Contact 6

User & Installation Manual

V1.0

CE

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Important

BEP strives to ensure all information is correct at the time of printing. However, the company reserves the right to change without notice any features and specifications of either its products or associated documentation.

Translations: In the event that there is a difference between a translation of this manual and the English version, the English version should be considered the official version.

It is the owner's sole responsibility to install and operate the device in a manner that will not cause accidents, personal injury or property damage.

Use Of This Manual

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1 OVERVIEW

1.0 DESCRIPTION

The CZone Contact 6 is an entry level digital switching module that houses 6 dry contact relays, fully controllable from any CZone interface or compatible Multi Function Display. The isolated relays allow a mix of positive and negative switching and can also be configured to control reversing motors. Core CZone features such as Modes & timers are all possible with the Contact 6.

1.1 FEATURES

- Entry level digital switching module for Marine and RV applications
- Stand alone or networked with other CZone products
- Compatible with CZone integrated Multi Function Displays (MFD's)
- Six independent relay channels with positive, negative and reversing motor control
- Uses proven CZone technology
- Internal auto-resetting fuses (fused version only)
- Electronic relay bypass switch
- Status LED's/fault codes for all channels
- IPx5 ingress protection
- NMEA2000 compliant

1.2 HARDWARE OVERVIEW

Figure 1. Contact 6 cover on

Figure 2. Contact 6 no cover

1. Channel Status LED Indicators
2. Network Status LED Indicator
3. Relays
4. PTC Fuses (fused SKU only)
5. Output Connector
6. Manual Override Switch
7. Dipswitch
8. NMEA 2000 Connector

1.3   LED INDICATORS

1.   Circuit Status LED's

Colour	Description
Extinguished	Channel Off
Green Solid On	Channel On
Green Slow Flash	Manual Override Mode
1 Green Flash	Module Not Configured
2 Green Flash	Configuration Conflict
3 Green Flash	DIP Switch Conflict
4 Green Flash	Memory Failure
5 Green Flash	No Modules Detected
9 Green Flash	Missing Commander

2.   Network Status LED

Colour	Description
Extinguished	Network Power Disconnected
Green	Network Power Connected
Red Flash	Network traffic

1.4 LABELLING

The Contact 6 is supplied with a blank output label. Once system is designed, the output names should be written next to the channel number they are physically wired to. The label should then be placed on the top cover.

```
                    DESCRIPTION
       1. _____
       2. _____
  O    3. _____
  U
  T    4. _____
  P
  U    5. _____
  T
  S    6. _____
       _____
       _____
         ENSURE ALL SEALS AND PLUGS ARE FITTED
```

1.5 PINOUT

Pinout (Looking at face of PCB connector)

