MASTERVOLT

USERS MANUAL

DC Master

24/12 50-60A

DC-DC converter



CE

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1 GENERAL INFORMATION

1.1 USE OF THIS MANUAL

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This manual is valid for the DC Master 24/12 50-60A, serial number 81400350.

1.2 PRODUCT DESCRIPTION AND APPLICATION

This Mastervolt DC Master converts a 24V DC voltage to a 12 V DC voltage.
Typical application is a 24V battery bank that powers 12V equipment.

1.3 USE OF PICTOGRAMS

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

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

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

A procedure, circumstance, etc which deserves extra attention.

1.4 IDENTIFICATION LABEL

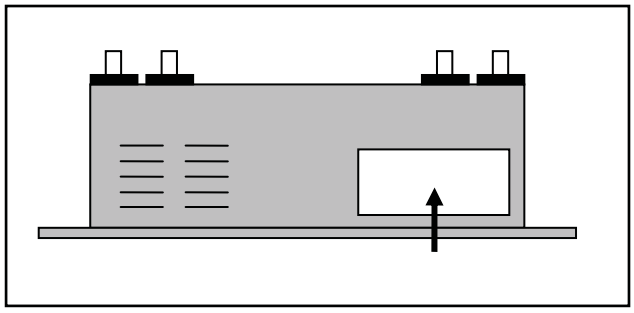


Figure 1: Position of the identification label

The identification label is located at the right-hand side of the DC Master. (see figure 1) Important technical information required for service, maintenance & secondary delivery of parts can be derived from the identification label.

CAUTION!
Never remove the identification label.

1.5 LIABILITY

Mastervolt can accept no liability for:

- consequential damage due to use of the DC Master;
- possible errors in the manuals and the results thereof.

2 IMPORTANT SAFETY INSTRUCTIONS

READ AND SAVE THESE INSTRUCTIONS

WARNING
This chapter describes important safety and operating instructions for use of a DC Master in residential, recreational vehicle (RV) and marine applications.

2.1 GENERAL

1 Before using the DC Master, read all instructions and cautionary markings on the DC Master, the batteries, and all appropriate sections of the manual.
2 To reduce the risk of electric shock – Do not expose DC Master to rain, snow, spray, moisture, excessive pollution and condensing circumstances. To reduce risk of fire hazard, do not cover or obstruct the ventilation openings. Do not install the DC Master in a non-ventilated room, overheating may result.
3 Use of an attachment or spare part not recommended or sold by Mastervolt may result in a risk of fire, electric shock, or injury to persons.
4 Do not operate DC Master if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
5 To reduce risk of electric shock, disconnect the DC Master from both input and output before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
6 Short circuiting or reversing polarity will lead to serious damage to batteries, DC Master, wiring as well as accessories. Fuses can not prevent damage caused by reversed polarity and the warranty will be void.
7 In case of fire, you must use the fire extinguisher which is appropriate for electrical equipment.
8 If applied in a marine application in the United States, external connections to the DC Master shall comply with the United States Coast Guard Electrical Regulations (33CFR183, Sub part I).

2.2 EXPLOSIVE GASES

1 WARNING – RISK OF EXPLOSIVE GASES. WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING THE DC MASTER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.
2 To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of the battery. Review cautionary marking on these products.
3 DANGER: To reduce the risk of explosion – Never use the DC Master in situations where there is danger of gas or dust explosion or area in which ignition-protected equipment is required.

2.3 WARNING REGARDING LIFE SUPPORT APPLICATIONS

The DC Master is not sold for applications in any medical equipment intended for use as a component of any life support system unless a specific written agreement pertaining to such intended use is executed between the manufacturer and Mastervolt. Such agreement will require the equipment manufacturer either to contract additional reliability testing of the DC Master and/or to commit to undertake such testing as a part of the manufacturing process. In addition the manufacturer must agree to indemnify and not hold Mastervolt responsible for any claims arising from the use of the DC Master in the life support equipment.

2.4 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 users 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.
The guarantee is limited to the costs of repair and/or replacement of the product. Costs for installation labor or shipping of the defective parts are not covered by this guarantee. Refer to your terms of delivery for the guarantee period.

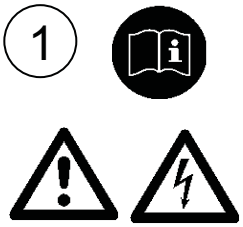
3 INSTALLATION

3.1 CHOOSING A LOCATION TO INSTALL

Install the DC Master in a well-ventilated room protected against rain, vapour, moisture and dust.
Never use the DC Master at a location where there is danger of gas or dust explosions.
Do not mount the DC Master straight above the batteries because of possible corrosive fumes.

Before you start
Make sure that the battery voltage is the same as the input voltage of the DC Master (24V battery for a 24V input voltage).
We recommend using fuses in the positive input cable. These fuse(s) should be placed last of all.
Use three Ø5 mm screws to mount the DC Master to a solid surface (figure 1).
We recommend to use maximum 3 m length DC cables.

1



Use isolated tools!
Read safety instructions

2

Mount the DC Master with three screws vertically to a solid wall.
Do not obstruct the ventilation openings. Allow at least 10 cm / 4 inch space around the apparatus!

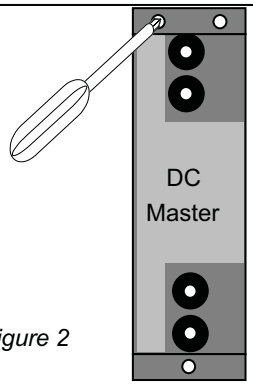


Figure 2

3

If necessary, remove the input cable fuse.

4

Connect the battery to the DC input.
Do not place the DC fuse(s) yet.
Use minimum 10 mm^2 (6 AWG) cables.
Connect red wire to +, black wire to –.

Red wire:
POS (+)



Incorrect polarity will damage the DC Master!

Black wire:
NEG (–)

5

Connect the load to the DC output.
Do not place the DC fuse(s) yet.
Use minimum 25 mm^2 (2 AWG) cables.
Connect red wire to +, black wire to –.

Red wire:
POS (+)



Incorrect polarity will damage the DC Master!

Black wire:
NEG (–)

7

Check all wiring.
If OK:

Place the DC fuse(s). When the fuse is placed, internal capacitors may cause a spark. This is normal.

3.2 COMMISSIONING AFTER INSTALLATION

1. Check the polarity of the connections: Red cable positive, black cable negative. Only place the fuse(s) if the polarity is correct.
2. Place the fuse(s) in the fuse holder.

3.3 MAINTENANCE

No specific maintenance is required. If necessary, use a soft clean cloth to clean the DC Master. Never use any liquids, acids and/ or scourers.
Check the wiring on a regular base. Defects such as loose connections, burnt wiring etcetera must be corrected immediately.

4 OPERATION

The DC Master does not have a main switch; it is enabled by inserting the fuse, refer to chapter 3. To monitor operation, the DC Master features three LED's. The table below shows their meaning.

LED	Meaning
Yellow	Input voltage is present.
Green	DC Master is working correctly
Red	Fault condition. Refer to chapter 5.

5 TROUBLE SHOOTING

If you cannot solve a problem with the aid of this chapter, contact your local Mastervolt Service Centre. See www.mastervolt.com. Make sure you have the following information present if you have to contact your local Mastervolt Service Center to solve a problem:
Article and serial number (See section 1.4)

5.1 FAULT FINDING TABLE

No output voltage	Possible cause	What to do?
Red LED "Fault" does not illuminate. Yellow LED "Output OK" does not illuminate.	Input fuse blown caused by input reverse polarity, output over voltage or general fault.	Check the wiring Replace the fuse(s).
	No input voltage.	Check the wiring and the battery.
Red LED "Fault" illuminates. Yellow LED "Output OK" does not illuminate.	Input under voltage, Input over voltage, Over temperature.	Check battery state, Battery (nominal) voltage, Let the converter cool down.
	No input voltage	Check the wiring and the battery

6 TECHNICAL DATA

6.1 SPECIFICATIONS

Model	24/12 50-60A
Article no.	81400350
Function	Non isolated 24V to 12V DC DC converter
Nominal input voltage:	24 V
Input voltage range	18-32 V
Nominal output voltage:	12 V
Output voltage	13,6 V +/- 5%
COutput current	50 A continuous, 60 A peak during 2 minutes @ 30 °C (86 °F)
Ripple	2% of output voltage
Parrallel fitting	Yes
Input fuses	2 x T25A, 24 V
Ouput fuses	3 x T25A, 12 V
Efficiency at full load	>80%
DC consumption	< 40 mA
Temperature range	-25 to +80 °C (-13 to 176 °F). Derating to 0 A between 30 and 80 °C (between 86 and 176 °F).
Cooling	Forced cooling
Connections	M6 bolts
Dimensions in mm (inch):	See figure 3
Weight in kg :	1.2 kg [2.6 lbs]
Protection degree	IP 20

Specifications are subject to change without prior notice.

6.2 DIMENSIONS

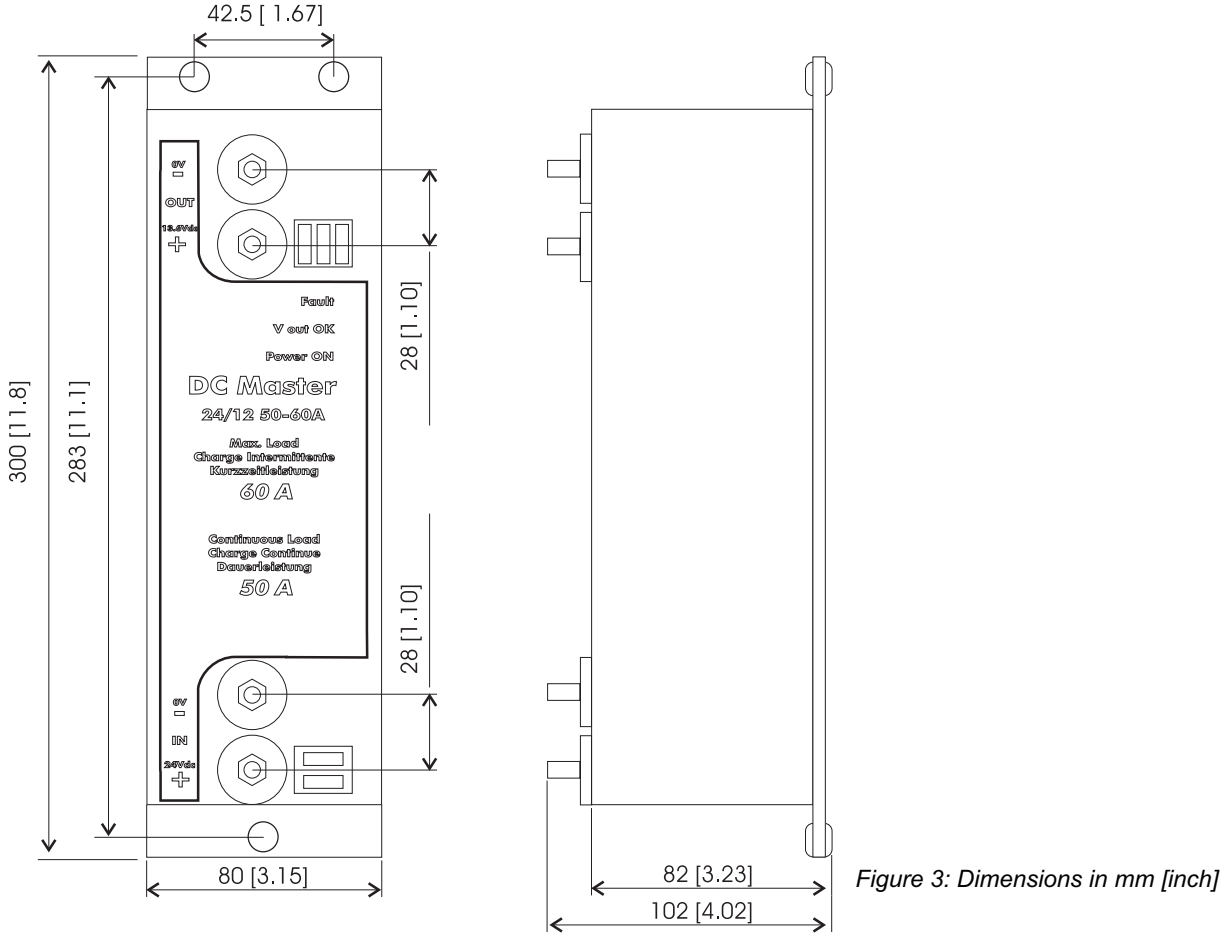


Figure 3: Dimensions in mm [inch]

7 EC DECLARATION OF CONFORMITY

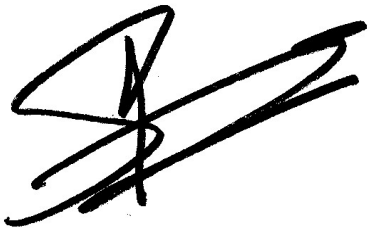
Manufacturer Mastervolt
Address Snijdersbergweg 93
1105 AN Amsterdam
The Netherlands

Herewith declares that:

Product:
81400350 DC Master 24/12 50-60A

Is in conformity with the provision of the EC, EMC directive 2004/108/EC;
Automotive directive 2006/96/EC;
CE marking directive 93/68/EEC;
VIDG5 AES for use on police and fire vehicles

Amsterdam,



P.F. Kenninck,
General Manager MASTERVOLT

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