



## ■ Features

- AC input range selectable by switch
- Withstand 300VAC surge input for 5 second
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- Built-in cooling Fan ON-OFF control
- 1U low profile
- Withstand 5G vibration test
- LED indicator for power on
- No load power consumption<0.75W
- 100% full load burn-in test
- High operating temperature up to 70°C
- Operating altitude up to 5000 meters (Note.8)
- High efficiency, long life and high reliability
- 3 years warranty

## ■ Applications

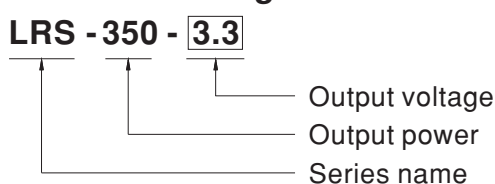
- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus

## ■ Description

LRS-350 series is a 350W single-output enclosed type power supply with 30mm of low profile design. Adopting the input of 115VAC or 230VAC (select by switch), the entire series provides an output voltage line of 3.3V, 4.2V, 5V, 12V, 15V, 24V, 36V and 48V.

In addition to the high efficiency up to 89%, with the built-in long life fan LRS-350 can work under -25~+70°C with full load. Delivering an extremely low no load power consumption (less than 0.75W), it allows the end system to easily meet the worldwide energy requirement. LRS-350 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as UL60950-1. LRS-350 series serves as a high price-to-performance power supply solution for various industrial applications.