18	17	16	15	14	13	12	11	10
9	8	7	6	5	4	3	2	1

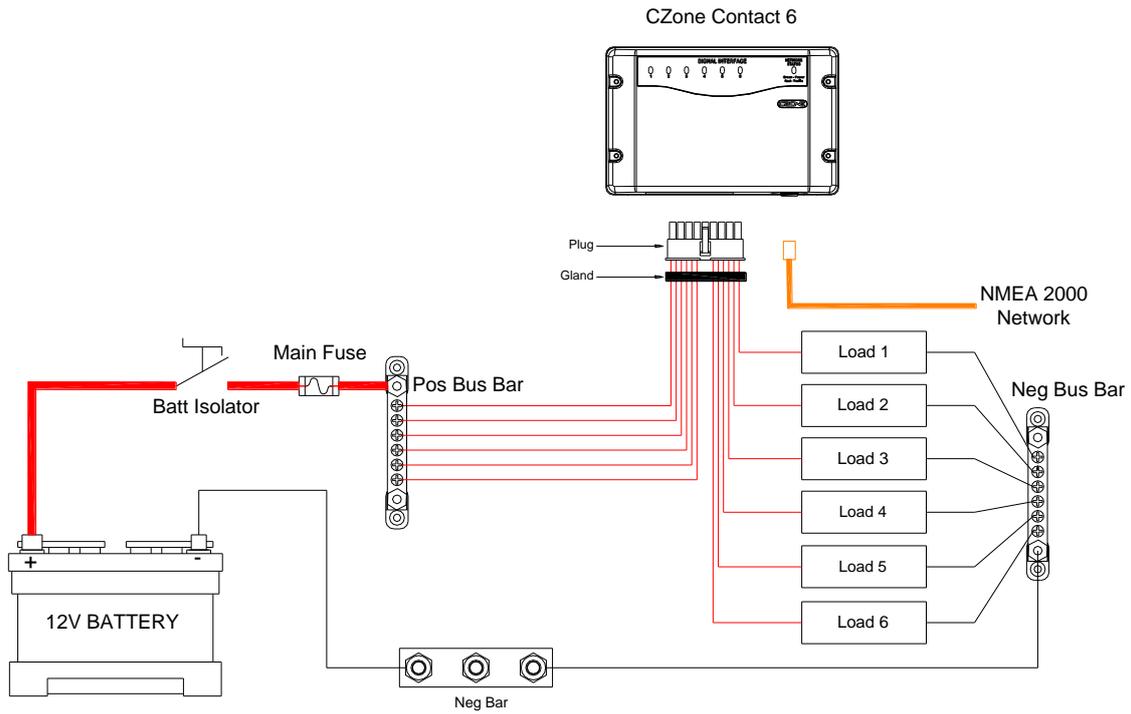|		
1. CH6 C	7. CH2 C	13. CH4 NO
2. CH6 NC	8. CH2 NC	14. CH3 NC
3. CH5 C	9. CH1 C	15. CH3 NO
4. CH4 C	10. CH6 NO	16. CH2 NO
5. CH4 NC	11. CH5 NC	17. CH1 NC
6. CH3 C	12. CH5 NO	18. CH1 NO

1.6 BASIC SYSTEM DIAGRAMS

Figure 3. Basic System Diagram for Contact 6 Fused
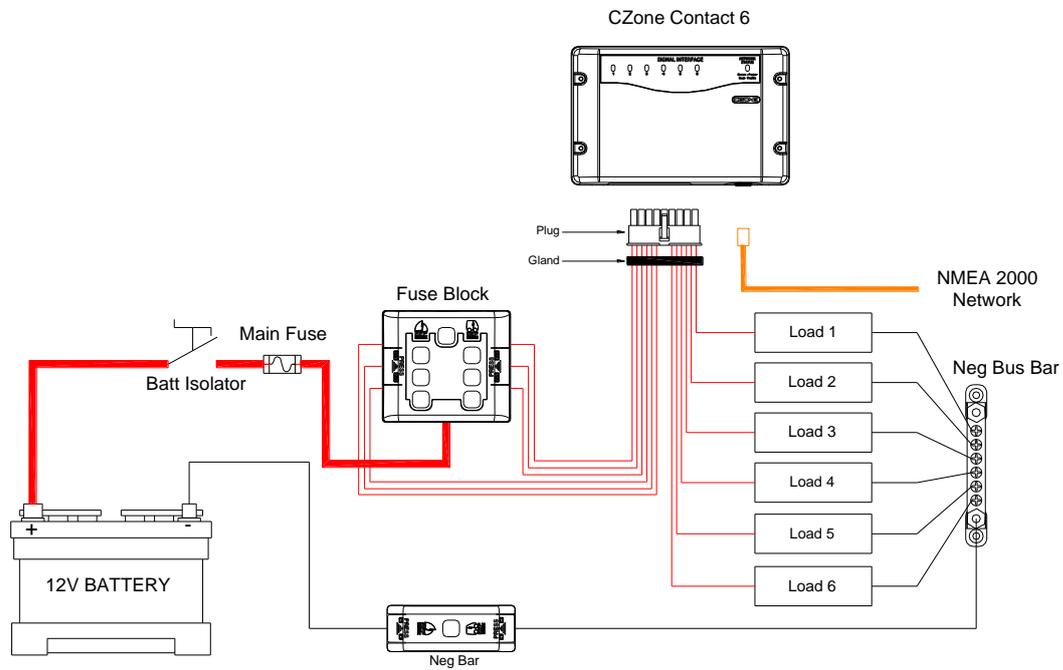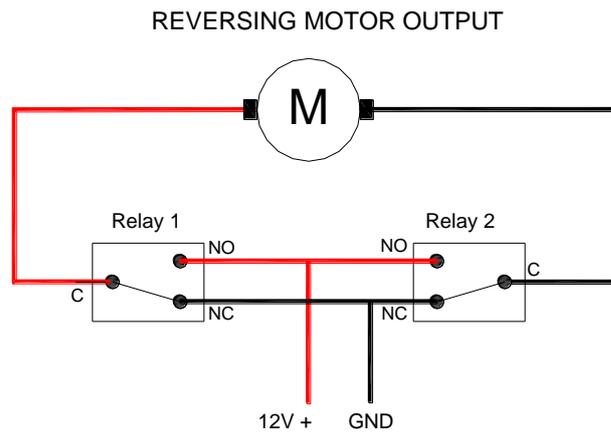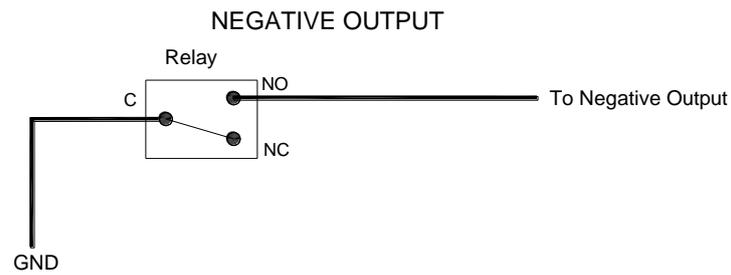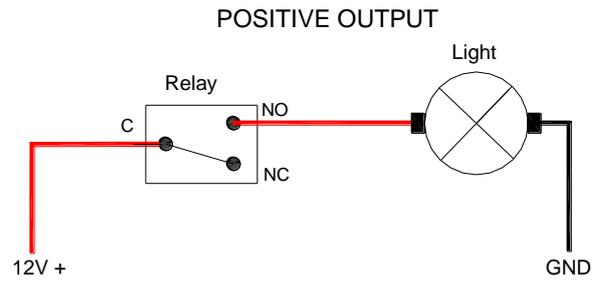

Figure 4. Basic System Diagram for Contact 6 Non Fused

Important: for ABYC applications, external fusing may be required

1.7 OUTPUT CONFIGURATIONS

POSITIVE OUTPUT

NEGATIVE OUTPUT

REVERSING MOTOR OUTPUT

2 DESIGN

- Make a list of all outputs to be wired to the Contact 6 and assign each of them to one of the 6 channels (refer to 1.7 for supported output configurations).
- Select the appropriate Contact 6 SKU for the application (refer to 4.0 for detailed specifications):
  - o Contact 6 Fused – 12V loads only, maximum 7.5A per channel
  - o Contact 6 Non Fused - 12V/24V loads, maximum 9A per channel
- Ensure continuous current draw of each connected load does not exceed maximum channel rating, if using the Contact 6 Non Fused SKU ensure appropriately rated external fuses are used.
- Ensure the maximum continuous current of all loads does not exceed the 30A total module current
- Ensure all cables running to Contact 6 connector are 16AWG (1.0-1.5mm²).

3 INSTALLATION

3.0 THINGS YOU NEED

- Contact 6 module
- TE contacts and connector
- 4 x 8G or 10G (4mm or 5mm) self-tapping screws or bolts for mounting Contact 6 to surface
- TE Pro-Crimper (part #1976444-1) or generic crimp tool for 16AWG (1.0-1.5mm²) uninsulated terminals
- NMEA2000 drop cable and T-connector
- Electrical Tools
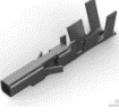

Figure 5. TE Pro Crimper

3.1 ENVIRONMENT

Obey the following stipulations during installation:

- Ensure the Contact 6 is located in an easily accessible location and indicator LED's are visible
- Ensure circuit label is fitted and all channels labelled correctly
- Ensure Contact 6 is mounted either vertically or horizontally
- Ensure there is sufficient clearance above the Contact 6 to allow the cover to be removed.
- Ensure there is at least 10mm clearance around the sides and top of the Contact 6

3.2 TE CONNECTOR KIT

If you have purchased the Contact 6 module that includes the TE connector kit (part # 80-911-0144-00), check all components are in the bag before proceeding. Alternatively, the TE contacts and connector can be purchased from a TE distributor by using the part numbers below.

| Image	Part Number	Description	Quantity
	1-1969614-8	TE AMP, VAL-U-LOK 18 Pin Connector	1
	1586841-1	TE AMP, VAL-U-LOK Socket Contact 16AWG Suitable for 16AWG (1.0-1.5mm²) cable	18

3.3 MOUNTING

1. Remove the Contact 6 top cover and locate the 4 mounting screw locators as shown above.
2. Place the Contact 6 on a solid, flat surface.
3. Screw the Contact 6 to the surface with 4 x 8G or 10G (4mm or 5mm) self-tapping screws or bolts (not supplied).

3.4   PLUGGING
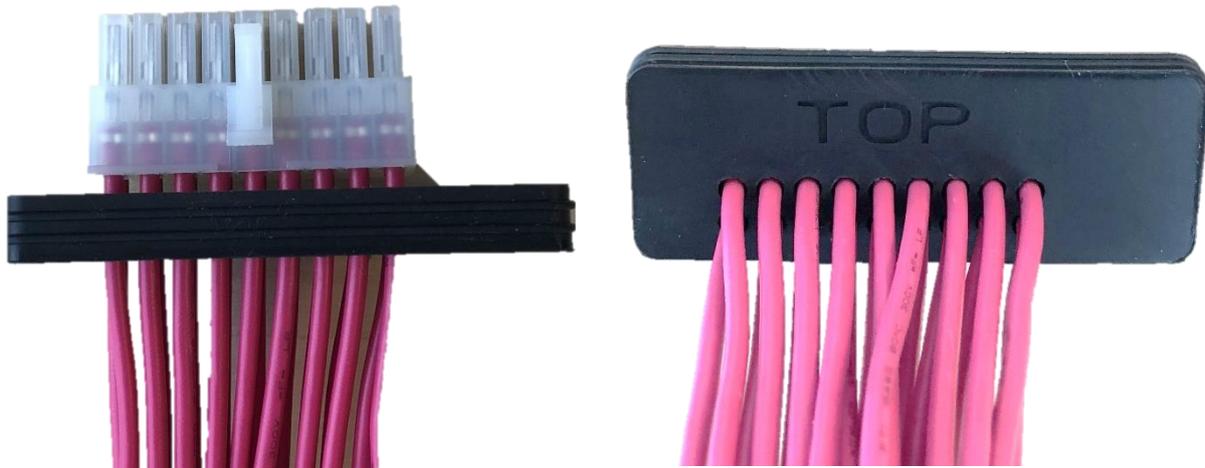
1. Strip and crimp all cables with TE contact and crimp tool.
2. Insert the contacts into TE connector following the pinout in chapter 1.5. Also refer to the load list created earlier to ensure each load is connected to the correct channel and plug position.
3. Ensure all contacts are locked securely in place.
4. Fit gland over cables one slot at a time. Ensure correct orientation of gland, 'TOP' label should be at top of module as per above image.
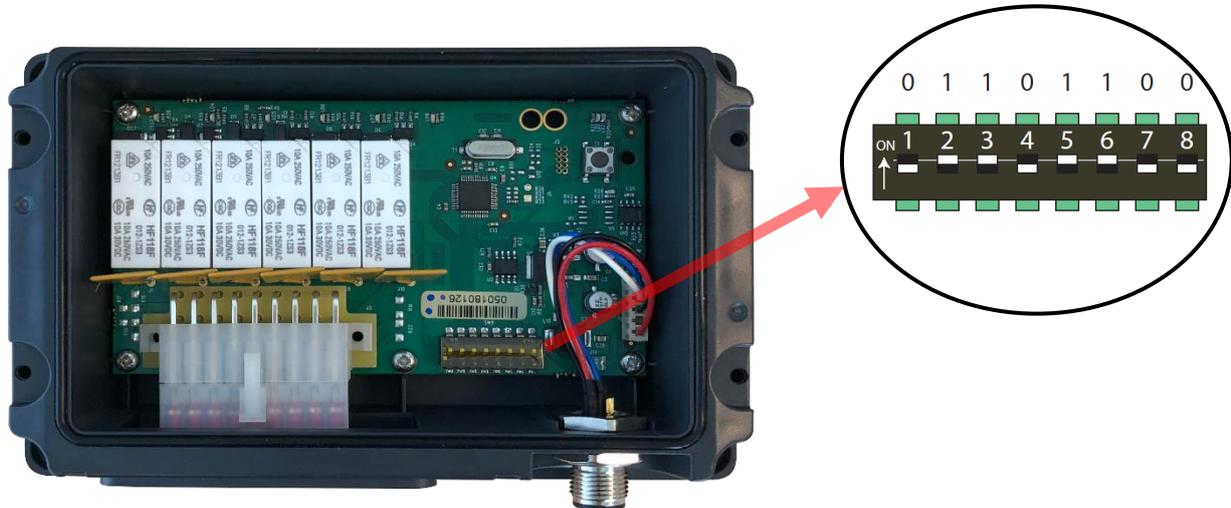
3.5   CONNECTIONS
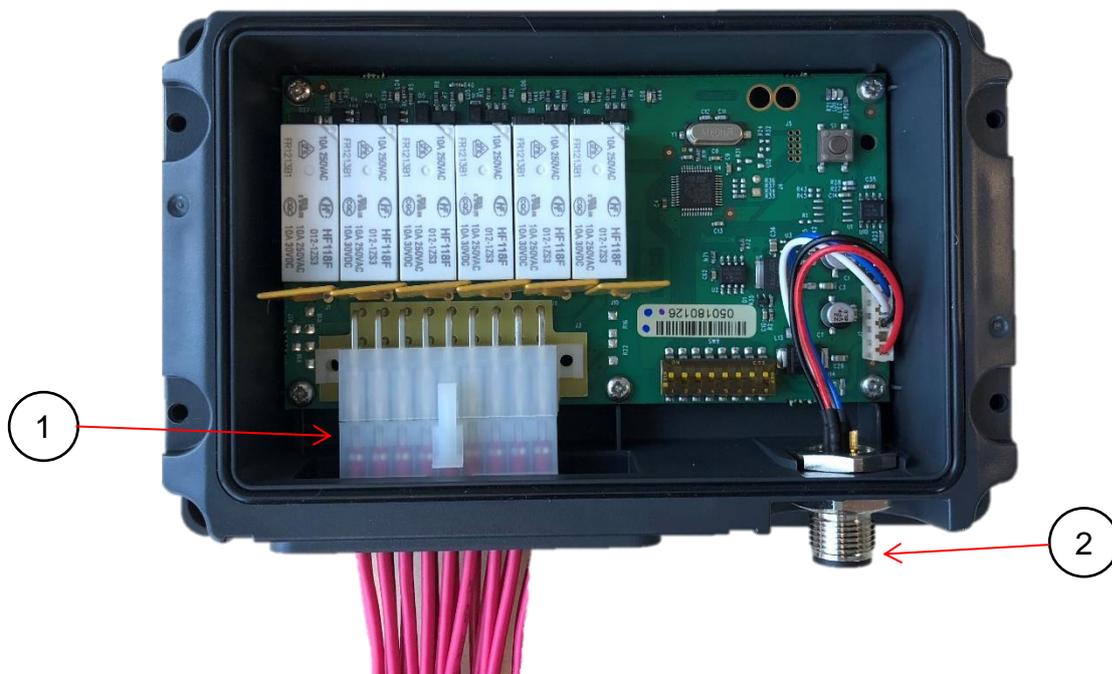
1. Insert plug in to receptacle in module and ensure cable gland is seated correctly.
2. Connect an NMEA2000 drop cable from Contact 6 to an NMEA2000 backbone. Ensure the NMEA2000 network is properly terminated and connected to a 12V power source (do not power up network yet).

