



BATTERY CHARGERS (IVO SMART)

Switch-mode automatic 3-stage battery chargers - from 6 to 15 amps

For professional and recreational use

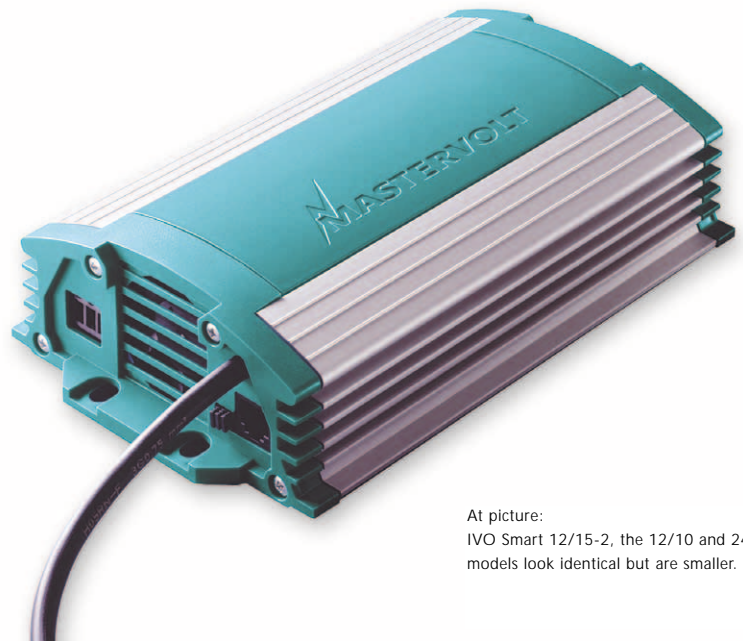
Mastervolt introduces three new battery chargers: the IVO Smart 12/10, 24/6 and 12/15-2 replace the previous models. The first two models are completely sealed resulting in splashproof units suitable for use in humid conditions.

Ideal for automotive or wet marine use!

All three models are constructed from an in-house design using aluminium extrusions and valox parts.

Principal innovations:

- The microprocessor, similar to that used in the Mass range, can be programmed to any relevant protocol using the IVO Smart Wizard software, obtainable from the Mastervolt website. All three models can be adjusted for use with gel cells by removing a jumper. A jumper will also prepare the unit for 'forced float' operation or diode splitter compensation.
- Unique is the 'memory function', which prevents the charger starting a new 3-stage charge cycle if the supply voltage is interrupted. As a consequence, battery gassing will not occur.
- All models are equipped with a DC high/low voltage and AC status alarm, which can be programmed using the IVO Smart Wizard software.



At picture:
IVO Smart 12/15-2, the 12/10 and 24/6 models look identical but are smaller.

12/15-2 ideal for marine and mobile systems

The 12/15-2 is fitted with a thermocontrolled fan and is able to charge two batteries simultaneously with a maximum charge rate of 15 amps. All types of batteries can be charged: gel cells, AGM or wet batteries; even a combination of both will charge correctly. Another important feature is the automatic compensation of low incoming shore power. Even at 180V AC, the charge current will be at maximum. All models are equipped with an LED status indicator displaying the stage of the charge cycle: bulk-absorption- float (battery fully charged).

The 12/15-2 is also fitted with the 'memory' function, the DC/AC alarm, automatic voltage compensation and accessible via the Wizard software.

Quality guaranteed

In common with all Mastervolt power electronics the IVO Smart range is manufactured to ISO 9001 quality assurance standards and complies with CE. See our website for more details. All models are attractively packaged with a 6-language

manual, an AC cable including plug, battery cables and two year world wide guarantee.

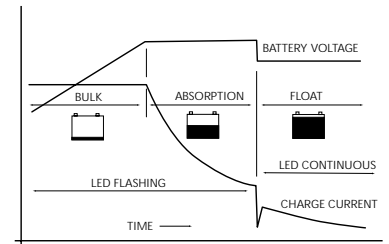
Turn page for extended technical data.



- 3-STEP CHARGE TECHNOLOGY
- SUITABLE FOR ANY TYPE OF BATTERY
- EXTENDS BATTERY LIFE DRAMATICALLY
- UNITY POWER FACTOR
- SHORE POWER SUPPORT MODE (WIDE INPUT VOLTAGE WINDOW, 180-255V AC)
- OPERATES SMOOTHLY WITH ANY AC GENERATOR
- FOR 12 AND 24V BATTERIES

TECHNICAL SPECIFICATIONS

Model	IVO Smart 12/10	IVO Smart 12/15-2	IVO Smart 24/6
Article number	43011000	43011500	43020600
Charge current	10A	15A	6A
Number of outlets	1	2 equal outlets	1
Charge characteristic	IUoUo / 3-stage / automatical / DIN 41772		
Charge voltage Absorption (25°C)	14.25V	14.25V	28.5V
Charge voltage Float / wet (25°C)	13.25V	13.25V	26.5V
Charge voltage Float / gel (25°C)	13.8V	13.8V	27.6V
Input voltage range AC*	180-250V AC	180-250V AC	180-250V AC
Max. absorption time	6 hours (adjustable)	6 hours (adjustable)	6 hours (adjustable)
Frequency	50/60Hz	50/60Hz	50/60Hz
Full load consumption (230V AC)	170VA	212VA	170VA
Power factor / cos phi	1	1	1
DC consumption with connected battery	<10mA	<10mA	<10mA
Automatic voltage compensation	none	auto sense	none
Diode compensation	0.6V / remove jumper		
Temperature range	0°C to +60°C, fully safeguarded against overheating and short circuiting		
Cooling	natural	variofan	natural
Battery capacity (recommendation)	25-200 Ah	50-250 Ah	6-120 Ah
Suitable as power supply without battery	yes	yes	yes
Dimensions, hxxwxd. in mm	50x180x121	50x206x121	50x180x121
Protection degree	IP65	IP21	IP65
AC cable 1.5 metre	2x 0.75 mm ²	3x 0.75 mm ²	2x 0.75 mm ²
DC cable 1.5 metre	2.5 mm ²	4 mm ²	2.5 mm ²
Weight	1 kg	1 kg	1 kg
Harmonised standards	generic emission and disturbances standard: EN 55014-1:1993, generic harmonic current emissions: EN61000-3-3:1995, generic & safety accreditations immunity standard: EN 55014-2:1997, electrostatic discharge: EN 61000-4-2:1995, electrical fast transients: EN 61000-4-4:1995, surge transient: EN61000-4-5:1995, conducted radio freq. disturbances: EN61000-4-6:1996, voltage dips: EN 61000-4-11:1994		



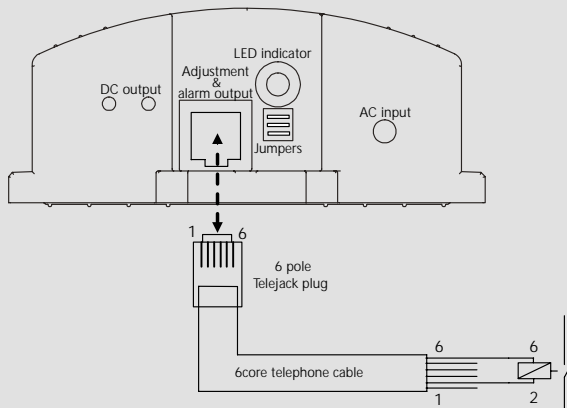
Charge curve of the IVO Smart battery charger

Three-stage charge curve: the only adequate way to charge a battery. Stage A: bulk, for quick charging from 0 to 80%, Stage B: absorption, the battery is charged from 80 to 100%. Stage C: flat, battery is maintained in fully charged state.

* 100% rated output power.

Also available: IVO Smart 12/25, 12/40, 24/25 and Mass models 15-100A.

Connection diagram 12/10, 12/15 and 24/6



Optional:

PC Link RS232 <---> QRS232, art. no. 21730100.
This is the connector between PC and IVO Smart.

Standard indicators/settings/controls:

• gel voltage setting	gel voltage is selected by removing jumper on pcb
• diode comp. 0,6V	diode compensation is selected by removing jumper on pcb
• forced to float	one step charging selected by removing jumper on pcb
• jumpers	limited accessible from front
• indicators	one led green
• bulk	flashing
• absorption	flashing
• float	continuous light on



IVO Smart 12/10 and 24/6: solid aluminium profile with Valox end parts. Compact and light-weighted, easy to mount and connect.

Setting points for specific charge protocols (only for industrial applications)

You can download the Wizard software on www.mastervolt.com/support.

setpoints register	setpoint
• Max. bulk/abs time	360 min.
• Return amps	2/16 of I _{max}
• Abs voltage	14.25V
• Float voltage	13.25V
• Forced to float voltage	13.80V
• Gel voltage setting	550 mV
• Diode compensation setting	600 mV
• DC alarm voltage	12.5V
• DC alarm delay	30 sec.
• Alarm function	low batt/CSI