

	3-cell	4-cell	6-cell	7-cell
Available versions	x			
Input voltage: / Line frequency	198 - 264VAC / 50Hz			
Max output power	252W	294W	252W	294W
Step 0 < 10min (Yellow)	CC 1.0A \pm 0.4A, when batt voltage < 9V.	CC 1.0A \pm 0.2A, when batt voltage < 12V.	CC 0.8A \pm 0.4A, when batt voltage < 18V.	CC 0.8A \pm 0.2A, when batt voltage < 21V.
Step 0 > 10min (Red 4 blinks)	0A / 0V			
Step 1 Constant Current (Yellow)	CC 20A +0.2/-0.3A, when 9V < Vbat < 12.6V.	CC 17.5A +0.2/-0.3A, when 12V < Vbat < 16.8V.	CC 10A +0.2/-0.3A, when 18V < Vbat < 25.2V \pm 0.2V.	CC 10A +0/-0.3A, when 21V < Vbat < 29.4V.
Step 2 Const Voltage (Flashing Yellow)	CV 12.6V \pm 0.1V < 14A until I charge < 1.0A or max. 2h.	CV 16.8V \pm 0.1V < 12.4A until I charge < 1.0A or max. 2h.	CV 25.2V \pm 0.2V < 8.8A, until I charge < 0.8A or max. 1h.	CV 29.4V \pm 0.2V < 8.8A until I charge < 0.8A or max. 1h.
Charge timer (step2, CV)	2h	2h	1h	1h
Safety timer all steps (Red 5 blinks)	72h			
Step 3 Charge Completed (Green)	0A			
Restart voltage	12.3V	16.4V	24.6V	28.7V
Formation Charge (Step 0)	Low current start-up of deeply discharged battery.			
Wake-up of deeply discharged battery.	Yes, will apply voltage which deactivates deep discharge protection in battery pack.			
Indication when "Battery not connected"	Flashing Green (1s/1s)			
Leakage current from battery with mains switched off	< 150 μ A @ 12.6V	< 170 μ A @ 16.8V	< 140 μ A @ 25.2V	< 170 μ A @ 29.4V
Efficiency (at 100% load, 115V) approx.	>91%	>91%	>92%	>92%
Switch frequency approx.	65kHz			
Ripple	< 100mVp-p			
NTC input, on request (std. is 10kohm, B-value approx. (4000K))	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK. WAIT MODE INDICATIONS: Yellow with 1 red blink: Battery temperature is too low (<0°C) Yellow with 2 red blinks: Battery temperature is too high (>45°C)			
Protection	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 2-cell) will be limited to 1.0A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 2-cell) will be limited to 1.0A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 4-cell) will be limited to 0.8A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 4-cell) will be limited to 0.8A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.
Temperature range	Operating: \pm 25 to +40oC. Storage: \pm 25 to +65oC			
Derating	Charge current automatically reduced to approx.14A at 40°C	Charge current automatically reduced to approx.14A at 40°C	Charge current automatically reduced to approx.7.5A at 40°C	Charge current automatically reduced to approx.7.5A at 40°C
Safety	EN 60601-1			
Insulation class	Double insulated (Class II)			
	4000VAC / 5700VDC			

Insulation voltage: Primary – secondary				
EMC standards	EN 60601-1-2: 2015 (Edition 4)			
Input terminal	2 pin IEC60320 or mains cable			
Output terminals	Cord with open ends or XLR plug			
Protection against ingress (IP-code)	IP44			
Recommended battery capacity	20 - 800Ah	17.5 - 700Ah	10 - 400Ah	10 - 400Ah
Dimensions	210 × 113 × 53 mm			
Weight approx.	With mains cable 1400g. With IEC60320 1150g			

	8-cell	9-cell	10-cell	11-cell
Available versions	x	x	x	
Input voltage: / Line frequency	198 - 264VAC / 50Hz			
Max output power	293W	293W	294W	292W
Step 0 < 10min (Yellow)	CC 0.5A \pm 0.2A, when batt voltage < 24V.	CC 0.5A \pm 0.2A, when batt voltage < 27V.	CC 0.5A \pm 0.1A, when batt voltage < 30V.	CC 500mA \pm 50mA, when batt voltage < 33.0V.
Step 0 > 10min (Red 4 blinks)	0A / 0V			
Step 1 Constant Current (Yellow)	CC 8.7A +0.1/-0.3A, when 24V < Vbat < 33.6V.	CC 7.7A +0.1/-0.3A, when 27V < Vbat < 37.8V.	CC 7.0A +0/-0.3A, when 30V < Vbat < 42.0V.	CC 6.3A +0.1/-0.3A, when 33.0V < Vbat < 46.2V.
Step 2 Const Voltage (Flashing Yellow)	CV 33.6V \pm 0.2V < 7.5A until I charge < 0.5A or max. 1h.	CV 37.8V \pm 0.2V < 6.0A until I charge < 0.5A or max. 1h.	CV 42.0V \pm 0.2V < 5.8A until I charge < 0.5A or max. 1h.	CV 46.2V < 5A until I charge < 500mA or max. 1h.
Charge timer (step2, CV)	1h			
Safety timer all steps (Red 5 blinks)	72h			
Step 3 Charge Completed (Green)	0A			
Restart voltage	32.8V	36.9V	41.0V	45.1V
Formation Charge (Step 0)	Low current start-up of deeply discharged battery.			
Wake-up of deeply discharged battery.	Yes, will apply voltage which deactivates deep discharge protection in battery pack.			
Indication when "Battery not connected"	Flashing Green (1s/1s)			
Leakage current from battery with mains switched off	< 170 μ A @ 33.6V	< 190 μ A @ 37.8V	< 170 μ A @ 42V	< 170 μ A @ 46.2V
Efficiency (at 100% load, 115V) approx.	>92%	>92%	>92%	>91%
Switch frequency approx.	65kHz			
Ripple	< 100mVp-p			
NTC input, on request (std. is 10kohm, B-value approx. (4000K))	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK. WAIT MODE INDICATIONS: Yellow with 1 red blink: Battery temperature is too low (<0°C) Yellow with 2 red blinks: Battery temperature is too high (>45°C)			
Protection	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 5-cell) will be limited to 0.5A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 6-cell) will be limited to 0.5A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 7-cell) will be limited to 0.5A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 8-cell) will be limited to 0.5A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.
Temperature range	Operating: \pm 25 to +40oC. Storage: \pm 25 to +65oC			
Derating	Charge current automatically reduced to approx. 6A at 40°C	Charge current automatically reduced to approx. 6A at 40°C	Charge current automatically reduced to approx. 5A at 40°C	Charge current automatically reduced to approx. 4A at 40°C
Safety	EN 60601-1			
Insulation class	Double insulated (Class II)			

Insulation voltage: Primary – secondary	4000VAC / 5700VDC			
EMC standards	EN 60601-1-2: 2015 (Edition 4)			
Input terminal	2 pin IEC60320 or mains cable			
Output terminals	Cord with open ends or XLR plug			
Protection against ingress (IP-code)	IP44			
Recommended battery capacity	8,57 - 348Ah	7.7 -308Ah	7 -280Ah	6.3 - 250Ah
Dimensions	210 × 113 × 53 mm			
Weight approx.	With mains cable 1400g. With IEC60320 1150g			

	12-cell	13-cell	14-cell
Available versions	x		
Input voltage: / Line frequency	198 - 264VAC / 50Hz		
Max output power	292W	284W	294W
Step 0 < 10min (Yellow)	CC 300mA \pm 50mA, when batt voltage < 36.0V.	CC 300mA \pm 50mA, when batt voltage < 39.0V.	CC 300mA \pm 30mA, when batt voltage < 42.0V.
Step 0 > 10min (Red 4 blinks)	0A / 0V		
Step 1 Constant Current (Yellow)	CC 5.8A +0.1/-0.3A, when 36.0V < Vbat < 50.4V.	CC 5.2A +0.1/-0.3A, when 39.0V < Vbat < 54.6V.	CC 5.0A +0.1/-0.3A, when 42.0V < Vbat < 58.8V.
Step 2 Const Voltage (Flashing Yellow)	CV 50.4V \pm 0.3V < 4.5A until I charge < 300mA or max. 1h.	CV 54.6V \pm 0.3V < 3.9A until I charge < 300mA or max. 1h.	CV 58.8V \pm 0.3V < 3.7A until I charge < 300mA or max. 1h.
Charge timer (step2, CV)	1h		
Safety timer all steps (Red 5 blinks)	72h		
Step 3 Charge Completed (Green)	0A		
Restart voltage	49.2V	53.3V	57.4V
Formation Charge (Step 0)	Low current start-up of deeply discharged battery.		
Wake-up of deeply discharged battery.	Yes, will apply voltage which deactivates deep discharge protection in battery pack.		
Indication when "Battery not connected"	Flashing Green (1s/1s)		
Leakage current from battery with mains switched off	< 165 μ A @ 50.4V	< 170 μ A @ 54.6V	< 160 μ A @ 58.8V
Efficiency (at 100% load, 115V) approx.	>92%	>91%	>92%
Switch frequency approx.	65kHz		
Ripple	< 100mVp-p		
NTC input, on request (std. is 10kohm, B-value approx. (4000K))	0 – 45 °C: Normal charge. Battery temperature < 0 °C (too cold) or > 45°C (too hot): No charge, wait until temp. is OK. WAIT MODE INDICATIONS: Yellow with 1 red blink: Battery temperature is too low (<0°C) Yellow with 2 red blinks: Battery temperature is too high (>45°C)		
Protection	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 8-cell) will be limited to 0.3A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 9-cell) will be limited to 0.3A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.	Thermal protection. Prevents sparking. Short circuit proof. Error Indication: Red (3 blinks) Safety timer: 72h. Error Indication: Red (5 blinks) Protected against reversed polarity. Error Indication: Red (2 blinks) Charging of wrong lower voltage battery pack (e.g. 9-cell) will be limited to 0.3A and terminated after 10min. Indication: Red (4 blinks) Safety timer. Error Indication: Red (5 blinks) No charge (or charge terminated) if connecting wrong battery pack with higher voltage. Indication: LED is OFF.
Temperature range	Operating: \pm 25 to +40oC. Storage: \pm 25 to +65oC		
Derating	Charge current automatically reduced to approx. 3.5A at 40°C		
Safety	EN 60601-1		
Insulation class	Double insulated (Class II)		
Insulation voltage: Primary – secondary	4000VAC / 5700VDC		
EMC standards	EN 60601-1-2: 2015 (Edition 4)		
Input terminal	2 pin IEC60320 or mains cable		
Output terminals	Cord with open ends or XLR plug		
Protection against ingress (IP-code)	IP44		

Recommended battery capacity	5.8 - 230Ah	5.2 - 208Ah	5 - 200Ah
Dimensions	210 × 113 × 53 mm		
Weight approx.	With mains cable 1400g. With IEC60320 1150g		