



## ■ Features

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 second
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Miniature size and 1U low profile
- Compliance to IEC/EN 60335-1(PD3) and IEC/EN61558-1, 2-16 for household appliances
- Operating altitude up to 5000 meters (Note.7)
- Withstand 5G vibration test
- LED indicator for power on
- No load power consumption<0.3W
- 100% full load burn-in test
- High operating temperature up to 70°C
- 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
- Household appliances

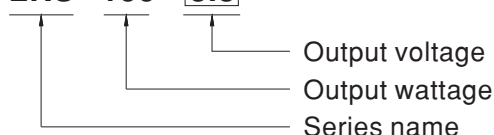
## ■ Description

LRS-100 series is a 100W single-output enclosed type power supply with 30mm of low profile design. Adopting the full range 85~264VAC input, the entire series provides an output voltage line of 3.3V, 5V, 12V, 15V, 24V, 36V and 48V.

In addition to the high efficiency up to 91%, the design of metallic mesh case enhances the heat dissipation of LRS-100 that the whole series operates from -30°C through 70°C under air convection without a fan. Delivering an extremely low no load power consumption (less than 0.3W), it allows the end system to easily meet the worldwide energy requirement. LRS-100 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as TUV EN60950-1, EN60335-1, EN61558-1/-2-16, UL60950-1 and GB4943. LRS-100 series serves as a high price-to-performance power supply solution for various industrial applications.

## ■ Model Encoding

**LRS - 100 - 3.3**



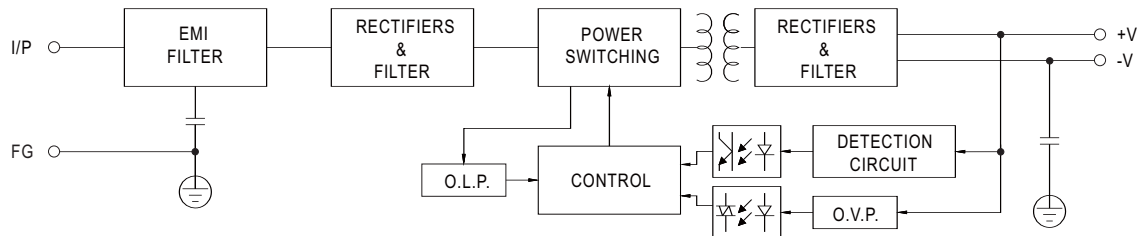


## SPECIFICATION

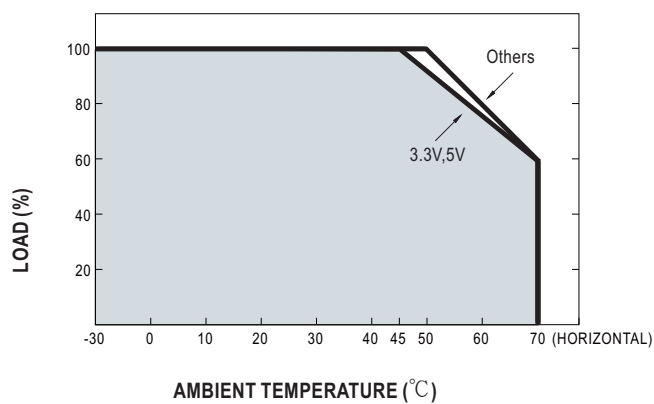
| MODEL                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | LRS-100-3.3                                                                                                             | LRS-100-5    | LRS-100-12   | LRS-100-15     | LRS-100-24   | LRS-100-36   | LRS-100-48   |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|--------------|--------------|--------------|
| OUTPUT                | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.3V                                                                                                                    | 5V           | 12V          | 15V            | 24V          | 36V          | 48V          |
|                       | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20A                                                                                                                     | 18A          | 8.5A         | 7A             | 4.5A         | 2.8A         | 2.3A         |
|                       | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0 ~ 20A                                                                                                                 | 0 ~ 18A      | 0 ~ 8.5A     | 0 ~ 7A         | 0 ~ 4.5A     | 0 ~ 2.8A     | 0 ~ 2.3A     |
|                       | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 66W                                                                                                                     | 90W          | 102W         | 105W           | 108W         | 100.8W       | 110.4W       |
|                       | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100mVp-p                                                                                                                | 100mVp-p     | 120mVp-p     | 120mVp-p       | 150mVp-p     | 200mVp-p     | 200mVp-p     |
|                       | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.97 ~ 3.6V                                                                                                             | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ± 3.0%                                                                                                                  | ± 2.0%       | ± 1.0%       | ± 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%       |
|                       | LOAD REGULATION Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ± 2.0%                                                                                                                  | ± 1.0%       | ± 0.5%       | ± 0.5%         | ± 0.5%       | ± 0.5%       | ± 0.5%       |
|                       | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 500ms, 30ms/230VAC      500ms,30ms/115VAC at full load                                                                  |              |              |                |              |              |              |
|                       | HOLD UP TIME (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 55ms/230VAC      10ms/115VAC at full load                                                                               |              |              |                |              |              |              |
| INPUT                 | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 85 ~ 264VAC      120 ~ 373VDC (Withstand 300VAC surge for 5sec. Without damage)                                         |              |              |                |              |              |              |
|                       | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 47 ~ 63Hz                                                                                                               |              |              |                |              |              |              |
|                       | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 84.5%                                                                                                                   | 86%          | 88%          | 88.5%          | 90%          | 90.5%        | 91%          |
|                       | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.9A/115VAC      1.2A/230VAC                                                                                            |              |              |                |              |              |              |
|                       | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | COLD START 50A/230VAC                                                                                                   |              |              |                |              |              |              |
|                       | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <0.75mA / 240VAC                                                                                                        |              |              |                |              |              |              |
| PROTECTION            | OVER LOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |              |              |                |              |              |              |
|                       | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3.8 ~ 4.45V                                                                                                             | 5.75 ~ 6.75V | 13.8 ~ 16.2V | 18.75 ~ 21.75V | 28.8 ~ 33.6V | 41.4 ~ 48.6V | 55.2 ~ 64.8V |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Protection type : Shut down o/p voltage, re-power on to recover                                                         |              |              |                |              |              |              |
| ENVIRONMENT           | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -30 ~ +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 & EMC (Note 8) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UL60950-1, TUV EN60950-1, EN60335-1, EN61558-1/-2-16,CCC GB4943 approved                                                |              |              |                |              |              |              |
|                       | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:3.75KVAC    I/P-FG:2KVAC    O/P-FG:1.25KVAC                                                                     |              |              |                |              |              |              |
|                       | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH                                                              |              |              |                |              |              |              |
|                       | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Compliance to EN55022 (CISPR22), GB9254 Class B, EN55014 EN61000-3-2,-3                                                 |              |              |                |              |              |              |
|                       | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-2 (EN50082-2), heavy industry level, criteria A                       |              |              |                |              |              |              |
| OTHERS                | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 720.6K hrs min.      MIL-HDBK-217F (25°C)                                                                               |              |              |                |              |              |              |
|                       | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 129*97*30mm (L*W*H)                                                                                                     |              |              |                |              |              |              |
|                       | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.34Kg ; 40pcs/14.6Kg/0.92CUFT                                                                                          |              |              |                |              |              |              |
| NOTE                  | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Line regulation is measured from low line to high line at rated load.<br>5. Load regulation is measured from 0% to 100% rated load.<br>6. 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.<br>7. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).<br>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 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="http://www.meanwell.com">http://www.meanwell.com</a> ) |                                                                                                                         |              |              |                |              |              |              |

### ■ Block Diagram

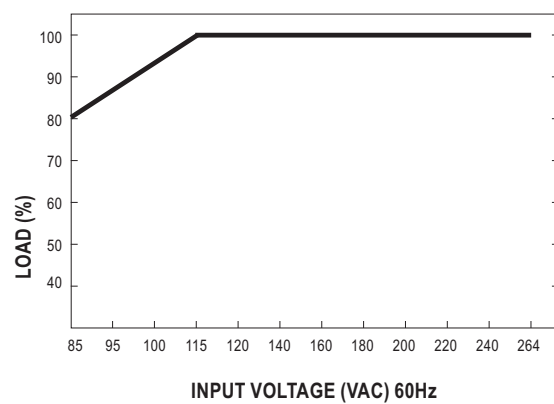
fosc : 65KHz



### ■ Derating Curve

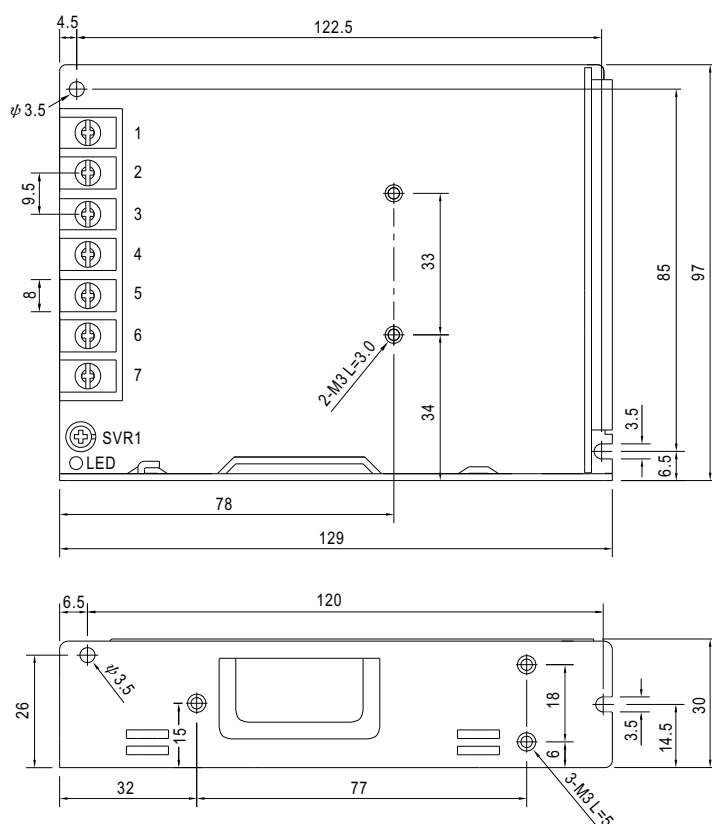


### ■ Static Characteristics



## ■ Mechanical Specification

Case No.238A      Unit:mm



### Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4,5     | DC OUTPUT -V |
| 2       | AC/N       | 6,7     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

## ■ Installation Manual

Please refer to : <http://www.meanwell.com/webnet/search/InstallationSearch.html>