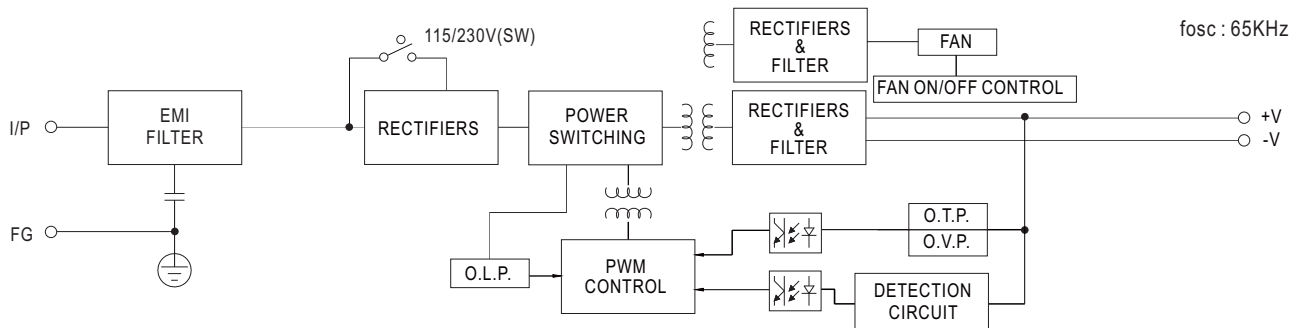
## ■ Model Encoding



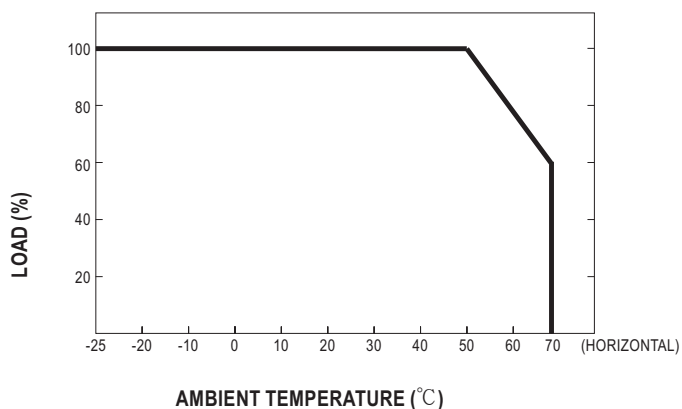
**SPECIFICATION**

| MODEL               |  | LRS-350-3.3   | LRS-350-4.2 | LRS-350-5    | LRS-350-12   | LRS-350-15 | LRS-350-24   | LRS-350-36   | LRS-350-48   |  |
|---------------------|--|---|-------------|--------------|--------------|------------|--------------|--------------|--------------|--|
| OUTPUT              | DC VOLTAGE   | 3.3V  | 4.2V        | 5V           | 12V          | 15V        | 24V          | 36V          | 48V          |  |
|                     | RATED CURRENT  | 60A   | 60A         | 60A          | 29A          | 23.2A      | 14.6A        | 9.7A         | 7.3A         |  |
|                     | CURRENT RANGE  | 0 ~ 60A   | 0 ~ 60A     | 0 ~ 60A      | 0 ~ 29A      | 0 ~ 23.2A  | 0 ~ 14.6A    | 0 ~ 9.7A     | 0 ~ 7.3A     |  |
|                     | RATED POWER  | 198W  | 252W        | 300W         | 348W         | 348W       | 350.4W       | 349.2W       | 350.4W       |  |
|                     | RIPPLE & NOISE (max.) Note.2   | 150mVp-p  | 150mVp-p    | 150mVp-p     | 150mVp-p     | 150mVp-p   | 150mVp-p     | 200mVp-p     | 200mVp-p     |  |
|                     | VOLTAGE ADJ. RANGE   | 2.97 ~ 3.6V   | 3.6 ~ 4.4V  | 4.5 ~ 5.5V   | 10.2 ~ 13.8V | 13.5 ~ 18V | 21.6 ~ 28.8V | 32.4 ~ 39.6V | 43.2 ~ 52.8V |  |
|                     | VOLTAGE TOLERANCE Note.3   | ±4.0%   | ±4.0%       | ±3.0%        | ±1.5%        | ±1.0%      | ±1.0%        | ±1.0%        | ±1.0%        |  |
|                     | LINE REGULATION Note.4   | ±0.5%   | ±0.5%       | ±0.5%        | ±0.5%        | ±0.5%      | ±0.5%        | ±0.5%        | ±0.5%        |  |
|                     | LOAD REGULATION Note.5   | ±2.5%   | ±2.5%       | ±2.0%        | ±1.0%        | ±0.5%      | ±0.5%        | ±0.5%        | ±0.5%        |  |
|                     | SETUP, RISE TIME   | 1300ms, 50ms/230VAC      1300ms,50ms/115VAC at full load  |             |              |              |            |              |              |              |  |
| HOLD UP TIME (Typ.) | 16ms/230VAC      12ms/115VAC at full load  |   |             |              |              |            |              |              |              |  |
| INPUT               | VOLTAGE RANGE  | 90 ~ 132VAC / 180 ~ 264VAC by switch      240 ~ 370VDC (switch on 230VAC)   |             |              |              |            |              |              |              |  |
|                     | FREQUENCY RANGE  | 47 ~ 63Hz   |             |              |              |            |              |              |              |  |
|                     | EFFICIENCY (Typ.)  | 79.5%   | 81.5%       | 83.5%        | 85%          | 86%        | 88%          | 88.5%        | 89%          |  |
|                     | AC CURRENT (Typ.)  | 6.8A/115VAC      3.4A/230VAC  |             |              |              |            |              |              |              |  |
|                     | INRUSH CURRENT (Typ.)  | 60A/115VAC      60A/230VAC  |             |              |              |            |              |              |              |  |
| LEAKAGE CURRENT     | <2mA / 240VAC  |   |             |              |              |            |              |              |              |  |
| PROTECTION          | OVER LOAD  | 110 ~ 140% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |             |              |              |            |              |              |              |  |
|                     | OVER VOLTAGE   | 3.8 ~ 4.45V   | 4.6 ~ 5.4V  | 5.75 ~ 6.75V | 13.8 ~ 16.2V | 18 ~ 21V   | 28.8 ~ 33.6V | 41.4 ~ 46.8V | 55.2 ~ 64.8V |  |
|                     | OVER TEMPERATURE   | Hiccup mode, recovers automatically after fault condition is removed  |             |              |              |            |              |              |              |  |
| FUNCTION            | FAN ON/OFF CONTROL (Typ.)  | RTH3 ≥ 50°C FAN ON, ≤ 40°C FAN OFF  |             |              |              |            |              |              |              |  |
| ENVIRONMENT         | WORKING TEMP.  | -25 ~ +70°C (Refer to "Derating Curve")   |             |              |              |            |              |              |              |  |
|                     | WORKING HUMIDITY   | 20 ~ 90% RH non-condensing  |             |              |              |            |              |              |              |  |
|                     | STORAGE TEMP., HUMIDITY  | -40 ~ +85°C, 10 ~ 95% RH  |             |              |              |            |              |              |              |  |
|                     | TEMP. COEFFICIENT  | ±0.03%/°C (0 ~ 50°C)  |             |              |              |            |              |              |              |  |
|                     | VIBRATION  | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes  |             |              |              |            |              |              |              |  |
| SAFETY              | SAFETY STANDARDS   | UL60950-1 approved  |             |              |              |            |              |              |              |  |
|                     | WITHSTAND VOLTAGE  | I/P-O/P:3KVAC    I/P-FG:2KVAC    O/P-FG:0.5KVAC   |             |              |              |            |              |              |              |  |
|                     | ISOLATION RESISTANCE   | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC / 25°C / 70% RH  |             |              |              |            |              |              |              |  |
| OTHERS              | MTBF   | 327.9K hrs min.    MIL-HDBK-217F (25°C)   |             |              |              |            |              |              |              |  |
|                     | DIMENSION  | 215*115*30mm (L*W*H)  |             |              |              |            |              |              |              |  |
|                     | PACKING  | 0.76Kg; 15pcs/12.4Kg/0.78CUFT   |             |              |              |            |              |              |              |  |
| NOTE                | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>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.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>Line regulation is measured from low line to high line at rated load.</li> <li>Load regulation is measured from 0% to 100% rated load.</li> <li>Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.</li> <li>The 150% peak load capability is built in for up to 1 second for 12~48V.LRS-350 will enter hiccup mode if the peak load is delivered for over 1 second and will recover once it resumes to the rated current level(115VAC/230VAC).</li> <li>The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).</li> </ol> |   |             |              |              |            |              |              |              |  |

