



Terminal Type



Wiring Type (IP67)


Harness connector type  
5G Antenna power  
(IP66)


User's Manual



**IP66 IP67**  
(H type) (W type)



## Features

- High efficiency up to 95.5% and active PFC function
- Fanless design, cooling by free air convection
- Aluminum case and filling with heat-conducted glue
- Withstand 10G vibration test
- Wide operating temperature range -40 ~ +70°C
- Charger function for lead-acid batteries and Li-ion batteries
- Built-in default 2/3 stage charging curves and programmable curve
- Built-in CANBus and PMBus / MODBus by optional
- Output voltage and constant current level programmable
- Protections: Short circuit / Over load / Over voltage / Over temperature
- Built-in remote ON-OFF control and DC OK active signal
- Harness connector type with AC fail and T-Alarm signal
- LED indicator for power on and 12V auxiliary power available
- Diverse installation scenarios-Mounting methods
- 6 years warranty

## Applications

- Industrial automation machinery
- Industrial control system at harsh environment
- Mechanical and electrical equipment
- Electronic instruments, equipments
- Charging related equipments.
- 4G telecom system(RRU)
- 5G active antenna unit(AAU)

## GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## Description

HEP-2300 is a 2300W industrial AC/DC power supply featuring the outstanding capability to operate under highly humid, dusty, oily, and high-vibration harsh environment. The entire series is housed with the aluminum case and fully potted with heat-conducted glue. Adopting the full range 90~305VAC input, the series provides an output voltage 55V. In addition to the high efficiency up to 95.5%, that the series operates from -40°C ~ 70°C under free air convection without fan. HEP-2300 has the complete protection functions and 10G anti-vibration capability ; It is complied with the international safety regulations such as TUV EN62368-1 UL62368-1, and design refers to EN61558-1 and EN60335-1. HEP-2300 series serves as a high performance power supply solution for various industrial and 4G/5G telecom applications.

## Model Encoding

HEP - 2300 - 55 W CAN

Function option(Blank/PM/CAN/MOD)

I/O type(Blank: Terminal type, W: Wiring type, H: Harness connector type)

Output voltage(55V)

Rated wattage

Series name

| I/O Type          | Function type | Communication Protocol        | Note       |
|-------------------|---------------|-------------------------------|------------|
| Terminal          | Blank         | CANBus and PV/PC programmable | In Stock   |
|                   | PM            | PMBus and PV/PC programmable  | By request |
| Wiring            | Blank         | PV/PC programmable            | In Stock   |
|                   | PM            | PMBus                         | By request |
|                   | CAN           | CANBus                        | By request |
| Harness connector | Blank         | CANBus                        | In Stock   |
|                   | PM            | PMBus                         | By request |
|                   | MOD           | MODBus-RTU/RS-485             | By request |

Note: 1.MEAN WELL can provide complete cable modification services. Please contact sales representatives for details.

2.Charger function by programmer or PMBus/CANBus setting

**SPECIFICATION**

| MODEL                 |                                        | HEP-2300-55 □□                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |
|-----------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| OUTPUT                | DC VOLTAGE (factory default)           | 55V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |
|                       | CURRENT (factory default)              | 41.8A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | RATED CURRENT (max.)                   | 48A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |
|                       | POWER (factory default)                | 2300W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | RATED POWER (max.)                     | 2304W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | FULL POWER VOLTAGE RANGE               | 48 ~ 57.6V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |
|                       | RIPPLE & NOISE (max.) Note.2           | 480mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |
|                       | VOLTAGE ADJ. RANGE                     | By potentiometer VR<br>39 ~ 57.6V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |
|                       | VOLTAGE TOLERANCE Note.3               | ± 1.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | LINE REGULATION                        | ± 0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | LOAD REGULATION                        | ± 0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | SETUP, RISE TIME                       | 1800ms, 100ms/230VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |
|                       | HOLD UP TIME (Typ.)                    | 12ms/230VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |
| INPUT                 | VOLTAGE RANGE Note.4                   | 90 ~ 305VAC    250 ~ 431VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |
|                       | FREQUENCY RANGE                        | 47 ~ 63Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |
|                       | POWER FACTOR (Typ.)                    | PF>0.99/115VAC, PF>0.95/230VAC, PF>0.93/277VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |
|                       | EFFICIENCY (Typ.)                      | 95.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | AC CURRENT (Typ.)                      | 13.3A / 115VAC    11A / 230VAC    9.3A / 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |
|                       | INRUSH CURRENT (Typ.)                  | Cold start 60A/230VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | LEAKAGE CURRENT                        | <1.8mA Peak / 240VAC    <2mA Peak / 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |
| PROTECTION            | OVERLOAD                               | 105 ~ 115% rated output power<br>Protection type : Constant current limiting, unit will shutdown after 5 sec. re-power on to recover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |
|                       | OVER VOLTAGE                           | 59 ~ 69.1V<br>Protection type : Shut down O/P voltage, re-power on to recover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |
|                       | OVER TEMPERATURE                       | Shut down O/P voltage, recovers automatically after temperature goes down                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |
| FUNCTION              | OUTPUT VOLTAGE PROGRAMMABLE(PV) Note.5 | Adjustment of output voltage is allowable to 50 ~ 120% of nominal output voltage<br>Please refer to the Function Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
|                       | OUTPUT CURRENT PROGRAMMABLE(PC) Note.5 | Adjustment of constant current level is allowable to 20 ~ 100% of rated current<br>Please refer to the Function Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | REMOTE ON/OFF CONTROL                  | Power ON : Short circuit    Power OFF : Open circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |
|                       | AUXILIARY POWER                        | 12V@0.5A tolerance±10%, ripple 150mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
|                       | DC-OK SIGNAL                           | The TTL signal out, PSU turn on = 4.5 ~ 5.5V ; PSU turn off = -0.5 ~ 0.5V. Please refer to the Function Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |
| ENVIRONMENT           | WORKING TEMP.                          | -40 ~ +70°C (Refer to "Derating Curve")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
|                       | WORKING HUMIDITY                       | 20 ~ 95% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |
|                       | STORAGE TEMP., HUMIDITY                | -40 ~ +85°C, 10 ~ 95% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                         |
|                       | TEMP. COEFFICIENT                      | ±0.03%/°C (0 ~ 50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |
|                       | VIBRATION                              | 20 ~ 500Hz, 10G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |
| SAFETY & EMC (Note.7) | SAFETY STANDARDS                       | UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved; design refers to BS EN/EN61558-1, BS EN/EN60335-1 (by request)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | WITHSTAND VOLTAGE Note.6               | OVC III I/P-O/P: 6KVDC    I/P-FG:4KVDC    O/P-FG:4KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|                       | ISOLATION RESISTANCE Note.6            | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC/25°C / 70%RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | EMC EMISSION                           | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Standard                |
|                       |                                        | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | BS EN/EN55032 (CISPR32) |
|                       |                                        | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BS EN/EN55032 (CISPR32) |
|                       |                                        | Harmonic Current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BS EN/EN61000-3-2       |
|                       | EMC IMMUNITY                           | Voltage Flicker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | BS EN/EN61000-3-3       |
|                       |                                        | BS EN/EN55024, BS EN/EN61000-6-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                         |
|                       |                                        | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Standard                |
|                       |                                        | ESD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BS EN/EN61000-4-2       |
|                       |                                        | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BS EN/EN61000-4-3       |
|                       |                                        | EFT / Burst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BS EN/EN61000-4-4       |
|                       |                                        | Surge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | BS EN/EN61000-6-2       |
|                       |                                        | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | BS EN/EN61000-4-6       |
|                       |                                        | Magnetic Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BS EN/EN61000-4-8       |
|                       |                                        | Voltage Dips and Interruptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BS EN/EN61000-4-11      |
| OTHERS                | MTBF                                   | 478K hrs min.    Telcordia SR-332 (Bellcore) ; 44.8K hrs min.    MIL-HDBK-217F (25°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |
|                       | DIMENSION                              | 375*280*88mm (L*W*H), without mounting plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |
|                       | PACKING                                | 12.5Kg; 1pcs/13.5Kg/1.33CUFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |
| NOTE                  |                                        | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance includes set up tolerance, line regulation and load regulation.<br>4. Derating may be needed under low input voltages. Please check the <b>derating curve</b> for more details.<br>5. SVR function is disabled during PV/PC programming operation.<br>6. During withstand voltage and isolation resistance testing, the screw "A" shall be temporarily removed, and shall be installed back after the testing.<br>7. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 1100mm*650mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )<br>8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>9. This series meets the typical life expectancy of > 55,000 hours of operation when Tcase, particularly (Tc) point (or TMP, per DLC), is about 80°C or less.<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                         |

**SPECIFICATION FOR CHARGER (Option function)**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                      |                                                                                      |                                                                          |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HEP-2300-55□□                                                                                                        |                                                                                      |                                                                          |
| OUTPUT                   | BOOST CHARGE VOLTAGE Vboost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 57.6V                                                                                                                |                                                                                      |                                                                          |
|                          | FLOAT CHARGE VOLTAGE Vfloat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 55.2V                                                                                                                |                                                                                      |                                                                          |
|                          | RECOMMENDED BATTERY CAPACITY(AMP HOURS)(Note 2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 120 ~ 400AH                                                                                                          |                                                                                      |                                                                          |
|                          | BATTERY TYPE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Open & Sealed Lead Acid                                                                                              |                                                                                      |                                                                          |
|                          | OUTPUT CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 40A                                                                                                                  |                                                                                      |                                                                          |
| INPUT                    | VOLTAGE RANGE      Note 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90 ~ 305VAC                                                                                                          | 250 ~ 431VDC                                                                         |                                                                          |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 47 ~ 63Hz                                                                                                            |                                                                                      |                                                                          |
|                          | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PF>0.99/115VAC, PF>0.95/230VAC, PF>0.93/277VAC at full load                                                          |                                                                                      |                                                                          |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 95.5%                                                                                                                |                                                                                      |                                                                          |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 13.3A / 115VAC                                                                                                       | 11A / 230VAC      9.3A / 277VAC                                                      |                                                                          |
|                          | INRUSH CURRENT(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Cold start 60A at 230VAC                                                                                             |                                                                                      |                                                                          |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <1.8mA Peak / 240VAC                                                                                                 | <2mA Peak / 277VAC                                                                   |                                                                          |
| PROTECTION               | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Constant current limiting, unit will shutdown after 5 sec, re-power on to recover.                                   |                                                                                      |                                                                          |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 59 ~ 69.1V                                                                                                           |                                                                                      |                                                                          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Protection type :Shut down O/P voltage,re-power on to recover                                                        |                                                                                      |                                                                          |
|                          | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Shut down O/P voltage, recovers automatically after temperature goes down                                            |                                                                                      |                                                                          |
| FUNCTION                 | REMOTE ON/OFF CONTROL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Power ON : Short circuit      Power OFF : Open circuit                                                               |                                                                                      |                                                                          |
|                          | AUXILIARY POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12V @ 0.5A tolerance ±10%, ripple=150mVp-p                                                                           |                                                                                      |                                                                          |
|                          | DC-OK SIGNAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The TTL signal out, PSU turn on = 4.5 ~ 5.5V ; PSU turn off = -0.5 ~ 0.5V. Please refer to the Function Manual.      |                                                                                      |                                                                          |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -40 ~ +70℃ (Refer to "Derating Curve")                                                                               |                                                                                      |                                                                          |
|                          | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 20 ~ 95% RH non-condensing                                                                                           |                                                                                      |                                                                          |
|                          | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -40 ~ +80℃, 10 ~ 95% RH non-condensing                                                                               |                                                                                      |                                                                          |
|                          | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±0.03%/℃ (0 ~ 50℃)                                                                                                   |                                                                                      |                                                                          |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20 ~ 500Hz, 10G 12min./1cycle, period for 72min. each along X, Y, Z axes                                             |                                                                                      |                                                                          |
| SAFETY & EMC<br>(Note.5) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UL62368-1,TUV BS EN/EN62368-1, EAC TP TC 004 approved; design refers to BS EN/EN61558-1, BS EN/EN60335-1(by request) |                                                                                      |                                                                          |
|                          | WITHSTAND VOLTAGE    Note 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OVC III I/P-O/P: 6KVDC    I/P-FG:4KVDC    O/P-FG:4KVDC                                                               |                                                                                      |                                                                          |
|                          | ISOLATION RESISTANCE    Note 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC/25℃ / 70%RH                                                                 |                                                                                      |                                                                          |
|                          | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Parameter                                                                                                            | Standard                                                                             | Test Level / Note                                                        |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Conducted                                                                                                            | BS EN/EN55032 (CISPR32)                                                              | Class B                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Radiated                                                                                                             | BS EN/EN55032 (CISPR32)                                                              | Class A                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Harmonic Current                                                                                                     | BS EN/EN61000-3-2                                                                    | Class A                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Voltage Flicker                                                                                                      | BS EN/EN61000-3-3                                                                    | -----                                                                    |
|                          | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BS EN/EN55024, BS EN/EN61000-6-2                                                                                     |                                                                                      |                                                                          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Parameter                                                                                                            | Standard                                                                             | Test Level / Note                                                        |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ESD                                                                                                                  | BS EN/EN61000-4-2                                                                    | Level 3, 8KV air ; Level 2, 4KV contact                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Radiated                                                                                                             | BS EN/EN61000-4-3                                                                    | Level 3                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | EFT / Burst                                                                                                          | BS EN/EN61000-4-4                                                                    | Level 3                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Surge                                                                                                                | BS EN/EN61000-6-2                                                                    | 2KV/Line-Line 4KV/Line-Earth                                             |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Conducted                                                                                                            | BS EN/EN61000-4-6                                                                    | Level 3                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Magnetic Field                                                                                                       | BS EN/EN61000-4-8                                                                    | Level 4                                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Voltage Dips and Interruptions                                                                                       | BS EN/EN61000-4-11                                                                   | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods |
|                          | OTHERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MTBF                                                                                                                 | 478K hrs min.    Telcordia SR-332 (Bellcore) ; 44.8K hrs min.    MIL-HDBK-217F (25℃) |                                                                          |
| DIMENSION                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 375*280*88mm (L*W*H), without mounting plate                                                                         |                                                                                      |                                                                          |
| PACKING                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12.5Kg;1pcs/13.5Kg/1.33CUFT                                                                                          |                                                                                      |                                                                          |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. This is Mean Well's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.<br>3. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>4. During withstandstands voltage and isolation resistance testing, the screw "A" shall be temporarily removed, and shall be installed back after the testing.<br>5. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 1100mm*650mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )<br>6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>7. This series meets the typical life expectancy of > 55,000 hours of operation when Tcase, particularly (Tc) point (or TMP, per DLC), is about 80℃ or less.<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                                                                                                      |                                                                                      |                                                                          |

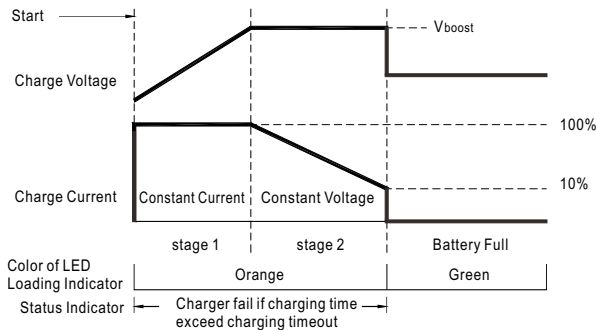


## FUNCTION MANUAL

### 1. Charging Curve

- ※ By default, the HEP-2300 operates in power supply mode, and it can be configured to charger mode by PMBus, CANBus, MODBus, or SBP-001.
- ※ By factory default, this charger performs the default curve which can be programmed via PMBus, CANBus and MODBus.
- ※ To accommodate the parameters of the charging curve, SBP-001, the smart battery charging programmer designed by MEAN WELL, and a personal computer are needed. Please contact MEAN WELL for details.

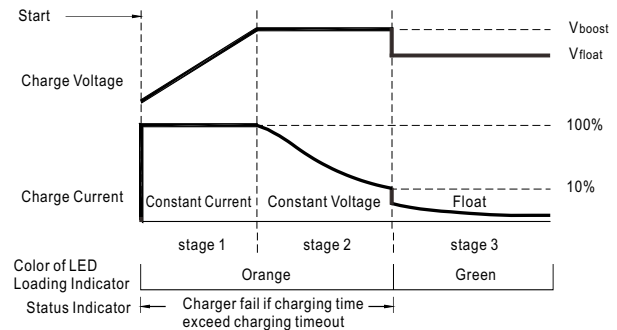
#### ※ 2 stage charging curve



| State            | HEP-2300-55 |
|------------------|-------------|
| Constant Current | 40A         |
| Vboost           | 57.6V       |

◎ Suitable for lead-acid batteries (flooded, Gel and AGM) and Li-ion batteries (lithium iron and lithium manganese).

#### ※ 3 stage charging curve (default)



| State            | HEP-2300-55 |
|------------------|-------------|
| Constant Current | 40A         |
| Vboost           | 57.6V       |
| Vfloat           | 55.2V       |

◎ Suitable for lead-acid batteries (flooded, Gel and AGM) and Li-ion batteries (lithium iron and lithium manganese).

### 2. Front Panel LED Indicators & Corresponding Signal at Function Pins

#### ※ LED Status Indicators

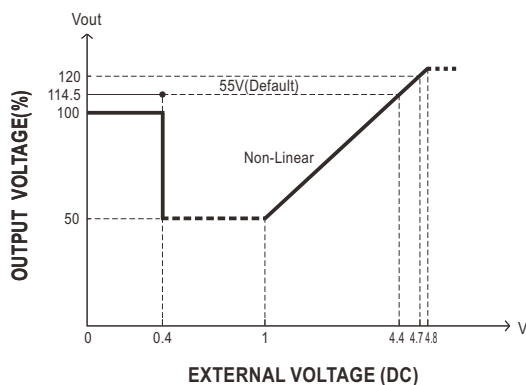
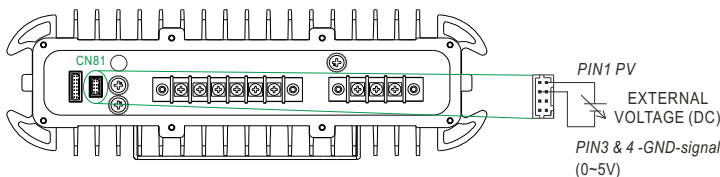
| LED            | Description                                                                                                                                                                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green          | The power supply functions normally.                                                                                                                                                                                                                          |
| Red            | Abnormal status (Over temperature protection, Over load protection)                                                                                                                                                                                           |
| Red (Flashing) | The LED will flash with the red light when the internal temperature reaches 95°C; under this condition, the unit still operates normally without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus/CANBus/MODBus interface.) |

#### ※ LED Status Indicators (for Charger)

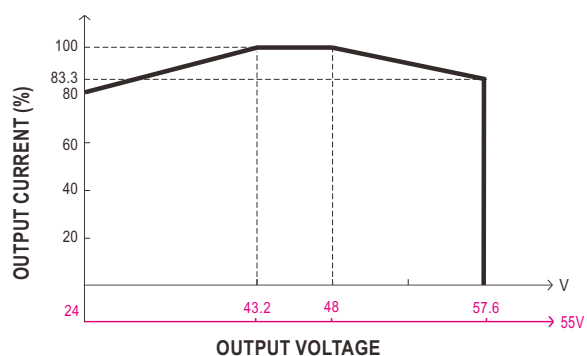
| LED            | Description                                                                                                                                                                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green          | Float (stage 3)                                                                                                                                                                                                                                               |
| Orange         | Charging (stage 1 or stage 2)                                                                                                                                                                                                                                 |
| Red            | Abnormal status (Over temperature protection, Over load protection, Charging timeout.)                                                                                                                                                                        |
| Red (Flashing) | The LED will flash with the red light when the internal temperature reaches 95°C; under this condition, the unit still operates normally without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus/CANBus/MODBus interface.) |

### 3. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

- ※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed by applying EXTERNAL VOLTAGE.



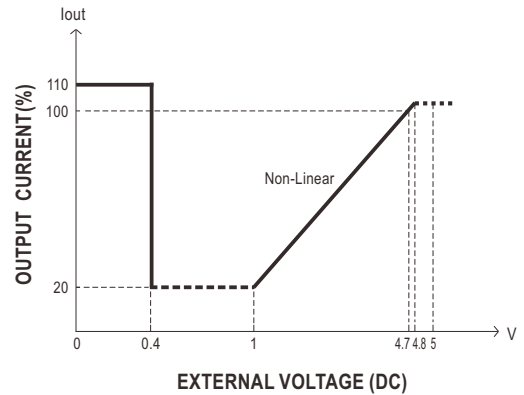
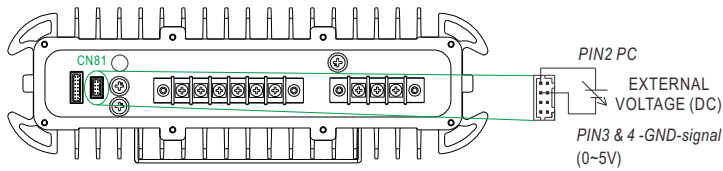
◎ The 100% output voltage is 48V.



◎ The rated current should change with the Output Voltage Programming accordingly.

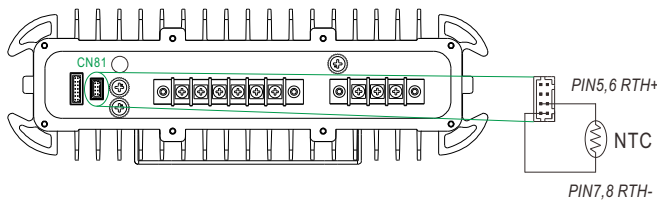
#### 4. Output Current Programming (or, PC / remote current programming / dynamic current trim)

※ The output current can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.



- ◎ The 100% output current is rated current.
- ◎ Maximum operation current <100% is recommended.
- ◎ When external voltage <0.4V the 100% output current will be default current.

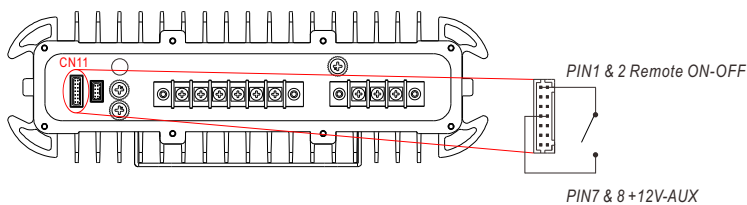
#### 5. Temperature Compensation



- ◎ To exploit the temperature compensation function, please attach the temperature sensor, NTC, which is enclosed with the charger, to the battery or the battery's vicinity.
- ◎ The charger is able to work normally without the NTC.

#### 6. Remote ON-OFF Control

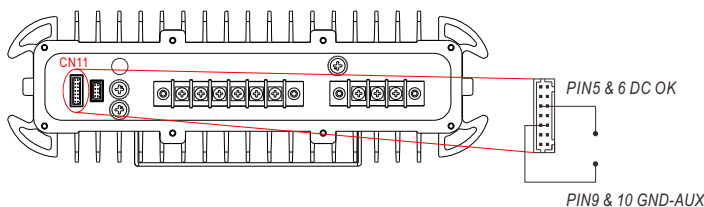
The power supply can be turned ON/OFF individually or along with other units in parallel by using the "Remote ON-OFF" function.



| Remote ON-OFF | Power Supply Status |
|---------------|---------------------|
| Short circuit | ON                  |
| Open circuit  | OFF                 |

#### 7. DC-OK Signal

DC-OK signal is a TTL level signal. The maximum source current is 10mA and the maximum external voltage is 5.5V.



| DC-OK signal     | Power Supply Status |
|------------------|---------------------|
| "High" >4.4~5.5V | ON                  |
| "Low" <-0.5~0.5V | OFF                 |

#### 8. CANBus Communication Interface

HEP-2300 supports CANBus Rev. 1.1 with maximum 250KHz bus speed, allowing information reading, status monitoring, output trimming, etc. For details, please refer to the User's Manual.

#### 9. AC FAIL SIGNAL

Dry contact output, Open: alarm; Closed: normal.

#### 10. OTP SIGNAL

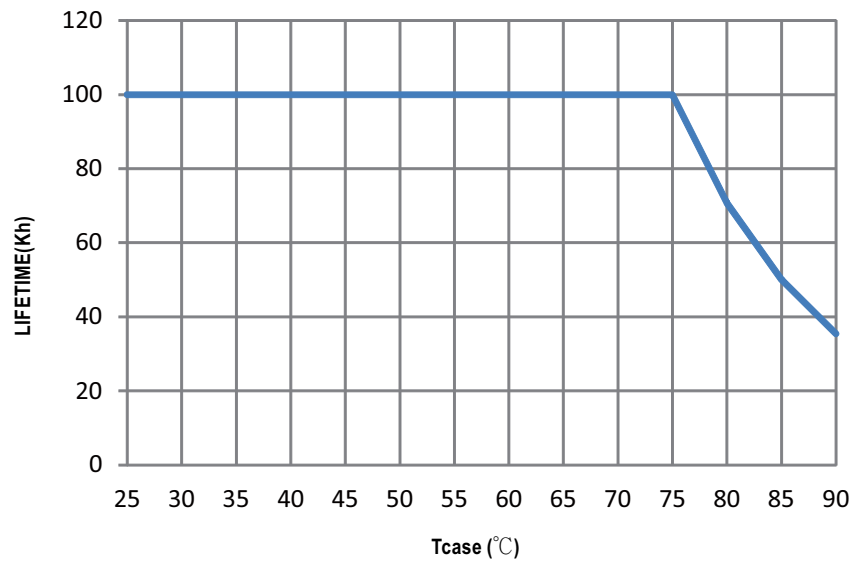
Dry contact output, Open: normal; Closed: alarm.



2300W Switching Power Supply for Harsh Environment

## HEP-2300 series

### ■ LIFETIME

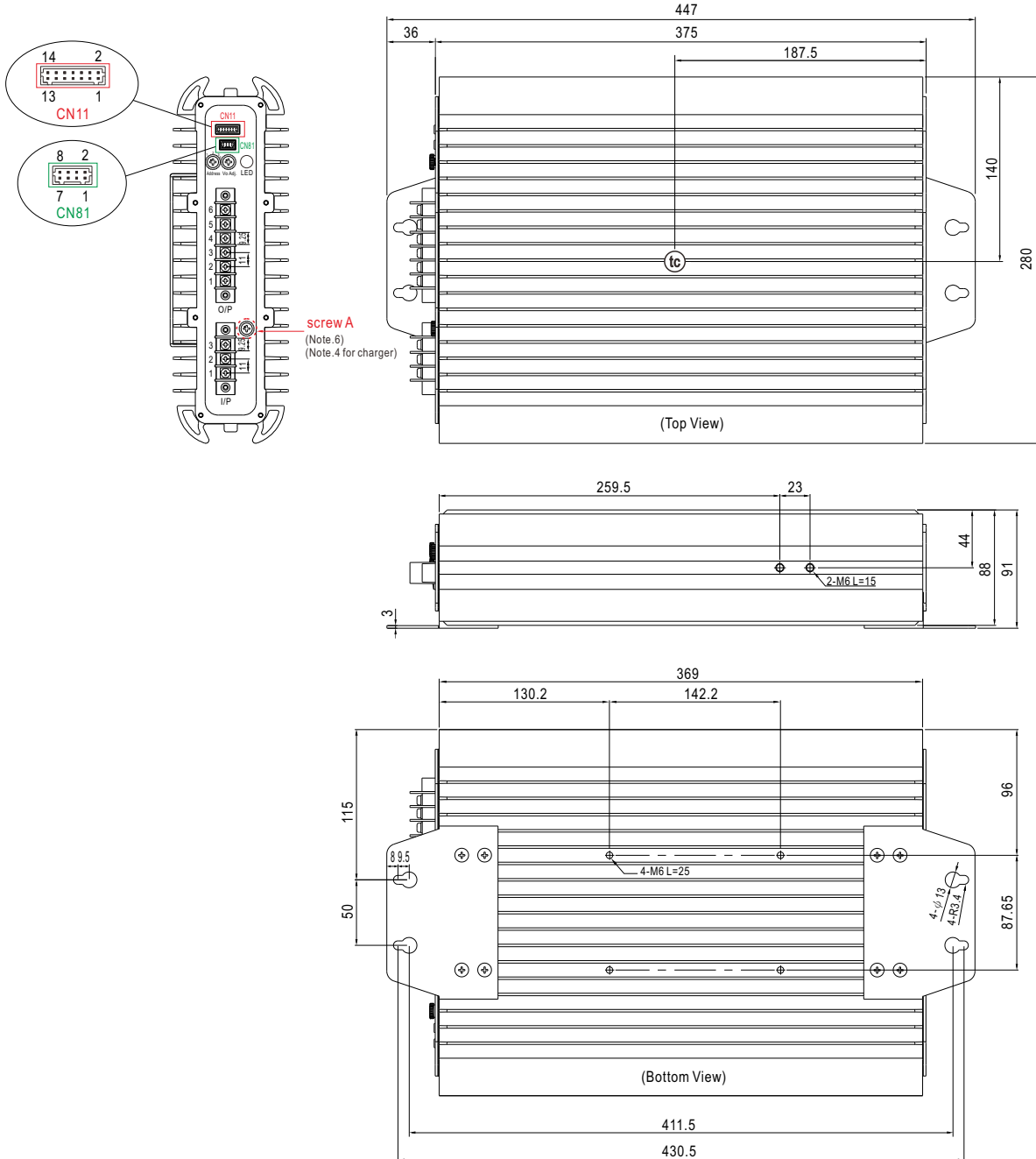


## MECHANICAL SPECIFICATION

※Blank-Type (Terminal type)

Case No. 293A

Unit:mm



※ Output voltage current level can be adjusted through internal potentiometer.(Vo Adj.)

(Can access by removing the rubber stopper on the case.)

※ PMBus interface address selection.(Address)

AC Input Terminal Pin No. Assignment

| Pin No. | Assignment |
|---------|------------|
| 1       | FG (⊖)     |
| 2       | AC/L       |
| 3       | AC/N       |

DC Output Terminal Pin No. Assignment

| Pin No. | Assignment |
|---------|------------|
| 1,2,3   | +V         |
| 4,5,6   | -V         |



※Control Pin No. Assignment(CN81) : JST S8B-PHDKS-B or equivalent

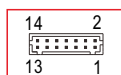


|                |                                  |
|----------------|----------------------------------|
| Mating Housing | JST PHDR-8VS or equivalent       |
| Terminal       | JST SPHD-001T-P0.5 or equivalent |

| Pin No. | Function     | Description                                                                                                                                         |
|---------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | PV           | Connection for output voltage programming.(Note)                                                                                                    |
| 2       | PC           | Connection for constant current level programming.(Note)                                                                                            |
| 3,4     | GND (Signal) | Negative output voltage signal.                                                                                                                     |
| 5,6     | RTH+         | Temperature sensor(NTC, 5KOhm) comes along with the charger can be connected to the unit to allow temperature compensation of the charging voltage. |
| 7,8     | RTH-         |                                                                                                                                                     |

Note: Non-isolated signal, referenced to [GND(signal)].

※Control Pin No. Assignment(CN11) : JST S14B-PHDKS-B or equivalent

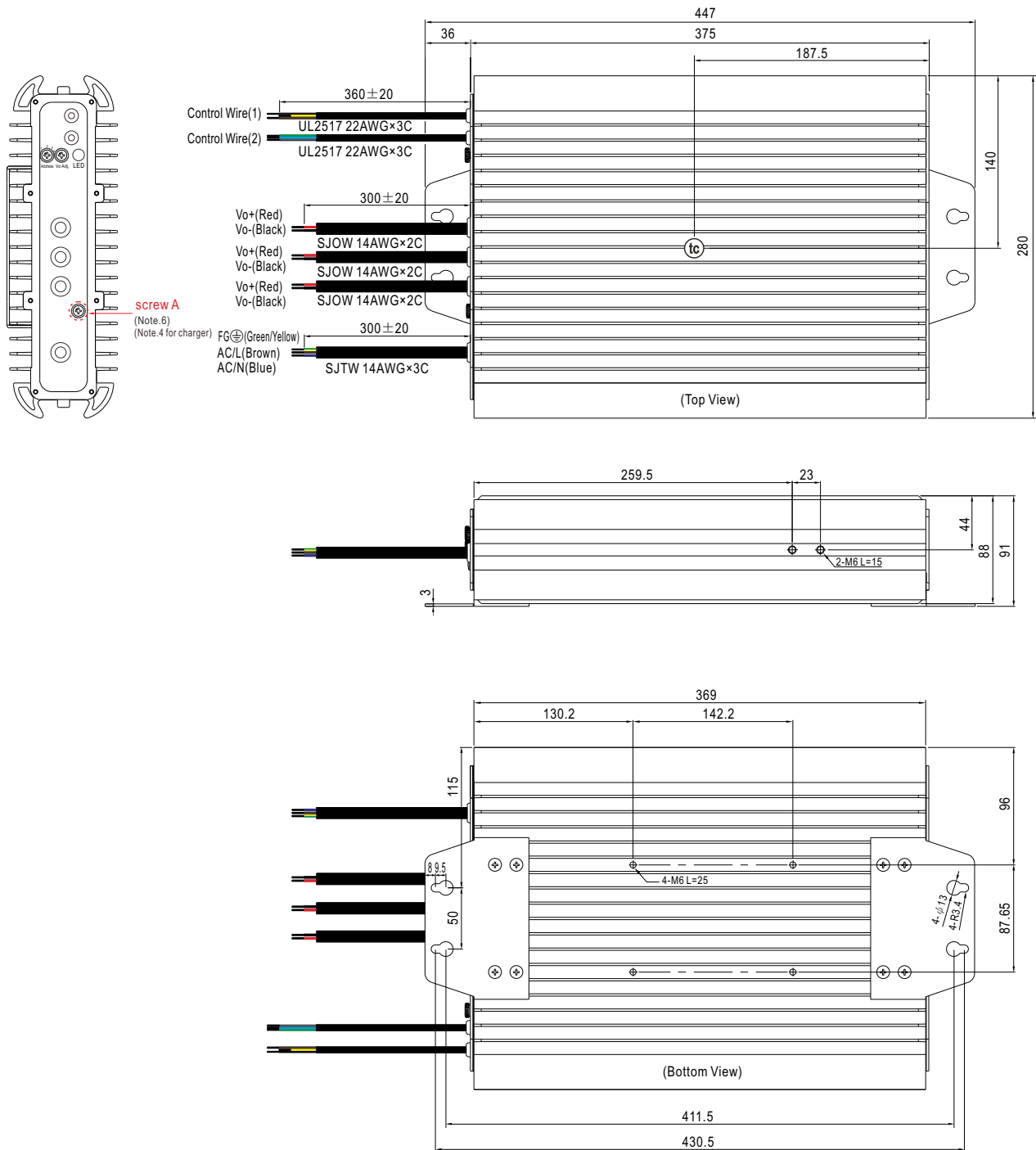


|                |                                  |
|----------------|----------------------------------|
| Mating Housing | JST PHDR-14VS or equivalent      |
| Terminal       | JST SPHD-001T-P0.5 or equivalent |

| Pin No.   | Function      | Description                                                                                                                                                                                                                                                                                             |
|-----------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1,2       | Remote ON-OFF | The unit can turn the output ON/OFF by dry contact between Remote ON/OFF and +12V-AUX.(Note)<br>Short (10.8 ~ 13.2V) : Power ON ; Open(0 ~ 0.5V) : Power OFF ; The maximum input voltage is 13.2V                                                                                                       |
| 3,4,13,14 | NC            | -----                                                                                                                                                                                                                                                                                                   |
| 5,6       | DC-OK         | Low (-0.5 ~ 0.5V) : When $V_{out} \leq 77\% \pm 6\%$ at power mode. $V_{out} \leq 66\% \pm 6\%$ at charger mode.<br>High (4.4 ~ 5.5V) : When $V_{out} \geq 80\% \pm 6\%$ at power mode. $V_{out} \geq 67\% \pm 6\%$ at charger mode.<br>The maximum sourcing current is 10mA and only for output.(Note) |
| 7,8       | +12V-AUX      | Auxiliary voltage output, 10.8~13.2V, referenced to GND-AUX (pin9 & 10).<br>The maximum load current is 0.5A. This output is not controlled by "Remote ON-OFF".                                                                                                                                         |
| 9,10      | GND-AUX       | Auxiliary voltage output GND.<br>The signal return is isolated from the output terminals (+V & -V).                                                                                                                                                                                                     |
| 11        | SDA           | For PMBus model: Serial Data used in the PMBus interface. (Note)                                                                                                                                                                                                                                        |
|           | CANH          | For CANBus model: Data line used in CANBus interface. (Note)                                                                                                                                                                                                                                            |
| 12        | SCL           | For PMBus model: Serial Clock used in the PMBus interface. (Note)                                                                                                                                                                                                                                       |
|           | CANL          | For CANBus model: Data line used in CANBus interface. (Note)                                                                                                                                                                                                                                            |

Note: Isolated signal, referenced to GND-AUX.

## ※W-Type (Wiring type)



※Control Wire Assignment(1) : UL2517 22AWG×3C

| Color  | Function | Description                                                                                                                                                                                                                                                                                            |
|--------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brown  | DC-OK    | Low (0 ~ 0.5V) : When $V_{out} \leq 77\% \pm 6\%$ at power mode. $V_{out} \leq 66\% \pm 6\%$ at charger mode.<br>High (4.4 ~ 5.5V) : When $V_{out} \geq 80\% \pm 6\%$ at power mode. $V_{out} \geq 67\% \pm 6\%$ at charger mode.<br>The maximum sourcing current is 10mA and only for output.(Note.2) |
| Yellow | +12V-AUX | Auxiliary voltage output, 10.8~13.2V, referenced to GND-AUX.<br>The maximum load current is 0.5A.                                                                                                                                                                                                      |
| Black  | GND-AUX  | Auxiliary voltage output GND.<br>The signal return is isolated from the output terminals (+V & -V).                                                                                                                                                                                                    |

Note1: Non-isolated signal, referenced to [GND(signal)].

Note2: Isolated signal, referenced to GND-AUX (GND for CANBus and PMBus protocol).



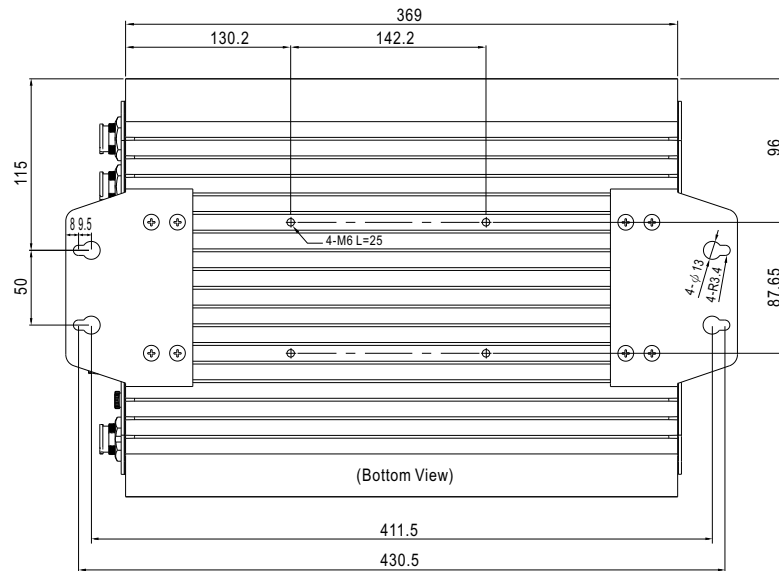
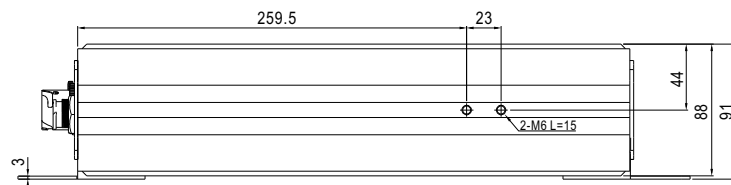
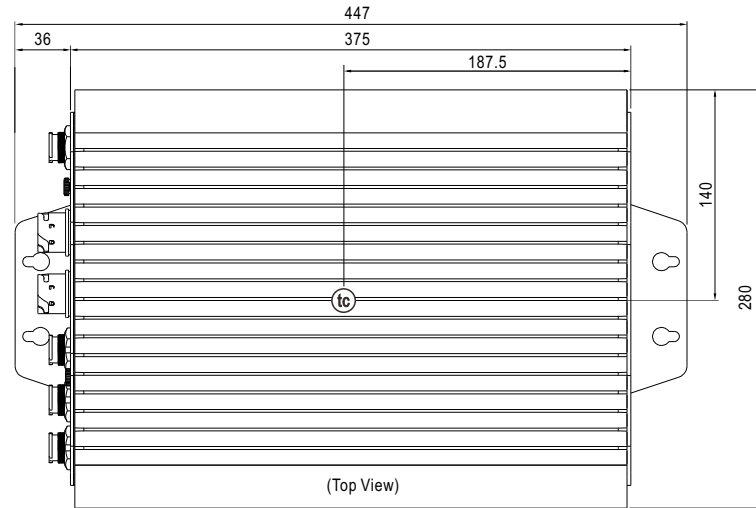
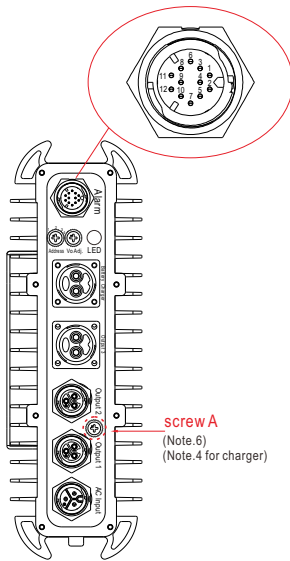
※ Control Wire Assignment(2) : UL2517 22AWG×3C for Blank

| Color | Function     | Description                                                |
|-------|--------------|------------------------------------------------------------|
| Green | PV           | Connection for output voltage programming.(Note.1)         |
| Blue  | PC           | Connection for constant current level programming.(Note.1) |
| White | GND (Signal) | Negative output voltage signal.(PV/PC GND)                 |

※Control Wire Assignment(2) : UL2517 22AWG×3C for PM/CANBus Function

| Color | Function | Description                                                                                         |
|-------|----------|-----------------------------------------------------------------------------------------------------|
| Green | SDA      | For PMBus model: Serial Data used in the PMBus interface. (Note.2)                                  |
|       | CANH     | For CANBus model: Data line used in CANBus interface. (Note.2)                                      |
| Blue  | SCL      | For PMBus model: Serial Clock used in the PMBus interface. (Note.2)                                 |
|       | CANL     | For CANBus model: Data line used in CANBus interface. (Note.2)                                      |
| White | GND-AUX  | Auxiliary voltage output GND.<br>The signal return is isolated from the output terminals (+V & -V). |

## ※H-Type (Harness connector type)



### AC Input



Max. 20A

### AC Input Pin No. Assignment :

ALTW CC-03PMMS-QC800P or equivalent

| Pin No. | Assignment  | Mating connector                  |
|---------|-------------|-----------------------------------|
| 1       | AC/L        | CC-03BFFA-QL8APP<br>or equivalent |
| 2       | FG $\oplus$ |                                   |
| 3       | AC/N        |                                   |

### Output 1



Max. 20A

### Output 2



Max. 20A

### DC Output 1,2 Pin No. Assignment :

ALTW CC-03PMFS-QC800P or equivalent

| Pin No. | Assignment | Mating connector                  |
|---------|------------|-----------------------------------|
| 1,3     | +V         | CC-03BFMA-QL8APP<br>or equivalent |
| 2       | -V         |                                   |

### Output 3



Max. 50A

### Battery Charger



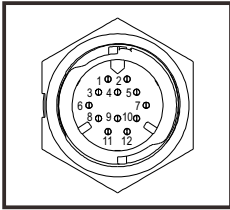
Max. 50A

### DC Output 3, Battery Charger Pin No. Assignment :

ALTW PWM-02RMFS-TS7001 or equivalent

| Pin No. | Assignment | Mating connector                   |
|---------|------------|------------------------------------|
| 1       | +V         | PWM-02BFMB-TL7001<br>or equivalent |
| 2       | -V         |                                    |

※Control Pin No. Assignment : ALTW CD-12PMMS-QC8001 or equivalent



Mating connector CD-12BFFA-QL8AP0 or equivalent

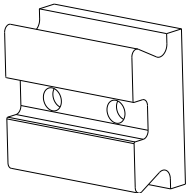
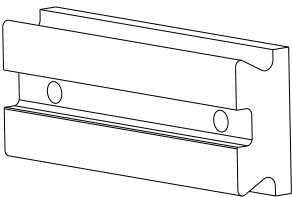
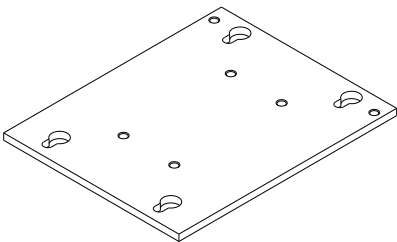
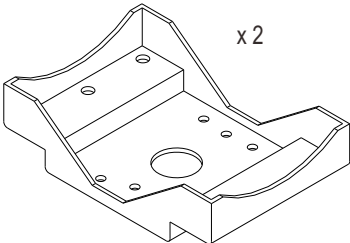
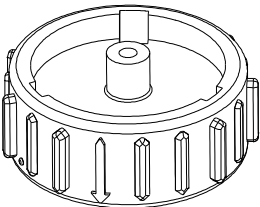
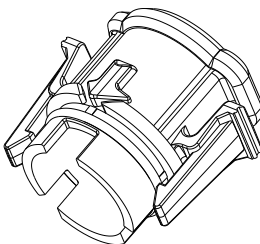
## Alarm and signal

| Pin No. | Function      | Description                                                                                                                                                                         |
|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | DC-OK-GND     | Dry contact output. Open: alarm, Closed: normal.                                                                                                                                    |
| 2       | Remote ON-OFF | The unit can turn the output OFF by dry contact between OFF and GND-AUX.(Note)<br>Short (10.8 ~ 13.2V) : Power ON ; Open(0 ~ 0.5V) : Power OFF ; The maximum input voltage is 13.2V |
| 3       | DC-OK         | Dry contact output. Open: alarm, Closed: normal. Relay contact rating(maximum) is 30V/1A resistive.                                                                                 |
| 4       | +12V-AUX      | Auxiliary voltage output, 10.8~13.2V, referenced to GND-AUX (pin9 & 10).<br>The maximum load current is 0.5A. This output is not controlled by "Remote ON-OFF".                     |
| 5,7     | GND-AUX       | Auxiliary voltage output GND.<br>The signal return is isolated from the output terminals (+V & -V).                                                                                 |
| 6       | AC Fail-GND   | Dry contact output, Open: alarm; Closed: normal.                                                                                                                                    |
| 8       | AC Fail       | Dry contact output, Open: alarm; Closed: normal. Relay contact rating(maximum) is 30V/1A resistive.                                                                                 |
| 9       | T-Alarm-GND   | Dry contact output, Open: normal; Closed: alarm. (OTP signal)                                                                                                                       |
| 10      | SDA           | For PMBus model: Serial Data used in the PMBus interface. (Note)                                                                                                                    |
|         | CANH          | For CANBus model: Data line used in CANBus interface. (Note)                                                                                                                        |
|         | Data +        | For RS-485 model: Data +.                                                                                                                                                           |
| 11      | T-Alarm       | Dry contact output, Open: normal; Closed: alarm. (OTP signal) Relay contact rating(maximum) is 30V/1A resistive.                                                                    |
| 12      | SCL           | For PMBus model: Serial Clock used in the PMBus interface. (Note)                                                                                                                   |
|         | CANL          | For CANBus model: Data line used in CANBus interface. (Note)                                                                                                                        |
|         | Data -        | For RS-485 model: Data -.                                                                                                                                                           |

Note: Isolated signal, referenced to GND-AUX.

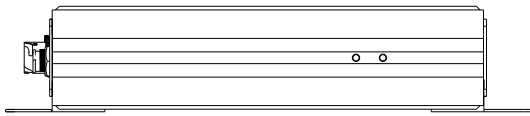
**■ Accessory List**

※ Optional equipment

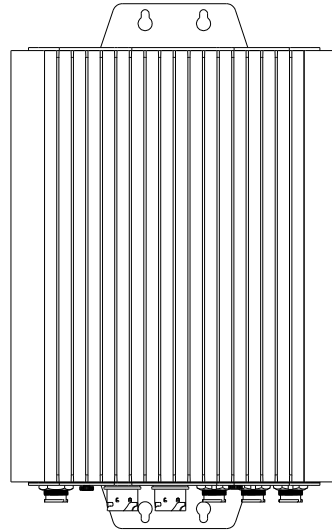
| MW's Order No.                    |   | Item                                                                                                                                                                                     | Quantity |
|-----------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| DGG2BKT-001<br>(For housing side) | ① |  +  M6 L=16*2        | 1        |
| DGG2BKT-002<br>(For pole side)    | ② |  +  M6 L=16*2        | 1        |
| DGG2BKT-003                       | ③ |  +  M6 L=25*4     | 1        |
| DGG2BKT-004                       | ④ |  x2 +  M6 L=12*4 | 1        |
| DFF1ZAHB-A0025(A)                 | ⑤ |  Waterproof connector cap for AC, output 1/2 and alarm signal.                                        | 1        |
| DFF1CAP-WACMQMA1(B)               | ⑥ |  Waterproof connector cap for output 3 and Battery charger.                                           | 1        |

## ■ Mounting Methods

### 1. Mounting plate (Standard type)



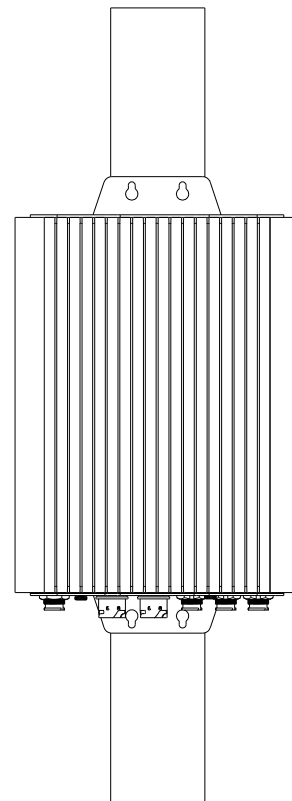
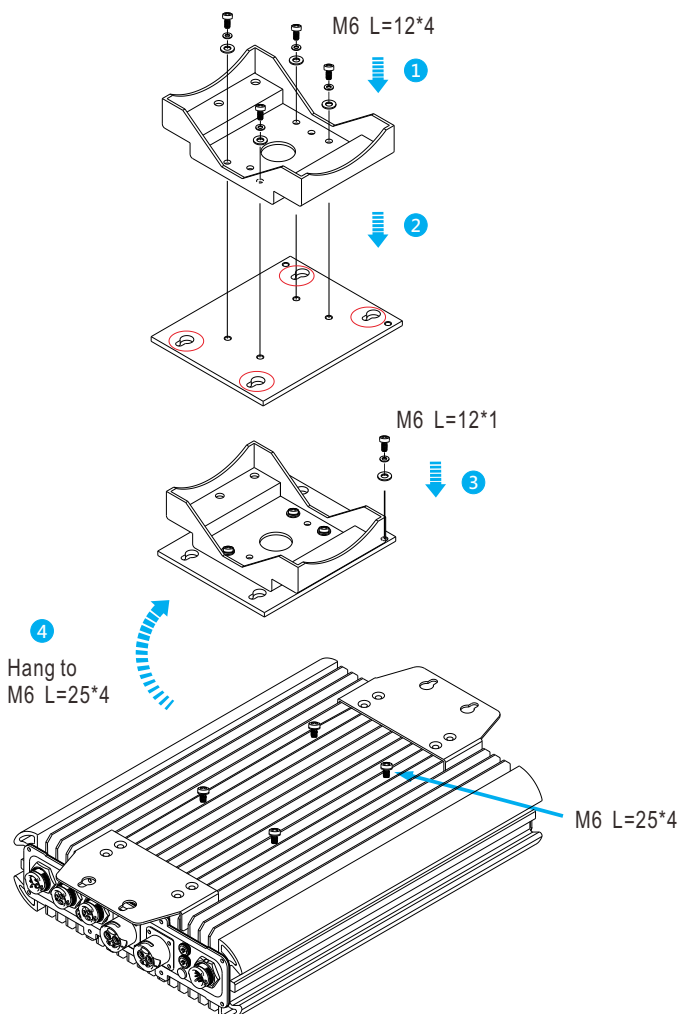
Horizontal mounted



Vertical mounted

### 2. Pole mounted with a bracket kit (Optional type)

◎ Rear mounted (Optional Bracket Part No: DGG2BKT-003 、 DGG2BKT-004)



◎ Side mounted (Optional Bracket part No.: DGG2BKT-001、DGG2BKT-002、DGG2BKT-004)

