

BEP

LEADING ELECTRICAL DESIGN

MASTERVOLT



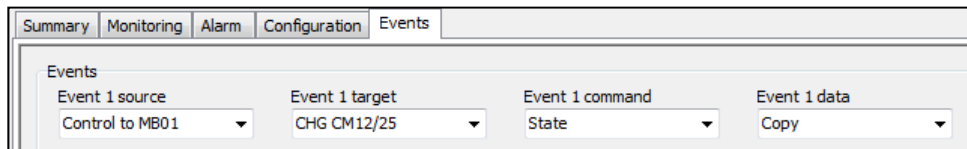
ChargeMaster CZone™ Configuration Instructions

Configuration within MasterAdjust:

First, ensure both the ChargeMaster and the Masterbus Interface are both powered and connected, along with a Masterbus USB interface, to the Masterbus network. If all of this has been done the ChargeMaster and the MBI will be listed, with any other MasterBus Compatible devices also connected to the network, in the left column on the MasterAdjust Screen.

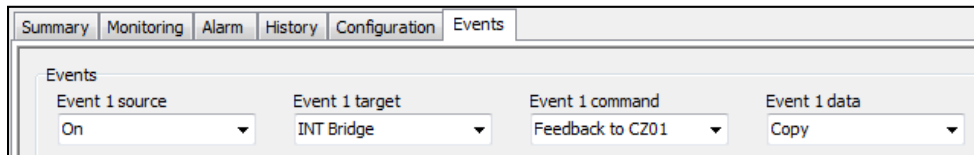
Charger On/Off Control:

1. Select the MBI (default name: "INT Bridge") from the list of Masterbus devices, navigate to the 'Events' tab and create a new event using the following settings to allow a control signal from CZone to Masterbus to control the ChargeMaster On/Off state.



| Event 1 source | Event 1 target | Event 1 command | Event 1 data |
|-----------------|----------------|-----------------|--------------|
| Control to MB01 | CHG CM12/25 | State | Copy |

2. Select the ChargeMaster (e.g. CHG CM12/25) from the list of Masterbus devices and create a new event using the below settings to allow the ChargeMaster On/Off status to be fed back to CZone™ as a feedback/'systems in operation' signal.



| Event 1 source | Event 1 target | Event 1 command | Event 1 data |
|----------------|----------------|------------------|--------------|
| On | INT Bridge | Feedback to CZ01 | Copy |

Note: For every control event programmed from CZone to Masterbus, a corresponding feedback event needs to also be programmed..

AC/DC Monitoring:

To allow AC/DC data, as well as the charger state (e.g. Bulk, Float, etc.) to be shown in CZone™, the individual Masterbus data items (voltage, current, state of charge, etc.) need to be selected in order to populate standard NMEA2000 AC/DC/Charger Status PGN messages which are to be transmitted and monitored within the NMEA2000/CZone network. Each of these sets of AC/DC/Charger Status data items are configured within the MBI Configuration tab using data item index values retrieved from the Monitoring tabs of devices presenting the information.

Charger Status:

Select the MB Bridge (INT Bridge) from the list of Masterbus devices and go to the Configuration tab.

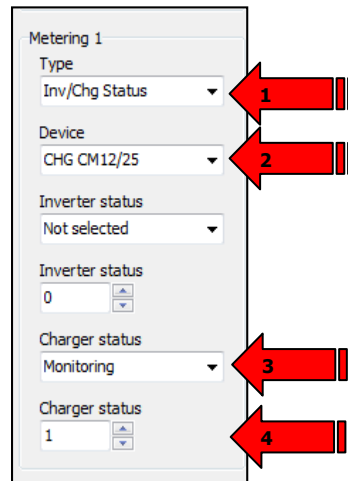
1. In the first available Metering field (in this example Metering 1) click on the 'Type' dropdown and select Inv/Charger Status. (The same data type is used for both Charger and Inverter Status items)

2. Click the 'Device' dropdown and select the ChargeMaster (e.g. CHG CM12/25). This indicates that the data item being configured will come from the ChargeMaster.

Leave the 'Inverter status' items as 'Not selected'.

3. Click the 'Charger status' dropdown and select 'Monitoring'. This indicates that the data item being configured will come from the Monitoring tab of the ChargeMaster.

