1500W (360~1500W) Programmable Li-Ion Battery Charger Data Sheet

Description:

Green Watt Power's 360~1500W universal Li-ion battery on-board and off board chargers are designed with ultra-high efficiency. The extraordinary performance of low power dissipation provides the charger high reliability and long lifetime. This series of chargers can be programmed to charge any battery below 86V according to the charging curve or mode, including lead-acid batteries and lithium batteries; they also offer solid and safe power conversions for applications such as e-vehicles, e-motorcycles, e-boat, e-machines, etc.

Features:

- On-board and off-board option with handle
- Fan or fanless versions
- Programmable charging profile for all kinds of batteries
- Universal AC Input: 90~264Vac
- Ultra wide output voltage: 25~86V
- Output power: 360~1500W
- High efficiency: Up to 94%
- All-Around Protections: OVP, OCP, SCP, OTP,RCP
- Low temperature Start Up @ -30°C
- High temperature full-load operation @ 65°C
- CAN communication
- IP65 waterproof rating

Model Number	Output Power	Input Voltage Range (Vac)	Output Voltage Range (Vdc)	Output Current Factory Programmable	Temperature Range / IP Rating	Notes
EVC-86-1500F (PLD1500-EVCN12-86F)	360~1500W	90~264Vac	25~86V	0.1~26A	-30~65°C / IP65	Fan-type, No Handle
EVC-86-1500FH includes handle (PLD1500-EVCN12-86FH)	360~1500W	90~264Vac	25~86V	0.1~26A	-30~65°C / IP65	Fan-type, with Handle
EVC-86-1500L (PLD1500-EVCN12-86L)	360~1500W	90~264Vac	25~86V	0.1~26A	-30~65°C / IP65	No Fan, No Handle
EVC-86-1500LH includes handle (PLD1500-EVCN12-86LH)	360~1500W	90~264Vac	25~86V	0.1~26A	-30~65°C / IP65	No Fan, with Handle

Note: Model numbers in parenthesis are factory numbers

Input & Output Specifications (Below Are for All Models)	
Output Voltage	25~86V (Programmable)
Output Current	0.1~26A (Programmable)
Max. Output Voltage	86V (Programmable)
Output Voltage @ Open Circuit	86V (Programmable)
Voltage Accuracy	±0.5%
Output Power	360~1500W
Input Voltage	90~264Vac
Aux. 5Vo for CAN BUS comm.	0.5A (isolated from main power output)
Input Frequency	47~63Hz
Max. Input Current	15A@115Vac 7.5A@230Vac
Max. Input Power	1650W@230Vac
Power Factor	>0.97@115Vac >0.95@230Vac
Efficiency (Typical)	92%@115Vac 94%@230Vac
Charging Profile	Factory programmable for specific battery characteristics and quick charging
Communication	CAN
Ingress Protection	IP65
Protections	OVP, OCP, SCP, OTP, RCP, Timer, Auto Off @ No Load
Working Temperature	-30~65°C
Cooling	Fan Cooling
Max. Case Temperature	<60°C@25°C Ambient Temperature
Surge Protection	1kV DM / 2kV CM
Isolation	Prim. to Sec.: 3000Vac/10mA max./60s Prim. to Earth: 1500Vac/10mA max./60s Sec. to Earth: 500Vac/10mA max./60s

	Fan-type No Handle	**Fan-type with Handle**	**No-Fan-type, No Handle**
Dimensions (LxWxH)	286x154x88mm	322x154x88mm	TBD
Weight	3.8kg	4kg	TBD

Note: Unless otherwise noted, the data are based on 25°C ambient temperature, 230Vac input voltage and full load.

Immunity (Designed to meet):

EN61000-3-2: Harmonic Current Emission.

EN61000-3-3: Voltage Fluctuations and Flicker.

EN61000-4-2: ESD 8kV Air Discharge, 4kV Contact Discharge, Criteria B.

EN61000-4-3: Radio-Frequency Electromagnetic Field Susceptibility Test-Rs Level 3, Criteria A.

EN61000-4-4: Electrical Fast Transient/Burst-EFT 1KV, Criteria B.

