



## Maretron MPower Digital Switching Installation Guide

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**Maretron®**  
Vessel Monitoring & Control

**Maretron MPower Digital Switching**



## Product Information

### NMEA and Digital Switching

NMEA is a communication protocol used in marine electronics. Digital switching is a new alternative to traditional electromechanical switching that provides improved safety and reliability while reducing vessels down time, operator's workload, overall vessel weight and wiring complexity.

### CLMD12 Digital Switching Module

The CLMD12 is a digital switching module that can be used to switch breaker states or as inputs for other data such as bilge alarms or hatch positions. It provides low loss solid state On/Off functions, accurate current measurement, short circuit protection, and pulse width modulation (PWM). It has a product specification of 1A increments and can be wired easily.

### CBMD12 Manual Bypass Module

The CBMD12 is a manual bypass module that can be used in conjunction with the CLMD12. It provides manual control of the loads in case of system failures.

### CLMD16 Digital Switching Module

The CLMD16 is a larger digital switching module for larger breakers and more circuits. It has eight hard-wired switches, two resistive inputs (can be used for tank monitoring), one 4-20mA input (can be used for tank monitoring), low loss solid state On/Off functions, accurate current measurement, short circuit protection, and pulse width modulation (PWM). It has a product specification of 1A increments and can be wired easily.

### VMM6 6 Rocker Multiplexed Switch Module

The VMM6 is a 6 rocker multiplexed switch module that has standard options of different types of Contura II and V position momentary ON and 3 position (NAV/ANC) switches. It also has special icons available upon request. Contact [Marine.Sales@carlingtech.com](mailto:Marine.Sales@carlingtech.com) for all enquiries and quotes in the Americas and contact [tech.support@carlingtech.co.uk](mailto:tech.support@carlingtech.co.uk) for all enquiries and quotes in EMEA (Europe, Middle East and Africa).

### CKM12 12 Button Keypad

The CKM12 is a 12 button keypad that has standard options of ring on each button or number in the center of the ring on each button (horizontal installation). It also has special icons available upon request. Contact

[Marine.Sales@carlingtech.com](mailto:Marine.Sales@carlingtech.com) for all enquiries and quotes in the Americas and contact for all enquiries and quotes in EMEA (Europe, Middle East and Africa).

## Electromechanical vs Digital Switching

Digital switching provides less wiring distance by centralizing power distribution, space-saving, reduced cost, service provided via real-time cloud service, timers, and paralleled channels.

### Before You Start Your Design

Before starting your design, it is recommended to map an NMEA2000 network, create a Bill of Materials (BOM), and understand the limitations that lead to common errors.

## Product Usage Instructions

Follow the instructions in the user manual to install and wire the digital switching modules, manual bypass module, rocker multiplexed switch module, and button keypad. Use the product specifications to ensure appropriate usage of each module, ensuring accurate current measurement, short circuit protection, and pulse width modulation (PWM). Consider using digital switching instead of traditional electromechanical switching for improved safety, reliability, reduced downtime, and overall ease of use. Before starting your design, map an NMEA2000 network, create a Bill of Materials (BOM), and understand the limitations that lead to common errors.

## NMEA2000® INTRODUCTION

### What is NMEA?

- **NMEA:** Which stands for National Marine Electronics Association, is an organization committed to enhancing the technology and safety of marine electronics through installer training and interface standards.
- **NMEA2000®:** A plug-and-play communications standard used for connecting marine sensors and display units within ships and boats
- **Plug and Play:** Intended to work perfectly when first connected, without reconfiguration or adjustment by the user (pretty much)
- Communication runs at 250 kilobits-per-second and allows any sensor to talk to any display unit or other device compatible with NMEA2000® protocols

# Maretron NMEA2000® network



## DIGITAL SWITCHING

### A New Alternative

- **Digital Switching Systems** can replace traditional mechanical switches and circuit breakers on board a boat with Digitally Controlled Power Distribution Modules
- **Power Distribution Module:** Power Distribution Modules are customised to meet the exact needs of the system being controlled, and communicate using NMEA2000® networks. An example of a Power Distribution Module is our CLMD12 or CLMD16.
- All hardware in a Digital Switching System is given a unique number called a Device Instance, which allows a Power Distribution Module or Digital Switching Module to be identifiable over an NMEA2000® network. Using this Device Instance, all the devices can communicate and be used to perform user defined tasks

## Controllable Items

The diagram below shows a selection of the items you could control using Digital Switching.



## INTRODUCTION TO THE CLMD12

### Digital Switching Module

Provides improved safety and reliability while reducing vessels down time, operator's workload, overall vessel weight and wiring complexity

- 12 circuit digital switching module
- 7 discrete inputs (Active High, Active Low or Both)
  - can be used to switch breaker states or as inputs for other data such as bilge alarms or hatch positions
- Provides fast switching with:
  - Low loss solid state On/Off functions
  - Accurate current measurement
  - Short Circuit protection
  - Pulse Width Modulation (PWM)
- A cost-effective solution for vessels of all sizes
- Small form factor & IP67 rated
- Ignition Protected
- Data Sheet <https://www.maretron.com/products/pdf/CLMD12%20Datasheet.pdf>

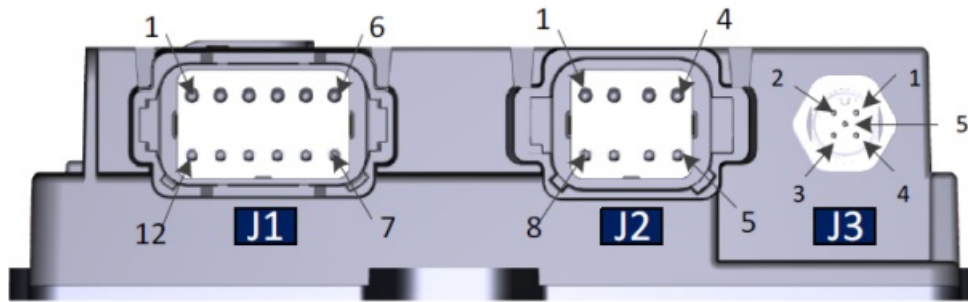
### Product Specification

- Voltage Input 6.5 to 32 VDC
- Two (2) loads at 12A max each

- Six (6) loads at 10A max each
- Four (4) loads at 5A max each
- Max Current Capacity of 75A
- Single NMEA2000® communication (5 pin micro-C)
- Programmable trip level for each load via N2KAnalyzer® V3
- Electronic Circuit Breaker output
  - 1A increments
- Voltage back feed blocking and short circuit for each output protection circuit for each output
- Real-time fault monitoring for all 12 loads, including:
  - Short circuit/Over current
- Loads can be paralleled for larger applications
  - Maximum current rating when multiple breakers are paralleled is typically 180% of the single channel rating. (Example: 18A maximum for two 10A breakers in parallel).

## **Wiring The CLMD12**

- **J1 connector** – Part #: A3706
  - Mating connector with flying leads (0.3m)
  - Load connections (12A)
- **J2 connector** – Part #: A3707
  - Mating connector with flying leads (0.3m)
  - Electromechanical input connections
  - Reference ground is located on pin 6
- J3 takes a standard NMEA2000® 5-pin micro-C CAN cable
- Part # CLMD12 – For OEM, will not include flying leads harnesses
- Part # CLMD12-R – For Retail, will include flying leads harnesses



Description	Max Output (A)	J1 Connector Pin No.	NMEA 2000 PGN 127501 Indicator Number	NMEA 2000 PGN 127500 Connection ID
Breaker #1	10	6	1	0
Breaker #2	10	4	2	1
Breaker #3	5	8	3	2
Breaker #4	12	2	4	3
Breaker #5	10	1	5	4
Breaker #6	5	10	6	5
Breaker #7	12	12	7	6
Breaker #8	10	3	8	7
Breaker #9	5	11	9	8
Breaker #10	10	5	10	9
Breaker #11	10	7	11	10
Breaker #12	5	9	12	11

Description	J2 Connector Pin No.	NMEA 2000 PGN 127501 Indicator Number
Discrete Input #1	2	13
Discrete Input #2	7	14
Discrete Input #3	1	15
Discrete Input #4	8	16
Discrete Input #5	4	17
Discrete Input #6	5	18
Discrete Input #7	3	19
Reference Ground	6	N/A

## Manual Bypass Module

When used in conjunction with the CLMD12, the bypass module provides manual control of the loads in case of system failures.

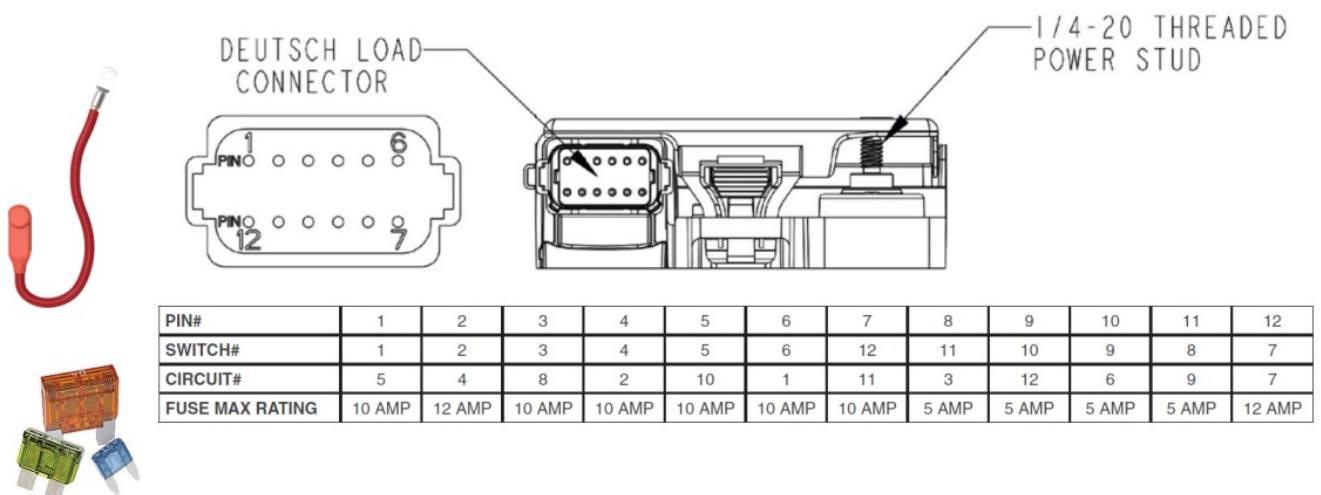
- 75 Amps maximum current capacity
- Two (2) outputs capable of carrying up to 12A
  - Six (6) outputs capable of carrying up to 10A
  - Four (4) outputs capable of carrying up to 5A
- 12V and 24V DC power systems
- Carling Technologies Corvette® Rocker Switches
- Overcurrent protection via ATC standard fuses
- Data Sheet <https://www.maretron.com/products/pdf/CBMD12%20Datasheet.pdf>





## Accessories

- **J1 connector – Part #: A3706**
  - Mating connector with flying leads (0.3m)
  - Load connections (12A)
- **Jumper Wire with Lugs – Part #: A3720**
  - 6AWG, Red
- **Fuse Pack – Part #: A3721**
  - ATC Standard
  - 2 qty 15A, 6 qty 10A, and 4 qty 5A
- **Part # CBMD12** – For OEM, will not include jumper wire and fuse pack
- **Part # CBMD12-R** – For Retail, will include jumper wire and fuse pack



## INTRODUCTION TO THE CLMD16



## Digital Switching Module

For larger breakers and more circuits

- 16 circuit digital switching module
- 11 discrete inputs (Active High, Active Low or Both)
  - Eight hard-wired switches
  - Two resistive inputs (Can be used for tank monitoring)
  - One 4-20mA input (Can be used for tank monitoring)
- Provides fast switching with:
  - Low loss solid state On/Off functions
  - Accurate current measurement
  - Short Circuit protection
  - Pulse Width Modulation (PWM)
- Built-in redundancy and Ignition Protection
- Local override capacitive touch switches for manual control
- Data Sheet <https://www.maretron.com/products/pdf/CLMD16%20Datasheet.pdf>



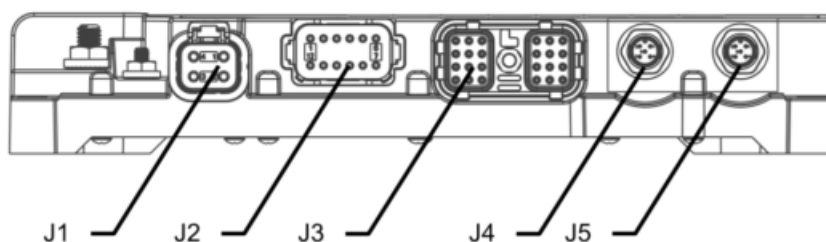
## Product Specifications

- Voltage Input 6.5 to 32 VDC
- Four (4) loads at 25A max each
- Twelve (12) loads at 12A max each
- Max Current Capacity of 125A
- Dual NMEA2000® communication
- Programmable trip level for each load via N2KAnalyzer® V3
- Electronic Circuit Breaker output
  - 1A increments
- Voltage back feed blocking and short circuit protection for each output
- Real-time fault monitoring for all 16 loads, including:

- Open circuit detection (Open Load, loads must be greater than 1A)
- Short circuit/Over current
- Loads can be paralleled for larger applications
  - Maximum current rating when multiple breakers are paralleled is typically 180% of the single channel rating. (Example: 45A maximum for two 25A breakers in parallel).
- Supports reversing currents such as engine hatches, pass rails, trim tabs, etc.

## Wiring the CLMD16

- **J1 connector – Part #: A3709**
  - Mating connector with flying leads (1.0m)
  - Load connections (25A)
- **J2 connector – Part #: A3708**
  - Mating connector with flying leads (1.0m)
  - Load connections (12A)
- **J3 connector – Part #: A3710**
  - Mating harness kit (components provided)
  - Electromechanical input connections
- J4 & J5 takes a standard NMEA2000® 5-pin micro-C CAN cable
- **Part # CLMD16** – For OEM, will not include flying leads harnesses
- **Part # CLMD16-R** – For Retail, will include flying leads harnesses



Description	Max Output (A)	J2 Connector Pin No.	Paralleling Breakers Support	Half/Full Bridge Support
Breaker # 1	12	1	YES (1+2)	YES (1+2)
Breaker # 2	12	2	YES (1+2)	YES (1+2)
Breaker # 3	12	3	YES (3+4)	-
Breaker # 4	12	4	YES (3+4)	-
Breaker # 5	12	5	-	-
Breaker # 6	12	6	-	-
Breaker # 7	12	7	YES (7+8)	-
Breaker # 8	12	8	YES (7+8)	-
Breaker # 9	12	9	-	-
Breaker # 10	12	10	-	-
Breaker # 11	12	11	-	YES (11+12)
Breaker # 12	12	12	-	YES (11+12)
Description	Max Output (A)	J1 Connector Pin No.	Paralleling Breakers Support	Half/Full Bridge Support
Breaker # 13	25	1	YES (13+14)	-
Breaker # 14	25	2	YES (13+14)	-
Breaker # 15	25	3	-	-
Breaker # 16	25	4	-	-

**CLMD SHOWDOWN!**

## Product Comparison

FEATURE	CLMD12	CLMD16
CHANNELS	12 (2@12A, 6@10A, 4@5A)	16 (4@25A, 12@12A)
MAX CURRENT CAPACITY	75A	125A
MANUAL CONTROL	CBMD12	LOCAL
NMEA 2000® CONNECTIONS	1	2
INPUTS	7	11 (8 Mechanical, 3 Tanks)
FLYING LEADS LENGTH	0.3M	1.0M
I/O CONNECTOR TYPE	DEUTSCH	DEUTSCH
PARALLEL CIRCUITS	YES, ALIKE CHANNELS	YES, SELECT CHANNELS
BRIDGE CIRCUITS	N/A	YES, SELECT CHANNELS
LOAD SHEDDING	N/A	YES
INGRESS PROTECTION	IP67	IP67
IGNITION PROTECTION	YES	YES
CERTIFICATIONS/COMPLIANCE	NMEA2000®, CE	NMEA2000®, CE, LLOYDS REGISTRY

## INTRODUCTION TO THE VMM6

### 6 Rocker Multiplexed Switch Module

- The VMM-Series is a sealed, multiplexed switch module featuring the Carling V-Series Contura® rocker switch style (IP68 Sealing Protection)
- Operating voltage same as an NMEA2000® network
  - **Min:** 9.5VDC
  - **Max:** 15.4VDC
- Max Current Operation: 300mA (LEN: 6)
- Programmed via Maretron gateway (USB100 or IPG100) paired with PC running N2KAnalyzer® V3
- Electrical Endurance Minimum 250,000 Operations
- Illumination uses Single-Color Blue LED
- Connector: Deutsch DT-Series 6 pin connector to NMEA2000®  
(Maretron Part #: A3702, provided)



#### ROCKERS

Variety of V-Series  
Contura® actuator styles



Back  
View

**SNAP-IN MOUNTING**  
For fast, easy assembly.

**6 PIN CONNECTOR**  
Mates to the Deutsch DT-Series Connector.

**4 PIN CONNECTOR**  
Reserved for future use.

**INTERFACE ADAPTER CABLE**  
Deutsch to CAN  
(Part #: A3702)



Cable Length  
7.87 in (0.2 meter)

## ROCKERS FOR DISTRIBUTORS

### • Standard Options

Prices vary depending on rocker type

- A3801-1 Contura II (ALL Position Momentary ON)
- A3801-2 Contura II (Position #6 is 3 Position (NAV/ANC))
- A3801-3 Contura V (All Positions Momentary ON)
- A3801-4 Contura V (Position #6 is 3 Position (NAV/ANC))
- A3801-5 No Actuators (ALL Positions Momentary ON)
- A3801-6 No Actuators (Position #6 is 3 Position (NAV/ANC))

### • Special Icon (Not Standard)

- Prices vary based off configuration
- New laser etched symbol setup charge will apply
- Minimum order quantity (MOQ): 100 pieces

## INTRODUCTION TO THE CKM12

### 12 Button Keypad

- The CKM-Series is a keypad featuring laser etched legends. Function LEDs provide diagnostics when fault conditions are detected

- IP6K9K Front Panel, IP68 Back Panel Sealing Protection
- Operating voltage same as an NMEA2000® network
  - **Min:** 9.5VDC
  - **Max:** 15.4VDC
- Sleep mode draws less than 1.5mA throughout the supply voltage range and wakes on keypress or CAN message
- Programmed via Maretron gateway (USB100 or IPG100) paired with PC running N2KAnalyzer® V3
- Electrical Endurance: Each button functions for at least 1,000,000 actuations
- Connector: Deutsch DT-Series 6 pin connector to NMEA2000® (Maretron Part #: A3703, provided)



## KEYPADS FOR DISTRIBUTORS

- **Standard Options**
  - **A3802-1** Ring on each Button
  - **A3802-2** Number in center of Ring on each Button (Horizontal installation)
- **Special Icon (Not Standard)**
  - Prices vary based off configuration
  - New laser etched symbol setup charge will apply
  - **Minimum order quantity (MOQ):** 100 pieces

## ELECTROMECHANICAL VS DIGITAL SWITCHING

## Digital Switching Positives

- Simplified wiring = quicker installation
  - Less wiring distance by centralizing power distribution
  - Space Saving
  - Reduced Cost
- Less weight = Better Fuel Economy \$\$
- Can be remotely controlled/monitored
  - Service provided via Real Time Cloud Service
- More flexible in programmable applications
  - Timers
  - Paralleled Channels
- Easier maintenance
- Simpler diagnostics
- Less points of failure
- Modify loads without replacing breaker
- Centralizing all of your content between controls and monitoring into a single user interface platform
- Control multiple loads at once without changing wires
- Easier to duplicate helms
- Simpler 3rd Party Integration



## BEFORE YOU START YOUR DESIGN

- Things to think about:
- Is this a 12/24V system?
- New Build or Refit?
- What will be controlled through the CLMD12/CLMD16? (Loads)
- How much current will these loads be drawing? Maximum 75A (CLMD12) or 125A (CLMD16)
- Do any of these loads have a high inrush current?
- Do any loads require monitoring, lockout or timer functionality?

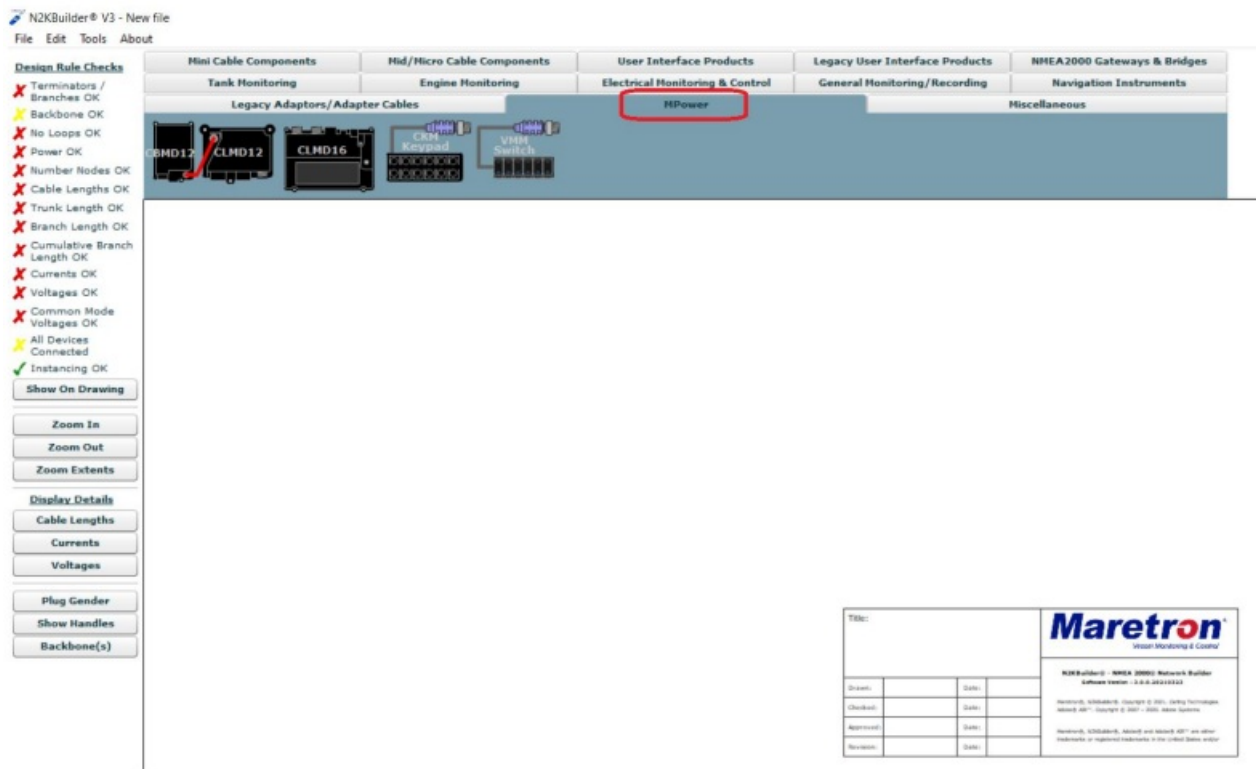
- Is there any Third Party Integration?
- How will you be controlling these loads? (Inputs, Digital or Electromechanical?)
- Can any loads be controlled by PGN rather than physical wiring?
- Do your design ideas meet regulatory standards?

## N2KBUILDER® V3

### Mapping an NMEA2000 Network

- Free PC software tool for designing and verifying the integrity of NMEA2000® networks
- Can be used to layout, document, and validate the design of complex NMEA2000® networks
- Will directly produce a Bill of Materials (BOM) for Maretron® products
- Eliminates guesswork and transcription errors
- Recently added an MPower tab containing VMM, CKM, CLMD12, CBMD12 and CLMD16 (circled)
- Available at the below link:

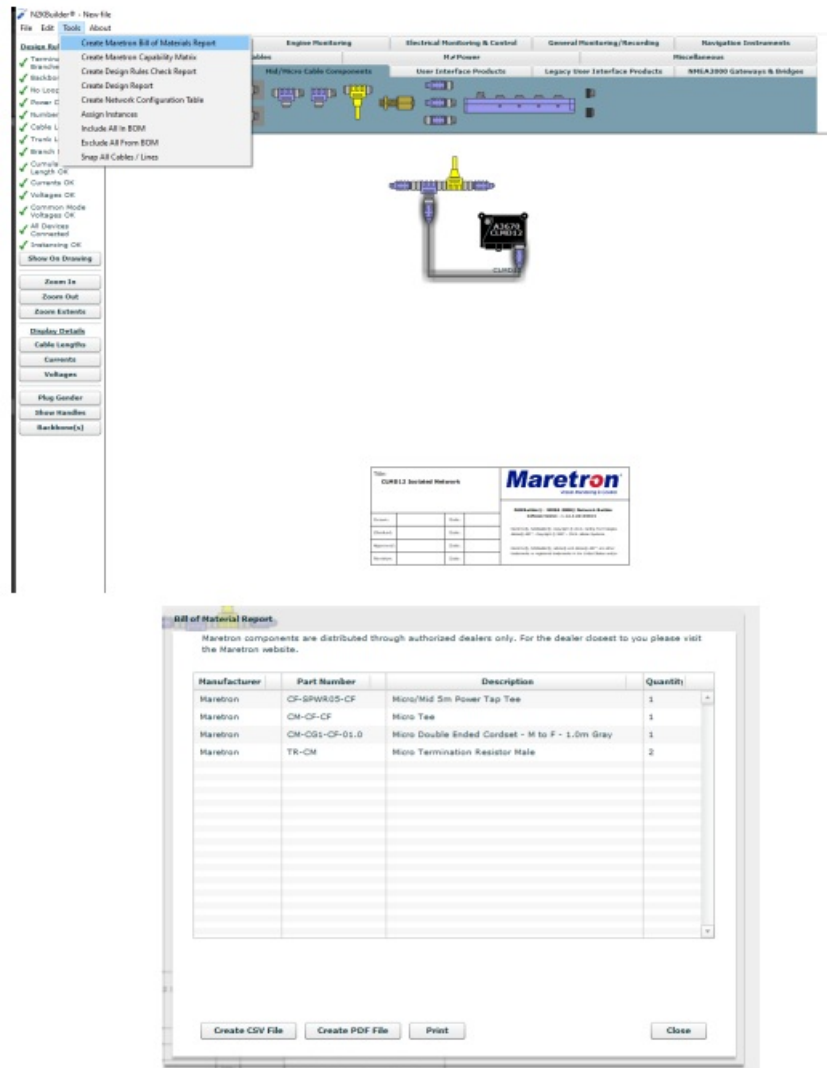
**N2KBuilder® V3** <https://www.maretron.com/products/N2KBuilder.php>



### Creating a BOM

- Click 'Tools'
- Select 'Create Maretron Bill of Materials Report'
- Report includes info on Manufacturer, Part Numbers, Description and Quantity of components in network
- Includes options to create the report as a CSV or PDF File
- Does not include price as this will be quoted by your local distributor





## NMEA2000® NETWORK CONSTRAINTS

### Limitations That Lead To Common Errors

- The maximum length of an NMEA2000® cable that is used to connect any device or accessory to the backbone is 6m (20ft)
- Cumulative Cable Drop length from all tees on the backbone cannot exceed 78m (256ft)
- The distance between any two devices on an NMEA2000® network must not exceed 100m (328ft) for mid and micro backbones and 200m (656ft) for mini backbones
- Each device on a network should have individual Device Instance Numbers to avoid instancing conflicts



## MPOWER CONFIGURATION SPREADSHEET

### OVERVIEW

- User friendly configuration from a small craft to the most intricate of systems
- Can be used to preconfigure a VMM, CKM, CLMD12 or CLMD16
- Can generate an N2KAnalyzer® V3 file to 'flash' any product from the MPower platform
- Can easily build on existing spreadsheets

DC LOADS	Channel (Indicator)	MAX ECB Rating	J1 Connector Pin No.	BUTTON TEXT	ECB Rating (A)	ACTUAL LOAD (A)	Wire Map Current (Factory Rating)	Parallel Output	WIRE ID	CONFIG ENABLED	DEFAULT STATE ON/OFF	DEFAULT LOCK STATE LOCKED/ UNLOCKED	Trip Delay (0-750 ms)	Inrush Delay (0-1500 ms)	DIM ENABLED	DEFAULT DIM%	Flash Table Index	Go To The Discrete I/O For Box One
	1	10	6															Go To The Flash Map For Box One
	2	10	4															
	3	5	6															
	4	12	2															
	5	10	1															
	6	5	10															
	7	12	12															
	8	10	3															
	9	5	11															
	10	10	5															
	11	10	7															
	12	5	9															

## N2KANALYZER® V3

### OVERVIEW

- Pair a PC with a Maretron gateway (USB100 or IPG100)
- Displays all active devices on the NMEA2000® network
  - Also displays third party devices
- Information about each device is also displayed in the respective columns
- For most Maretron devices, to view all configurable properties of a device on the network, select the component until it is highlighted blue, right click, then select 'Configure Device'.
- For most Maretron devices, provides a source for updating equipment to their latest software version.

Maretron N2KAnalyzer V3, Version 3.0.0.0 - VesselName													
File Setup Analyze Update Configure Web Help													
Expand	Node Address	Manufacturer	Mfg Model ID	Mfg Serial Number	Source	Unique Instance	Label	Current Software	Available Software	Installation Description #1	Installation Description #2	Device Instance	Bandwidth
													45.1%
	C0	Maretron	ACM100	1381751		0	ACM100 #1	1.1.1.2	1.1.1.2	EXTERNAL POWE...	MARETRON	0	0.7%
	E7	Maretron	ALM100	1461783		0	LAB	1.0.6	1.0.6		MARETRON	0	0.0%
	64	Carling Tech...	CKM12	1606117		60		2.01.00	-			80	0.2%
	58	Maretron	CLM100	1850296			CLM100	1.2.1.1	1.2.1.1		MARETRON	0	0.3%
	92	Carling Tech...	CLMD12	1671323			CLMD12-1	01.13.08	1.13.08	MFD's	24VDC	46	0.1%
	96	Carling Tech...	CLMD12	1671309			Lighting	01.13.08	1.13.08		24VDC	48	4.8%
	Channel Label												
	0	FWD State Room Lights											
	1	PORT State Room Lights											
	2	STBD State Room Lights											
	4	Salon Lights											
	6	Cockpit Lights											
	7	Galley Lights											
	8	Pump Room Lights											
	9	Engine Room Lights											
	95	Carling Tech...	CLMD12	1671339			Power Tree	01.13.08	1.13.08	Desk Location	MARETRON	45	1.1%
	3F	Carling Tech...	CLMD16	154101				1.0.0.55	-			55	1.4%
	37	Carling Tech...	CLMD16	1540096			CLMD16-1	1.0.0.55	-			56	2.2%
	22	Carling Tech...	CLMD16	154109				1.0.0.55	-			57	1.1%
	B1	Maretron	DCM100	1403197		10	Balmar Alter...	1.0.5.2	1.0.5.2			10	0.3%
	B3	Maretron	DCM100	1402401		3	Stbd Start	1.0.5.2	1.0.5.2	Stbd Start		2	0.3%
	48	Maretron	DCR100	1701224		6	DCR Export	1.1.2.3	1.1.2.3	Install 1	MARETRON	0	0.3%
	B0	Maretron	DSM150	1801329		0		2.7.5.3	2.7.5.3		MARETRON	0	0.0%
	18	Maretron	DSM200	1100672		1		1.15.0	1.15.0		MARETRON	1	0.0%
	1C	Maretron	DSM250	1303209		2		1.7.5.3	1.7.5.3		MARETRON	2	0.0%
	1E	Maretron	DSM410	1880940		0		1.8.3.2	1.8.3.2		MARETRON	0	0.0%
	1A	Maretron	DSM570	1940034		5		1.8.3.2	-			5	0.0%
	91	Maretron	EMS100	1220912		0	Stbd Wing En...	1.4.3.1	1.4.3.1			3	1.9%
	90	Maretron	EMS100	1220911		0	Port Wing En...	1.4.3.1	1.4.3.1			2	2.0%
	68	Maretron	FFM100	1662319			Stbd Wing En...	1.4.1.1	1.4.1.1			0	1.5%
	97	Maretron	FFM100	1660118			Port Wing En...	1.4.1.1	1.4.1.1		MARETRON	0	1.7%
	Hardware Channel Source Instance Label												
	[0] Send/Combined Fuel ...	-		5			Port Wing Engine						
	[1] Return Fuel Flow	-		0									
	[2] Channel-0 Temperature	User Defined #129		5			Port Wing Engine Supply Temp						
	[3] Channel-1 Temperature	User Defined #129		7			Port Wing Engine Return Temp						
	[4] Channel-0 Flow Rate	Fuel		5			Port Wing Engine Flow						
	[5] Channel-1 Flow Rate	Fuel		0									
	[6] Channel-0 Trip Volume	Fuel		5			Port Wing Engine Volume						
	[7] Channel-1 Trip Volume	Fuel		0									
	66	Maretron	FFM100	1641375			SB Fuel	1.1.2.1	1.1.2.1	SB fuel		199	0.1%
	4A	Maretron	GPS200	1581287		1	GPS 1	4.0.2.12	4.0.2.12		MARETRON	1	4.4%
	49	Maretron	GPS200	1581789		0	GPS 0	4.0.2.12	4.0.2.12		MARETRON	0	5.9%
Connected to NMEA 2000 Network 10.71.1.119:65500 NUM													

## MPOWER RECOMMENDED PROCESS

- Map out your network design in N2KBuilder® V3
- Use N2KBuilder® V3 to create a BOM of the components you need to build your network
- Make a Configuration using the Configuration Spreadsheet
- Save your Configuration Spreadsheet and create a Configuration File for N2KAnalyzer® V3
- Upload your N2KAnalyzer® V3 Configuration Files to your MPower devices
- Make any adjustments to the MPower devices Configuration within N2KAnalyzer® V3
- Save your final config file using the N2KAnalyzer® V3 'Save File' function

## Documents / Resources



[Maretron MPower Digital Switching](#) [pdf] Installation Guide  
MPower Digital Switching, MPower, Digital Switching, Switching

## References

- [Maretron | N2KAnalyzer V3](#)

- [M Maretron | N2KBuilder](#)

Manuals+.