

Features

- Output Power 860W and 1300W
- Wide Input Voltage Range 90-264Vac
- Two-sided Handles
- Efficiency up to 92.5%
- Auxiliary Power 12Vdc 1A
- Wide Output Voltage Range Compatible with Both 72V and 60 V Battery Packs
- All-Around Protection: OVP, UVP, OTP, SCP, ORP, No-load Protection
- IP65 Rating
- CAN Communication
- UL, FCC, CE, CB Certificated



Description

The WVP-1K3S072BSFxx and WVP-860S072BSFxx are portable chargers that operate from 90-264Vac input with excellent power factor. These chargers offer a wide output voltage range, making them compatible with 72V and 60V lithium battery packs. The high efficiency of these chargers, combined with their metal case, enables them to run cooler, significantly enhancing reliability and extending product life. To ensure trouble-free operation, protection is provided against output over voltage, output under voltage, output short circuit, no load, and over temperature.

These products are suitable for applications such as electric motorcycles, electric golf carts, electric tour buses, and electric cleaning equipment.

Models

Model Number ^{(1) (2)}	Max. Output Power (W)	Input Voltage Range (Vac)	Output Voltage Range (Vdc)	Rated Output Voltage (Vdc)	Max. Output Current (A)	Typical Efficiency ⁽³⁾
WVP-1K3S072BSFxx	1300	90-264	36-96	72	15	92.5%
WVP-860S072BSFxx	860	90-264	36-96	72	10	92.0%

Notes: (1) Certified input voltage range: 100-240Vac.

(2) xx - Version code.

(3) Measured at 100% load and 220Vac input (see below "General Specifications" for details).

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	264 Vac	
Input Frequency	45 Hz	-	65 Hz	
Leakage Current	-	-	0.75 mA	IEC60335-1-2020; 240Vac/ 60Hz
Input AC Current				
WVP-1K3S072BSFxx	-	-	13 A	Measured at 100% load and 120 Vac input.
WVP-860S072BSFxx	-	-	9 A	
Inrush Current(Peak)	-	-	20A	Measured at 100% load and 220 Vac input

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
PF	0.99	-	-	Measured at 120Vac, 60Hz, 80%-100% Load
	0.96			Measured at 220Vac, 50Hz, 80%-100% Load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Range	36 Vdc	-	96 Vdc	
Max. Output Current VWP-1K3S072BSFxx VWP-860S072BSFxx			15 A 10 A	
Max. Output Power VWP-1K3S072BSFxx VWP-860S072BSFxx			1300 W 860 W	
Output Current Tolerance	- 0.3 A	-	0.3 A	Output current between 5 and 15A
Output Voltage Ripple (pk-pk)	-5% Vomax		5% Vomax	
Startup Overshoot Voltage	-	-	10%Vomax	At 100% load condition
Output Voltage Tolerance	-1% Vomax	-	1% Vomax	
Line Regulation	-1% Iomax	-	1% Iomax	Measured at 100% load
Load Regulation	-3% Iomax	-	3% Iomax	
Turn-on Delay Time	-	-	3 s	
12V Auxiliary Output Voltage	11.4 V	12 V	12.6 V	
12V Auxiliary Output Current	0 A	-	1 A	

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: VWP-1K3S072BSFxx VWP-860S072BSFxx	88.5% 89.0%	89.5% 90.0%	- -	Measured at 100% load and steady-state temperature in 25°C ambient;
Efficiency at 220 Vac input: VWP-1K3S072BSFxx VWP-860S072BSFxx	91.5% 91.0%	92.5% 92.0%	- -	Measured at 100% load and steady-state temperature in 25°C ambient;
Standby Power	-	-	7 W	Measured at 220Vac/50Hz;
MTBF	-	100,000 Hours	-	Measured at 220Vac input, 80%load (MIL-HDBK-217F)
Lifetime	-	30,000 Hours	-	
Communication Mode	-	CAN	-	
Baud Rate	-	250/500 kbps	-	

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
CAN Terminal Resistance	-	120Ω	-	
Dimensions Millimeters (L × W × H)	251.0 × 154.0 × 88.0			
Net Weight	-	3.2 kg	-	

Environment Performance

Parameter	Min.	Typ.	Max.	Notes
Operation Temperature	-30°C	-	+65°C	
Storage Temperature	-40°C	-	+85°C	
Humidity	5% RH	-	95% RH	
Altitude	0 m	-	2000 m	
Noise	-	-	60 dB	
Cooling Mode	Fan			
IP Rating	IP65			

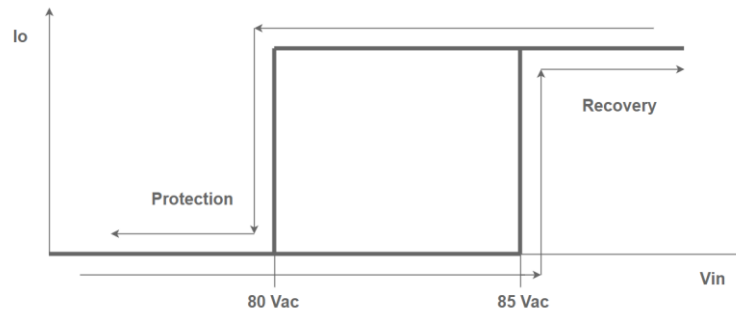
Protection Functions

Parameter		Min.	Typ.	Max.	Notes
Input Under Voltage Protection (IUVP)	Input Under Voltage Protection	72 Vac	80 Vac	88 Vac	Turn off the output when the input voltage falls below protection voltage.
	Input Under Voltage Recovery	77 Vac	85 Vac	93 Vac	Auto Recovery. The charger will restart when the input voltage exceeds recovery voltage.
Input Over Voltage Protection (IOVP)	Input Over Voltage Protection	267 Vac	275 Vac	283 Vac	Turn off the output when the input voltage exceeds protection voltage.
	Input Over Voltage Recovery	262 Vac	270 Vac	278 Vac	Auto Recovery. The charger will restart when the input voltage falls below recovery voltage.
Output Under Voltage Protection (UVP)	Output Under Voltage Protection	24 Vdc	26 Vdc	28 Vdc	Turn off the output when the output voltage falls below protection voltage.
	Output Under Voltage Recovery	26 Vdc	28 Vdc	30 Vdc	Auto Recovery. The charger will restart when the output voltage exceeds recovery voltage.
Output Over Voltage Protection (OVP)	Output Over Voltage Protection	100 Vdc	102 Vdc	104 Vdc	Turn off the output when the output voltage exceeds protection voltage.
	Output Over Voltage Recovery	98 Vdc	100 Vdc	102 Vdc	Auto Recovery. The charger will restart when the output voltage falls below recovery voltage.

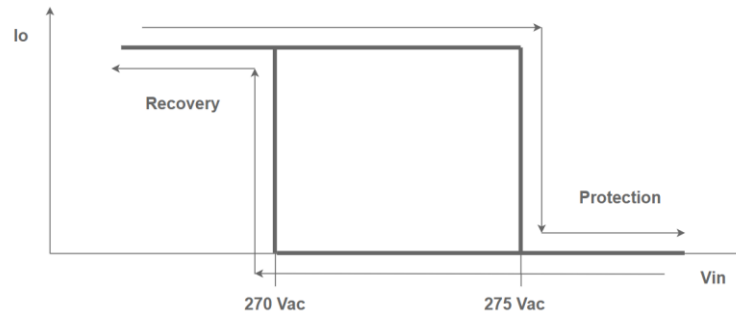
Protection Functions (Continued)

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection	Decrease output power when internal temperature is up to 90°C, turn off output power when internal temperature is up to 105°C, returning to normal after over temperature is removed.			
Over Current Protection	Turn off the output when the output is over current. Returning to normal after the fault is removed.			
Short Circuit Protection	Turn off the output when the output is shorted. Returning to normal after the fault is removed.			
Output Reverse Protection	No output when the battery is reversely connected. Returning to normal after the battery is correctly connected.			
No Load Protection	No output in case the battery is disconnected.			

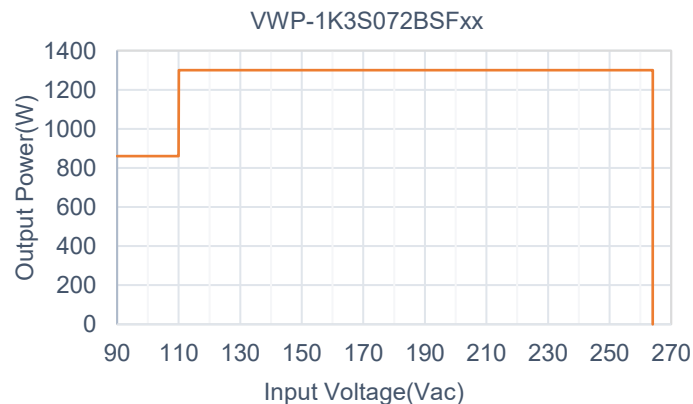
IUVP Diagram

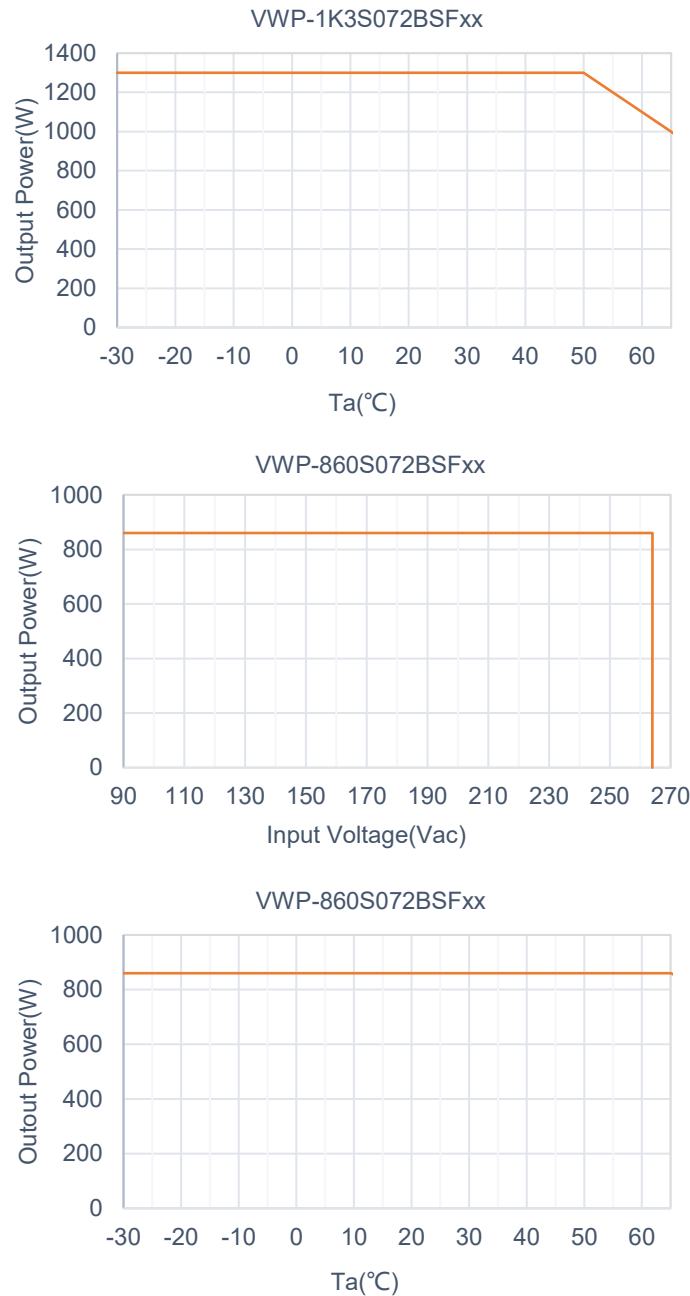


IOVP Diagram



Derating





Charger Indicator

● LED Indicator

Charging State	LED Indicator
Charging < 80%	Flashing red light
Charging >= 80%	Flashing yellow light
Full Charging	Flashing green light
Standby	No light on

● Fault Indicator

Fault State	LED Indicator
AC Input Voltage Abnormal	Red and green 1s each, interval 4s, then repeat
Battery Fault	Red and green 1s each, then repeat
UVP	Red, green, red, green, red 1s each, interval 1s, then repeat
OVP or OCP	Red, green, red 1s each, interval 3s, then repeat
Communication Fault	Red, green, red, green 1s each, interval 2s, then repeat
OTP	Green, red, green red 1s each, interval 2s, then repeat
Other Fault	Green, red, green 1s each, interval 3s, then repeat

Safety & EMC Compliance

Isolation	Notes
Isolation	Primary to Secondary: 3000Vac 10mA max./60s
	Primary to Earth: 1500Vac 10mA max./60s
	Secondary to Earth: 1500Vac 10mA max./60s
Insulation Resistance	Input to Output & Input to Earth: 20MΩ min.@ 500Vdc & normal atmosphere, relative humidity 90%
Grounding Impedance	Earth to Case: 100mΩ @ 25A 8V / 3S
Safety Category	Standard
UL	UL1012
FCC	FCC Part 15
CE	EN 60335-1, EN IEC 60335-2-29, EN IEC 55014-1, EN IEC 55014-2, EN IEC 61000-3-2, EN61000-3-3
CB	EN 60335-1, EN IEC 60335-2-29, EN IEC 55014-1, EN IEC 55014-2, EN IEC 61000-3-2, EN61000-3-3
Safety Category	Standard
EN IEC 55014-1	Conducted emission Test &Radiated emission Test
EN IEC 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired operation.

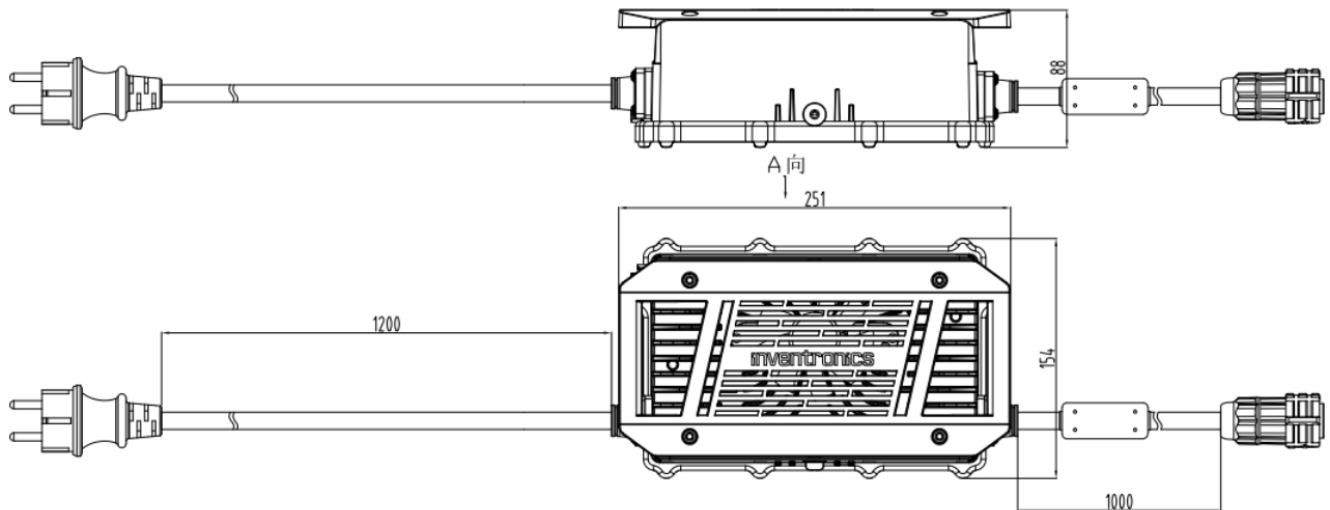
Safety & EMC Compliance (Continued)

