption is used.

Keyfob Integration with MPower

1.In the vessel's sleep mode, the CLMD16 module is ready for your command to turn on your vessel using wireless key fob before vessel boarding. Hear an audible (beep) confirmation of vessel wake / power up while courtesy lights illuminate and your genset, windlass, and stereo amplifiers are powered-up for use.
2.Using the wireless keyfob before un-boarding, put your vessel into sleep mode. Hear audible (beep) confirmation of sleep mode and trigger courtesy light timer function for illuminated vessel exiting.
3.Pre-Programmed keyfob buttons perform operations such as motorized shade controls, pumps and lighting.

Built in System Logic with MPower

1.MPower disables electric toilet / head when the waste tank reaches full.
2.MPower disables freshwater pump when fresh water tank is empty to prevent the freshwater pump from running in a dry condition.
3.Hear High Water Alarm (constant buzzer) even with the vessel in sleep mode.
4.Maintain last status of your refrigerator or livewell aerator with the system in sleep mode.
5.Switch service lights on / off with your vessel in sleep mode.
6.Discharge pump circuit activation is only allowed with the hardwired "Discharge Pump Lockout" active.

Eliminate Many Third Party Controllers with MPower

1.Integrated trim tab control wired directly to CLMD16
2.Integrated vessel tank monitoring broadcast to proprietary system display (TSM810C) or compatible third party MFD (Multifunction Display).
3.Integrated shade control via display, keypad and wireless keyfob
4.Integrated light dimming control with "One Button Smooth Scroll" dimmer control for "Hardtop, Berth, Head and Salon" lighting circuits

Use Group Switching with MPower

1.Create single button modes that can quickly switch the circuits you want On to turn On and the ones you want Off to turn Off such as a "Night Mode", "Day Mode" or "Fishing Mode"
with both Maretron's TSM810C or Garmin® MFD

·Manual Override critical circuits such as Navigation Lights or Bilge Pumps using the CLMD16 Capacitive Touch Keypad
·Expand your MPower System capabilities easily anytime with NMEA 2000®

If using this system topology, It is recommended that this vessel's "24 Hr Main" is turned to the OFF position when the vessel is stored for long periods without the vessel's onboard charger being powered. System monitoring in "Sleep Mode" is limited to only audible local high water alarm. Integration of system monitoring devices such as Maretron SMS100 would require different system topology in where both an SMS100 and TSM810C must be powered and networked while in
"Sleep Mode".

35 Ft. Center Console System Example - Setup

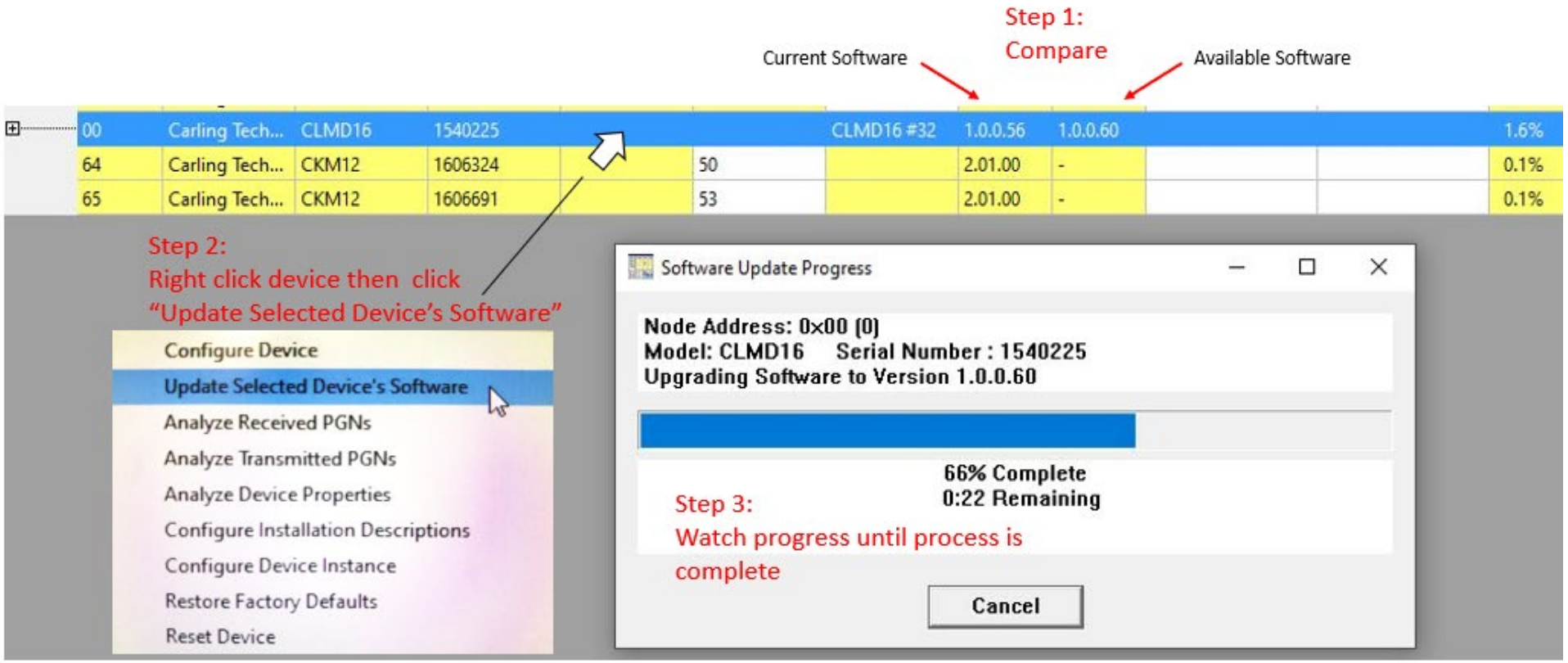
N2KAnalyzer

Please read all of the following pages to understand the necessary actions to commission this system design example.
Maretron's N2KAnalyzer software is necessary to load the system configurations to the MPower devices for this system.
If you do not have a way to tether N2KAnalyzer to an NMEA 2000 network, the purchase of a Maretron USB100 is recommended.

After wiring and powering your vessel's NMEA 2000 networks and DC Mains, connectivity will need to be made using Maretron's N2KAnalyzer® V3 software in conjunction with either a Maretron USB100 or a Maretron IPG100 connected to the active NMEA2000® network. For information on how to use Maretron's N2KAnalyzer® V3 software or to download the latest version of Maretron's N2KAnalyzer® V3 software please visit:

https://www.maretron.com/products/N2KAnalyzer.php

Before attempting to configure your system, always ensure that you are using the latest version of Maretron N2KAnalyzer® V3 and install the latest software / firmware to your MPower devices using N2KAnalyzer® V3.
To update software for an MPower device, first compare "Current Software" vs "Available Software", right click an MPower device inside N2KAnalyzer® and click on "Update Selected Device's Software". A Dialog Box will appear showing the software update progress.



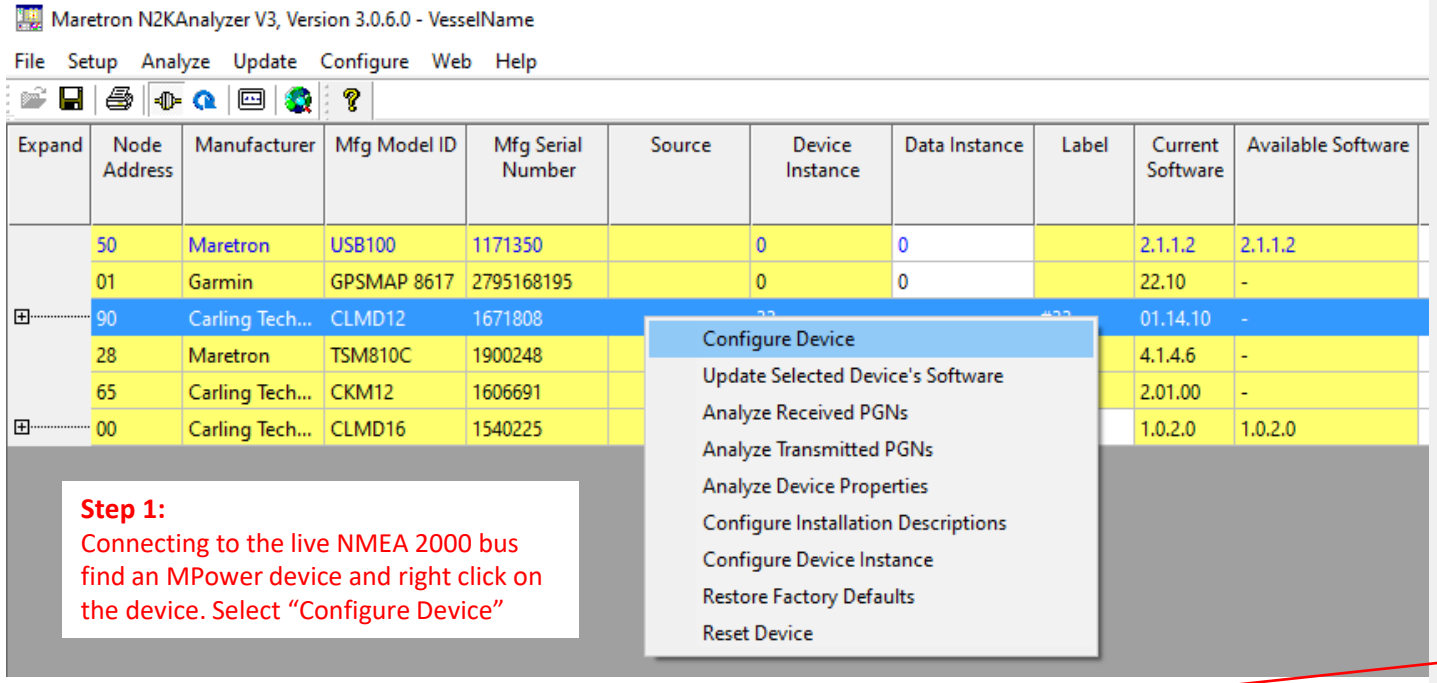
35 Ft. Center Console System Example - Setup Continued