3.6 SET DIPSWITCH

Using a small flat blade screwdriver carefully set the dipswitch on the Contact 6. The dipswitch number must be unique for all modules on the CZone network and must match the dipswitch setting in the configuration to function correctly. The example below shows a dipswitch setting of 01101100 where 0 = Off and 1 = On

3.7 FIT COVER

1. Clip top cover on to Contact 6 module (ensure top seal is still in place).
2. Screw top cover on with 4 x supplied mounting screws in locators shown in above image.

3.8 INITIAL POWER UP

1. Check plug is securely in place and NMEA connection is tight.
2. Ensure the Contact 6's top cover is screwed securely in place and seal is seated properly.
3. Power up the NMEA2000 network.
4. Check that the NMEA2000 Network LED lights up. It may also be flashing if other devices are present and transmitting data.
5. Turn the switch/circuit breaker on supplying power to the outputs.
6. Check the circuit's status LED's for each individual circuit. Refer to LED codes to diagnose any faults which need to be rectified.
7. Check the software version on the Contact 6 with the CZone Configuration Tool and update if necessary.
8. Write configuration file to the Contact 6 and the rest of the CZone modules on the system (Refer to the CZone Configuration Tool Instructions for details on how to configure the Contact 6).
9. Test all outputs for configured functionality.

3.9 RELAY MANUAL OVERRIDE INSTRUCTIONS

Follow the below steps to manually control each relay. To use manual override the Contact 6 must have 12V network power.

1. To enter manual override mode, hold down manual override switch for 5 seconds until channel 1 status LED starts flashing then release.
2. Short press the button to cycle to the desired relay channel.
3. Hold the button for 2 seconds and release to turn selected relay ON or OFF.
4. Repeat step 2 and 3 for any other relays.
5. To exit manual override mode hold the manual override switch for 5 seconds until selected channel stops flashing. The relays will return to their previously networked controlled state.

4   SPECIFICATIONS

4.0   TECHNICAL SPECIFICATIONS

Model	Contact 6 Fused	Contact 6 Non Fused
Part numbers	80-911-0139-00, 80-911-0140-00	80-911-0155-00, 80-911-0156-00
Output Channels	6 x 10A SPDT (Single Pole Double Throw) Dry Contact Relays	6 x 10A SPDT (Single Pole Double Throw) Dry Contact Relays
Max Channel Current	7.5A	9A
Circuit Protection	6 x 7.5A PTC Fuses (auto-reset)	None (must be fused externally)
Circuit Bypass	Yes (electronic) – requires NMEA Power	Yes (electronic) – requires NMEA Power
Output Voltage	Up to 16VDC	Up to 30VDC
NMEA Voltage	9-16VDC	9-16VDC
Maximum Module Current	30A	30A
Contact Spec	TE AMP Val-U-LOK 18-way (Part #1-1969614-8)	TE AMP Val-U-LOK 18-way (Part #1-1969614-8)
Socket Spec	TE AMP Val-U-LOK socket (Part # 1586841)	TE AMP Val-U-LOK socket (Part # 1586841)
Max Contact Cable Size	16AWG (1 to 1.5mm²)	16AWG (1 to 1.5mm²)
Ingress Protection	IPX5	IPX5
Communication	NMEA2000	NMEA2000
Operating Temperature	-15°C to 55°C (5°F to 131°F)	-15°C to 55°C (5°F to 131°F)
Compliance	CE, RCM, NMEA, ISO8846/SAEJ1171 Ignition Protected	CE, RCM, NMEA, ISO8846/SAEJ1171 Ignition Protected
Module Dimensions (H x W x D)	100 x 156 x 42mm (3.94 x 6.14 x 1.65")	100 x 156 x 42mm (3.94 x 6.14 x 1.65")
Module Weight	257g	257g

4.1 DIMENSIONS
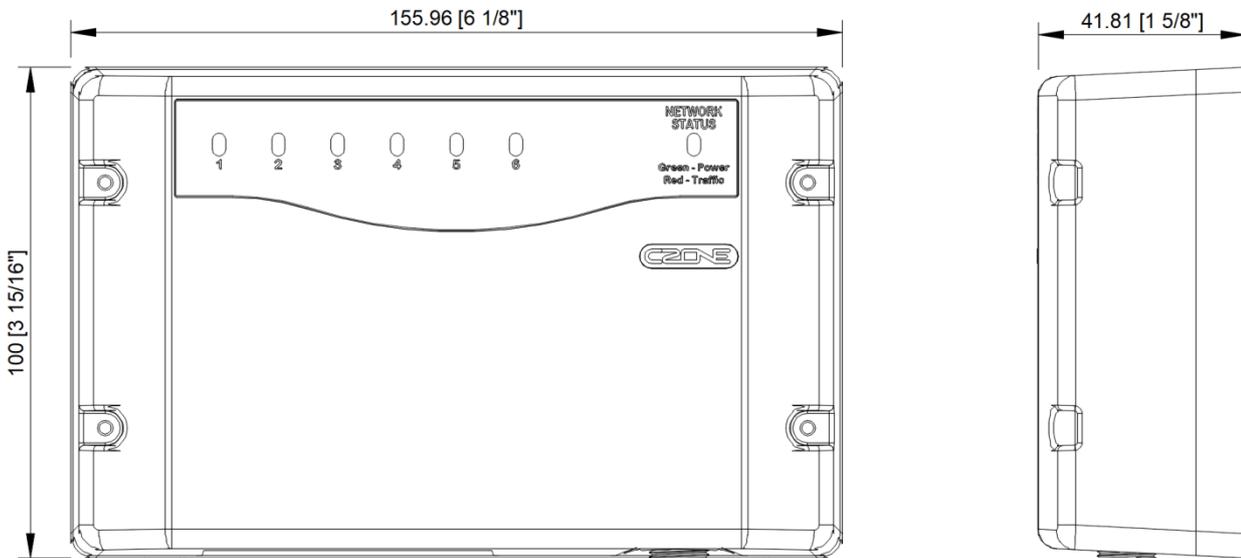
5   ORDERING INFORMATION

Contact 6 Part Numbers and Accessories

Part Number	Description
80-911-0139-00	CZone Contact 6 Fused Interface Only
80-911-0140-00*	CZone Contact 6 Fused with Seals & Plug
80-911-0144-00	Plug Pack for Contact 6
80-911-0145-00	Cable Gland for Contact 6
80-911-0155-00	CZone Contact 6 Non Fused Interface Only
80-911-0156-00*	CZone Contact 6 Non Fused with Seals & Plug

*Kit includes 80-911-0144-00 and 80-911-0145-00

6   EC DECLARATION OF CONFORMITY

We,

Power Products LLC

Mailing Address:
BEP Marine LTD
PO Box 101-739 NSMC
Auckland 0632, New Zealand

Street Address:
42 Apollo Drive
Rosedale,
Auckland, 0632, New Zealand

Declare under our sole responsibility that the products:

- 80-911-0139-00 – CZone Contact 6 Fused Interface Only
- 80-911-0140-00 – CZone Contact 6 Fused with Seals & Plug
- 80-911-0155-00 – CZone Contact 6 Non Fused Interface Only
- 80-911-0156-00 – CZone Contact 6 Non Fused with Seals & Plug

To which this declaration related, is in conformity with the following standards or other normative documents:-

EMC :   EN 60945:2002:2002

Maritime navigation and radiocommunication equipment and systems

Albany, New Zealand, 13 April 2018
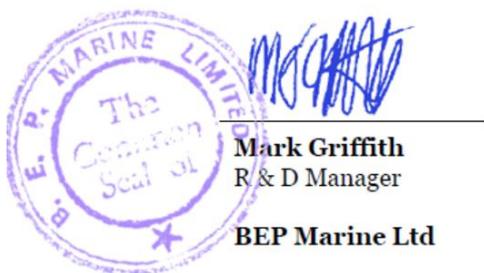
Mark Griffith
R & D Manager

BEP Marine Ltd