



600W Switching Power Supply for Harsh Environment

**HEP-600** series



IS 13252  
8  
(Note 8)



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- No load power consumption <0.5W at remote OFF
- High efficiency up to 96%
- Fanless design, cooling by free air convection
- -40 ~ +70°C wide operating range
- Aluminum case and filling with heat-conducted glue
- Withstand 10G vibration test
- Output voltage and output current can be adjusted through internal potentiometer
- Protections: Short circuit / Over current / Over voltage / Over temperature
- LED indicator for power on
- Operating altitude up to 5000 meters (Note.7)
- 6 years warranty

## ■ Description

HEP-600 is a 600W 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 silicone. Thanks to state-of-the-art design, the working efficiency is up to 96%, enabling HEP-600 perfectly work between -40°C and +70°C under free air convection.

## ■ Model Encoding

**HEP - 600 - 12**

Output voltage  
Output wattage  
Series name

## ■ Applications

- Outdoor telecommunication equipment
- Outdoor electronic signage and billboard
- Petroleum plant or mine shaft facility

## ■ GTIN CODE

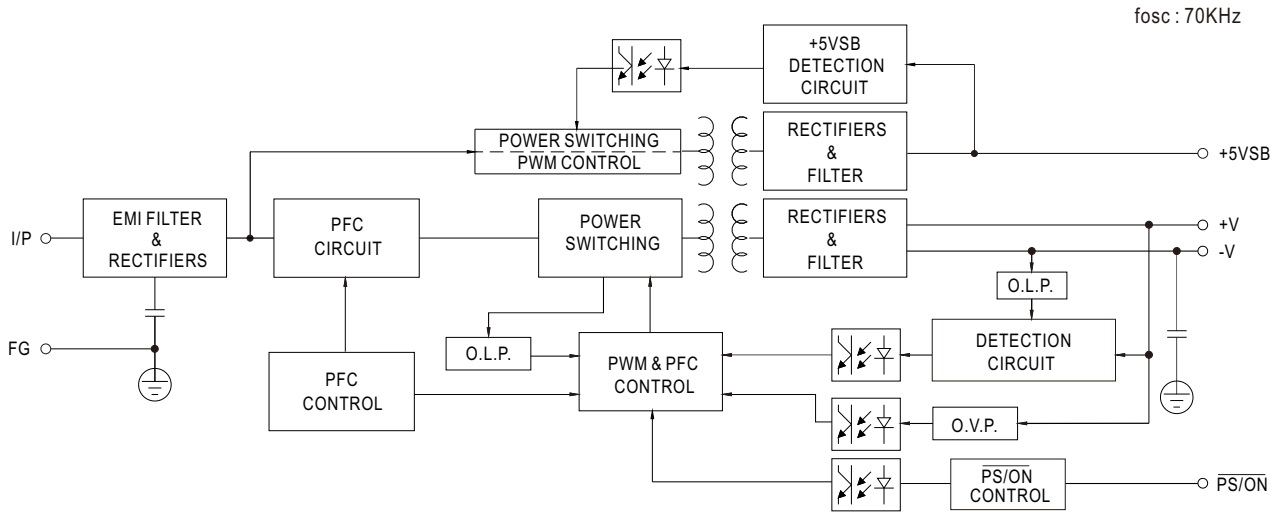
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>