EN61000-4-5: Surge Immunity Test, AC Power Line: Line to Line 1kV; Line to Earth 2kV Criteria B.

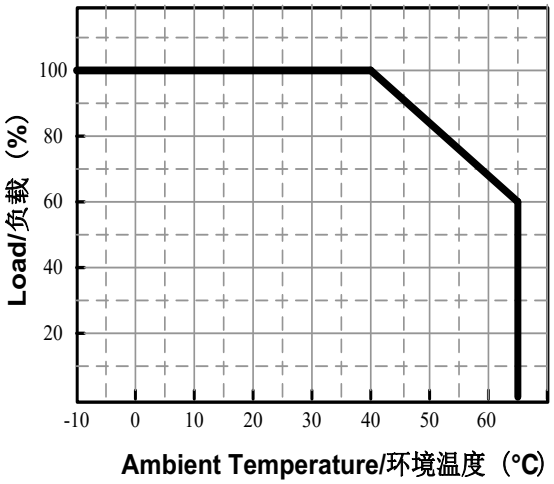
EN61000-4-6: Conducted Radio Frequency Disturbance Test-CS Level 3, Criteria A.

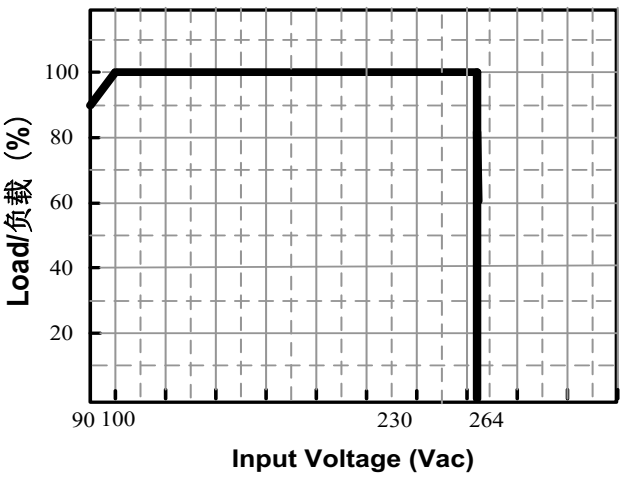
EN61000-4-8: Power Frequency Magnetic Field Test 3A/m, Criteria A.

EN61000-4-11: Voltage Dips, Criteria B.

EMI: Test with the system.

Derating Curves





Charge Curves

The charging curve is programmed through communication interface and controlled by MCU

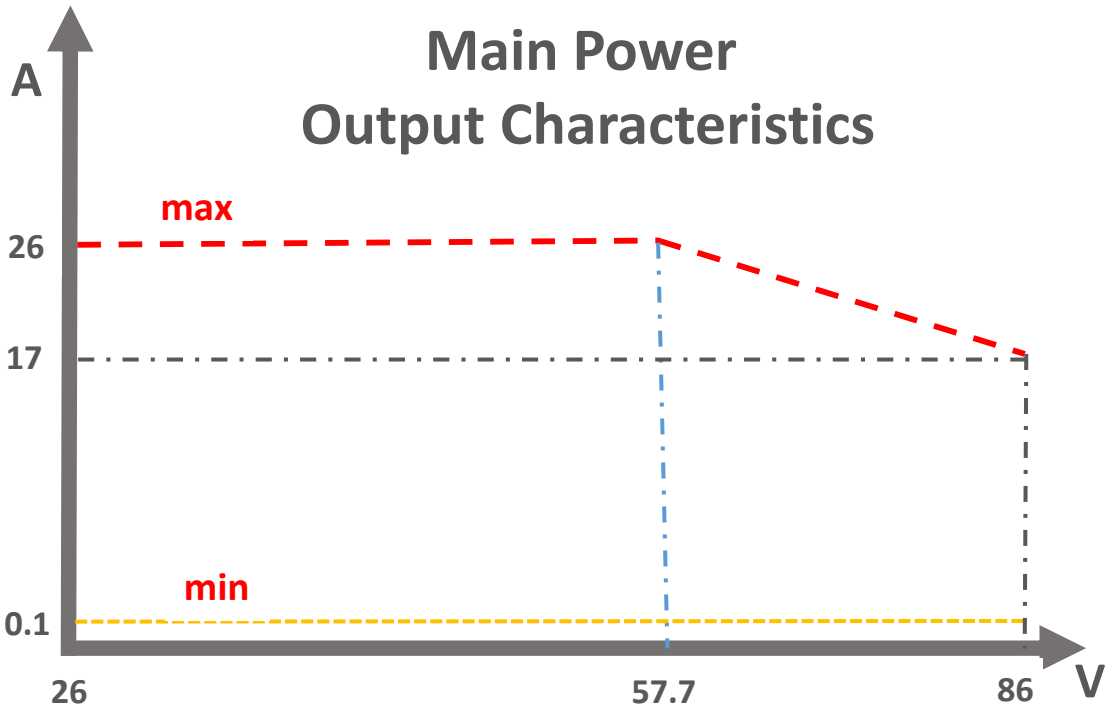


Figure 1. Typical Charging Profile of Lead-Acid Battery and its Programmable Parameters; the output voltage of the charger is adjustable by the MCU. This shows the concept how the current and voltage changes by time.

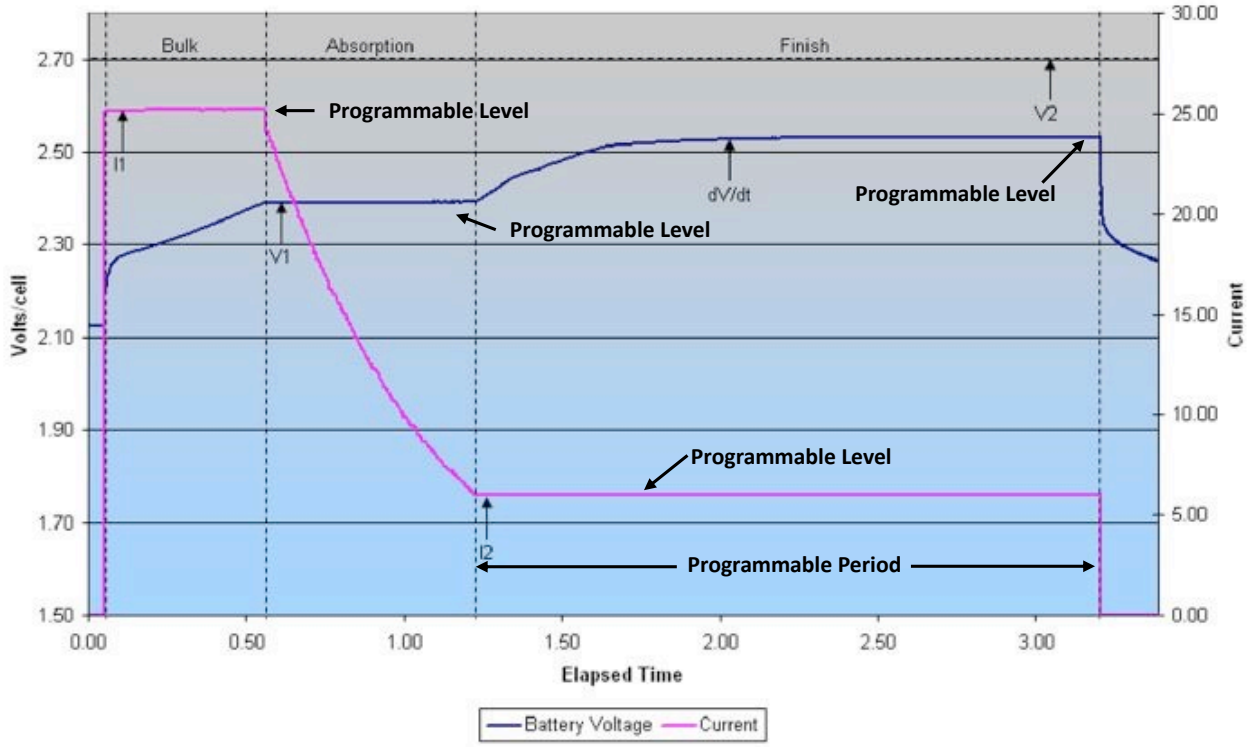
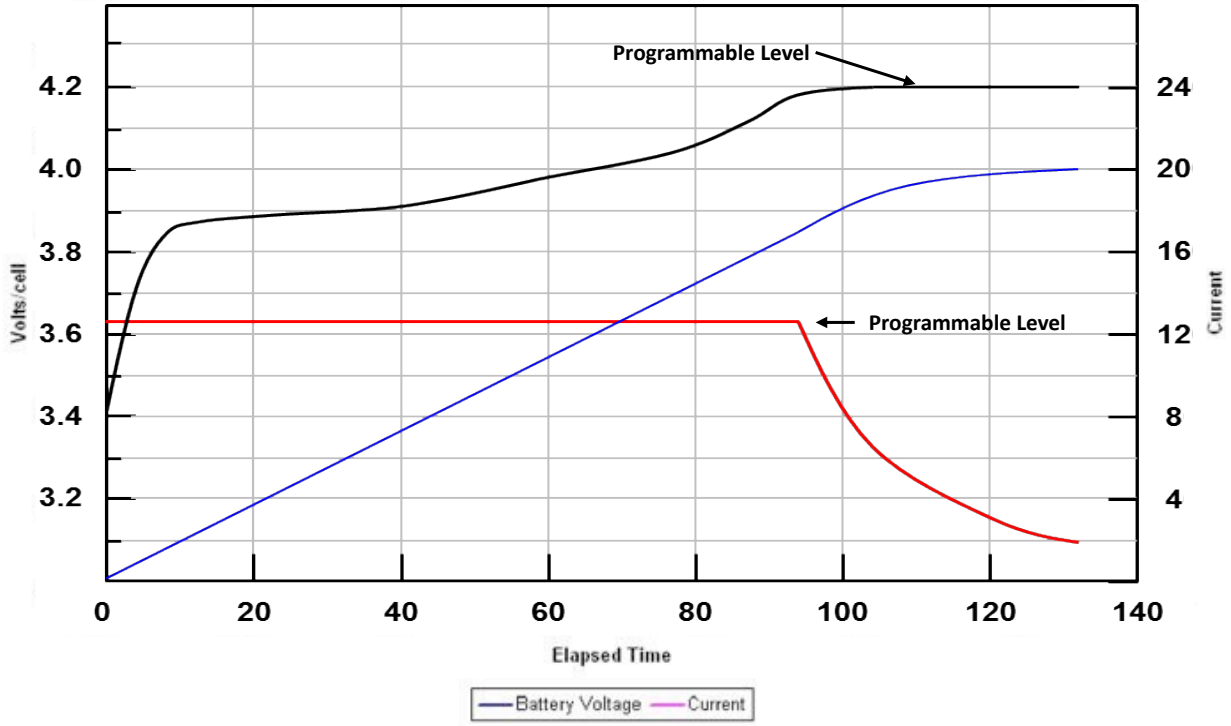
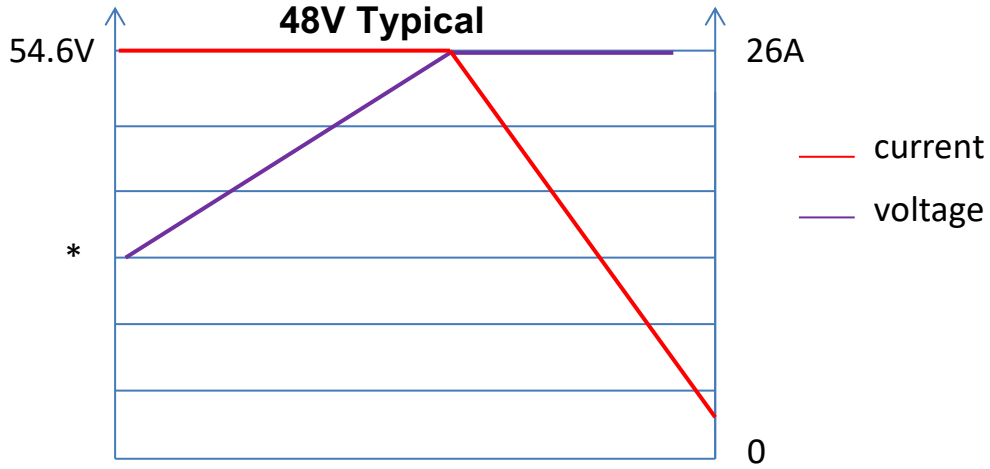


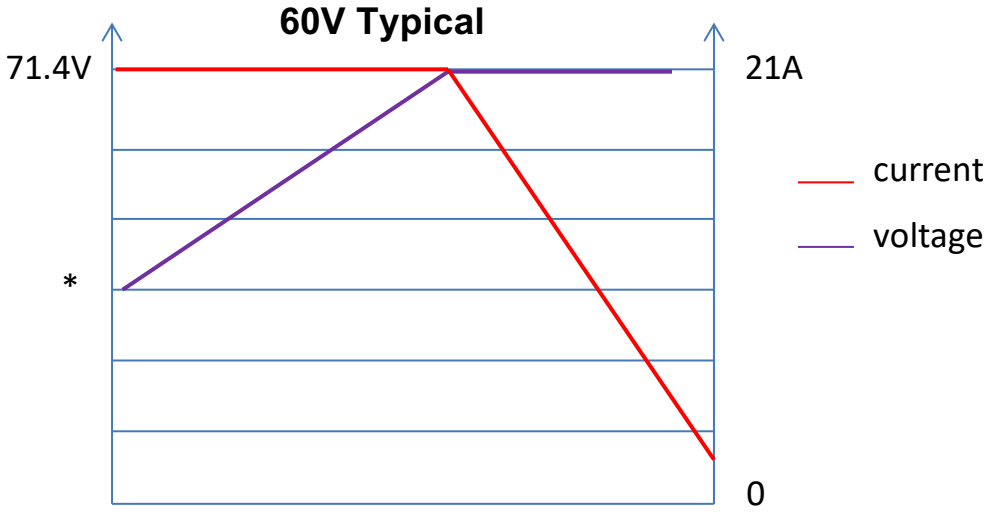
Figure 2. Typical Charging Profile of Li-ion Battery and its Programmable Parameters; the output voltage of the charger is adjustable by the MCU. This shows the concept how the current and voltage changes by time.

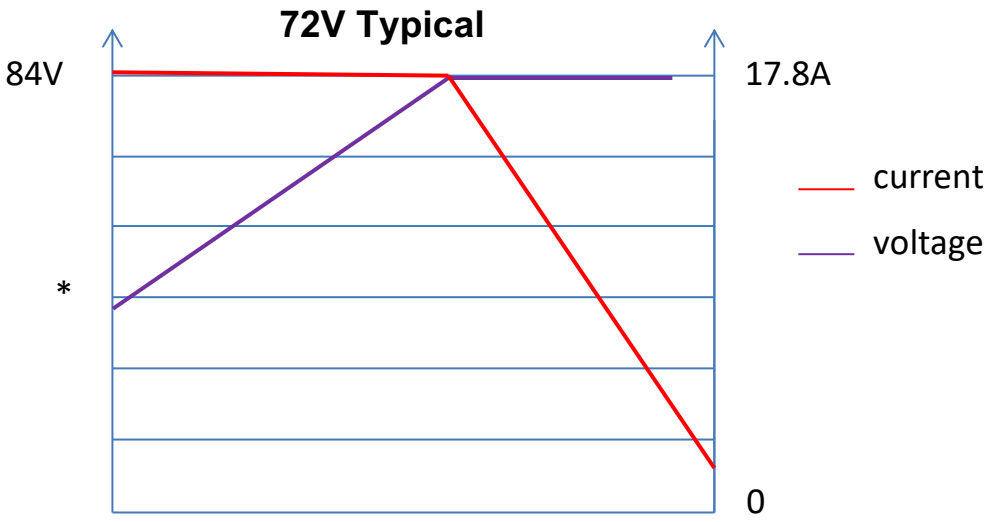


Typical Charge Curves

Notes: the cut off current when almost fully charged is within 200~600mA and the charger will stop charging



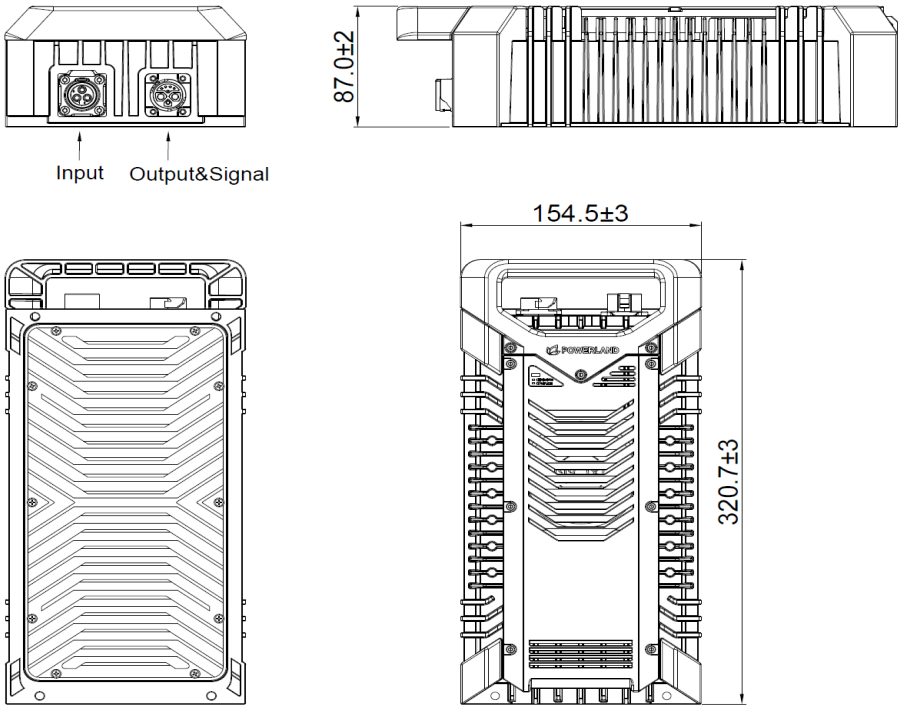




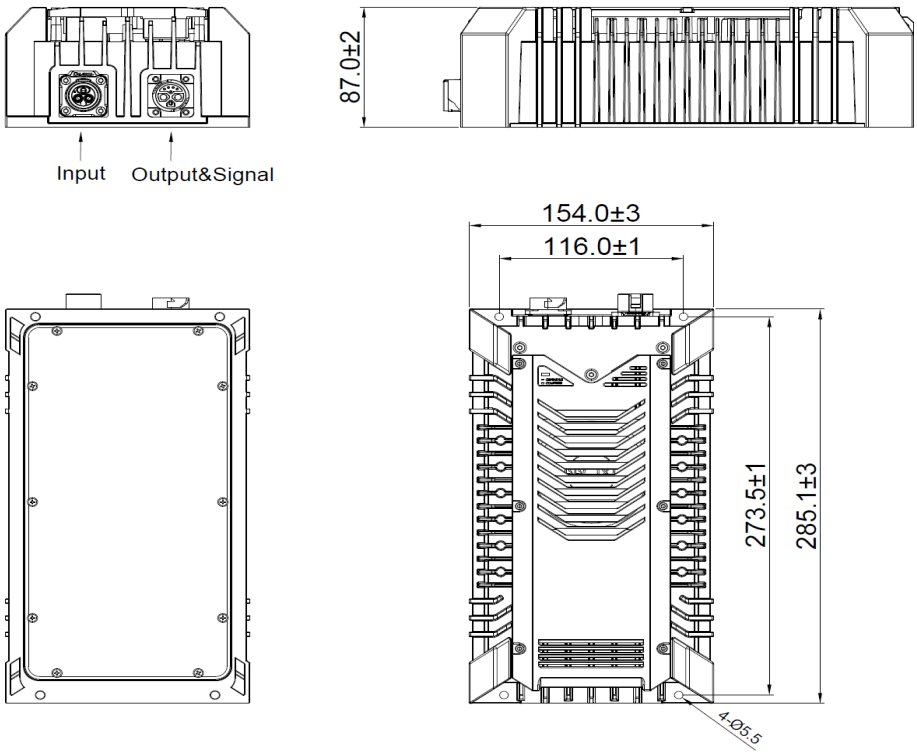
* Voltage is variable; current can also be variable

MECHANICAL (See notes on what connectors are supplied)

Off-Board fan version with handle: EVC-86-1500FH (PLD1500-EVCN12-86FH)



On-Board fan version (No Handle): EVC-86-1500F (PLD1500-EVCN12-86F)



Mechanical drawings TBD for:

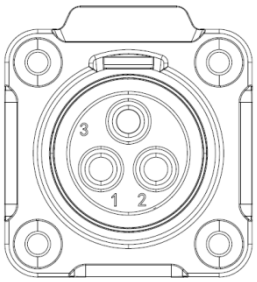
Off-Board no-fan version with handle: EVC-86-1500H (PLD1500-EVCN12-86H)

and

On-Board no-fan version (No Handle): EVC-86-1500L (PLD1500-EVCN12-86L)

Connectors:

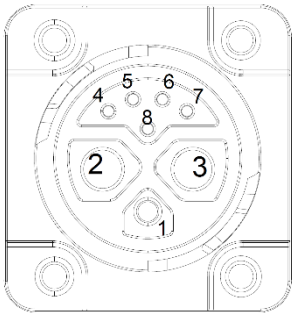
Charger Side (Input)
(Male 3 pin)



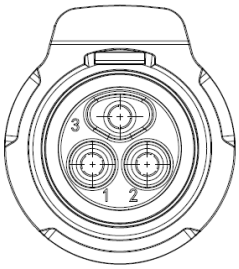
Linko:
LP-20-C03SX-01-001

Charger Side
(Output & Signal)
(Female 2+1+5 pins)

JNICON: Female (charger side): 51-205352-02

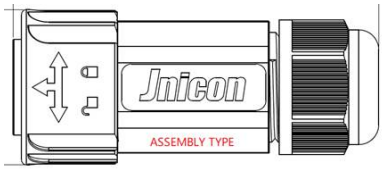


Cable Side (Input)
(Female 3 pin) Not Supplied

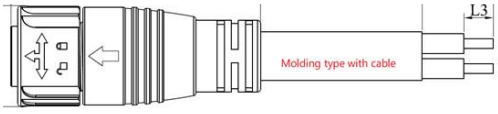


Linko:
LP-20-I03PF-01-001

Cable Side (Male Output & Signal) (2+1+5 pins)
JNICON: 51-105311-01 (Assembly type) is supplied.



Options: Molding type 51-105311-01-0001; cable length for either type connector.



Input	Connector， Cable length1.6m
1	Charger Side: Linko, LP-20-C03SX-01
2	Cable Side: Linko, LP-20-J03PE-01
Output	**Connector, JLT M23自锁2+1+5**
Function PIN	
1	NC
2	P+, Battery Positive
3	C-, Battery Negative
4	CAN (5V Aux Power)
5	GND, Interface Signal and CAN (5V) Ground
6	CANH
7	CANL
8	ATT, Battery Attached

LED Lights:

Color	Description	Flashing Frequency
Green	Charging (Constant Current)	2Hz
Green	Charging over 80%	5Hz
Green	Fully Charged (Float then Standby)	Steady
Red	Low battery Voltage Error/Warning – battery under voltage	Flashing Red 1 time at 5Hz and then off for 1 second, repeatedly
Red	OVP (Over Voltage Protection):	Flashing Red 5 times at 5Hz and then off for 1 second, repeatedly
Red	SCP (Short Circuit Protection):	Flashing Red 3 times at 5Hz and then off for 1 second, repeatedly
Red	OTP (Over Temperature Protection):	Flashing Red 4 times at 5Hz and then off for 1 second, repeatedly