



## 3200W Power Supply with Single Output

# NSP-3200 series

### Dimension

| L                            | W | H |
|------------------------------|---|---|
| 325.8 * 107 * 41 (1U) mm     |   |   |
| 12.8 * 4.21 * 1.61 (1U) inch |   |   |



Front



User's Manual



Back



### ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 94.5%
- Forced air cooling by built-in DC fan
- Output voltage level programmable
- Built-in intelligent fan speed control
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Design refer to SEMI F47 at 200VAC
- Optional conformal coating
- 5 years warranty

### ■ Applications

- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- Aging facility
- Digital broadcasting
- Constant current source

### ■ GTIN CODE

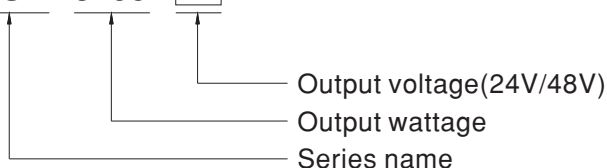
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

### ■ Description

NSP-3200 is a 3.2KW single output enclosed type AC/DC power supply with 1U low profile and a high power density up to 37W/inch<sup>3</sup>. This series operates for 90~264VAC input voltage and offers the models with the DC output mostly demanded by the industry. Each model is cooled by the thermostatically controlled fan. Moreover, NSP-3200 provides vast design flexibility by equipping various built-in functions such as output programming, remote ON-OFF control, auxiliary power, and etc.

### ■ Model Encoding / Order Information

NSP - 3200 - 24



**SPECIFICATION**

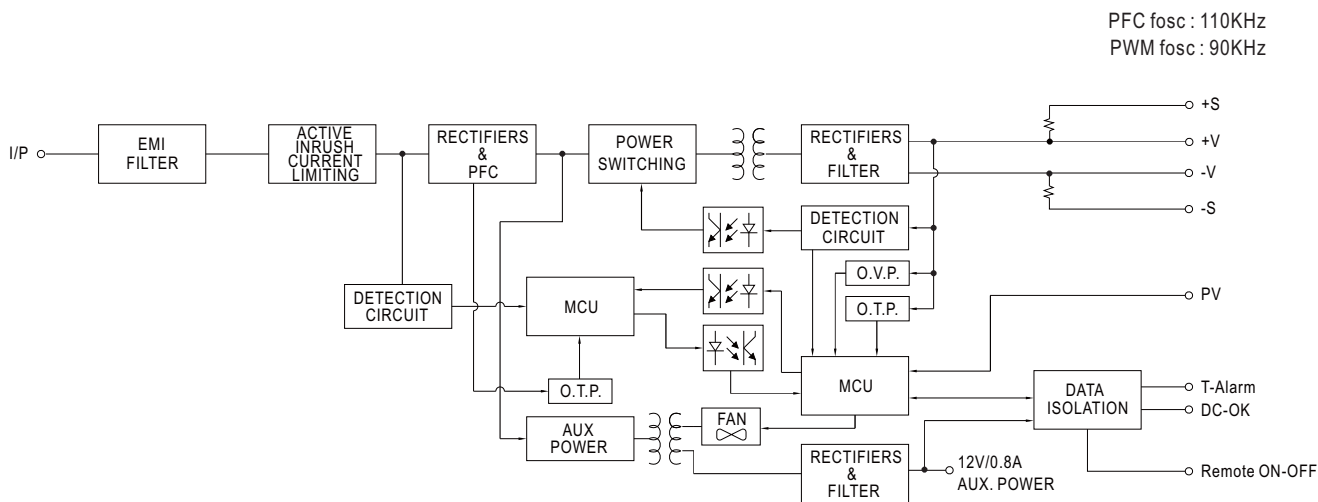
| MODEL                          | NSP-3200-24  |  | NSP-3200-48   |                   |  |
|--------------------------------|--|--|---|-------------------|--|
| OUTPUT                         | DC VOLTAGE   | 24V  |   | 48V               |  |
|                                | RATED CURRENT  | 133A   |   | 67A               |  |
|                                | CURRENT RANGE  | 0 ~ 133A   |   | 0 ~ 67A           |  |
|                                | RATED POWER  | 3192W  |   | 3216W             |  |
|                                | RIPPLE & NOISE (max.) <small>Note.2,3</small>  | 300mVp-p   |   | 480mVp-p          |  |
|                                | VOLTAGE ADJ. RANGE   | 23.5 ~ 30V   |   | 47.5 ~ 58.8V      |  |
|                                | VOLTAGE TOLERANCE <small>Note.4</small>  | ± 1.0%   |   | ± 1.0%            |  |
|                                | LINE REGULATION  | ± 0.5%   |   | ± 0.5%            |  |
|                                | LOAD REGULATION  | ± 0.5%   |   | ± 0.5%            |  |
|                                | SETUP, RISE TIME   | 1500ms, 60ms/230VAC at full load   |   |                   |  |
| HOLD UP TIME (Typ.)            | 16ms / 230VAC at 70% load    8ms / 230VAC at full load   |  |   |                   |  |
| INPUT                          | VOLTAGE RANGE <small>Note.5</small>  | 90 ~ 264VAC    127 ~ 400VDC  |   |                   |  |
|                                | FREQUENCY RANGE  | 47 ~ 63Hz  |   |                   |  |
|                                | POWER FACTOR (Typ.)  | 0.97/230VAC at full load   |   |                   |  |
|                                | EFFICIENCY (Typ.) <small>Note.6</small>  | 93.5%  |   | 94.5%             |  |
|                                | AC CURRENT (Typ.) <small>Note.5</small>  | 17A/230VAC   |   |                   |  |
|                                | INRUSH CURRENT (Typ.)  | COLD START 55A/230VAC  |   |                   |  |
| LEAKAGE CURRENT                | <2mA / 230VAC  |  |   |                   |  |
| PROTECTION                     | OVERLOAD   | 105 ~ 115% rated output power<br>Protection type : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover |   |                   |  |
|                                | OVER VOLTAGE   | 31.5 ~ 37.5V   | 63 ~ 75V<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)  | Adjustment of output voltage is allowable to 50 ~ 125% of nominal output voltage<br>Please refer to the Function Manual in following pages                       |   |                   |  |
|                                | REMOTE ON-OFF CONTROL  | By electrical signal or dry contact    Power ON:short    Power OFF:open. Please refer to the Function Manual in following pages                                  |   |                   |  |
|                                | REMOTE SENSE   | Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual in following pages  |   |                   |  |
|                                | AUXILIARY POWER  | 12V @ 0.8A, tolerance ± 10%  |   |                   |  |
| ALARM SIGNAL                   | Isolated TTL signal output for T-Alarm and DC-OK. Please refer to the Function Manual in following pages   |  |   |                   |  |
| ENVIRONMENT                    | WORKING TEMP.  | -20 ~ +70°C (Refer to "Derating Curve")  |   |                   |  |
|                                | WORKING HUMIDITY   | 20 ~ 90% RH non-condensing   |   |                   |  |
|                                | STORAGE TEMP., HUMIDITY  | -40 ~ +85°C, 10 ~ 95% RH non-condensing  |   |                   |  |
|                                | TEMP. COEFFICIENT  | ± 0.03%/°C (0 ~ 50°C)  |   |                   |  |
|                                | VIBRATION  | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes   |   |                   |  |
| SAFETY & EMC (Note 8)          | SAFETY STANDARDS   | UL62368-1, CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved  |   |                   |  |
|                                | WITHSTAND VOLTAGE  | I/P-O/P:3KVAC    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°C / 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, design refer to SEMI F47 at 200VAC   |   |                   |  |
|                                |  | 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/EN61000-4-5  | 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   | 637.4K hrs min.    Telcordia SR-332 (Bellcore) ; 63.7K hrs min.    MIL-HDBK-217F (25°C)  |   |                   |  |
|                                | DIMENSION  | 325.8*107*41mm (L*W*H)   |   |                   |  |
|                                | PACKING  | 2.24Kg;4pcs/10Kg/1.09CUFT  |   |                   |  |
| NOTE                           | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</p> <p>3. Under variable load application or parallel operation ripple of the output voltage may be higher than the SPEC at light load condition. It will go back to normal ripple level once the output load is more than 5%.</p> <p>4. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>6. The efficiency is measured at 75% load.</p> <p>7. If use PV signal to adjust Vo, under certain operating conditions, ripple noise of Vo might slightly go over rating defined in this specification.</p> <p>8. 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 600mm*900mm 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>)</p> <p>9. 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).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |  |   |                   |  |