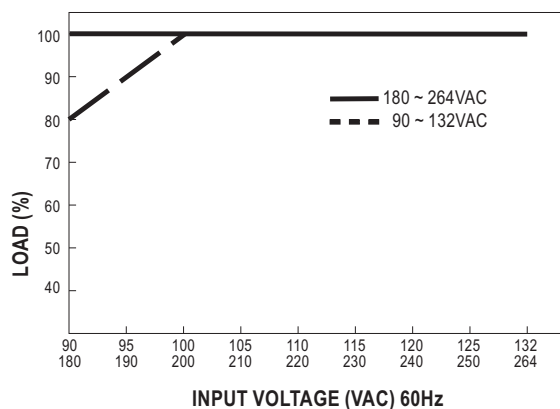
■ **Block Diagram**



■ **Derating Curve**



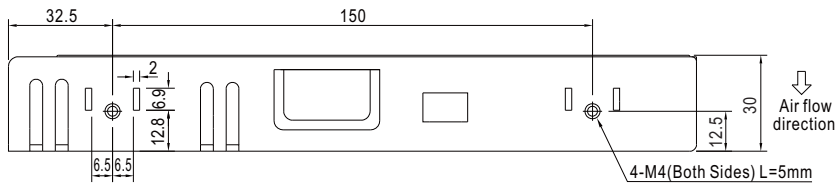
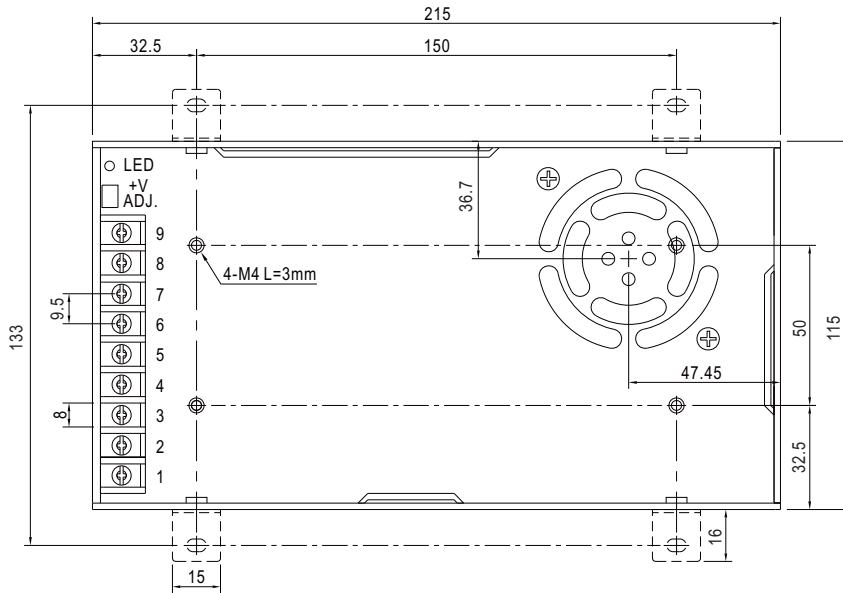
■ **Static Characteristics**



**Mechanical Specification**

Case No.207A

Unit:mm



Terminal Pin No. Assignment :

| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4~6     | DC OUTPUT -V |
| 2       | AC/N       | 7~9     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |