# All you need to know about CZone networked monitoring systems

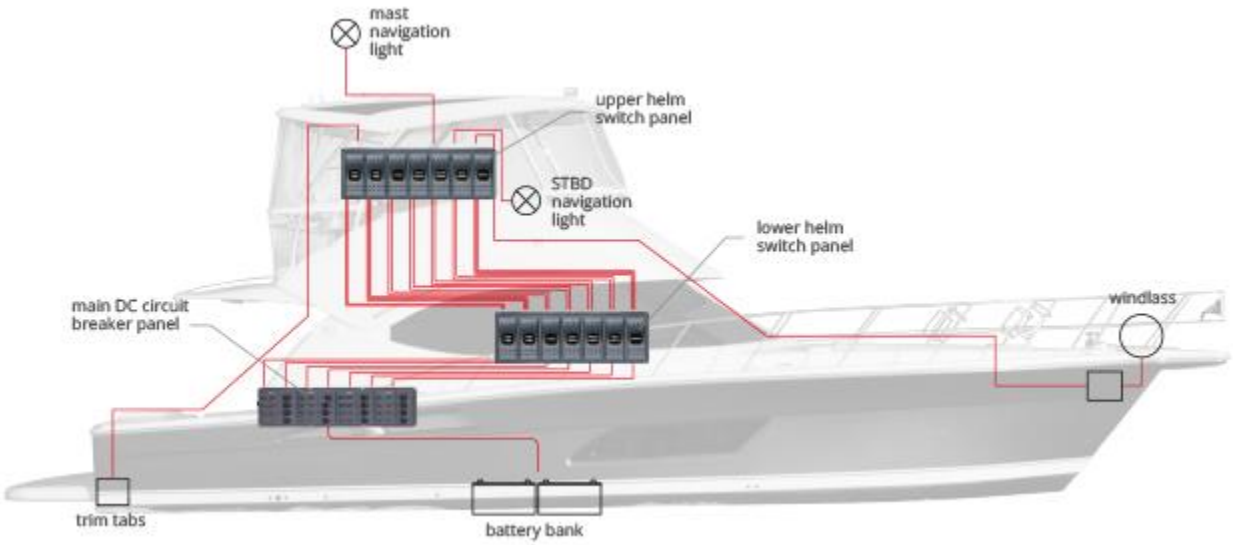
The CZone® digital control & monitoring network simplifies installation of electrical systems through the replacement of complicated, cumbersome wiring to switch and fuse panels, with state-of-the-art interfaces and lightweight NMEA 2000 network cables. It also provides a sophisticated solution via the automation of complicated control and monitoring issues associated with today's onboard systems.

Installers recognize an immediate benefit with reductions in cable usage, harness weights and installation times. The CZone system also integrates many standalone components into one intuitive system. Wiring is dramatically simplified as the CZone system is designed to remove complex switching clusters and wiring runs. Modules can easily be added into the system to best suit the OEM and end-user needs.

## Traditional electrical DC wiring

Wiring DC systems can be complex and installation time can be extensive. The larger the system, the more wire is required, which creates weight and space concerns, not to mention increased cost and complexity of design and manufacturing. Basic maintenance and trouble-shooting of traditional wiring systems can be difficult to manage.

- Switch panel wiring is complicated and extremely labor intensive to install.
- Cable runs are long and have multiple conductors.
- Switching of common circuits is complex.
- Long wire runs require larger cable, adding weight, increasing cost and reducing space.

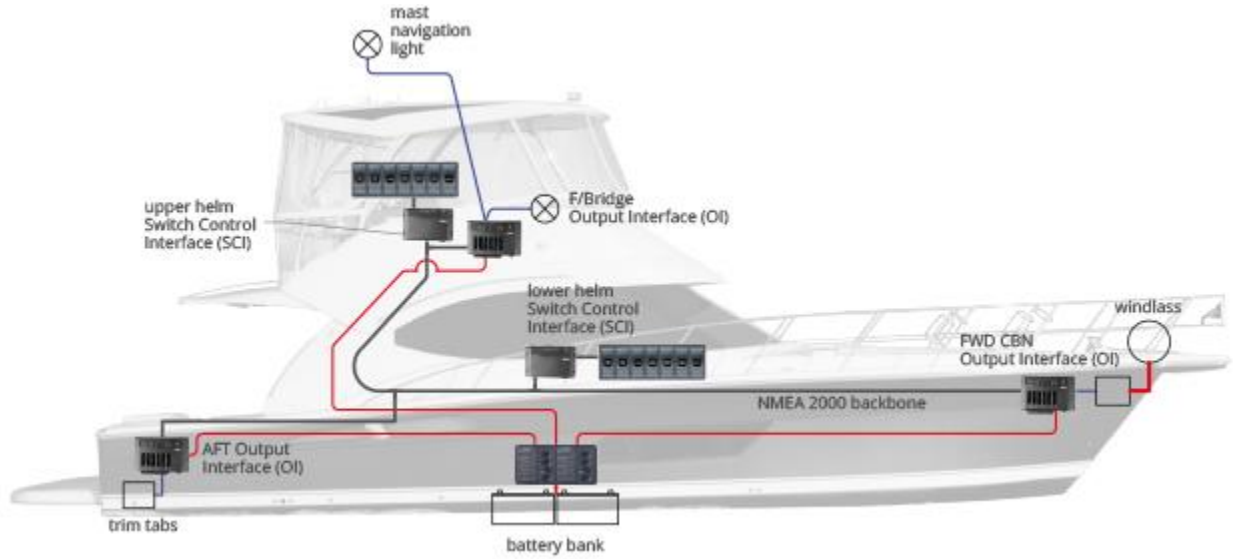



# CZone® DC wiring

The CZone system decentralizes the DC power distribution system, locates circuit control and protection modules closer to loads to shorten cable runs and reduce the size of conductors, significantly decreasing the cost and weight of the electrical wiring harness. The system replaces complex wiring with a single data wire.

# Benefits

- Complex switch panel wiring removed, replaced with single data cable connection.
- The grouping of multiple loads into common areas (zones) with Output Interfaces is the key to the system.
- Results in less working hours and installation materials, plus fewer and thinner cables.



# Configuration made easy

Historically, generating a configuration for and programming a system is a chore that requires a significant amount of training. The Configuration Tool of the CZone system offers simple, straightforward programming that is easy to learn and to use.

The CZone system Configuration Tool allows the installer to set up programming parameters on a standard PC (use an USB CAN Adapter, product code 80-911-0044-00), upload a saved configuration into the CZone network and simultaneously program every interface onboard. Changes and customizations can also be made from the Display Interface and downloaded back to the PC overriding the master configuration. The master template file is now ready to go and can be used on multiple vessels or vehicles during installation.

# Frequently Asked Questions about CZone®

## 1 What is NMEA 2000?

NMEA 2000 is a plug and play electronics communication standard based on Controller Area Network (CAN). The network carries data sentences for commands as well as messaging (tank levels) between NMEA 2000 devices.

## 2 What is a PGN?

All data transmitted on an NMEA 2000 network are organized into groups. These groups are identified by a parameter group number (PGN) that describes the type of data contained in the group. The CZone system can share certain monitoring PGN's with other NMEA 2000 compliant devices, such as engine temps, pressures, SOG, battery monitoring etc.

## 3 How many devices can I have on the NMEA 2000 network?

No more than 50 NMEA 2000 devices can be connected to any one NMEA 2000 network. It is also important that there is no more than 3V voltage drop from the power source to the device located farthest from the power source. In case there are more than 50 devices, or the voltage drop exceeds 3V, a CZone Network Bridge Interface can be installed to expand the network to a maximum of 252 devices.

## 4 How do I connect an NMEA 2000 network?

The main communication channel of the NMEA 2000 network is the backbone to which your NMEA 2000 devices connect. Each NMEA 2000 device connects to the backbone with a T-connector. The NMEA 2000 backbone must be connected to 12V DC power, and terminators must be installed at both ends of the network to function correctly. Daisy chaining is not allowed.

## 5 What are the power requirements on the NMEA 2000 network?

Your NMEA 2000 network must be connected to a 12V DC power supply. Do not connect the network to any other voltage source, such as a 24V DC power supply. Supply power as close to the middle of the backbone run as possible. Do not connect the NMEA 2000 network to power in more than one location unless a CZone Network Bridge Interface is used.

## 6 What cables should I use?

We advise using the NMEA 2000 cables supplied by Mastervolt. These NMEA 2000 Mini cables have a greater current carrying capacity than the standard Micro cables. This reduces voltage drop on the longer backbone runs expected on a CZone network.

## 7 What is the maximum length for a drop cable?

The maximum length of a single drop cable to a NMEA 2000 device is 6 m (20 ft).

## 8 Can I connect other devices to the CZone NMEA 2000 network?

Yes, that is possible. CZone devices are NMEA 2000 certified, so other NMEA 2000 compatible or certified devices can connect and communicate together on the same network.

## 9 What happens if a CZone module is damaged?

All CZone modules offer a true ‘plug and play’ installation. This means that, if a CZone module is physically damaged and needs replacing, you can just copy the DIP switch setting to the new module and plug it into the system. The system will recognize the module by its DIP switch setting and configure it automatically.

## 10 What happens if the CZone network fails?

In the event the CZone network fails, all loads that are controlled through CZone can still be powered by locating the (Combination) Output Interface and putting the hardware fuse into the bypass position.

## 11 How do I configure the CZone system?

The CZone system can be easily configured from a Windows PC or laptop connected to the network with the CZone USB CAN Adapter.

## 12 Can CZone be connected to MasterBus?

Yes, that is possible with a CZone MasterBus Bridge Interface or Wireless Interface.

https://www.mastervolt.com/all-you-need-to-know-about-czone-networked-monitoring-system/