EMS Standards	Notes
EN IEC 55014-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN IEC 55014-2	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN IEC 55014-2	Electrical Fast Transient / Burst-EFT
EN IEC 55014-2	Surge Immunity Test: AC Power Line: Differential Mode 1 kV, Common Mode 2 kV
EN IEC 55014-2	Conducted Radio Frequency Disturbances Test-CS
EN IEC 55014-2	Power Frequency Magnetic Field Test
EN IEC 55014-2	Voltage Dips

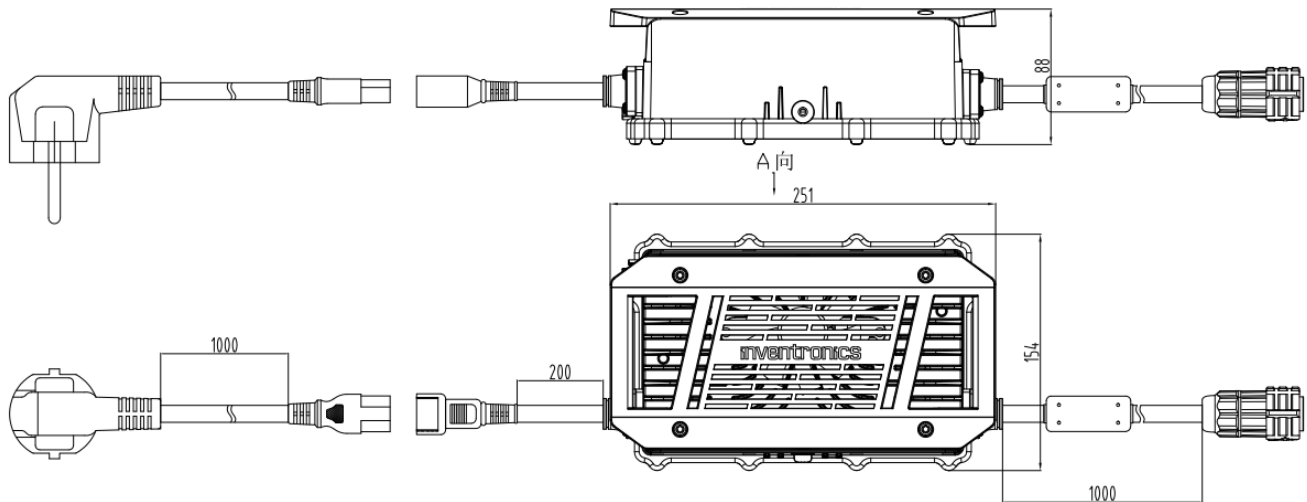
Mechanical Outline

● Mechanical Outline

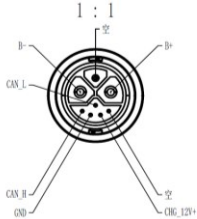
VWP-1K3S072BSFE0 / VWP-860S072BSFE0



VWP-1K3S072BSFE1 / VWP-860S072BSFE1



● AC Plug and DC Connector

Ports	No.	Name	Description.	Notes
Input	1	/	VWP-xxxS072BSFA0 US Standard plug Cable Length: 1.2m (without plug)	
	2	/	VWP-xxxS072BSFE0 EU Standard plug Cable Length: 1.2m (without plug)	
	3	/	VWP-xxxS072BSFE1 EU Standard C14 socket Cable Length: 0.2m (without plug)	
Output	1	B+	DC Connector Model: M25-1+2+5 Cable Length: 1m (without connector)	
	2	B-		
	3	CANH		
	4	CANL		
	5	Aux12+		
	6	Aux12V-		

RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2024/12/18	A01	Release	/	/