MPower System Configuration Files

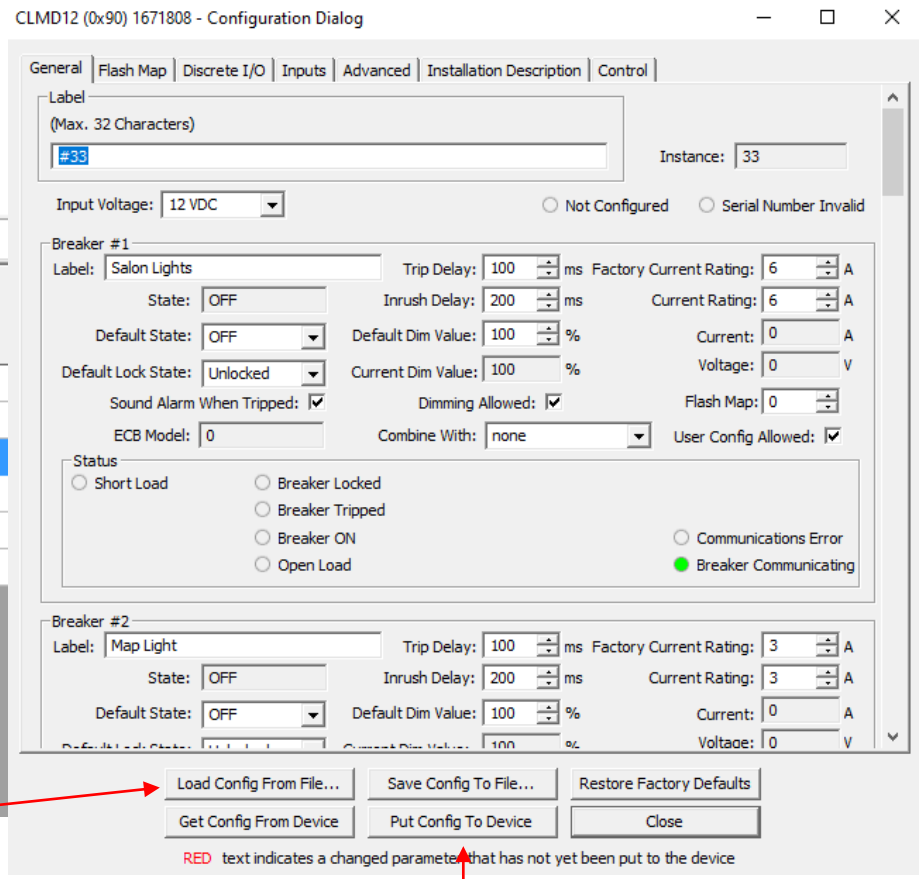
This system example is based off a real life 35ft. Center Console type vessel.
The configuration files provided for this example will need to be loaded to your MPower devices. Below is an instruction on how to load the configurations to your MPower devices using Maretron's N2KAnalyzer.

The following files are provided to you for setup of the MPower devices for this system. Load the configuration files to the respective MPower devices following the instructions below. Repeat this process for each MPower device.

1. "35cc Example_CLMD16 Instance 32.xml"
2. "35cc Example_CLMD12 Instance 33.xml"
3. "35cc Example_CKM12 Instance 50.xml"



Step 1:
Connecting to the live NMEA 2000 bus find an MPower device and right click on the device. Select "Configure Device"



Step 2:
Click "Load Config From File" then select the corresponding device file using the File Explorer dialog.

Step 3:
Click "Put Config. to Device" to apply the configuration file's parameters

35 Ft. Center Console System Example - Setup Continued

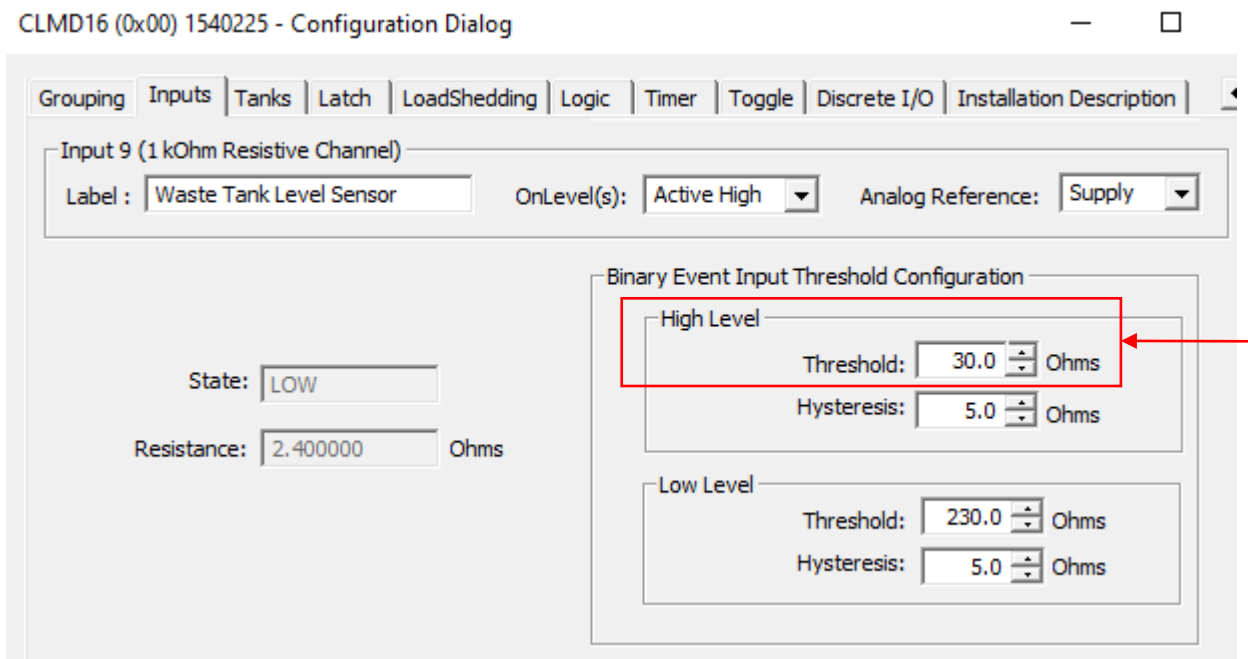
Configuration Files Necessary Parameter Entry (Tank Calibrations)

The configuration files provided for this example will need additional configuration to apply to your vessel.
The total necessary changes to the configuration files will be determined by how much your system differs from the example.
For example, you may need the addition of another CLMD12 to add circuits or choose to delete circuits you will not use to complete your vessel's configuration.

Regardless of these possibilities, there are some items that are not fully configured from the start or may need final adjustment, as these items are dependent on the physical characteristics of your vessel. In this segment these necessary configuration parameter entries will be outlined.

CLMD16 "Waste Tank Full (High)" Threshold

This parameter is the parameter in which the Wastewater tank threshold that determines when the "Electric Toilet / Head" output channel will turn off based on a perceived "Tank Full" signal. This parameter is adjusted inside the "Inputs" Tab of the CLMD16 Configuration. Adjust the "High Level Threshold" according to the real data that is received from the CLMD16 when the tank is physically full, or the desired full tank level is met. To disable this feature, simply place the value of this threshold out of range in relation to the sender data such as "0".

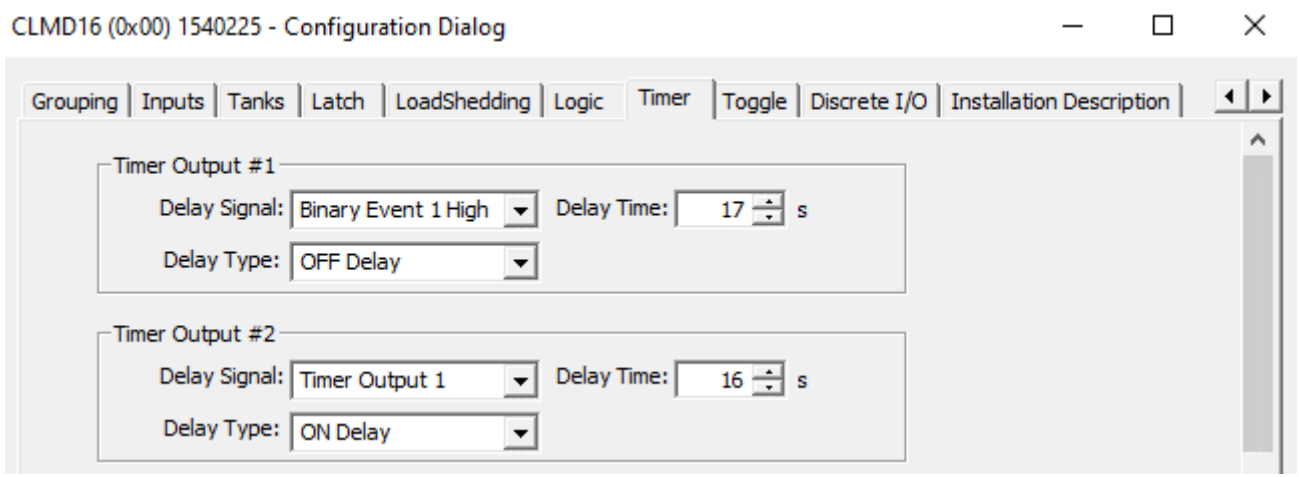


Place desired threshold in where the "Electric Toilet / Head" Output Channel will automatically turn Off

35 Ft. Center Console System Example - Setup Continued

Configuration Files Adjustable Parameter Entry (Courtesy Lights Timer)

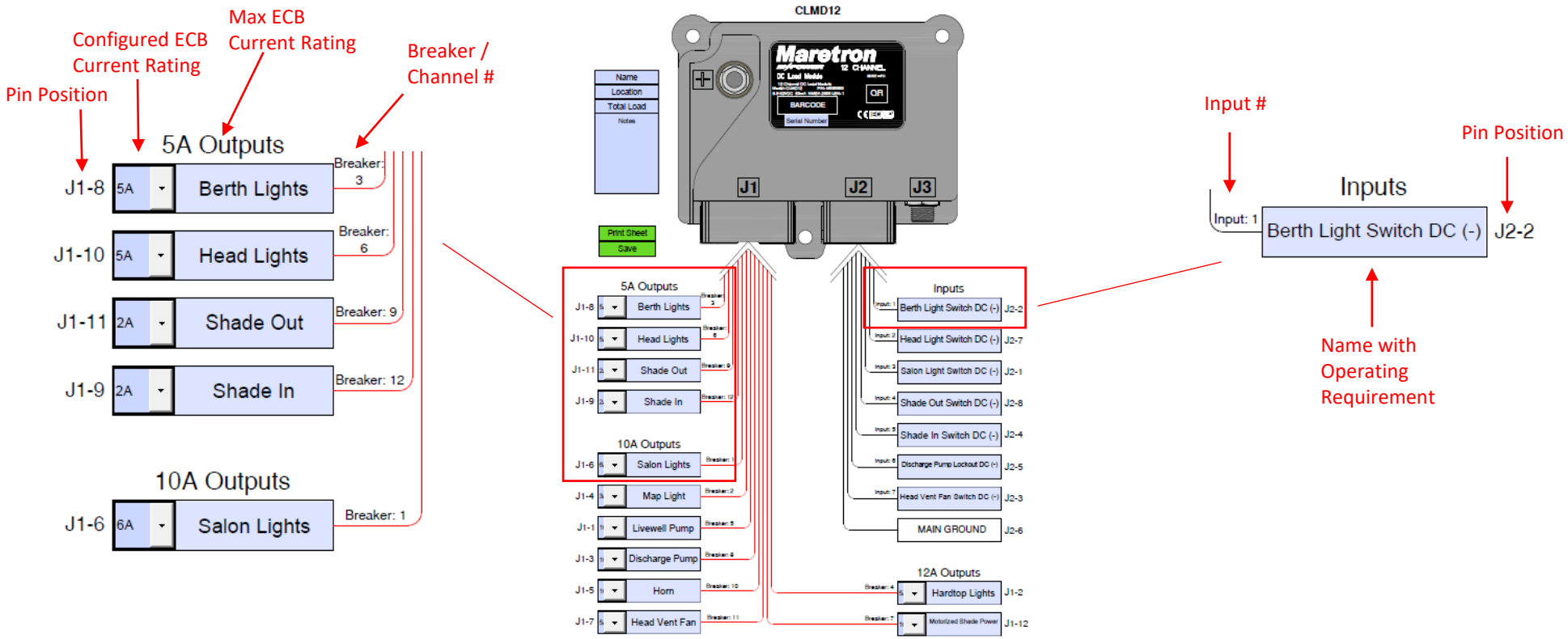
By default, the Courtesy Lights timer is set to 16 Seconds. The timer uses both an “Off Delay” which is used for the lighting circuit to stay On and an “On Delay” that is used to delay the signal that switches the lighting circuit off. Adjust these parameters in conjunction with each other to maintain proper working order. Because one Timer influences the next, there is a Timer separation gap of 1 sec. For example, if the desired time for the Courtesy lights to stay On when powering vessel On / Off is 20 Sec. then the timer settings will be: Timer Output #1 (21) and Timer Output #2 (20). See example dialog box below to see where to navigate to adjust this parameter.



35 Ft. Center Console System Example Documentation Forms

In the File Package provided for this System Example are several documents that are called “Documentation Forms”.
The following is a description of what these forms can be used for and why they are being provided with this package.

There is a “Documentation Form” for each MPower device used in this System Example. Each Form is Pre-Filled to depict the exact pin description for each connection to be made for the MPower CLMD16 and CLMD12. In addition to a description for each pin/ connection is some additional information such as the ECB’s max current rating, what the ECB’s software current rating is configured to, and other information such as Module Instance Number and location and what type of connection / signal is needed to activate inputs. On the form associated with the CKM12 unit, there is a general description of what each key’s function is configured to do. These pre-filled forms can be modified so as you modify the operations of the System Configuration. You can modify the forms to keep track of how you will physically connect the MPower devices and add information to them such as installation location and MPower unit Serial Numbers. When configuration is complete, use these forms to print and add to your vessel’s User’s Manual or simply save a digital copy for your record.



35 Ft. Center Console System Example - Displays

Compatible Garmin® MFD

Because of the risk to overwrite user configuration arrangement (known as the "System Profile"), a configuration file for these units are not provided

Many Garmin MFDs are compatible to operate this system. For compatibility, the Garmin MFD software version must be v24.00 or higher.
Below is a list of compatible devices and circuit arrangement information needed to setup Garmin MFDs with this system.
For supplemental information on how to setup Garmin Screens with MPower please visit: https://www.maretron.com/support/manuals/Garmin%20MFD_%20MPower%20Setup%20Guide%20Rev.1.0.pdf

Garmin Compatible Devices:

- GPSMAP 74xx/xsv series
- GPSMAP 76xx/xsv series
- GPSMAP 8xxx series
- GPSMAP 84xx series
- GPSMAP 86xx series
- GPSMAP 7x2 series
- GPSMAP 9x2 series
- GPSMAP 12x2 series
- GPSMAP 7x2 Plus series
- GPSMAP 9x2 Plus series
- GPSMAP 12x2 Plus series
- GPSMAP 7x3 series
- GPSMAP 9x3 series
- GPSMAP 12x3 series
- GPSMAP A12
- GPSMAP 10x2 series
- GPSMAP 12x2 series
- Volvo Penta Glass Cockpit 8xxx series
- Volvo Penta 76xx/xsv series
- Volvo Penta 86xx series
- Volvo Penta A series
- Volvo Penta B series
- EchoMAP UHD series (*menu structure differs slightly from this document)
- EchoMAP Ultra series (*menu structure differs slightly from this document)

Garmin MFD Switch Setup Information:

• Navigation Lights	Garmin Switch "899"	Style: Momentary
• Anchor Light	Garmin Switch "900"	Style: Momentary
• Livewell Aerator	Garmin Switch "901"	Style: Toggle
• Courtesy Lights	Garmin Switch "902"	Style: Toggle
• Bilge / Service Lights	Garmin Switch "903"	Style: Toggle
• Fwd Bilge Pump	Garmin Switch "904"	Style: Toggle
• Aft Bilge Pump	Garmin Switch "905"	Style: Toggle
• High Water Bilge Pump	Garmin Switch "906"	Style: Toggle
• DC Refrigerator	Garmin Switch "909"	Style: Toggle
• Fresh Water Pump	Garmin Switch "910"	Style: Momentary
• Raw Water Pump	Garmin Switch "911"	Style: Toggle
• E Toilet / Head	Garmin Switch "912"	Style: Momentary
• Salon Lights	Garmin Switch "925"	Style: Toggle
• Map Light	Garmin Switch "926"	Style: Toggle
• Berth Lights	Garmin Switch "927"	Style: Toggle
• Hardtop Lights	Garmin Switch "928"	Style: Toggle
• Livewell Pump	Garmin Switch "929"	Style: Toggle
• Head Lights	Garmin Switch "930"	Style: Toggle
• Shade Power	Garmin Switch "931"	Style: Toggle
• Discharge Pump	Garmin Switch "932"	Style: Toggle
• Shade Out	Garmin Switch "933"	Style: Momentary
• Horn	Garmin Switch "934"	Style: Momentary
• Head Vent Fan	Garmin Switch "935"	Style: Toggle
• Shade In	Garmin Switch "936"	Style: Momentary

Note: "Garmin Switch Numbers" are based on MPower device NMEA 2000® Instance number.
If the CLMD16 or CLMD12 device Instance has been changed from the configuration provided, the above provided "Garmin Switch Numbers" will be inaccurate.

Maretron

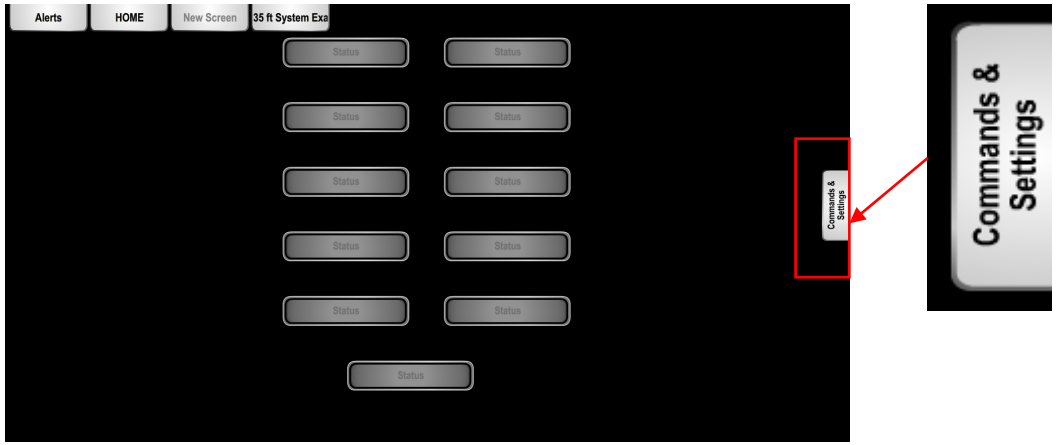
Maretron TSM810C Display with N2KView®

35 Ft. Center Console System Example – Displays Continued

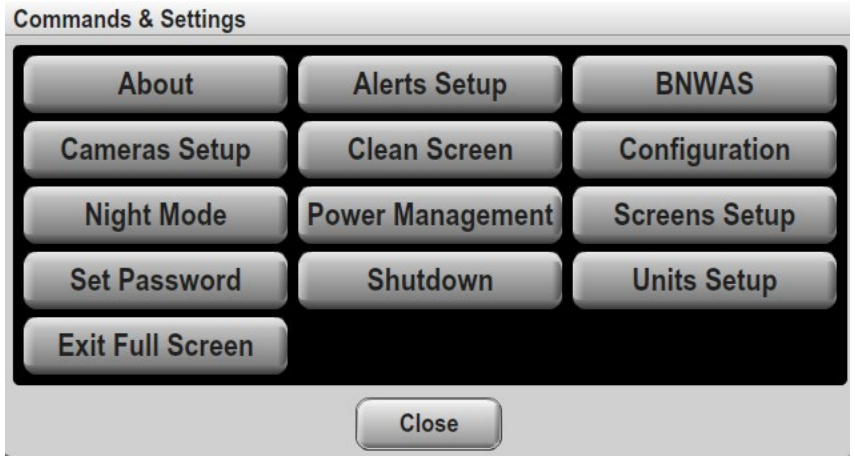
N2KView is a very versatile and customizable user interface capable of many things beyond just the control of this system.
Because of variables your vessel may have and user desired unknowns, only a single generic N2KView page Configuration has been provided.

Maretron's TSM810C or any device running Maretron N2KView® is compatible of operating this system. The TSM810C includes N2KView.
To learn more about N2KView's features please visit: https://www.maretron.com/products/N2KView.php
The Following instruction will guide you how to load the provided N2KView "Page" configuration.

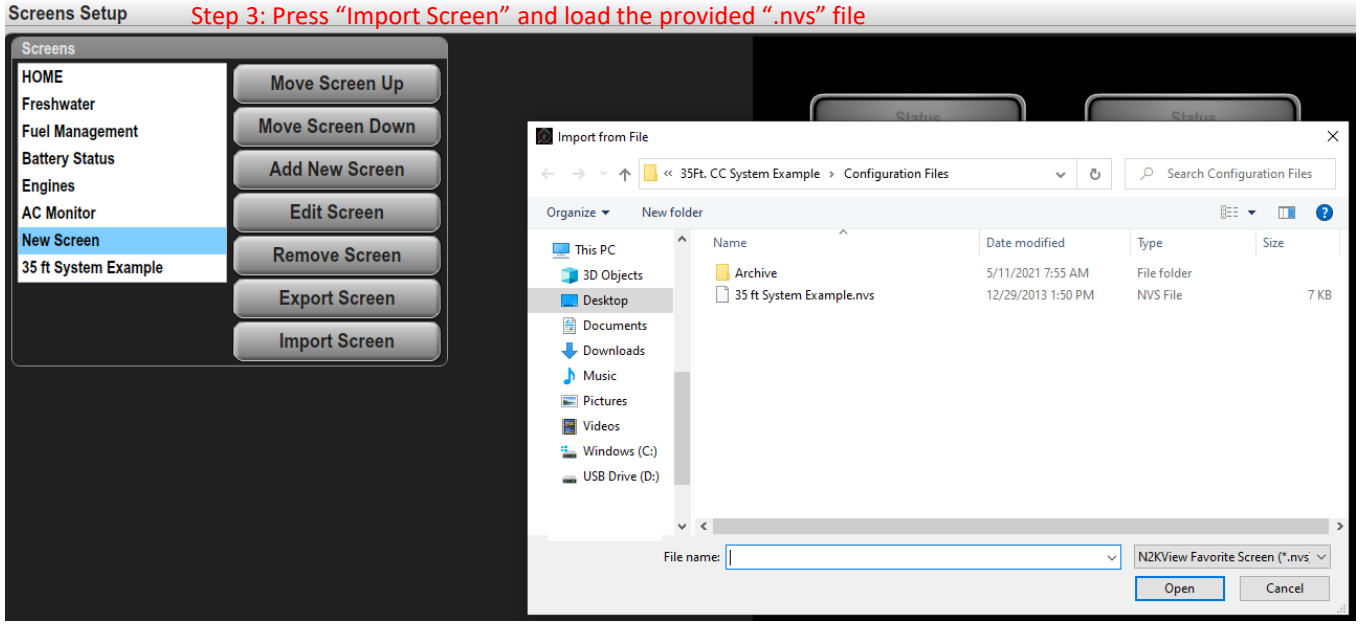
Step 1: From any Screen press: "Commands and Settings"



Step 2: Press "Screens Setup"



Step 3: Press "Import Screen" and load the provided ".nvs" file



N2KView Switch Style Setup:

• Navigation Lights	Style: Momentary	• Salon Lights	Style: Toggle
• Anchor Light	Style: Momentary	• Map Light	Style: Toggle
• Livewell Aerator	Style: Toggle	• Berth Lights	Style: Toggle
• Courtesy Lights	Style: Toggle	• Hardtop Lights	Style: Toggle
• Bilge / Service Lights	Style: Toggle	• Livewell Pump	Style: Toggle
• Fwd Bilge Pump	Style: Toggle	• Head Lights	Style: Toggle
• Aft Bilge Pump	Style: Toggle	• Shade Power	Style: Toggle
• High Water Bilge Pump	Style: Toggle	• Discharge Pump	Style: Toggle
• DC Refrigerator	Style: Toggle	• Shade Out	Style: Momentary
• Fresh Water Pump	Style: Momentary	• Horn	Style: Momentary
• Raw Water Pump	Style: Toggle	• Head Vent Fan	Style: Toggle
• E Toilet / Head	Style: Momentary	• Shade In	Style: Momentary

35 Ft. Center Console System Example - Tips

Notable Operations:

- “One Button Smooth Scroll” is enabled at the for all interior lighting circuits and the “Hardtop Lights” circuit at the CKM12 unit. These dimmer circuits “PWM Scroll” on the On command and do not “PWM Scroll” on the Off command. To operate “PWM Scroll” hold the enabling input device (Likely an interior switch) when turning the circuit On.
- One Button Smooth Scroll (Single Button Dim) circuits are not enabled for use on MFD but instead the MFD will recall last set value. Because the CLMD12 unit’s power is physically disconnected when the vessel is placed into “Sleep Mode” the last PWM state will not be recalled.
- “Discharge Pump lockout” operation is to be used as a sustained contact. If there is a DC (-) signal present at the input associated with the lockout the breaker will not be operable, If there is not a DC (-) signal at the input the Discharge Pump circuit will be operable.
- “Electric Toilet / Head” and “Motorized Shade Power” are by default On at power-up, keep in mind that unless the “24Hr power feed” to CLMD16 is removed the default state of the “Electric Toilet / Head” circuit will be the last state when switching the vessel’s state from “Sleep”. Although these two circuits can be setup on the MFD it is not necessary for them to be present as the Enable and disable systems for both are automatic unless influenced by the user.
- This system features the potential use of a wireless keyfob. There are many brands of wireless keyfobs and receivers that are suitable for this system. A waterproof or water resistant keyfob is recommended. Any keyfob/ receiver that is a simple relay / contact closure system that has Momentary output function will suffice for this system. “Button 1” relay will need to pass DC (+) and the rest will need to pass DC (-). If a 6 channel keyfob is not desired, only certain operations are desired, or keyfob operation arrangement needs to be adjusted, it is easiest to change or choose the keyfob’s output signal channel connection on the CLMD16 rather than to adjust the configuration file.
- This system’s “Sleep / Wake” function is dependent on a particular battery distribution arrangement using a remote battery switch(s). This battery switch needs to be able to operate turn On / Off using a momentary DC (+) signal such as BEP® 701-MDCZ remote battery switch. Parallel multiple of these switch’s control input to connect / disconnect any battery system using your wireless keyfob’s “Sleep / Wake” key. Use this idea to switch engine or bow thruster battery banks On / Off with the sleep / wake feature.

Enjoy the Power of MPower!