

SC300 / 500 SmartCharger

Intelligent charger for lead acid / AGM / VRLA / LiFePO4 batteries



Abbildung ähnlich / device similar to figure



- 100% qualified for motor vehicles on-board electronic system / airbag
- Extensive protection functions and self-protection functions
- Short circuit and reverse polarity protection
- Protective functions against defect batteries
- Reliable sparking suppression
- Service interface (Mini USB)
- Electrical safety: EN60335, UL1236, CSA C22.2 No.107.2-01

- Modes:
- Charge Pb
 - Adaptive longterm charge Pb (LTC Pb)
 - Charge LiFe
 - Adaptive longterm charge LiFe (LTC LiFe)
 - Power supply (FSV)
 - PowerUp
 - Automatic cable compensation

Option: Country-specific version (e.g. mains cable)

Option: Customized charging parameters

On request: Customized modes

On request: Low temperature operation until – 40°C

On request: Water proof version acc. to IP65

On request: TS35 or screw mounting

SC300 / 500 - derivative table

Type	Input voltage	Typ. output voltage (configurable)*			Output current**	Cat. No.
		Charge Pb / LiFe	LTC*** Pb / LiFe	FSV****		
SC300-14	100-240 VAC	14,4 / 14,0 V	14,4 / 14,0 V	14,0 V	20 A	107143/20/000
SC500-14	100-240 VAC	14,4 / 14,0 V	14,4 / 14,0 V	14,0 V	35 A	107142/20/000

* Charging voltages can be customized on request. The actual charging voltage depends on the prevailing operating state.

** See functional description "current limiting"

*** Long term charge

**** Power supply mode

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise. Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

1 Input

Input voltage range AC	100 - 240VAC	tolerance: 85 - 265VAC
Input frequency	50 - 60Hz	tolerance: 45 - 65Hz
Input voltage range DC	140 - 340VDC	tolerance: 130 - 350VDC
Inrush current	No inrush current	active regulated current limitation ($I_{inrush} < \text{current consumption at full load}$)
current consumption at full load	< 4A / < 6A	SC300-14 / SC500-14 (see characteristic in fig. 7.2)
Power factor	> 0,95	typ. 0,98
No-load power	typ. 2W typ. 4,2W	On Standby (operating mode selection) With active load detection (see characteristic in fig. 7.3)
Input fuse	F1 (10A T)/250V	(6,3x32mm)
Transient over voltage protection	Varistor (6,5kA / 190J)	-
Connection Input	IEC/EN 60320, C14	-

2 Output

Output voltage		see SC300 / 500 - derivative table on page 1
Continuous output current	max. 20 / 35A	SC300-14 / SC500-14
current limiting	typ. $\pm 0,5\%$	of max. output current
Output power	< 300 / 515W	SC300-14 / SC500-14 automatic power regulation depending on input voltage, ambient temperature and load condition, see characteristic in fig. 7.1
Connection output		approx. 3m Charging cable with integrated plug contact / predetermined breaking point (on the device side a cable piece of approx. 1m is permanently mounted and a cable piece including charging tongs of approx. 2m can be flexibly adapted)
Operating modes	Charge Pb / Charge Pb LTC / Charge LiFe / Charge LiFe LTC / Power supply / PowerUp / Automatic cable compensation	Other modes on request. By default on delivery cable compensation is not activ

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise.
 Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

3 Regulation accuracy U_{out}

Tolerance	± 2% over all	-
Load regulation static (10-90%)	< 0,5%	-
Load regulation dynamic (10-90%)	< 10%	-
Recovery time	< 2ms	-
Temperature drift	< 1% (-25°C...+60°C)	typ. 0,5% (-25°C...+60°C); typ. 0,2% (0...40°C)
Voltage ripple	< 50mVpp	typ. 30mVpp
Switching spike	< 550mVpp	typ. < 300mVpp

4 EMC (Electromagnetic compatibility)

RF-Emission	EN55011	group 1, class B
Harmonic current emissions	EN61000-3-2	-
Immunity	EN61000-6-2	Immunity standard for industrial environments

5 Enviroment

Operating temperature	-25°C...+60°C	automatic output power derating
Storage temperature	-40°C...+85°C	-
Cooling	Natural convection	Temperature monitoring (Automatic electronic power reduction at too high temperatures due to insufficient or missing cooling)
Humidity	max. 95%	no operation in presence of dewing, coated PCB by varnish
Pollution degree	2	acc. to EN50178
Climatic category	3K3	acc. to EN60721

6 General data

Electrical safety	EN60335, UL1236, CAN/CSA C22.2 No. 107.2-01	-
Protective system	Class I	with PE-connector
Isolation voltage	3000VAC 500VDC	Input / output Output / enclosure
Efficiency	typ. 91%	see characteristic in fig. 7.4 und fig. 7.5

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise.
Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

Enclosure		Metal (Aluminium), especially designed for car manufacturer and service stations. Plastic caps lateral.
Service interface	Mini-USB	-
Dimensions	164 x 347 x 84mm	see fig. 8.1
Weight	approx. 4,8 kg	without cables and nor package

7 Characteristics

All shown characteristics were measured at 25°C ambient temperature, an input voltage of 230VAC and an input frequency of 50 Hz, unless otherwise indicated.

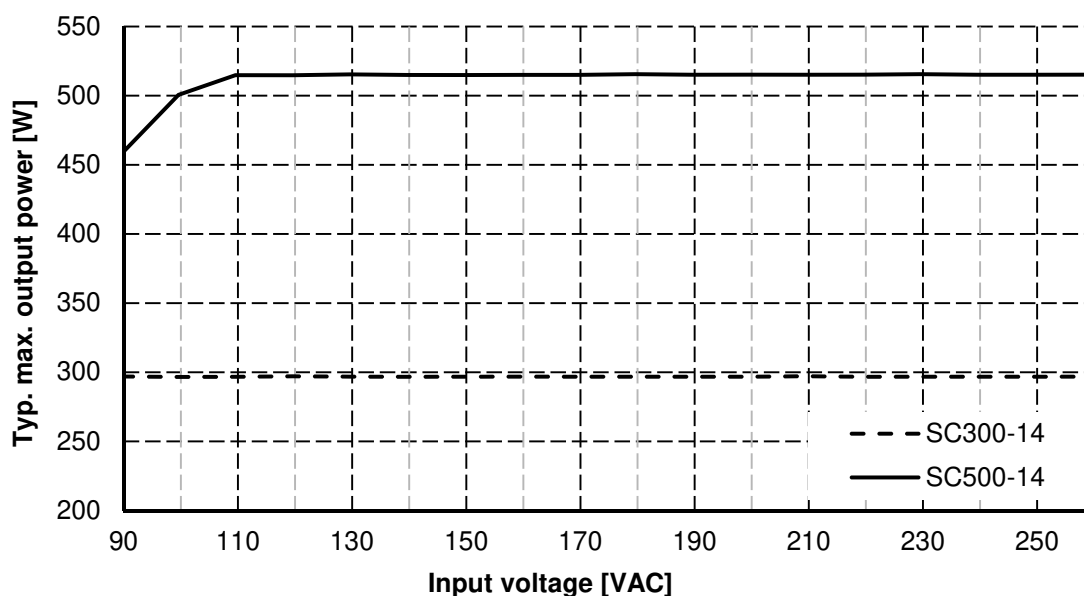


Figure 7.1: Maximum output power as a function of input voltage

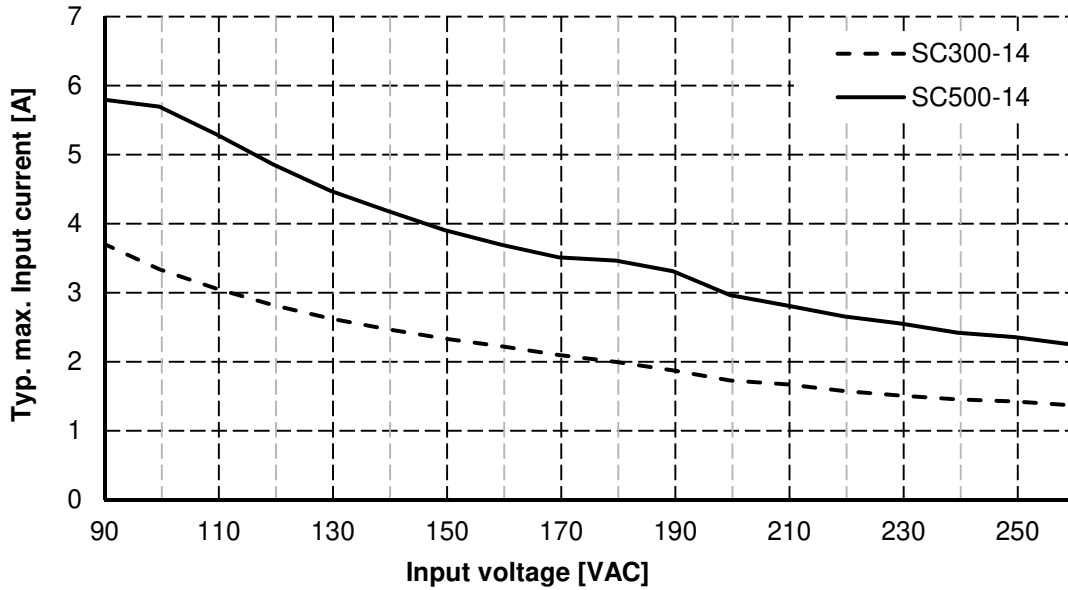


Figure 7.2: Maximum input current as a function of input voltage

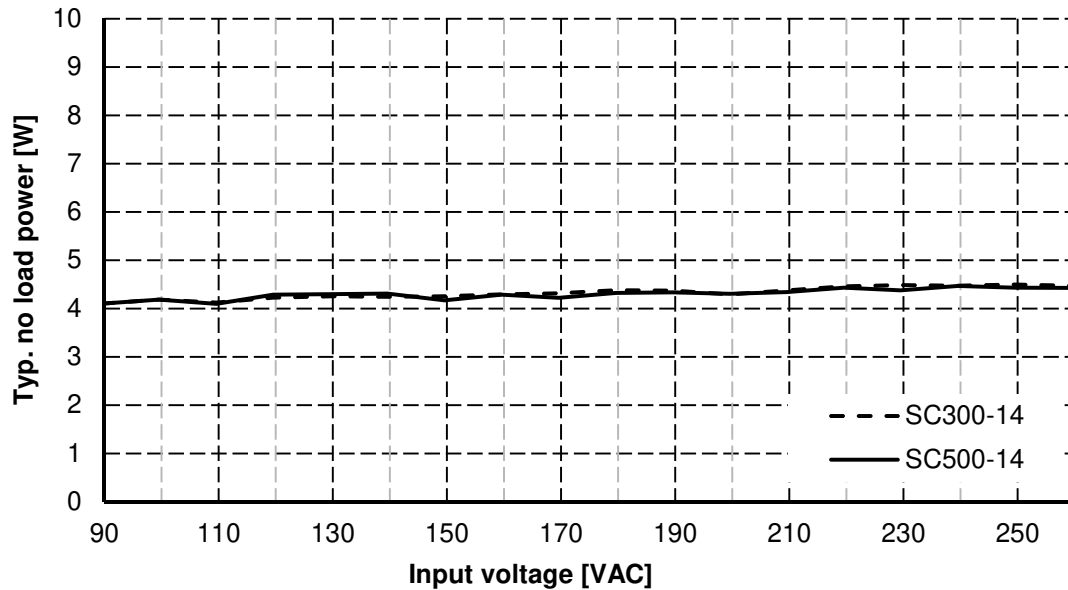


Figure 7.3: No-load power consumption as a function of input voltage

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise. Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

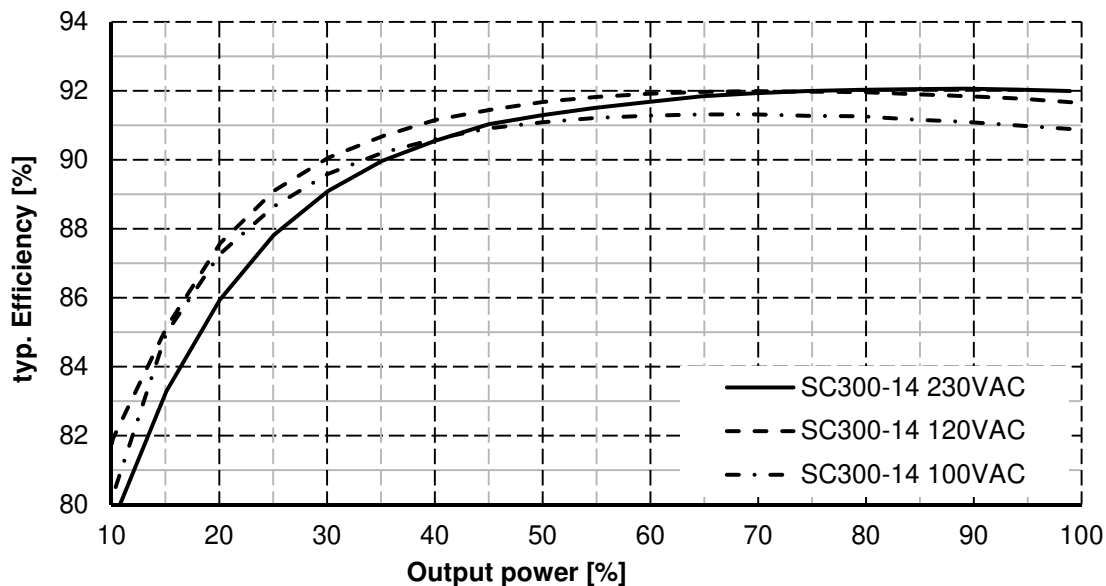


Figure 7.4: Typical efficiency SC300-14

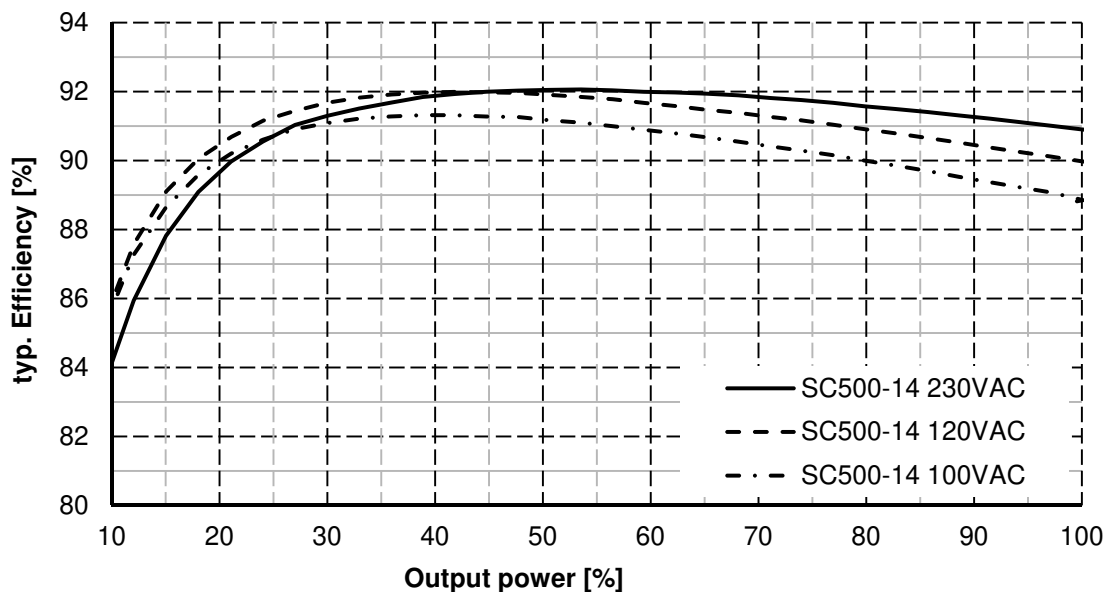


Figure 7.5: Typical efficiency SC500-14

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise. Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

8 Dimensions

All dimensions are given in millimeters and have a general tolerance according to DIN ISO 2768 - m. The integrated output cables (included in delivery) are not shown in this drawing.