4. To figure out the correct 'Charger status' index to enter, click on the 'ChargeMaster' in the device list on the left of the screen. Navigate to the 'Monitoring' tab. Hover the mouse pointer over the Charger State parameter. The Index Number will appear beside the mouse pointer – note this number down. Return to the 'Configuration' tab of the MBI and enter the index number just noted down into the 'Charger status number box.



DC Metering:

Select the MBI (INT Bridge) from the list of Masterbus devices on the left of the screen and go to the Configuration tab.

1. In the next available Metering field (in this example 'Metering 2') click the 'Type' dropdown and select 'DC'.
2. Click the 'Device' dropdown and select the ChargeMaster (e.g. CHG CM12/25).
3. Click 'Voltage' dropdown and select 'Monitoring' to indicate that the voltage data will be retrieved from the Monitoring tab of the ChargeMaster.
4. To figure out the correct 'Voltage' index value to enter, click on the 'ChargeMaster' in the device list on the left of the screen. Navigate to the 'Monitoring' tab and hover the mouse pointer over the 'House Bank' parameter. The Index Number will appear beside the mouse pointer – note this number down. Return to the 'Configuration' tab of the MBI and enter the index number just noted into the 'Voltage' number box of the Metering item being configured.
5. Click 'Current' dropdown and select 'Monitoring' to indicate that the current data will be retrieved from the Monitoring tab of the ChargeMaster.
6. To figure out the correct 'Current' index value to enter into the number box, click on the 'ChargeMaster' in the device list on the left of the screen. Navigate to the 'Monitoring' tab and hover the mouse pointer over the 'Charge Current' parameter. The Index Number will appear beside the mouse pointer – note this number down. Return to the 'Configuration' tab of the MBI and enter the index number just noted into the 'Current' number box of the Metering item being configured.

Leave the remaining items as 'Not Selected'

Metering 2

Type
DC

Device
CHG CM12/25

Voltage
Monitoring

Voltage
2

Current
Monitoring

Current
12

State of charge
Not selected

State of charge
0

Ripple volts
Not selected

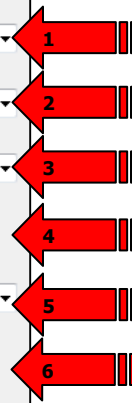
Ripple volts
0

Battery temp
Monitoring

Battery temp
29

State of health
Not selected

State of health
0



The image shows a configuration form for 'Metering 2'. It contains several fields, each with a dropdown menu or a numeric input field. Six red arrows, numbered 1 through 6, point to the right from the right side of the form, highlighting specific fields: 1 points to 'Type', 2 to 'Device', 3 to 'Voltage' (Monitoring), 4 to 'Voltage' (2), 5 to 'Current' (Monitoring), and 6 to 'Current' (12).

Configuration within CZone™:

Open the CZone™ Configuration Tool.

Controlling the Charger:

The control mechanism between CZone and Masterbus functions by configuring virtual loads (MasterBus Event Sources) within CZone which subsequently function as virtual switches (Control to MB) within Masterbus. To control one of these virtual switches, a load must first be configured within CZone and programmed to turn on/off within a CZone circuit. The corresponding switch within MasterBus will then follow the state (on=closed, off=open) of this virtual load (Masterbus Event Source).

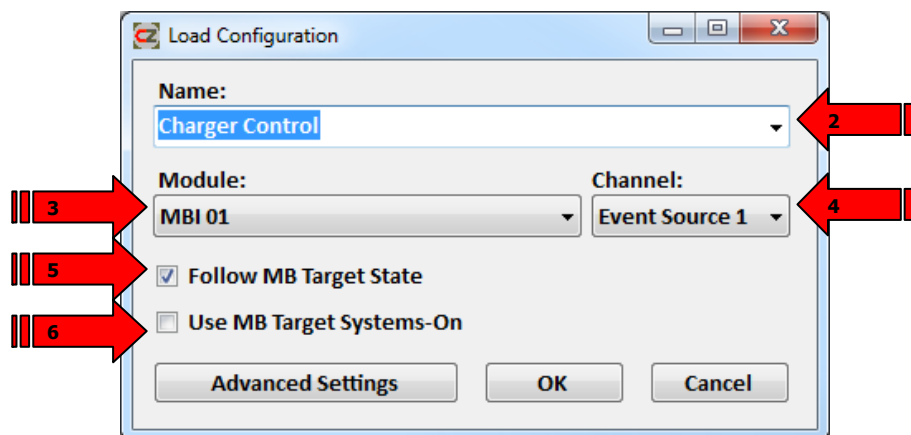
The virtual load (MasterBus Event Source) can be configured within CZone™ as follows.

