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Technical specification

POW12V20A-D1 Charger

LFP/LTO + BMS connector

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1. Input characteristics

No.	Item	Technical specification	Unit	Remark
1-1	Rated input voltage	230V	Vac	
1-2	Input voltage range	180V – 264V	Vac	
1-3	AC input voltage frequency	47 - 63	Hz	
1-4	Inrush current	< 50 A	A	@ 264Vac start-up in cold condition
1-5	Max input current	6 A	A	

2. Adjustable charging characteristics:

Profile	Jumper setting	K1 status	K2 status	Remark
Profile 1: LiFePO4 / LiFeYPO4 14.6 V		OFF	OFF	This profile is determined for LiFePO4 cells – 4 cells connected in series with final voltage 3.65V per cell.
Profile 2: Lithium Titanate (LTO) 5 cells 13.3V		OFF	ON	This profile is determined for Lithium Titanate cells - 5 cells connection in series – 2.65V per cell.
Profile 3: Lithium Titanate (LTO) 6 cells 15.2V		ON	OFF	This profile is determined for Lithium Titanate cells - 6 cells connection in series – 2.53V per cell.
Disable mode		ON	ON	This position cannot be used for charging. Setting this mode will result in LED red flash after AC power connected.

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3. Output characteristics

No.	Item	Technical specification	Unit	Remark
2-1	Nominal charge voltage	12V	Vdc	4 LiFePO4 cells @ 3.00V 1 LiFePO4 battery @ 12.00V 5 LTO cells @ 2.40V
2-2	Fast charge voltage (V-max) LiFePO4 mode	14.6V	Vdc	Tolerance to stop charging according to the battery capacity ± 0.5 V, see table 2. for how to set this mode.
2-3	Fast charge voltage (V-max) LTO mode	13.3V	Vdc	Tolerance to stop charging according to the battery capacity ± 0.5 V, see table 2. for how to set this mode.
2-4	Fast charge voltage (V-max) Optional mode	15.2V	Vdc	Tolerance to stop charging according to the battery capacity ± 0.5 V, see table 2. for how to set this mode. Caution – this mode will result in overcharging LiFePO4 or LTO cells!
2-5	Constant current (I-CC)	20A	A	Maximal current during full charge
2-6	Deep voltage level (V-deep)	10V (± 1 V)	Vac	Deep discharge voltage level, bellow this voltage, the current is limited to I-min
2-6	Deep discharge current (I-min)	2A	A	The limited current bellow V-Deep (± 0.5 A)
2-7 opt	BMS limit current (I-BMS)	approx 2A (± 0.5 A)	A	The limited current for cell balancing (controlled by BMS)
2-8	Power efficiency	>80%		@ 230Vac

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4. Protection characteristics

No.	Item	Technical specification	Unit	Remark
3-1	Thermal cutback	The internal temperature monitor reduces the charger output power in extreme operational temperature to prevent damage		
3-2	Output current limiting protection	20 A	A	@ CC Mode
3-3	Output short circuit protection	Short circuit protection at the output terminals. Automatic recovery after restoring to normal conditions.		
3-4	Electronic reverse battery protection	The charger is electronically protected against permanent reversed battery connection.		

5. LED

No.	Profile number	Technical specification	Remark
4-1	Profile 1:	red flash, green flash, then LED green on	After AC connected
4-2	Profile 2:	green flash, green flash, then Led green on	After AC connected
4-3	Profile 3:	yellow flash, green flash, then LED green on	After AC connected
4-4	Charging finished	Green LED ON	After charging is finished

6. Environmental test requirements

No.	Item	Technical specification	Unit	Remark
6-1	High ambient operating temperature	+40 °C	deg C	continuous operation
6-2	Low ambient operating temperature	-10 °C	deg C	continuous operation
6-3	Highest storage temperature	+70 °C	deg C	allow 2 hours to recover to normal temperature
6-4	Lowest storage temperature	-40 °C	deg C	allow 2 hours to recover to normal temperature
6-5	Drop shock	40 g peak		EN60068-2-32:1993