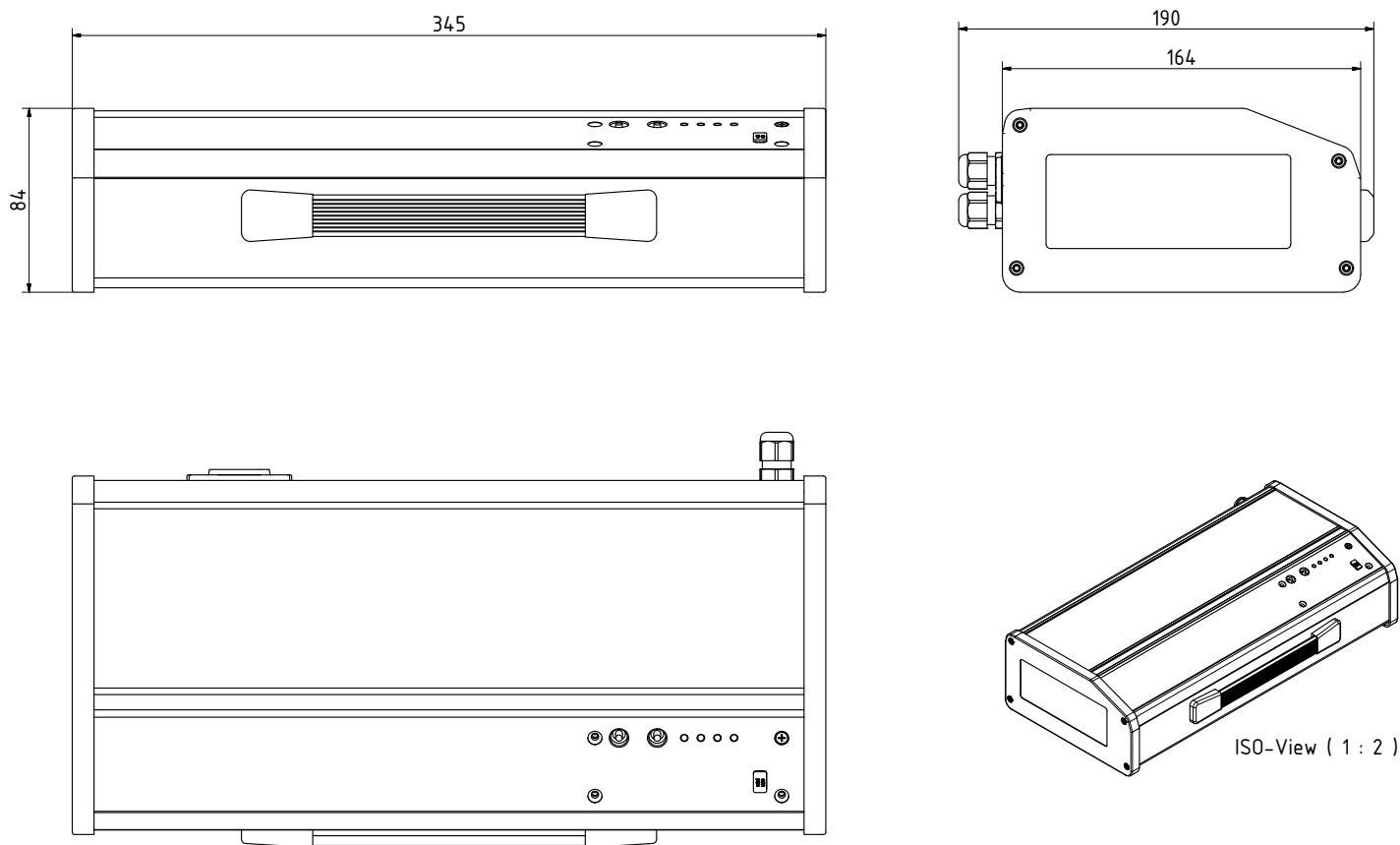


Figure 8.1: Dimensions

SmartCharger

SC300 / 500

Alle Daten gemessen bei 230V/50Hz, 20 / 35A und 25°C Umgebungstemperatur, wenn nicht anders gekennzeichnet. | All parameters are specified at 230V/50Hz, 20 / 35A and 25°C ambient, if not marked otherwise.
Technische Änderungen und Irrtümer vorbehalten. | Technical modifications and mistakes reserved.

Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

9 Function description

Features

Load detection, reverse polarity, short circuit and over voltage protection (OVP), cable compensation

Output (Factory settings)

Output voltage monitored by OVP (Over Voltage Protection) and complete disable of output current if preset charging voltage limit is exceeded. Extensive functional description of the charger's features - see operating instructions.

Charge Mode (Factory settings)

For more details on the individual modes, such as LTC Pb, LTC LiFe, refer to the corresponding operating instructions.

Current limiting

According to the operation state the current limit is automatically adjusted during operation.

10 Important (safety) notice

Generally it is recommended to use only accessories released by Deutronic. Because only in this way an appropriate technical suitability and an adequate dimensioning can be ensured for professional use. Equipment and accessories have to be selected and installed in accordance with the requirements and under attention of the existing safety guidelines.

Note: Mains cables / charging cables must be used in completely unrolled condition only, to ensure a sufficient cooling! Moreover pay attention of a safety interlocksystem at the respective device to ensure the operational safety and to avoid damages. If worn, the cables must be replaced immediately!