Ensure that the MBI has been added to the configuration within the 'Modules' tab.

Charger Load Configuration:

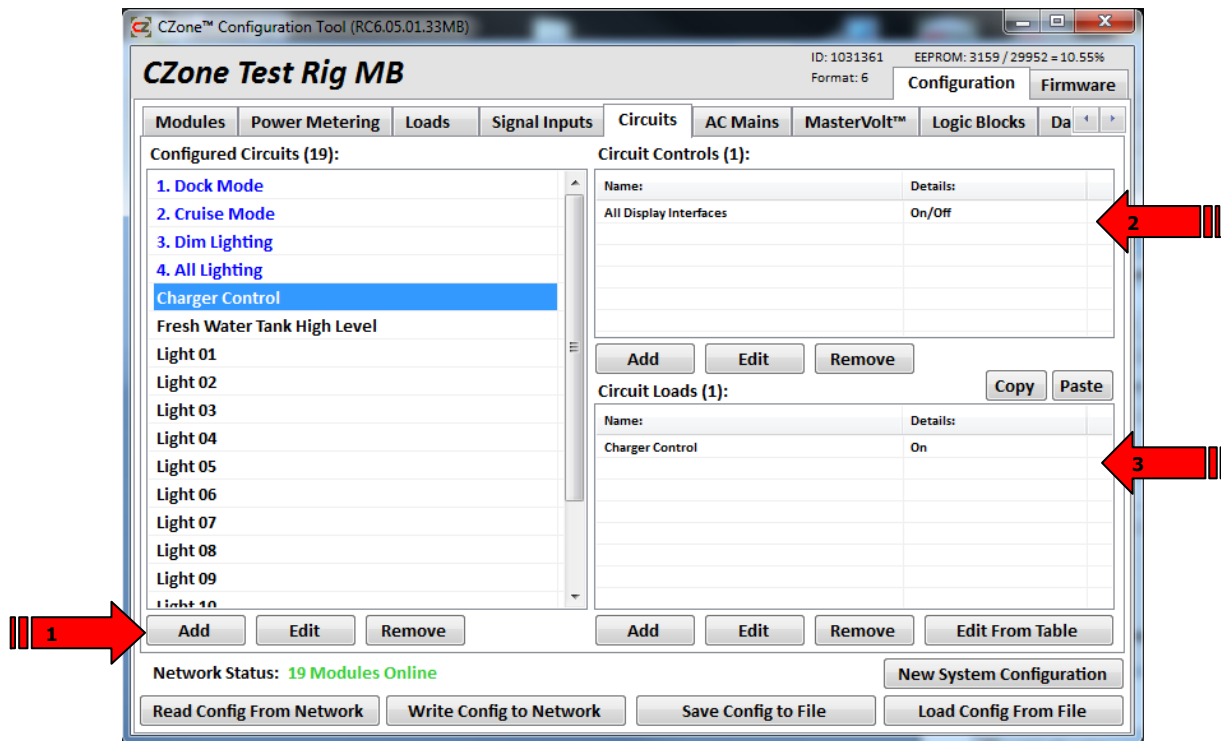
1. Go to the 'Loads' tab and then click 'Add'.
2. Enter a name for the virtual load/Masterbus Event Source (e.g. "Charger Control").
3. Click the 'Module' dropdown and select the 'MBI' previously added in the Modules tab for this example we are using 'MBI 01'.
4. Click the 'Channel' dropdown and select the Event Source number configured above in MasterAdjust to control the charger On/Off state (for this example we are using 'Event Source 1').
5. Tick the box 'Follow MB Target State' checkbox. This ensures that the virtual load (Event Source) on/off state follows the on/off state of the ChargeMaster. This is important when the ChargeMaster is also controlled from outside of CZone – if the virtual load remains off when the ChargeMaster is turned on externally, turning the virtual load off in order to turn the charger off will have no effect. The virtual load (Event Source) state must therefore follow the target device state in order for on/off commands from the user to always function correctly.
6. Tick the 'Use MB Target Systems-On' checkbox. This ensures that the systems in operation indicators for any circuits in which this virtual load are used will follow the on/off state of the target MasterBus device (which needs configured in MasterAdjust to be fed back to the MBI, as above). If this checkbox is not ticked, the systems in operation for the virtual load will follow the state of the virtual load, which may not correctly indicate the state of the target device (this would be like indicating the state of a switch rather than indicating the state of what the switch controls).

