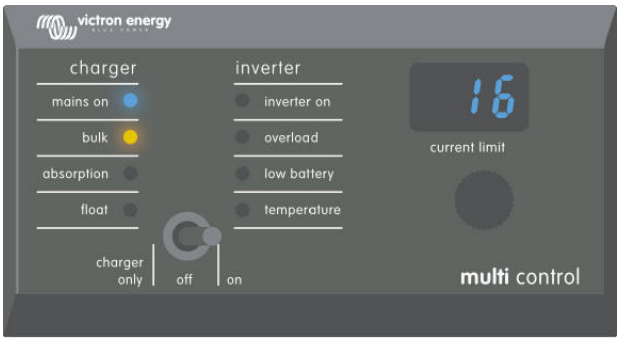
ENGLISH



Digital Multi Control

Digital Multi Control 200/200A GX

rev 00 - 10/2023

This manual is also available in HTML5.

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1. Safety instructions

General

- Review the included documentation for instructions before using this product.
- This product has been tested in accordance with international standards. Only use this product for the intended purpose or application.
- Never use the product in locations with a gas or dust explosion danger.

Installation

- Always refer to the installation section in this manual before applying power to the equipment.
- Ensure that the environmental conditions are suitable for the operation of this product. Never operate the product in the rain or a dusty environment.

Transport and storage

- When storing or transporting this product, ensure all leads are disconnected.
- There is no liability for transport damage in non-original packaging.
- Store the product in a dry location.
- Storage temperature must be between -20°C and 60°C.

2. Introduction

The Digital Multi Control 200/200A GX enables remote monitoring and control of inverter/charger systems in stand-alone, parallel, and 2- or 3-phase configurations. It seamlessly integrates with the helm, dashboard or control panel of your vessel, vehicle, or home system.

Note: "System" refers to interconnected inverter/chargers through RJ45 UTP cables.

2.1. Compatibility

The control panel is compatible with these inverter/charger models:

- MultiCompact.
- MultiPlus, MultiPlus-II and MultiPlus-II GX.
- Quattro and Quattro-II.
- EasySolar and EasySolar-II GX.
- Legacy (pre-VE.Bus) Multi, MultiCompact, MultiPlus and Quattro (2008 and earlier).

2.2. Quick start guide

Installing the Digital Multi Control panel is straightforward. Simply connect the control panel to the inverter/charger system using an RJ45 UTP Cable. In most cases, no further setup is needed.

For expedited installation instructions, find your system type in the list below and click the appropriate link:

System types:

- MultiPlus system with 1 AC source [4].
- Quattro system with 2 AC sources [4].
- MultiPlus system with 2 AC sources and transfer switch [4].
- MultiPlus system with 2 AC sources [4].
- Legacy pre-VE.Bus systems [12].

For comprehensive details about the control panel, including features, configuration, and operational information, consult the complete manual.

2.3. What's in the box

- Digital Multi Control 200/200A GX.
- Four mounting screws.

3. Features

3.1. System connectivity

The control panel integrates with the inverter/charger system, consisting of a single or multiple Inverter/chargers configured as a in stand-alone, parallel, and 2- or 3-phase system.

3.2. Power mode switch

The switch can be used to turn the inverter/charger system on, off or to charger-only mode.

3.3. LEDs

Eight LEDs replicate the inverter/charger LEDs.

Note that if the panel is connected to an inverter/charger model with only three LEDs, the full eight LED indications will be shown.

The LEDs auto-adjust to a lower brightness in low-light conditions.

3.4. Display

The 7-segment display primarily shows the AC input current and, if applicable, displays the AC input source or VE.Bus error codes.

3.5. AC input control

The control panel's knob adjusts the AC input current limit. This is useful for mobile setups that connect to various AC sources with different circuit breaker current ratings.

The adjustment range is synchronised with the inverter/charger system range. For instance, when connected to an inverter/charger with 16A feed-through capacity, the AC input range remains within 16A. If linked to five of these units in parallel, it is scaled up to 80A.

If an AC input range below the feed-through capacity of the inverter/charger is required, a custom upper threshold can be configured. Refer to the Upper AC input limit 1 to 4 [8] chapter.

If needed, a fixed AC current can be specified in the inverter/charger settings, which then cannot be modified by the remote panel. Refer to the Current limit overruled by remote [8] chapter.

3.6. Multiple AC inputs

The control panel automatically adapts to systems that have multiple AC inputs, as is the case with a Quattro or an extended VE.Bus systems.

When switching between the different AC inputs, the display alternates between showing the AC current limit value and the input name (AC2, AC3, etc.). For AC1, only the current limit will be shown.