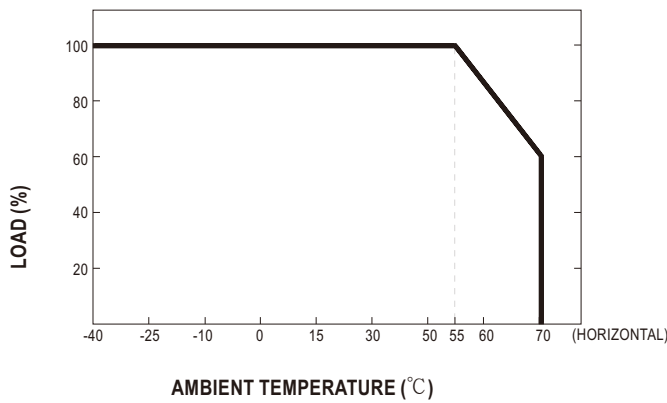
## SPECIFICATION

| MODEL                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HEP-600-12                                                                                                         | HEP-600-15   | HEP-600-20 | HEP-600-24   | HEP-600-30   | HEP-600-36   | HEP-600-42   | HEP-600-48   | HEP-600-54   |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| OUTPUT                  | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12V                                                                                                                | 15V          | 20V        | 24V          | 30V          | 36V          | 42V          | 48V          | 54V          |
|                         | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 40A                                                                                                                | 36A          | 28A        | 25A          | 20A          | 16.7A        | 14.3A        | 12.5A        | 11.2A        |
|                         | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 480W                                                                                                               | 540W         | 560W       | 600W         | 600W         | 601.2W       | 600.6W       | 600W         | 604.8W       |
|                         | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 150mVp-p                                                                                                           | 150mVp-p     | 150mVp-p   | 150mVp-p     | 200mVp-p     | 250mVp-p     | 250mVp-p     | 250mVp-p     | 350mVp-p     |
|                         | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.2 ~ 12.6V                                                                                                       | 12.7 ~ 15.8V | 17 ~ 21V   | 20.4 ~ 25.2V | 25.5 ~ 31.5V | 30.6 ~ 37.8V | 35.7 ~ 44.1V | 40.8 ~ 50.4V | 45.9 ~ 56.7V |
|                         | CURRENT ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Can be adjusted by internal potentiometer                                                                          |              |            |              |              |              |              |              |              |
|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20 ~ 40A                                                                                                           | 18 ~ 36A     | 14 ~ 28A   | 12.5 ~ 25A   | 10 ~ 20A     | 8.3 ~ 16.7A  | 7.1 ~ 14.3A  | 6.2 ~ 12.5A  | 5.6 ~ 11.2A  |
|                         | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ±3.0%                                                                                                              | ±2.0%        | ±1.5%      | ±1.0%        | ±1.0%        | ±1.0%        | ±1.0%        | ±1.0%        | ±1.0%        |
|                         | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±0.5%                                                                                                              | ±0.5%        | ±0.5%      | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        |
|                         | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±2.0%                                                                                                              | ±1.5%        | ±1.0%      | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        | ±0.5%        |
| SETUP, RISE TIME Note.5 | 500ms, 80ms at full load 230VAC /115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |              |            |              |              |              |              |              |              |
| HOLD UP TIME (Typ.)     | 15ms at full load 230VAC /115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                    |              |            |              |              |              |              |              |              |
| INPUT                   | VOLTAGE RANGE Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 90~264VAC(277VAC operational) 128~370VDC(390VDC operational)                                                       |              |            |              |              |              |              |              |              |
|                         | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 47 ~ 63Hz                                                                                                          |              |            |              |              |              |              |              |              |
|                         | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PF>0.98/115VAC, PF>0.95/230VAC, PF>0.93/277VAC at full load                                                        |              |            |              |              |              |              |              |              |
|                         | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 93%                                                                                                                | 94%          | 95%        | 95%          | 95.5%        | 95.5%        | 96%          | 96%          | 96%          |
|                         | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7A / 115VAC 3.3A / 230VAC 2.9A / 277VAC                                                                            |              |            |              |              |              |              |              |              |
|                         | INRUSH CURRENT(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | COLD START 70A(twidth=1000μs measured at 50% Ipeak) at 230VAC                                                      |              |            |              |              |              |              |              |              |
|                         | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <0.75mA / 277VAC                                                                                                   |              |            |              |              |              |              |              |              |
| PROTECTION              | OVER CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 105 ~ 125%<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed |              |            |              |              |              |              |              |              |
|                         | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Constant current limiting, recovers automatically after fault condition is removed                                 |              |            |              |              |              |              |              |              |
|                         | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13 ~ 16V                                                                                                           | 16.5 ~ 20.5V | 22 ~ 26V   | 26 ~ 30V     | 32.5 ~ 36.5V | 39.5 ~ 43.5V | 46 ~ 50V     | 52.5 ~ 56.5V | 59 ~ 63V     |
|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Protection type : Shut down o/p voltage, re-power on to recover                                                    |              |            |              |              |              |              |              |              |
|                         | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Shut down o/p voltage, re-power on to recover                                                                      |              |            |              |              |              |              |              |              |
| FUNCTION                | REMOTE ON/OFF CONTROL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Power on : "Hi" >2 ~ 5V or Open circuit Power off : "Low" <0 ~ 0.5V or Short circuit                               |              |            |              |              |              |              |              |              |
|                         | 5V STANDBY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5Vsb : 5V@0.5A ; tolerance ±5%, ripple : 100mVp-p(max.)                                                            |              |            |              |              |              |              |              |              |
| ENVIRONMENT             | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -40 ~ +70℃ (Refer to "Derating Curve")                                                                             |              |            |              |              |              |              |              |              |
|                         | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20 ~ 95% RH non-condensing                                                                                         |              |            |              |              |              |              |              |              |
|                         | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 ~ +85℃, 10 ~ 95% RH non-condensing                                                                             |              |            |              |              |              |              |              |              |
|                         | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ±0.03%/℃ (0 ~ 60℃)                                                                                                 |              |            |              |              |              |              |              |              |
|                         | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 ~ 500Hz, 10G 12min./1cycle, period for 72min. each along X, Y, Z axes                                           |              |            |              |              |              |              |              |              |
| SAFETY & EMC (Note.6)   | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | UL62368-1,TUV BS EN/EN62368-1, EAC TP TC 004, BIS IS13252(Part1): 2010/IEC 60950-1:2005(NOTE 8) approved           |              |            |              |              |              |              |              |              |
|                         | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC                                                                       |              |            |              |              |              |              |              |              |
|                         | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH                                                          |              |            |              |              |              |              |              |              |
|                         | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020                                 |              |            |              |              |              |              |              |              |
|                         | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, heavy industry level, EAC TP TC 020                   |              |            |              |              |              |              |              |              |
| OTHERS                  | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 914.7K hrs min. Telcordia SR-332 (Bellcore) ; 76.9K hrs min. MIL-HDBK-217F (25℃)                                   |              |            |              |              |              |              |              |              |
|                         | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 280*144*48.5mm (L*W*H)                                                                                             |              |            |              |              |              |              |              |              |
|                         | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.9Kg; 4pcs/16Kg/0.9CUFT                                                                                           |              |            |              |              |              |              |              |              |
| NOTE                    | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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 static characteristics for more details.<br>5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.<br>6. 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 360mm*360mm 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."<br>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )<br>7. 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>8. Some model may not have the BIS logo, please contact your MEAN WELL sales for more information.<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> |                                                                                                                    |              |            |              |              |              |              |              |              |

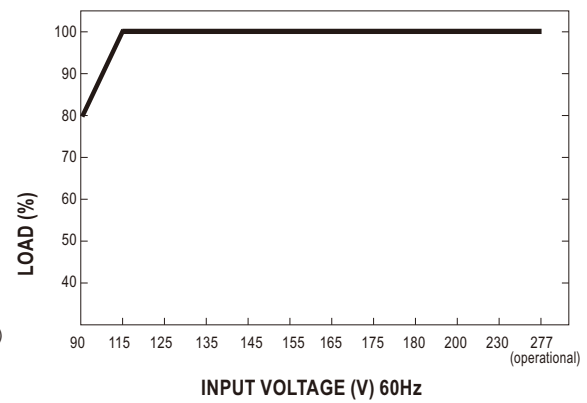
## Block Diagram



## Derating Curve



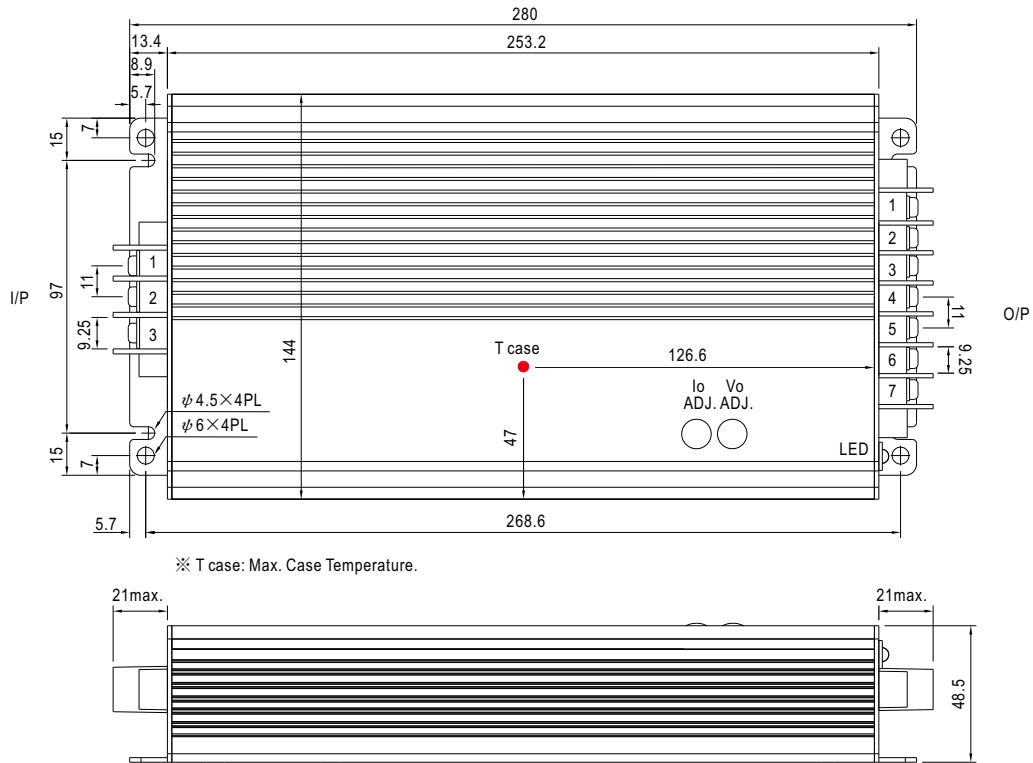
## Static Characteristics



## Mechanical Specification

Case No. 228A

Unit:mm Tolerance:±1



※ Output voltage and constant current level can be adjusted through internal potentiometer.  
(Can access by removing the rubber stopper on the case.)

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        | Pin No. | Assignment |
|---------|-------------------|---------|------------|
| 1       | RC+               | 4,5     | -V         |
| 2       | RC- & GND         | 6,7     | +V         |
| 3       | +5V <sub>SB</sub> |         |            |

## Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>

 [www.simpex.ch](http://www.simpex.ch)

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