The advantage to having this box not ticked is that the systems in operation feeds back instantly, which can be preferable when there is a significant delay in the feedback event from the target device within Masterbus. For the ChargeMaster there a delay of 2-3 seconds in the systems in operation feedback from the charger, so it may in fact be preferable to leave the 'Use MB Target Systems-On' checkbox not ticked.

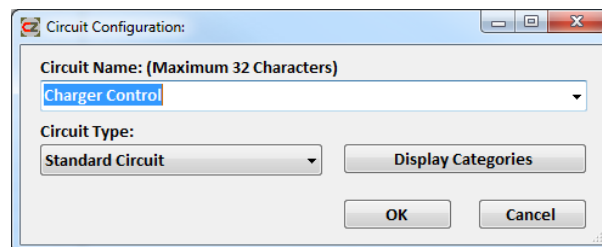


CZone Circuit Configuration:

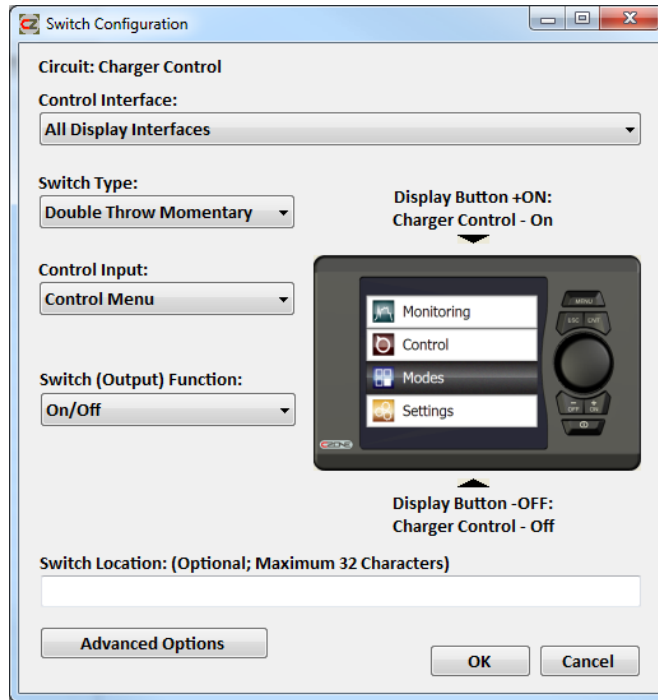
Here is where we set up the circuit to control the virtual load we just created for the Charger Control.



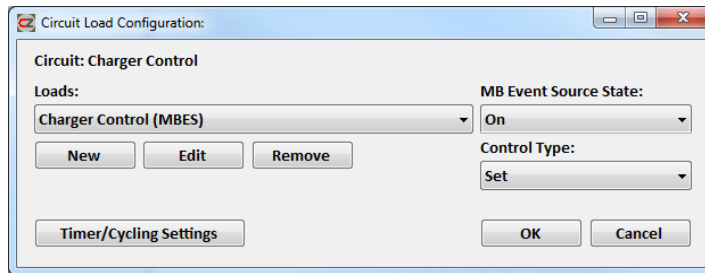
1. Go to the 'Circuits' tab and then select 'Add'. Create a standard circuit, in this example called 'Charger Control'.



2. Under Circuit Controls set up an All Display Interfaces switch as a Double Throw Momentary On/Off.
Note: If control is only required within the CZone 'Inverter/Charger Control' page and not within the standard 'Circuits' menu, there is no need to add this 'All Display Interfaces' circuit controller.