The display remembers the last used AC current limit value for each input.

3.7. Generator support with external transfer switch

For a system with a MultiPlus together with an external transfer switch, the control panel can be configured to allow the AC current to be changed while the system is connected to the grid but has a fixed AC current limit when connected to a generator.

The panel sends the current limit to the inverter/charger system as set via the knob. If the screw terminals on the panel's back are short-circuited, a preset current limit is sent instead, and "GEN" is displayed.

To enable this, connect the screw connector terminals to an externally controlled switch, typically the auxiliary relay of an external transfer switch. For setup, refer to the Generator current limit [8] chapter.

This feature is not relevant to a standard Quattro setup, which does not need an external transfer switch, and a fixed generator AC input limit can be configured in the Quattro.

4. System types

This chapter describes the different inverter/charger system types that the control panel can connect to.

4.1. MultiPlus system with 1 AC source

Setup is easy, simply connect the control panel to the VE.Bus system (refer to the Inverter/charger connection [5] chapter), and it will automatically adapt to the system. No adjustments are required unless you want to restrict the operator's maximum AC current setting. For this refer to the Upper AC input limit 1 to 4 [8] chapter.

4.2. Quattro system with 2 AC sources

If your system contains one or more Quattros, setup is easy. Simply connect the control panel to the VE.Bus system (refer to the Inverter/charger connection [5] chapter), and it will automatically adapt to the system.

You probably will not need to adjust any settings in the control panel. In a Quattro setup, the AC1 input takes precedence over the AC2 input. By default, the AC2 input current limit can be overridden by the remote panel, while the AC1 input current limit remains fixed (this can be altered in the Quattro settings).

A common setup involves connecting a generator to the AC1 input and grid power to the AC2 input. While the generator runs, the control panel shows "AC1," and the know can not alter the AC1 input current limit. Once the generator stops and shore power is active, the panel toggles between "AC2" and the AC current value. Turning the knob will alter the AC2 input current limit.

To cap the maximum settable current, adjust the "Upper shore limit for AC input 2" parameter. For details, see the Upper AC input limit 1 to 4 [8] chapter, and refer to the Special display feature [8] chapter to stop the display from toggling between "AC2" and the AC input current value.

4.3. MultiPlus system with 2 AC sources and transfer switch

When using an external transfer switch (VE Transfer Switch) with a MultiPlus inverter/charger system, the switch dictates which AC source is utilised - either generator or grid power. However, the control panel itself is not aware of the chosen AC source.

To ascertain the transfer status, the control panel features a screw connector on its backside. Normally, the panel sends the AC current set point from the knob to the inverter/charger system. But, by short-circuiting the screw terminals, the panel displays "GEN" and sends a preset AC current limit to the inverter/charger system.

For connection advice refer to the External transfer switch connection [5] chapter and for configuration instructions, refer to the Generator current limit [8] chapter.

4.4. MultiPlus system with 2 AC sources

To create a system with multiple AC inputs, you can use multiple MultiPlus units and configure them as such, using the "VE.Bus System Configurator" software tool. While such a system is feasible, it is advisable to first explore using Quattros. From the control panel's perspective, building a system with Quattros or MultiPlus units does not make a difference. For further guidance, refer to the Quattro system with 2 AC sources [4] subchapter.

5. Installation

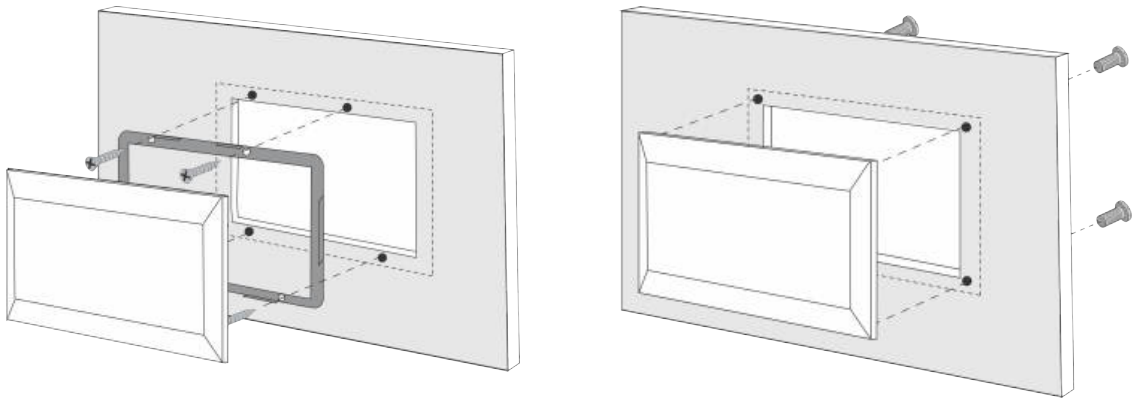
To install the control panel, you will need the following:

- Use an RJ45 UTP cable to connect the control panel to the inverter/charger. The cable is available in a variety of lengths (30cm to 30m) and is not included with the control panel.
- If you are utilising the generator support [3] functionality, two wires are required to connect the control panel to the transfer switch. Use wires with a thickness between 0.25 and 1.0mm². These wires are not included with the control panel.
- If the panel cannot be recess mounted, a Wall mount enclosure for 65 x 120mm GX panels wall mounting box might be needed.

5.1. Mounting

There are three ways to mount the panel:

1. Front recess - attach the metal plate to the front of the surface using four screws (incuded). Then, place the panel on the metal plate. See the below image.
2. Rear recess - Secure the panel from behind with four M5 screws or bolts (not included). The metal plate is not used. See the below image.
3. Wall mount - Use the Wall mount enclosure for 65 x 120mm GX panels. Follow its installation guide.



Left: Securing from the front. Right: securing from the rear.

For control panel dimensions and mounting hole locations, refer to the Dimensions [14] chapter.

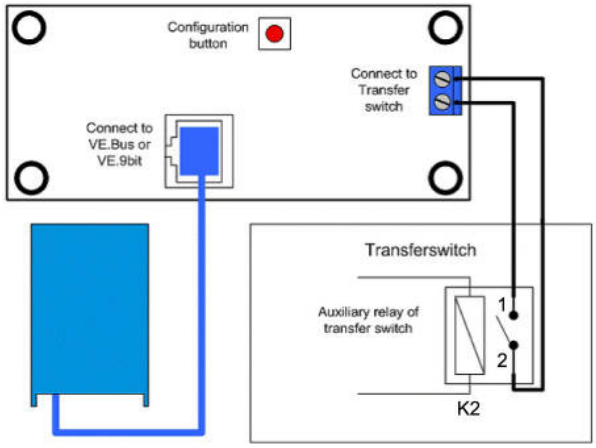
5.2. Inverter/charger connection

Use a regular straight UTP cable with RJ45 connectors to connect the control panel to the inverter/charger or the inverter/charger system. If there are multiple units, connect the control panel to any unit with an available unused RJ45 port.

Note: In the case of a pre-VE.Bus multiple unit system, connect the control panel to the master unit.

5.3. External transfer switch connection

If an external transfer switch is used, connect its auxiliary relay to the screw connector terminals on the control panel's backside. When the auxiliary relay is open, the AC current limit can be adjusted by the control panel knob. If the auxiliary relay is closed, the control panel sends a preset generator AC current limit to the inverter/charger system. The auxiliary relay is controlled by the external transfer switch.



Transfer switch connection.

6. Configuration

6.1. Setup menu

Configuration procedure:

- To enter the configuration mode, press the button on the back of the control panel for about 4 seconds until the bottom LED in the right column starts blinking, indicating that the first parameter can be changed.
- To change the value of a parameter, turn the knob until the displayed value is as required.
- Press the configuration button to advance to the next parameter.
- Pressing the configuration button, after the last parameter is selected, will exit configuration mode and activate all parameters. So even if only one parameter needs adjustment, you will have to go through all parameters.
- When the configuration button is pressed, or during configuration, the inverter/charger(s) will switch to "Inverter only" mode.

The lower three LEDs in the left column on the control panel indicate which parameter is being adjusted according to the table below:

Menu item	LEDs	Parameter	Default	Range
1		Scaling factor	0	0 - 9
2		Generator current (A)	16	0 - 198
3		Upper AC current limit for AC1 input (A)	254	0 - 254
4		Upper AC current limit for AC2 input (A)	254	0 - 254
5		Upper AC current limit for AC3 input (A)	254	0 - 254
6		Upper AC current limit for AC4 input (A)	254	0 - 254

● = LED is off, ◐ = LED is blinking, ● = LED is on

6.2. Scaling factor

This parameter only applies to pre-VE.Bus systems. Leave it at its default value of 1 for VE.Bus systems.

For legacy pre-VE.Bus systems, refer to the Pre-VE.Bus scaling factor [12] chapter.

6.3. Generator current limit

This parameter only applies when an external transfer switch is used and has no impact otherwise.

The generator AC current limit can be adjusted within the range of 0 to 198A, with increments of 2A.

When configuring the generator AC current limit, be aware that not all generators can operate at full load. Particularly, smaller 3000 rpm generators from certain brands can overheat during extended full-load operation, and the maximum current should be less than the rated maximum, while the AC current limit for 1500 rpm generators can be set higher.

- For 3000 rpm generators, set to 70% of their rated maximum.
- For 1500 rpm generators, set to 90% of their rated maximum.

6.4. Upper AC input limit 1 to 4

To prevent overly high AC input current limits, the control panel provides an upper AC input limit adjustment. For instance, when dealing with large or multiple inverter/chargers working in parallel, the maximum feed-through current might exceed the AC supply or circuit breaker capacity. Modifying the upper AC input current limit ensures the shore current limit remains within a specific range.

An extended VE.Bus system can have up to four AC inputs. Yet, a basic VE.Bus MultiPlus system has one AC input. As such, only the upper limit for AC input 1 needs to be configured. The other AC input limits can be safely ignored.

6.4.1. Special display feature

Consider this scenario:

You have an inverter/charger system with two AC inputs, namely generator and shore power. You want to prioritise the generator over shore power. You connect the generator to AC input 1 and shore power to AC input 2. You do not want the user to alter the generator AC input limit, so in the inverter/charger settings, you disable the "overruled by remote" setting for AC input 1, and enable it for AC input 2.

The control panel will behave as follows:

- When the generator is active, the control panel displays "AC1".
- When the generator stopped and shore power is active, the panel alternates between displaying "AC2" and the current limit for AC2. Yet, this alternating display might not match your preferences.

To resolve this:

A simpler approach is to show just the current limit value when AC input 2 is active. This is enough to indicate the switch to shore power. To achieve this, set all but one of the upper AC input limit parameters to zero. In this example, the limits for AC1, AC3 and AC4 should be set to zero. This adjustment eliminates the unwanted alternating behavior.

6.5. Current limit overruled by remote

This setting exists in the inverter/charger. When enabled, the control panel can modify the AC input current limit, and when disabled, it can not.

In the case of a Quattro, both inputs have an "overruled by remote" setting and are independently configurable.

For details on configuring "overruled by remote," consult the inverter/charger manual.

6.6. Configuration example

Two examples are given to help you understand the setting of the parameters.

Two VE.Bus Multis 16A/230V + 4kVA gen. (3000 rpm) + external transfer switch.

Because this is a VE.Bus system, the scaling factor does not need to be set.

A 4kVA generator can supply a maximum current of 17.4A. Using a 70% safety margin, we will set the generator current to 12A.

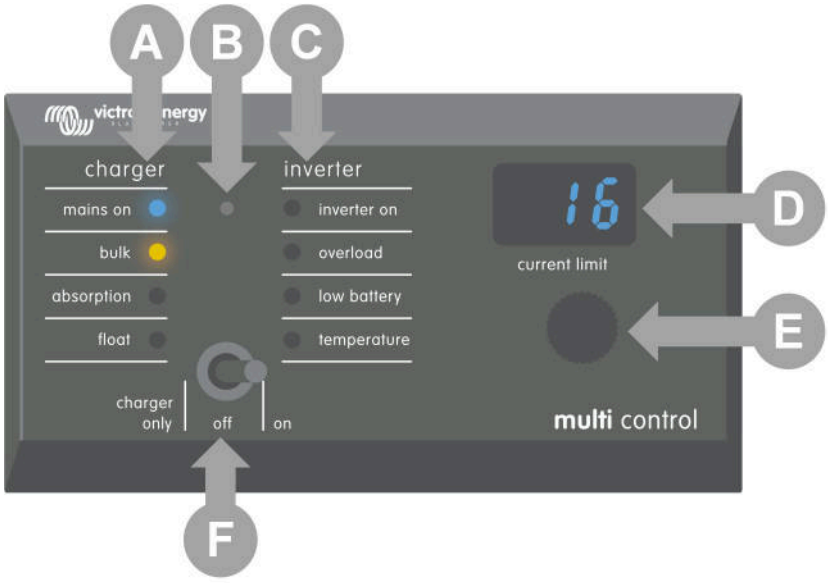
To set the configuration, do the following:

1. Press and hold the configuration button until the bottom LED in the left column starts flashing. This means you entered the configuration mode, and you can change the scaling factor. As said, this parameter can be ignored in the case of VE.Bus Multis.
2. Press the button to go to the next setting. The lower left LED will turn on, indicating that the generator current can be set.
3. Turn the knob until the display indicates 12.
4. Press the button to advance to the “Upper Shore limit for AC input 1” setting.
5. If you want the maximum shore current the operator can set to be lower than 32A, you can change this value.
6. Since the next 3 parameters (Upper Shore limit for AC input 2, 3 and 4) do not need to be configured, you can press the button 4 times to step through the settings and finalise the configuration.