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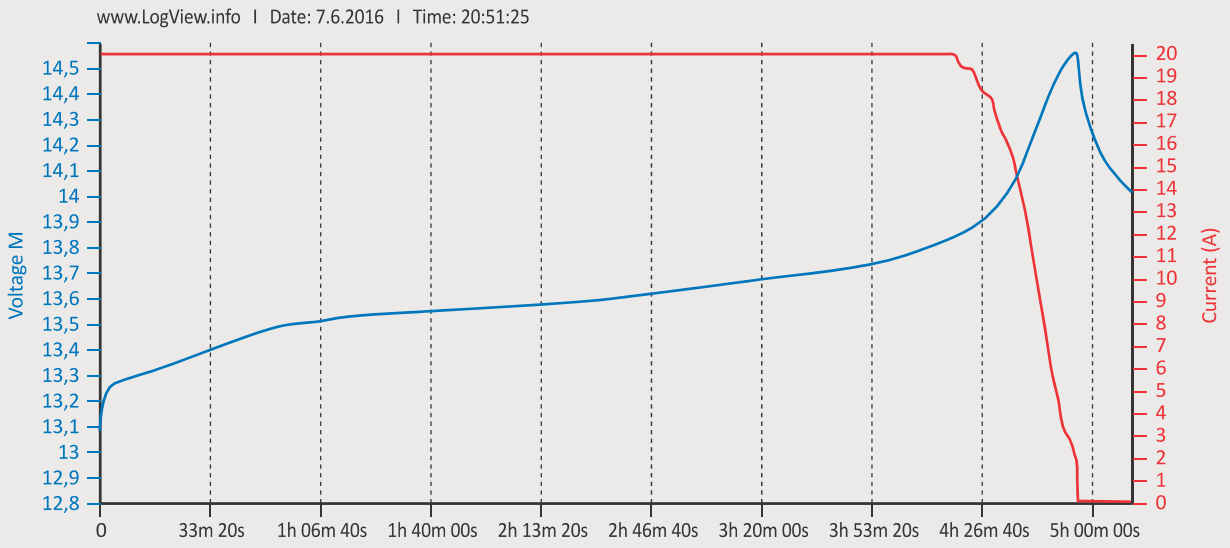
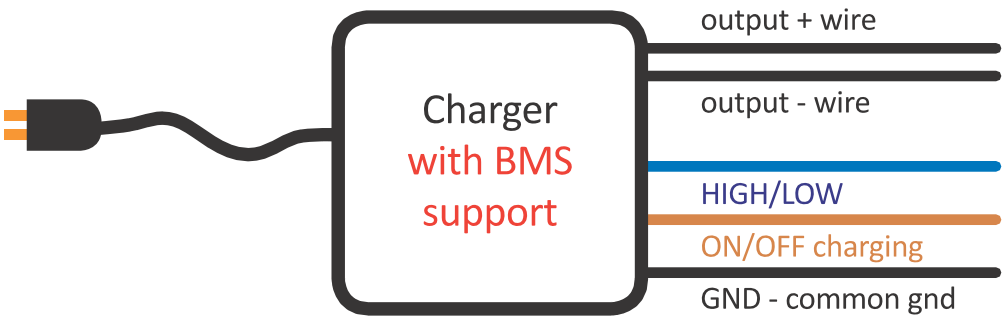
7. Charging curve (current A – red, voltage V - blue)



8. BMS connector operation (OPTIONAL, only for the model with BMS option)

Status	Contacts	Comment
Brown connected to GND	OFF	By connecting the brown wire to GND, the charger switches off. By connecting the Blue wire to GND, the charger switches from high current to low current. By connecting both brown and blue wire to GND, the charger switches off also. Therefore it is possible to stop low charging by using brown wire.
Blue connected to GND	LOW	
Common GND	GND	



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