3. Under Circuit Loads select the Masterbus Event Source virtual load we created above in the Loads section.



DC Monitoring:

Here is where we specify the parameters to enable the ChargeMaster AC/DC data sets configured above in the MasterAdjust section to be transmitted as a NMEA2000 data and subsequently displayed within the CZone™ Monitoring menus.

1. Go to the 'Power Metering' tab and then click 'Add DC Meter'.
2. Enter a name for the meter to be shown on the CZone monitoring menu.
3. Click the 'Metering Interface Input' dropdown and select metering item number used for the DC data configured in the Masteradjust section above (i.e. Metering 2).
4. Click the 'NMEA2000 DC Instance' and select a unique NMEA 2000 DC Instance.
5. Select the Nominal Voltage of the ChargeMaster DC.
6. Tick both the 'Show Volts' and the 'Show Current' checkboxes, but leave the 'Show State of Charge' un-ticked as we are not monitoring this value in this example.

The screenshot shows the 'DC Meter Configuration' dialog box. It contains the following fields and options:

- Meter Name: (Maximum 32 Characters):** A text field containing 'ChargerMaster DC'. A red arrow labeled '2' points to this field.
- Meter Interface Input:** A dropdown menu showing 'MBI 01 - Metering 2'. A red arrow labeled '3' points to this dropdown.
- NMEA2000 DC Instance:** A dropdown menu showing '1'. A red arrow labeled '4' points to this dropdown.
- DC Type:** A dropdown menu showing 'Battery' and a 'Battery Configuration' button.
- Nominal Voltage:** A dropdown menu showing '12'. A red arrow labeled '5' points to this dropdown.
- Display Options:** Three checkboxes: 'Show Volts' (checked), 'Show Current' (checked), and 'Show State of Charge' (unchecked). A red arrow labeled '6' points to the 'Show Volts' and 'Show Current' checkboxes.

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Mastervolt™ Inverter/Charger Device Configuration:

Here is where we set up the parameters to enable all of the data configured for the ChargeMaster to be displayed on a single diagram within the CZone™ Inverters/Chargers Control menu.

1. Go to the 'Mastervolt' tab and then under the Configured Mastervolt Inverter/Chargers section click 'Add'.
2. Enter a name for the device (e.g. 'ChargeMaster').
3. Click the 'Inverter/Charge Status Metering Item' dropdown and select metering item number used for the Inverter/Charger status configured in the Masteradjust section above (i.e. Metering 1).
4. Click the 'Device Type' dropdown and select 'ChargeMaster'.
5. Leave the 'Inverter Instance' item as 'None / Charger Only'.
6. Click the 'Charge Instance' dropdown and select a unique NMEA 2000 Charger Instance (these instance numbers must be different for each charger added to the system).
7. Click the 'AC Meter Instance' dropdown and select the preconfigured AC metering item to be associated with this device on the CZone™ Inverters/Chargers Control page. In this example we have no available AC data, so leave this item set to 'None'.
8. Click the 'Battery/DC Instance 1' dropdown and select the preconfigured DC metering item to be associated with this device on the CZone™ Inverters/Chargers Control page. In this example we will use the 'ChargeMaster DC' DC Metering item we configured earlier. For charger with multiple DC outputs up to three DC Metering items can be associated – in this example we will only use one.
9. Click the 'Charger Control Circuit' dropdown and select the 'Charger Control' circuit configured above.

The screenshot shows the 'MasterVolt™ Inverter/Charger Setup' dialog box. It contains several dropdown menus for configuration. Red arrows with numbers 2 through 9 point to the following fields:

- 2: Device Name: (Maximum 32 Characters) - ChargeMaster
- 3: Inverter/Charger Status Metering Item: - MBI 01 - Metering 1
- 4: Device Type: - ChargeMaster
- 5: Inverter Instance: - None / Charger Only
- 6: Charger Instance: - 0
- 7: Charger Input AC Instance: - None
- 8: Battery/DC Instance 1: - ChargeMaster DC
- 9: Charger Control Circuit: - Charger Control

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

At this stage we are ready to save and write the CZone configuration to the network and see it all in action.

Below is an example of what will be shown in the 'CZone Inverters/Chargers Control' page for the example configured above:

