

# **MANTA II « Battery Isolator »**

## **INSTALLATION MANUAL**

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# BATTERY ISOLATOR CHARACTERISTICS

- \* MANTA II battery isolators are easy to connect and automatically select either 12VDC or 24VDC.
- \* MANTA II charges and isolates 2 or 3 batteries (depending on the model) using only one alternator. As well as giving an equal charge to different batteries, the charge will not pass from one battery to another. This means that it is possible to discharge one battery completely, for diverse reasons, without discharging the motor battery.
- \* MANTA II can be used with alternators supplying up to 70, 100, 130 or 150A depending on the model.
- \* MANTA II has a very low voltage drop which reduces charging time, increases the efficiency of the charging circuit and means that there is no need to modify the alternator regulator.
- \* MANTA II has a very low voltage drop at the end of the charging cycle. The batteries are thus charged to an optimal level without any modification of the alternator regulator.
- \* MANTA II draws down very little from the batteries.
- \* MANTA II needs no adjustment.

## For users of battery isolator with diodes:

Contrary to battery isolators with diodes, MANTA II has a very low voltage drop, particularly at the end of its charging cycle. The alternator's output current must correspond precisely with the floating current of the battery.

On changing a battery isolator with diode to a MANTA II, any modifications previously done to the alternator's regulator to compensate for voltage drop must be eliminated.

# TECHNICAL SPECIFICATIONS

## ELECTRICAL CHARACTERISTICS

Input voltage .....	10 to 32V
Max. charging current.....	70, 100, 130 or 150A depending on the model
Power consumed - alternator .....	~ 35 mA
Power consumed - batteries .....	< 2 mA
Leak .....	< 1 mA between 2 batteries
Voltage loss - max current.....	~ 100mV
Voltage loss - max current/2.....	~ 50mV
Voltage loss end of charging cycle.....	< 5mV

## DISPLAY FUNCTIONS

Type of display ..... LED showing power supply to alternator

## PROTECTION

By means of an external fuse adapted to the alternator's output current (not supplied as standard)

## GENERAL

Operating temperature: .....	-10°C to +60°C
Storage temperature: .....	-20°C to +85°C
Ventilation: .....	Natural
Relative humidity: .....	10% to 90%

## EMC & SAFETY STANDARDS

Emission: .....	EN 60081-1
Immunity: .....	EN 60082-1
User safety: .....	EN 60950-1

## MECHANICAL PRESENTATION

Presentation: .....	U aluminium & plastic supports
Mounting: .....	Indifferent
.....	2 screws Ø 4 mm
Dimensions (L x H x D) 2 Output: .....	165 x 70 x 35 mm
Dimensions (L x H x D) 3 Output: .....	165 x 106 x 35 mm
Weight 2 Output: .....	~ 230 g
Weight 3 Output: .....	~ 330 g

## CONNECTION

All connection: ..... Terminal pins + M8 screws

# INSTALLING & CONNECTING

## WARNING

- \* All connection errors (reverse polarity in particular) could result in irreversible damage to the appliance. Please take particular care when connecting the isolator.
- \* In case of general fault, and for the protection of the appliance, it is advisable to insert an external fuse adapted to the alternator's output current on the +ALT wire.
- \* It is important when situating the MANTA II to reduce the length of the conductors as much as possible while at the same time keeping the appliance as far from heat sources (i.e. the motor) as possible
- \* Please allow a minimum of 5cm around the appliance to allow for natural ventilation of the unit to occur.
- \* The MANTA II should not be installed close to a heat source and must be kept away from water.
- \* Please do not modify the casing (by drilling additional holes, for example).
- \* When using an alternator regulator which requires a certain current at start up, it is possible to connect the IG terminal of the MANTA II to the IG terminal of the regulator and the ignition (by key).
- \* The MANTA II only appliance that is to be connected to the alternator. The MANTA II prevents all current flow from the batteries to the alternator. All other appliances must be done directly at the batteries. It is the case, for example, of starter or key contact which must be directly connected to the motor battery.
- \* In order to make the most of your MANTA II, we strongly recommend using the appropriate conductor cross section for +ALT, +BAT1, +BAT2 and +BAT3 (for MANTA II 3 outputs). Even though the current levels in the -ALT terminal is low, we recommend using the same type of conductor as used on the +ALT terminal. The below table will allow you to best choose the cross section of the conductor depending on the MANTA II model and the length of the conductor. With these cross sections, the conductor's voltage drop will be inferior or equal to the voltage drop in MANTA II.

		Conductor length					
		0,2m	0,5m	1m	2m	5m	10m
Max. alternator output current.	70 A	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	25mm <sup>2</sup>	50mm <sup>2</sup>	95mm <sup>2</sup>
	100 A	16mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>	25mm <sup>2</sup>	70mm <sup>2</sup>	120mm <sup>2</sup>
	130 A	25mm <sup>2</sup>	25mm <sup>2</sup>	25mm <sup>2</sup>	35mm <sup>2</sup>	95mm <sup>2</sup>	120mm <sup>2</sup>
	150 A	35mm <sup>2</sup>	35mm <sup>2</sup>	35mm <sup>2</sup>	50mm <sup>2</sup>	95mm <sup>2</sup>	185mm <sup>2</sup>

NB: Cross sections > 50mm<sup>2</sup> are incompatible with M8 terminal pins.

## IMPORTANT

**MANTA II's -ALT terminal must be connected to the alternator's -terminal. An incorrect or bad connection could lead to irreversible damage of the unit. Do not start the motor if this connection has not been secured.**

**All connections should be secured with the motor off and any chargers disconnected. We also recommend that units should be disconnected from the batteries. There is no recommend connection order for the MANTA II terminals.**

CONNECTION