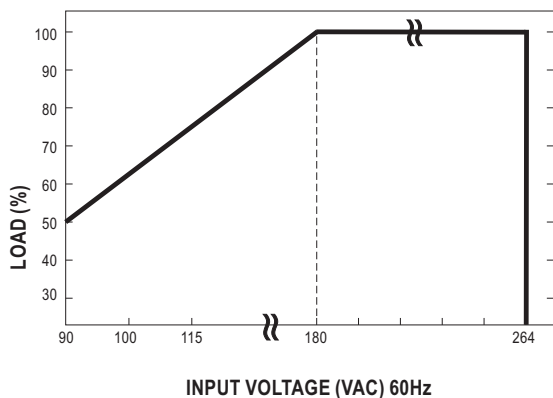
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### ■ BLOCK DIAGRAM



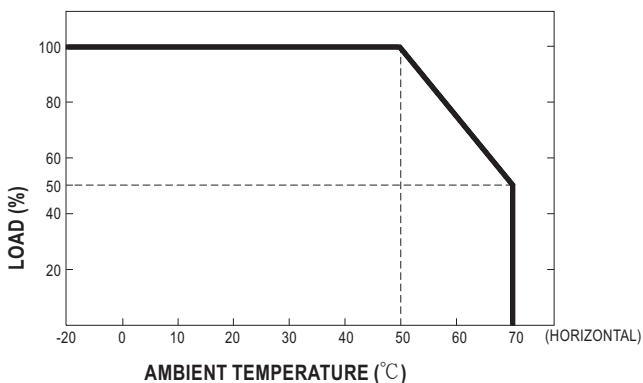
### ■ STATIC CHARACTERISTICS



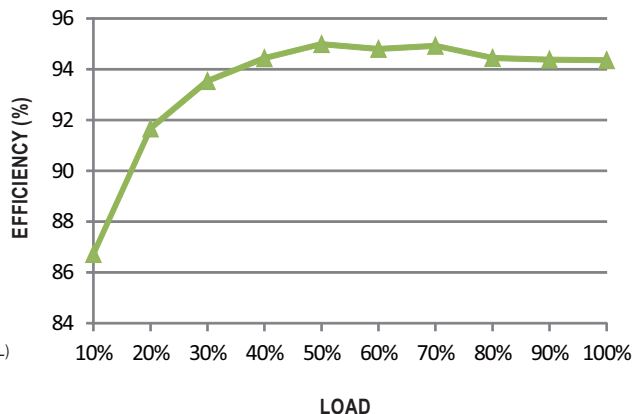
### ■ DERATING LOADs vs INPUT VOLTAGE

| INPUT      | MODEL |       |
|------------|-------|-------|
|            | 24V   | 48V   |
| 180~264VAC | 3192W | 3216W |
|            | 133A  | 67A   |
| 90VAC      | 1596W | 1608W |
|            | 66.5A | 33.5A |

### ■ DERATING CURVE



### ■ EFFICIENCY vs LOAD (48V MODEL)



⊙ The curve above is measured at 230VAC.



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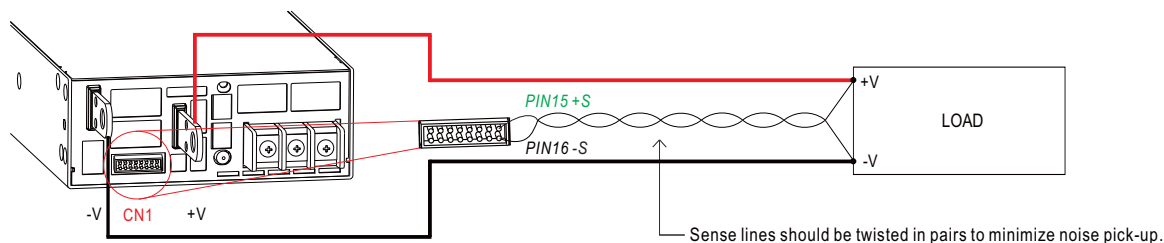
# NSP-3200 series

### FUNCTION MANUAL

#### 1. Voltage Drop Compensation

##### 1.1 Remote Sense

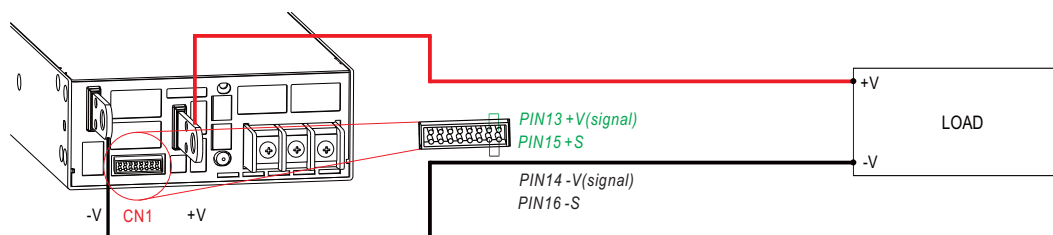
※ The Remote Sense compensates voltage drop on the load wiring up to 0.5V



◎ The +S signal should be connected to the positive terminal of the load whereas -S signal to the negative terminal.

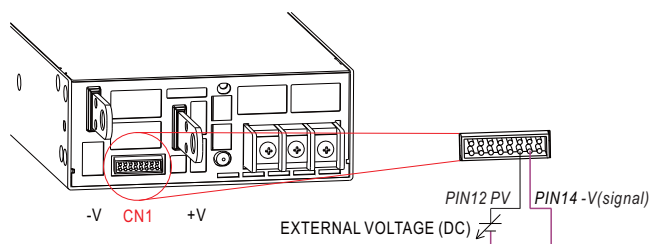
##### 1.2 Local Sense

※ The +S,-S have to be connected to the +V(signal), -V(signal), respectively, as the following diagram, in order to get the correct output voltage if Remote Sense is not used.

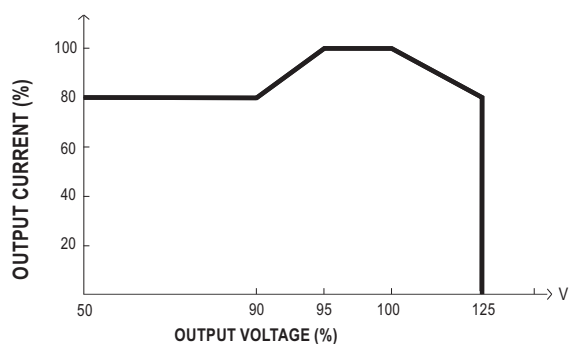
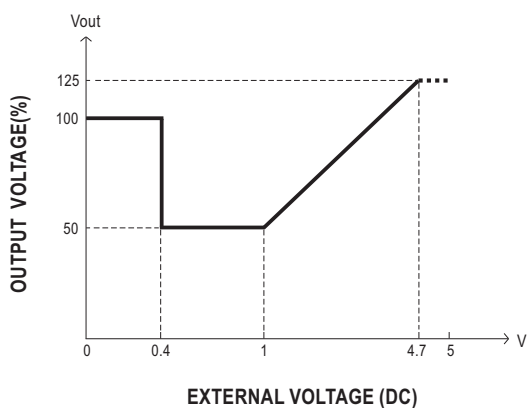


#### 2. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 50~125% of the nominal voltage by applying EXTERNAL VOLTAGE.



◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.



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

◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.

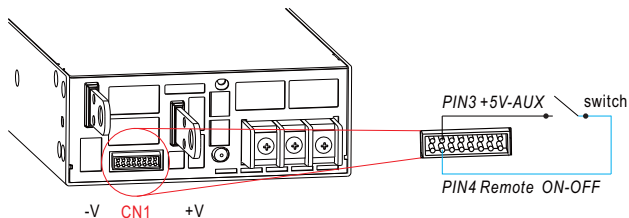


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### 3. Remote ON-OFF Control

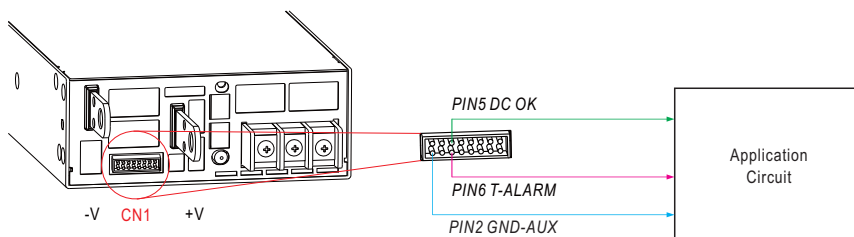
※ The power supply can be turned ON/OFF individually or along with other units by using the "Remote ON-OFF" function.



| Between Remote ON-OFF and +5V-AUX | Power Supply Status |
|-----------------------------------|---------------------|
| Switch Short                      | ON                  |
| Switch Open                       | OFF                 |

### 4. Alarm Signal Output

※ There are 2 alarm signals, DC OK and T-ALARM, in TTL signal form, on CN1. These signals are isolated from output. The maximum sink current is 10mA.

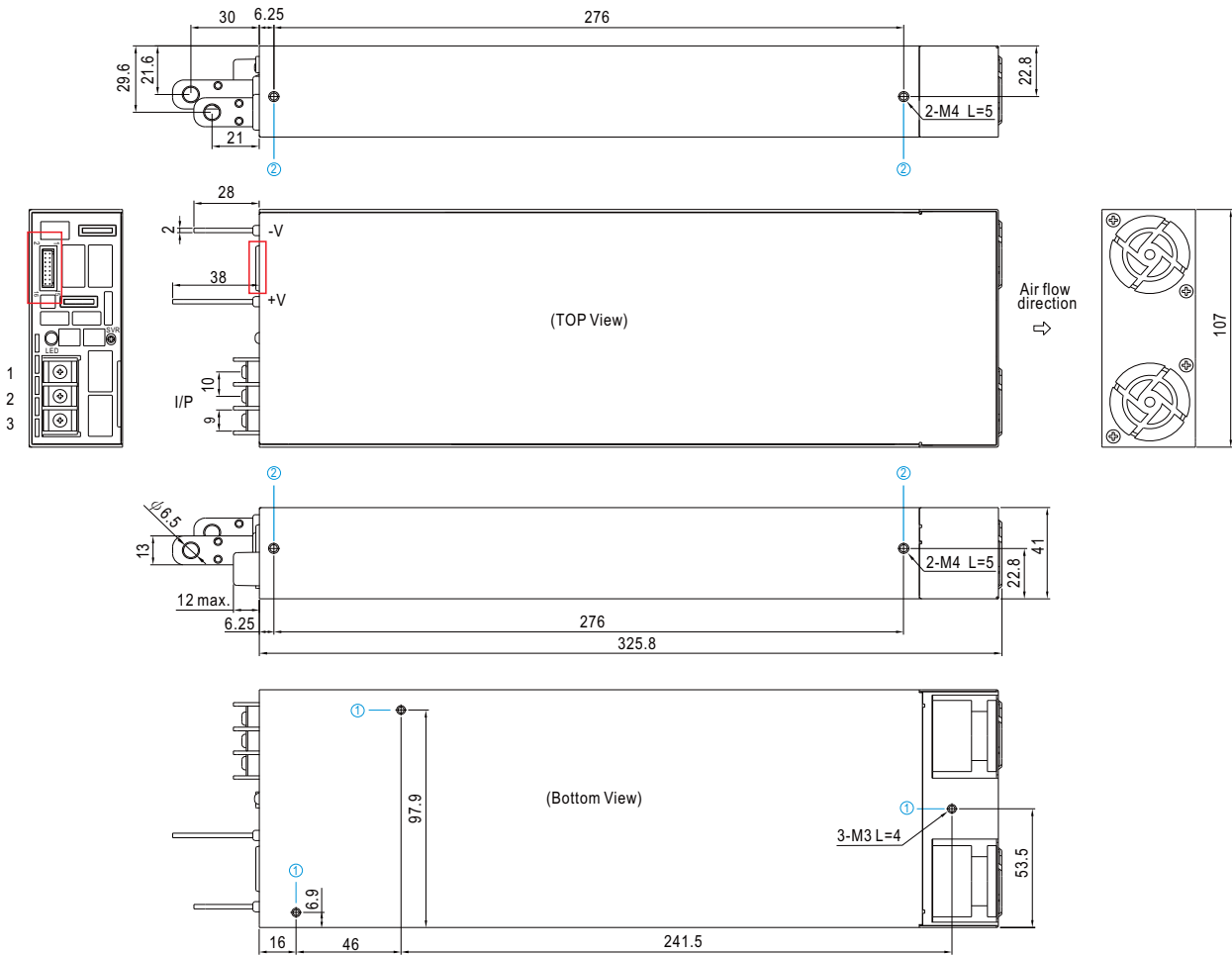


| DC OK Fail signal | Power Supply Status |
|-------------------|---------------------|
| "High" > 3.5~5.5V | Vout ≅ 77%±5%       |
| "Low" < -0.5~0.5V | Vout ≅ 80%±5%       |

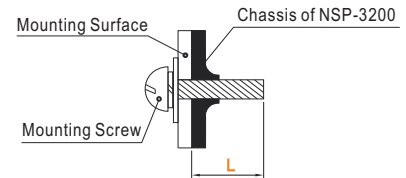
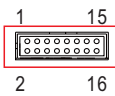
| T-ALARM           | Power Supply Status  |
|-------------------|----------------------|
| "High" > 3.5~5.5V | OFF(OTP or Fan Fail) |
| "Low" < -0.5~0.5V | ON(Normal Work)      |

**MECHANICAL SPECIFICATION**

Case No.294A Unit:mm


**※ Mounting Instruction**

| Hole No. | Recommended Screw Size | MAX. Penetration Depth L | Recommended mounting torque |
|----------|------------------------|--------------------------|-----------------------------|
| ①        | M3                     | 4mm                      | 6~8Kgf-cm                   |
| ②        | M4                     | 5mm                      | 7~10Kgf-cm                  |


**※ Control Pin No. Assignment(CN1) : HRS DF11-16DP-2DS or equivalent**


|                |                             |
|----------------|-----------------------------|
| Mating Housing | HRS DF11-16DS or equivalent |
| Terminal       | HRS DF11-16SC or equivalent |

| Pin No.     | Function      | Description   |
|-------------|---------------|---|
| 1           | +12V-AUX      | Auxiliary voltage output, 10.6~13.2V, referenced to GND-AUX (pin2). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by "Remote ON-OFF".   |
| 2           | GND-AUX       | Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).  |
| 3           | +5V-AUX       | This pin is use for remote ON-OFF usage only.   |
| 4           | Remote ON-OFF | The unit can turn the output ON/OFF by electrical signal or dry contact between <i>Remote ON/OFF</i> and +5V-AUX. (Note.2)<br>Short (4.5 ~ 5.5V) : Power ON ; Open (-0.5 ~ 0.5V) : Power OFF ; The maximum input voltage is 5.5V.   |
| 5           | DC-OK         | High (3.5 ~ 5.5V) : When the $V_{out} \leq 77\% \pm 5\%$ .<br>Low (-0.5 ~ 0.5V) : When $V_{out} \geq 80\% \pm 5\%$ .<br>The maximum sourcing current is 10mA and only for output. (Note.2)  |
| 6           | T-ALARM       | High (3.5 ~ 5.5V) : When the internal temperature exceeds the limit of temperature alarm, or when Fan fails.<br>Low (-0.5 ~ 0.5V) : When the internal temperature is normal, and when Fan works normally.<br>The maximum sourcing current is 10mA and only for output(Note.2) |
| 7,8,9,10,11 | NC            | For standard model: Retain for future use.  |
| 12          | PV            | Connection for output voltage programming. (Note.1)   |
| 13          | +V (Signal)   | Positive output voltage signal.<br>It is for local sense; it cannot be connected directly to the load.  |
| 14          | -V (Signal)   | Negative output voltage signal.<br>It is for local sense and certain function reference; it cannot be connected directly to the load.   |
| 15          | +S            | Positive sensing for remote sense.  |
| 16          | -S            | Negative sensing for remote sense.  |

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



Note2: Isolated signal, referenced to GND-AUX.



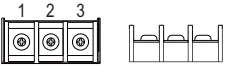
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### ※ LED Status Indicators

| LED   | Description  |
|---|--|
|  Green | The power supply functions normally.   |
|  Red   | The LED will present a constant red light when the abnormal status (OTP, OLP, fan fail and charging timeout) arises. |

### ※ AC Input Terminal Pin No. Assignment

| Pin No. | Assignment | Diagram   | Maximum mounting torque |
|---------|------------|---|-------------------------|
| 1       | FG $\perp$ |  | 8Kgf-cm                 |
| 2       | AC/N       |   |                         |
| 3       | AC/L       |   |                         |

## ■ INSTALLATION MANUAL

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