7. Operation

The control panel controls and monitors the inverter/charger system.

The control panel is active as soon as the inverter/charger system is switched on.



ID	Description
A	Charger LEDs: mains on, bulk, absorption and float.
B	Light sensor, used to automatically dim the LED brightness.
C	Inverter LEDs: inverter on, overload, low battery and temperature.
D	Display, showing the AC input current limit, AC source or VE.Bus errors.
E	AC current limiter knob, use to adjust the AC input current limit.
F	On / off / charger-only switch, use to turn the inverter/charger on, off or to charger-only mode.

7.1. Turning the system on and off

Use the switch on the control panel to switch the system on, off or to charger-only operation.

7.2. Adjusting AC input current limit

Adjust the AC current limit using the control knob. The display shows the set limit, and in case of multiple AC inputs, the display also shows the active AC input source (AC2, AC3, AC4).

When PowerAssist is enabled in the inverter/charger system, a minimum AC input current limit value applies. See the table below. If set below this value, the inverter/charger stops charging, opens its internal transfer relay, disconnects from the AC supply and starts inverting.

Current limits adjust in 0.5A steps under 10A, and 1A steps over 10A. For instance, an 11.1A limit rounds to 12A.

The control panel prevents setting a limit below the inverter/charger system's minimum AC current. If the AC input current limit needs to be set to 0A (below the inverter/charger's limit), quickly turn the knob anticlockwise. The control panel display shows 0.0, and the inverter/charger(s) will stop charging and start inverting. Turn clockwise to revert back to the minimum AC current limit.

AC voltage (V) rating	Power (VA) rating	Minimum configurable AC current limit (A)
120	2000	5.5 - 8.4 *
	3000	7.5 - 9.5 *
	5000	13.0 - 13.4 *
	10000	18.5

AC voltage (V) rating	Power (VA) rating	Minimum configurable AC current limit (A)
230	500 - 1200	2.4
	1600	2.4 - 2.8 *
	2000	2.4 - 4.5 *
	3000	3.0 - 4.5 *
	5000	3.9 - 6.4 *
	8000	7.6 - 10.5 *
	10000	8.6 - 10.5 *
	15000	10.1 - 14.5 *

*) The exact value depends on the inverter/charger model. Refer to the "Minimum input current limits" spreadsheet, located in the "VE.Bus (Multies, Inverters and Quattros)" folder in the firmware section on the Victron Professional website.

7.3. LED brightness

For your comfort, the light sensor auto-adjusts LED brightness. As ambient light drops the LEDs dim to a more comfortable level and save power.

8. Backward compatibility with legacy pre-VE.Bus units

The control panel is backwards compatible with legacy (pre-VE.Bus) inverter/chargers running firmware versions 15xxyyy, 17xxyyy, and 18xxyyy. The transition from pre-VE.Bus to VE.Bus occurred from late 2007 to mid-2008.

For pre-VE.Bus systems, the control panel operation and setup align with the manual, except that the control panel does not automatically adapt to the system. The default setting is for a standalone inverter/charger with a 16A transfer switch, but if a different AC transfer current applies, the Scaling factor [8] needs to be adjusted.

8.1. System examples pre-VE.Bus

Pre-VE.Bus system with 1 AC source:

The control panel must be scaled (matched to the system) when it is used with pre-VE.Bus systems. This can be done by changing the “scaling factor” parameter. For instructions, refer to the Scaling factor [8] chapter.

Once the scaling is accurately configured, proceed to set up any other relevant parameters. For instructions, refer to the Configuration [7] chapter.

Pre-VE.Bus system with 2 AC sources:

For a pre-VE.Bus system with 2 AC sources, an external transfer switch (VE Transfer Switch) is essential.

The control panel must be scaled (matched to the system) when it is used with pre-VE.Bus systems. This can be done by changing the “scaling factor” parameter. For instructions refer to the Scaling factor [8] chapter.

Once the scaling factor is configured, follow the installation process similar to using a VE.Bus system with an external transfer switch. Refer to the MultiPlus system with 2 AC sources and transfer switch [4] chapter for instructions.

8.2. Configuration

Configuration is the same as described in this manual, with the exception that a scaling factor needs to be set up.

To set up the scaling factor, see the next paragraph, and for configuration of the remaining parameters, see the Configuration [7] chapter

8.2.1. Pre-VE.Bus scaling factor

This parameter only applies to pre-VE.Bus systems. Leave it at its default value of 1 for VE.Bus systems.

The scaling factor aligns the control panel AC current with the system AC current and is exclusive to pre-VE.Bus inverter/chargers.

Begin by calculating the scaling factor as directed in this chapter. Afterwards, move on to configuring the scaling factor. For guidance on configuration, consult the Setup menu [7] chapter.

Scaling factor formula:

Scaling factor = (NrOfDevices * DeviceType) - 1

- DeviceType: 1 = 16A unit, 2 = 30A unit.
- NrOfDevices: all units, including the master unit.

Examples:

- One 16A unit: Scaling factor is: (1 * 1) – 1 = 0
- Two 30A units in parallel: Scaling factor is: (2 * 2) – 1 = 3
- Four 30A units in parallel: Scaling factor is: (4 * 2) – 1 = 7
- Six 30A units in 3-phase (2 paralleled units per phase): Scaling factor is: (2 * 2) – 1 = 3

Important:

1. When configuring a non-zero scaling factor in the control panel, do not specify the number of slaves in the VEConfigure software. Instead, set the slave count to zero.
2. In a split-phase or 3-phase setup, the NrOfDevices reflects the number of devices per phase. So for a 3-phase system consisting of 6 units (2 per phase), the NrOfDevices is 2.

8.2.2. Configuration example pre-VE.Bus

Four pre-VE.Bus Multis 30A/120V + 13kVA gen. (1500 rpm) + external transfer switch.

For this configuration, the scaling factor must be calculated. The NrOfDevices is 4, the DeviceType is 2, so the scaling factor is (4 x 2) – 1 = 7.

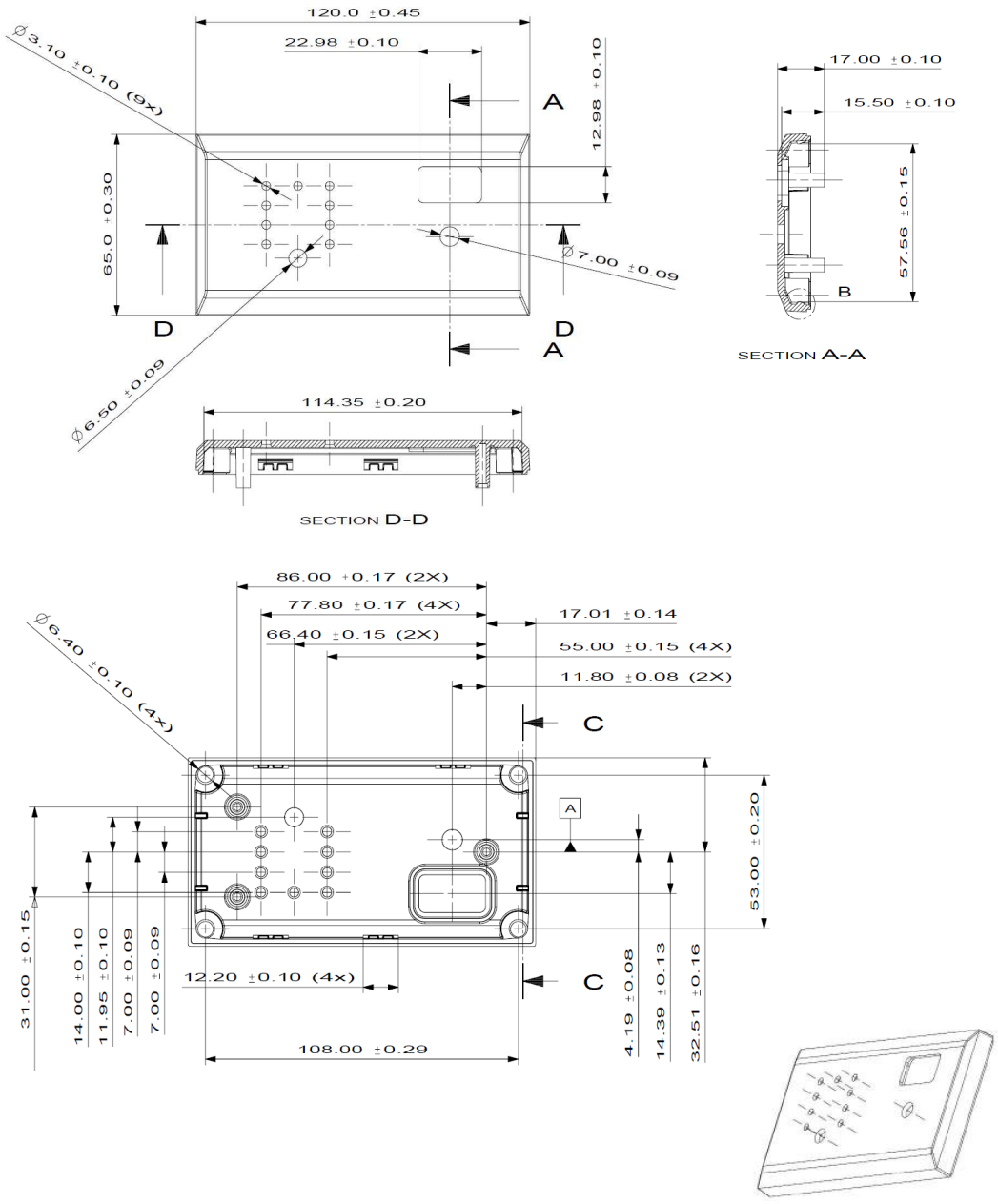
A 13kVA generator 120V can supply a maximum current of 108.3A. Using a 90% safety margin, we will set the generator current to 98A.

To set the configuration, do the following:

1. Press and hold the configuration button until the bottom LED in the left column starts flashing. This means you entered the configuration mode, and you can change the scaling factor.
2. Turn on the knob until the display indicates 7.
3. Press the button to go to the next setting. The lower left LED will turn on, indicating that the generator current can be set.
4. Turn on the knob until the display indicates 98.
5. Press the button to advance to the “Upper Shore limit for AC input 1” setting.
6. You probably want the maximum shore current the operator can set to be lower than 128A, so turn the knob until the display indicates a proper maximum shore current.
7. Since the next 3 parameters (Upper Shore limit for AC input 2, 3 and 4) do not need to be configured, you can press the button 4 times to step through the settings and finalise the configuration.

9. Dimensions

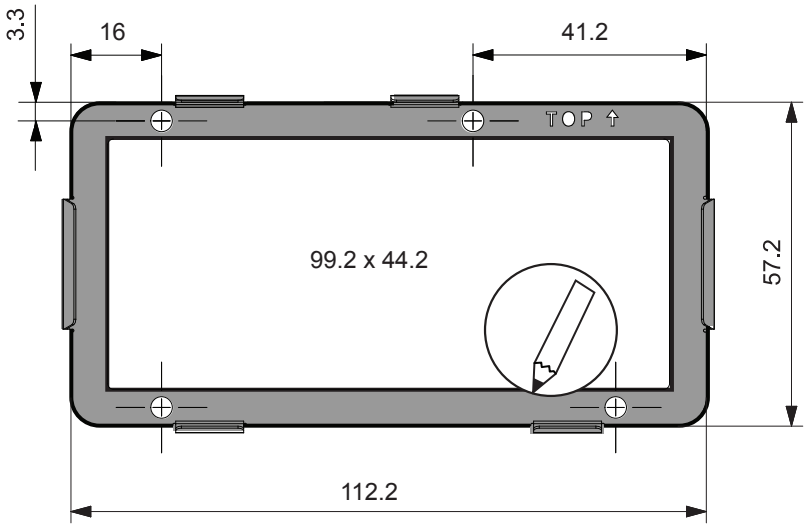
Dimensions in mm



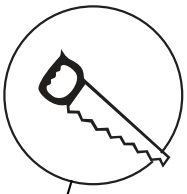
Dimensions of plastic panel **DMC000200000R Digital Multi Control 200/200A GX**

Revision : v1.0
Date : 12-08-2015

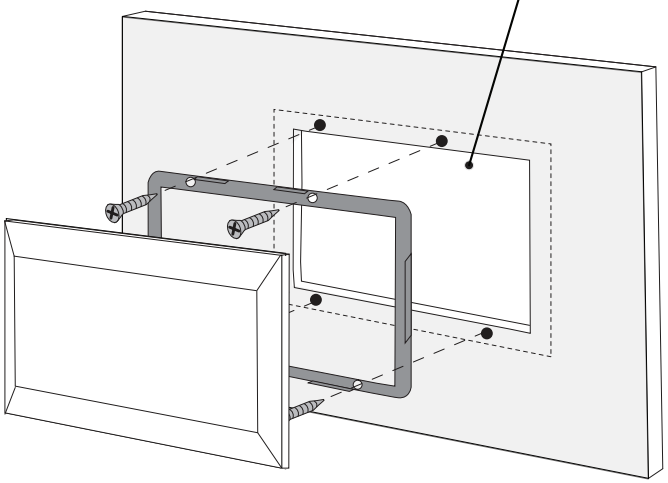
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Use frame as a template for marking

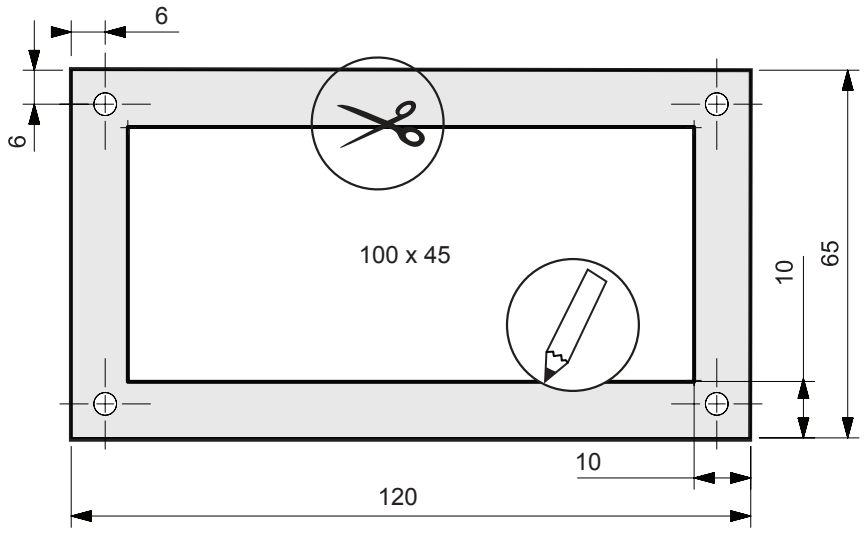


Mounting

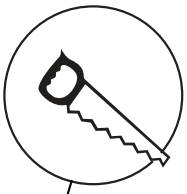


Please check the scale before using this paper as a template for cutting a hole in your panel !!
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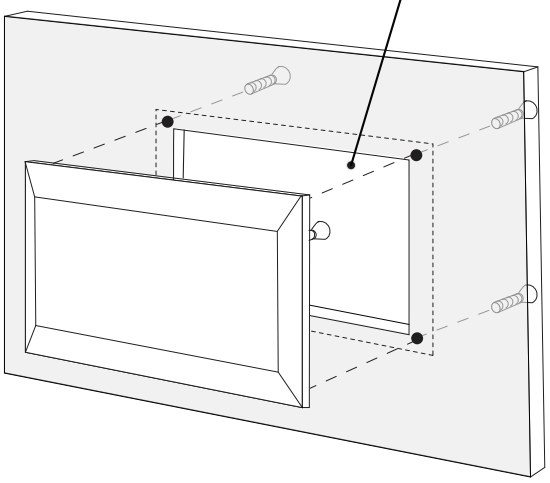
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Template for drilling and cutting



Mounting



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DECLARATION OF CONFORMITY

CE

COMPANY : Victron Energy B.V.

ADDRESS : De Paal 35
1351 JG Almere
The Netherlands

Declares that the following products:

PRODUCT TYPE : Remote Panels and accessories
BRAND : Victron Energy
MODELS :

Digital Multi Control 200/200A	VE.Can resistive tank sender adapter
Digital Multi Control 200/200A GX (90° RJ45) Inverter Control	Current Transformer for MultiPlus-II
Charger Control	
Skylla-i Control GX (90° RJ45)	
Battery Alarm GX	
Octo GX	
CANvu GX	
MPPT Control	

Are in conformity with the below Union harmonization legislation directive and Other Union harmonization legislation where applicable:

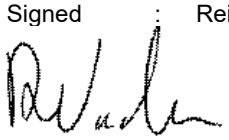
- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- RoHS (2011/65/EU and 2015/863/EU)
- EC REACH Regulation (EC 1907/2006)

References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared below:

EN 61000-6-1:2007
EN 61000-6-2:2005+AC:2005
EN 61000-6-3:2007+A1:2011+AC:2012
EN 55014-1:2017+ A11:2020
EN 55014-2:1997+ A1:2001+ A2:2008
ISO 7637-2:2016
EN 60335-1:2012+AC:2014+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021
EN 60335-2-29:2021+A1:2021
EN 62368-1:2014+A11:2017
EN-IEC 63000:2018

CE MARK DATE: November , 2014

Signed : Reinout Vader



Authority : Managing Director
Date : 15h August 2026