

# WIRELESS INTERFACE

## Installation Manual

80-911-0090-00



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v 1.0 June 2014

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# 1 GENERAL INFORMATION

## 1.1 USE OF THIS MANUAL

Copyright © 2014 Mastervolt. All rights reserved.

Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without the prior written permission of Mastervolt is prohibited.

This manual serves as a guideline for the safe and effective operation, maintenance and possible correction of minor malfunctions of the *Wireless Interface*, called *WI* further in this manual.

This manual is valid for the following model:

| Description        | Part number    |
|--------------------|----------------|
| Wireless Interface | 80-911-0090-00 |

It is therefore obligatory that every person who works on or with the *WI* is completely familiar with the contents of this manual, and that he/she carefully follows the instructions contained herein.

Installation of, and work on the *WI*, may be carried out only by qualified, authorised and trained personnel, consistent with the locally applicable standards and taking into consideration the safety guidelines and measures (chapter 2 of this manual).

**Please keep this manual in a secure place!**



## 1.2 GUARANTEE SPECIFICATIONS

Mastervolt guarantees that this unit has been built according to the legally applicable standards and specifications. Should work take place which is not in accordance with the guidelines, instructions and specifications contained in this Installation manual, then damage may occur and/or the unit may not fulfil its specifications. All of these matters may mean that the guarantee becomes invalid.

## 1.3 QUALITY

During their production and prior to their delivery, all of our units are exhaustively tested and inspected. The standard guarantee period is two years.

## 1.4 VALIDITY OF THIS MANUAL

All of the specifications, provisions and instructions contained in this manual apply solely to standard versions of the *Wireless Interface* delivered by Mastervolt.

## 1.5 LIABILITY

Mastervolt can accept no liability for:

- Consequential damage due to use of the *WI*
- Possible errors in the manuals and the results thereof

### CAREFUL!

Never remove the identification label

Important technical information required for service, maintenance & secondary delivery of parts can be derived from the type number plate.

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## 1.6 CHANGES TO THE WIRELESS INTERFACE

Changes to the *WI* may be carried out only after obtaining the written permission of Mastervolt.

## 2 SAFETY GUIDELINES AND MEASURES

### 2.1 WARNINGS AND SYMBOLS

Safety instructions and warnings are marked in this manual by the following pictograms:



#### CAUTION

Special data, restrictions and rules with regard to preventing damage.



#### WARNING

A WARNING refers to possible injury to the user or significant material damage to the WI if the user does not (carefully) follow the procedures.



A procedure, circumstance, etc, which deserves extra attention.

### 2.2 USE FOR INTENDED PURPOSE

- 1 The *WI* is constructed as per the applicable safety-technical guidelines.
- 2 Use the *WI* only:
  - In technically correct conditions
  - In a closed space, protected against rain, moisture, dust and condensation
  - Observing the instructions in the installation manual



#### WARNING

Never use the *WI* in locations where there is danger of gas or dust explosion or potentially flammable products!

- 3 Use of the *WI* other than mentioned in point 2 is not considered to be consistent with the intended purpose. Mastervolt is not liable for any damage resulting from the above.

### 2.3 ORGANIZATIONAL MEASURES

The user must always:

- Have access to the user's manual
- Be familiar with the contents of this manual. This applies in particular to this chapter, Safety Guidelines and Measures

### 2.4 MAINTENANCE AND REPAIR

- Switch off supply to the system
- Be sure that third parties cannot reverse the measures taken
- If maintenance and repairs are required, only use original spare parts

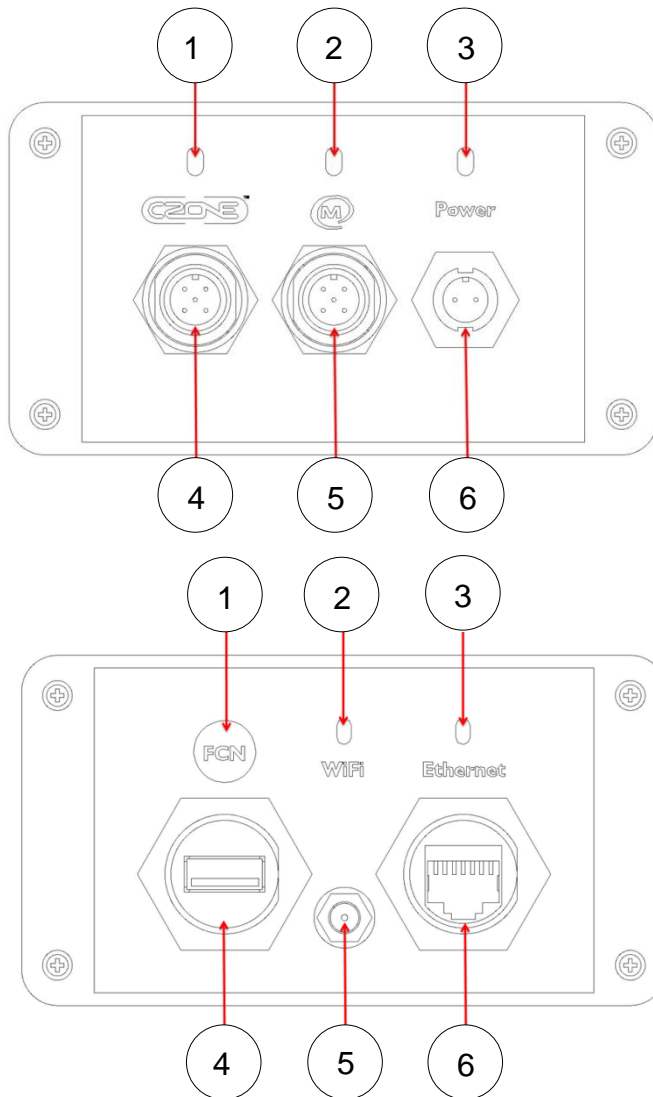
### 2.5 GENERAL SAFETY AND INSTALLATION PRECAUTIONS

- Connection and protection must be done in accordance with local standards
- Do not work on the *WI* or system if it is still connected to a current source. Only allow changes in your electrical system to be carried out by qualified electricians
- Check the wiring at least once a year. Defects such as loose connections, burned cables, etc. must be corrected immediately

### 3 QUICK REVIEW

The **WI** is a digital switching interface module designed to connect your tablet to the CZone or Mastervolt digital switching system. The WI can connect a maximum of 3 devices with its internal Access Point or can interface with other WiFi systems on your vessel.

It provides NMEA 2000 and MasterBus networks, (see chapter 4) allowing you to control and monitor your vessels system.



1. CZone Data/Power LED
2. MasterBus Data/Power LED
3. Power LED
4. NMEA2K – CZone
5. NMEA2K - MasterBus
6. DC input

1. Function Button
2. LED WiFi
3. LED Ethernet
4. USB Socket
5. WiFi Aerial
6. Ethernet Socket

#### INPUTS

- IPad App input commands
- Ethernet communications
- PC with WiFi or Ethernet connection running configuration tool

#### OUTPUTS

- CZone NMEA communication
- MasterBus Communications

| LED                                  | LED State | LED Meaning |
|--------------------------------------|-----------|-------------|
| Power LED                            | Green     | Power On    |
| CZone and MasterBus Data/Power LED's | Green     | Connected   |
| CZone and MasterBus Data/Power LED's | Red flash | Traffic     |

**WiFi / Ethernet LED's**

| LED Mode        | WiFi LED State | Ethernet LED State | Meaning                 |
|-----------------|----------------|--------------------|-------------------------|
| Off             | -              | -                  | Not active or connected |
| On continuously | Enabled        | Connected          | Normal use              |



The WI only functions when the Interface configuration is complete! Refer to the WI Setup Instructions.

**4 INSTALLATION****WARNING**

During installation and commissioning of the WI, the Safety Guidelines and Measures are applicable at all times. See chapter 2 of this manual.

**CAREFUL!**

Wrong connections may cause damage to the WI and other equipment as well, which is not covered by warranty!

**4.1 THINGS YOU NEED FOR INSTALLATION****Tools:**

- Drill and bits
- Electrical tools

**Materials:**

- Wireless Interface
- In line fuse or circuit breaker protection
- NMEA2K Cables
- MasterBus N2K adapter PN: RJ45-250-NMEA2K
- MasterBus cable
- Terminator for MasterBus
- 4 x 6 gauge mounting screws.

**4.2 INSTALLATION STEP BY STEP****4.2.1 Mounting the interface**

Considerations for mounting.

- The best mounting location is generally close to a NMEA2k network connection and power supply
- Consider the effect of metal on the reduction of WiFi signals if using the internal WiFi
- Mount in a location out of direct sunlight
- The Mounting must be at least 0.5m from any person

**4.2.2 Connections**

- Run the power cable to a suitable power supply through a fuse rated at 1A
- Run the NMEA2K cable from the CZone connector to the NMEA2K network backbone
- Connect the optional MasterBus to N2k adapter to the MasterBus connector and run cables to the MasterBus network, in accordance with the MasterBus network instructions
- Run an Ethernet connection to an on-board Wireless network if required

**NOTE:**

- Ethernet cable must not exceed 10m in length
- Use optional ferrite core on Ethernet cable to prevent external interference
- Refer to the "WI Setup Instructions" to connect with other Wi-Fi systems

### 4.3 POWER UP

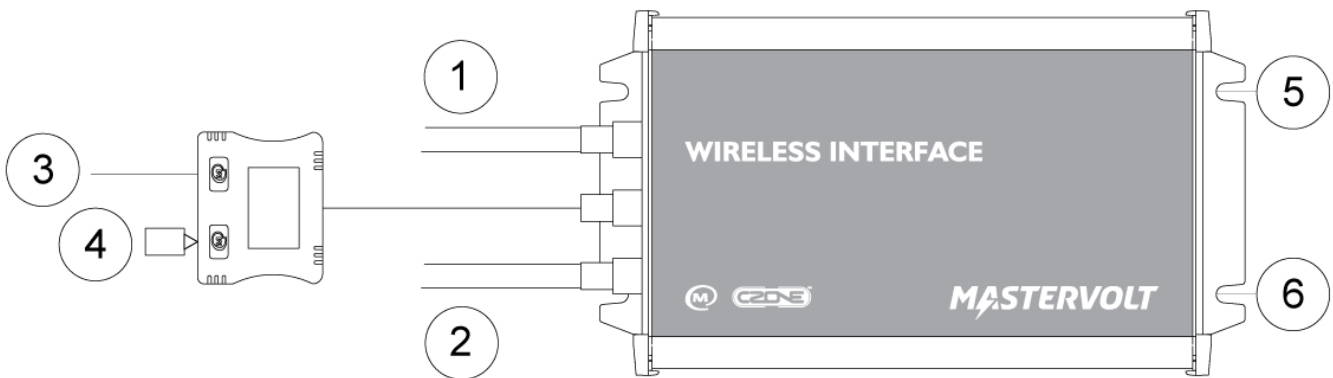
- Turn on the power to the interface
- Confirm Power LED is on
- CZone LED should be flashing red to indicate traffic and green to indicate power
- Wi-Fi LED will flash and then come on solid to indicate it is active
- MasterBus LED should be flashing red to indicate traffic and green to indicate power

### 4.4 CONFIGURATION

- Refer to the Wireless Interface Setup Instructions

### 4.5 WIRING DIAGRAM

- 1 – CZone NMEA network
- 2 – 9-32 V DC Supply
- 3 – MasterBus Network
- 4 – Mastervolt terminator
- 5 – Ethernet to Wireless Network
- 6 – USB Port



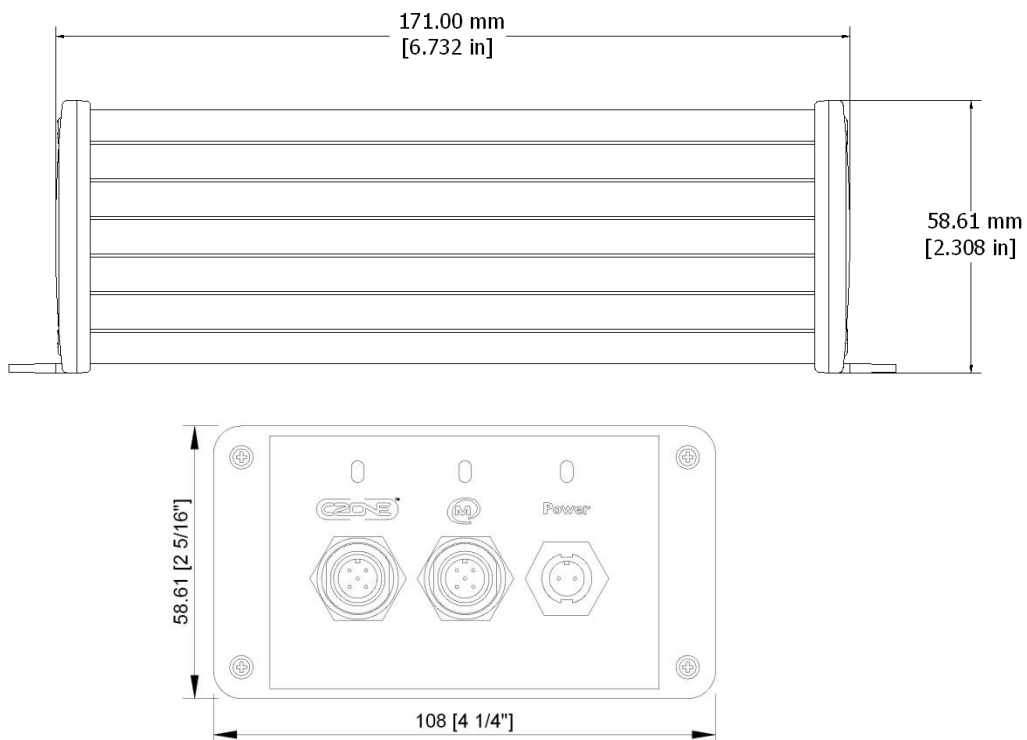
## 5 SPECIFICATIONS

### 5.1 TECHNICAL SPECIFICATIONS

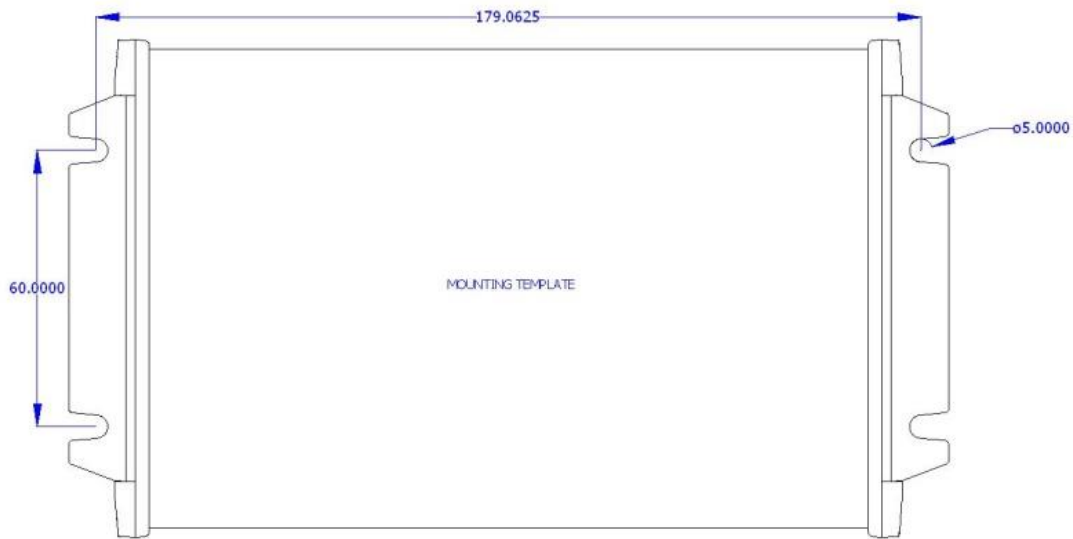
|   |  |
|---|--|
| Model:  | Wireless Interface   |
| Article number:                               | 80-911-0090-00   |
| Function of instrument:                       | To allow wireless control and monitoring of CZone and MasterBus systems  |
| Manufacturer:                                 | Mastervolt, Auckland New Zealand   |
| Monitoring and Control Configuration:         | WI Configuration tool  |
| Available languages:                          | English, Dutch, German, French, Italian, Spanish   |
| Number of devices that can Connect to the WI: | Maxium of 3 devices. Using external WiFi Access points limited to their specification                                |
| MasterBus powering capacity:                  | NO   |
| Power consumption:                            | <450mA @ 12V / <225mA @ 24V  |
| Operating Voltage                             | 9 – 32VDC  |
| Communication isolation:                      | Galvanic   |
| Software layer:                               | CZone and MasterBus proprietary protocol   |
| Hardware layer:                               | CAN bus technology, WiFi, Ethernet, USB  |
| Weight:                                       | 750g (0.17 lbs)  |
| Connections:                                  | 2 pin power socket, 2 x NMEA2K, MasterBus with N2K adapter, Ethernet RJ45 socket, USB type A jack, FMA aerial socket |

### 5.2 DIMENSIONS

Figure 26: Dimensions in mm (inches)







Please note: Not to scale

### 5.3 IDENTIFICATION LABEL

Figure 1: Identification label

The identification label is located on the underside of the WI. Important technical information required for service, maintenance & secondary delivery of parts can be derived from the identification label.



#### CAUTION!

Never remove the identification label.

### 5.4 LIABILITY

Mastervolt can accept no liability for:

- Consequential damage due to use of the Wireless Interface
- Possible errors in the manuals and their results

## 6 CE DECLARATION OF CONFORMITY

**Equipment description:** Marine interface device that is used to link an onboard CAN network to an on board wireless or Ethernet network.

**Make and Model:** Mastervolt CZone Wireless Interface

**Serial numbers:** All

### Directives and norms to which conformity is declared

Harmonized European Norms (EN) covering the essential requirements of the R&TTE Directive (1999/5/EC)

#### Article 3.1(a)

EN60950-1: 2006 + Amendment A11: 2009 + Amendment A1: 2010

EN 62311: 2008

#### Article 3.1(b)

EN 301 489-1 V1.9.1: 2011

EN 301 489-17 V2.2.1: 2012

EN 60945:2002

#### Article 3.2

ETSI EN 300 328 V1.7.1, 2006

ETSI EN 300 328 V1.8.1, 2012

#### Article 3.3

Not applicable in this case

We **BEP Marine Ltd**

of 55 Paul Matthews Drive  
Albany  
Auckland 0632

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s) for CE marking for sale in the European community.

**Place:** Auckland, New Zealand

**Date:** 17th July 2014

**Signature**



**Full Name:** Chris Wilkins

**Position:** Architect Engineer

## 7 CE Mark Warning



This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

### National Restrictions

2400.0-2483.5 MHz

| Country            | Restriction   | Reason/remark   |
|--------------------|---|---|
| Bulgaria           |   | General authorization required for outdoor use and public service   |
| France             | Outdoor use limited to 10 MW e.i.r.p. within the band 2454-2483.5 MHz | Military Radiolocation use. Refarming of the 2.4 GHz and has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012 |
| Italy              |   | If used outside of own premises, general authorization is required  |
| Luxembourg         | None  | General authorization required for network and service supply (not for spectrum)  |
| Norway             | Implemented   | This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund   |
| Russian Federation |   | Only for indoor applications  |

Note: Please don't use the product outdoors in France.

This device has been designed to operate with the antennas listed below which have a maximum gain of 3 dBi. Antennas not included in this list or having a gain greater than 3 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

## 8 FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

### **FCC RF Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only

Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."