



60W Ultra Slim Step Shape DIN Rail

## HDR-60 series



### ■ Features

- Ultra slim design with 52.5mm(3SU) width
- Universal input 85~264VAC(277VAC available)
- No load power consumption<0.3W
- Isolation class II
- Pass LPS (Limited power source)
- DC output voltage adjustable
- Protections : Short circuit / Overload / Over voltage
- Cooling by free air convection (working temperature:-30~+70°C)
- DIN rail TS-35/7.5 or 15 mountable
- LED indicator for power on
- 3 years warranty

### ■ Applications

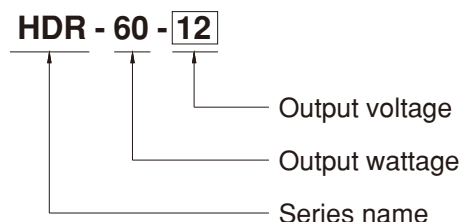
- Household control system
- Building automation
- Industrial control system
- Factory automation
- Electro-mechanical apparatus

### ■ Description

HDR-60 is one economical ultra slim 60W DIN rail power supply series, adapt to be installed on TS-35/7.5 or TS-35/15 mounting rails. The body is designed 52.5mm(3SU) in width, which allows space saving inside the cabinets. The entire series adopts the full range AC input from 85VAC to 264VAC (277VAC also available) and conforms to EN61000-3-2, the norm the European Union regulates for harmonic current.

HDR-60 is designed with plastic housing that it can effectively prevent user from electric hazards. With working efficiency up to 91%, the entire series can operate at the ambient temperature between -30°C and 70°C under air convection. It is equipped with constant current mode for overload protection, fitting various inductive or capacitive applications. The complete protection functions and relevant certificates for home automations and industrial control apparatus (IEC60950-1,UL508,UL60950-1,EN61558-2-16) make HDR-60 a very competitive power supply solution for household and industrial applications.

### ■ Model Encoding





**SPECIFICATION**

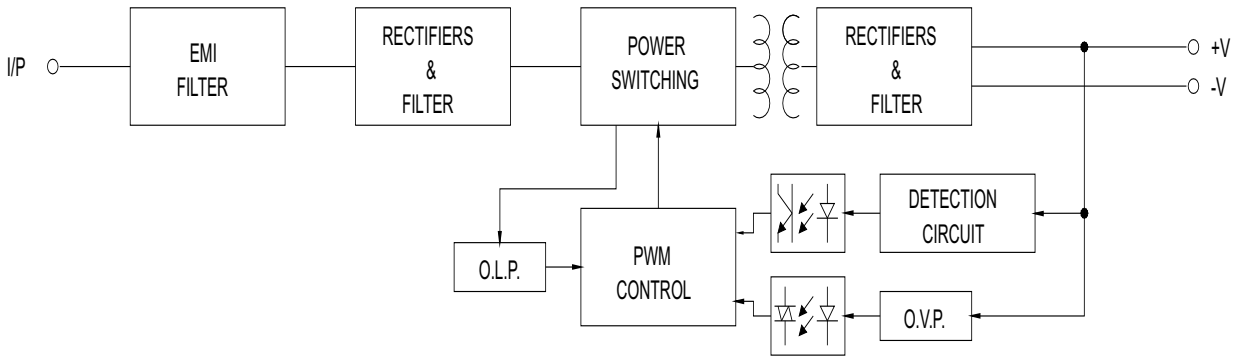
| MODEL                          |  | HDR-60-5  | HDR-60-12        | HDR-60-15  | HDR-60-24  | HDR-60-48         |  |
|--------------------------------|--|---|------------------|--|--|-------------------|--|
| OUTPUT                         | DC VOLTAGE   | 5V  | 12V              | 15V  | 24V  | 48V               |  |
|                                | RATED CURRENT  | 6.5A  | 4.5A             | 4A   | 2.5A   | 1.25A             |  |
|                                | CURRENT RANGE  | 0 ~ 6.5A  | 0 ~ 4.5A         | 0 ~ 4A   | 0 ~ 2.5A   | 0 ~ 1.25A         |  |
|                                | RATED POWER  | 32.5W   | 54W              | 60W  | 60W  | 60W               |  |
|                                | RIPPLE & NOISE (max.) Note.2   | 80mVp-p   | 120mVp-p         | 120mVp-p   | 150mVp-p   | 240mVp-p          |  |
|                                | VOLTAGE ADJ. RANGE   | 5.0 ~ 5.5V  | 10.8 ~ 13.8V     | 13.5 ~ 18V   | 21.6 ~ 29V   | 43.2 ~ 55.2V      |  |
|                                | VOLTAGE TOLERANCE Note.3   | ± 2.0%  | ± 1.0%           | ± 1.0%   | ± 1.0%   | ± 1.0%            |  |
|                                | LINE REGULATION  | ± 1.0%  | ± 1.0%           | ± 1.0%   | ± 1.0%   | ± 1.0%            |  |
|                                | LOAD REGULATION  | ± 1.0%  | ± 1.0%           | ± 1.0%   | ± 1.0%   | ± 1.0%            |  |
|                                | SETUP, RISE TIME   | 500ms, 50ms/230VAC      500ms, 50ms/115VAC at full load   |                  |  |  |                   |  |
|                                | HOLD UP TIME (Typ.)  | 30ms/230VAC      12ms/115VAC at full load   |                  |  |  |                   |  |
| INPUT                          | VOLTAGE RANGE  | 85 ~ 264VAC (277VAC available)      120 ~ 370VDC (390VDC available)   |                  |  |  |                   |  |
|                                | FREQUENCY RANGE  | 47 ~ 63Hz   |                  |  |  |                   |  |
|                                | EFFICIENCY (Typ.)  | 85%   | 88%              | 89%  | 90%  | 91%               |  |
|                                | AC CURRENT (Typ.)  | 1.2A/115VAC      0.8A/230VAC  |                  |  |  |                   |  |
|                                | INRUSH CURRENT (Typ.)  | COLD START 30A/115VAC      60A/230VAC   |                  |  |  |                   |  |
| PROTECTION                     | OVERLOAD Note.4  | 105 ~ 160% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed |                  |  |  |                   |  |
|                                | OVER VOLTAGE   | 5.75 ~ 6.75V  | 14.2 ~ 16.2V     | 18.8 ~ 22.5V   | 30 ~ 36V   | 56.5 ~ 64.8V      |  |
| 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 non-condensing   |                  |  |  |                   |  |
|                                | TEMP. COEFFICIENT  | ± 0.03%/°C (0 ~ 50°C) RH non-condensing   |                  |  |  |                   |  |
|                                | VIBRATION  | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6                         |                  |  |  |                   |  |
|                                | OPERATING ALTITUDE   | 2000 meters   |                  |  |  |                   |  |
| SAFETY & EMC (Note 5)          | SAFETY STANDARDS   | UL60950-1, UL508, TUV EN61558-2-16, IEC60950-1 approved; Design refer to EN50178, TUV EN60950-1                                       |                  |  |  |                   |  |
|                                | WITHSTAND VOLTAGE  | I/P-O/P:3KVAC   |                  |  |  |                   |  |
|                                | ISOLATION RESISTANCE   | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH  |                  |  |  |                   |  |
|                                | EMC EMISSION   | Parameter   | Standard         |  |  | Test Level / Note |  |
|                                |  | Conducted   | EN55032(CISPR32) |  |  | Class B           |  |
|                                |  | Radiated  | EN55032(CISPR32) |  |  | Class B           |  |
|                                |  | Harmonic Current  | EN61000-3-2      |  |  | Class A           |  |
|                                |  | Voltage Flicker   | EN61000-3-3      |  |  | -----             |  |
|                                | EMC IMMUNITY   | EN55024, EN55035, EN61000-6-2, EN61204-3  |                  |  |  |                   |  |
|                                |  | Parameter   | Standard         |  |  | Test Level / Note |  |
| ESD                            |  | EN61000-4-2   |                  |  | Level 3, 8KV air; Level 2, 4KV contact, criteria A |                   |  |
| Radiated Susceptibility        |  | EN61000-4-3   |                  |  | Level 3, criteria A                                |                   |  |
| EFT/Burest                     |  | EN61000-4-4   |                  |  | Level 3, criteria A                                |                   |  |
| Surge                          |  | EN61000-4-5   |                  |  | Level 4, 2KV/L-N, criteria A                       |                   |  |
| Conducted                      |  | EN61000-4-6   |                  |  | Level 3, criteria A                                |                   |  |
| Magnetic Field                 |  | EN61000-4-8   |                  |  | Level 4, criteria A                                |                   |  |
| Voltage Dips and interruptions | EN61000-4-11   |   |                  | >95% dip 0. 5 periods, 30% dip 25 periods,<br>>95% interruptions 250 periods |  |                   |  |
| OTHERS                         | MTBF   | 927.6K hrs min. MIL-HDBK-217F (25°C)  |                  |  |  |                   |  |
|                                | DIMENSION  | 52.5*90*54.5mm (W*H*D)  |                  |  |  |                   |  |
|                                | PACKING  | 190g;60pcs/12.4Kg/0.97CUFT  |                  |  |  |                   |  |
| 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. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Constant current limiting operation within 50% ~100% rated output voltage; protection type for short circuit is hiccup mode, it will recover automatically after fault condition is removed.</p> <p>5. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the 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>)</p> |   |                  |  |  |                   |  |



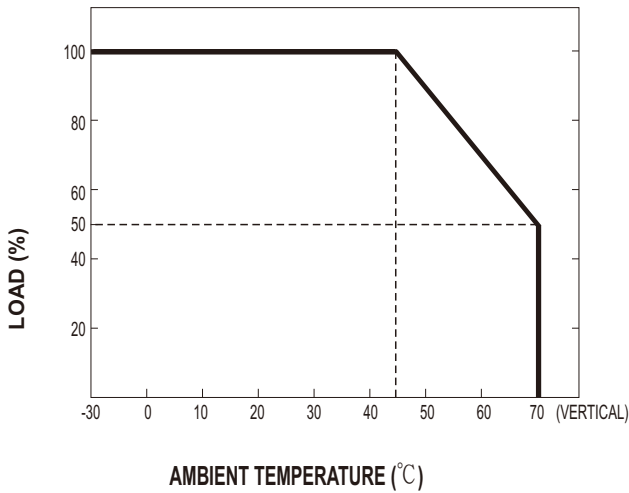
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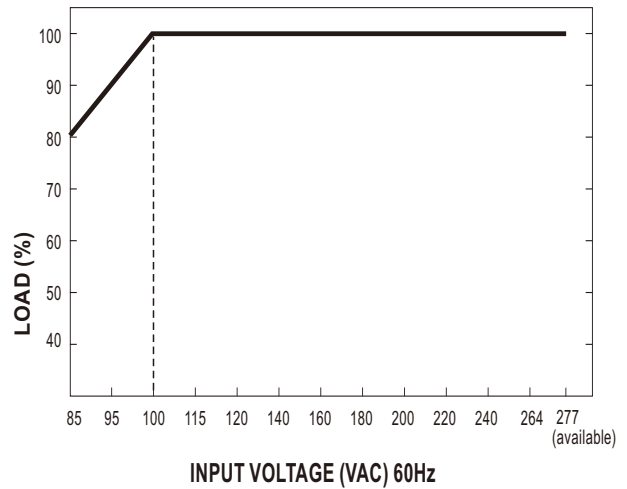
## Block Diagram



## Derating Curve

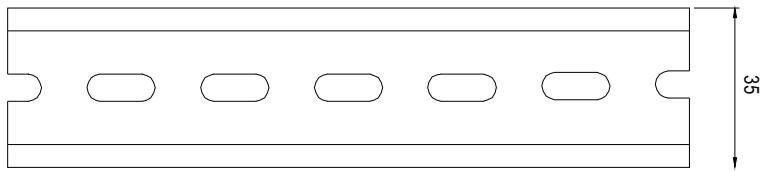
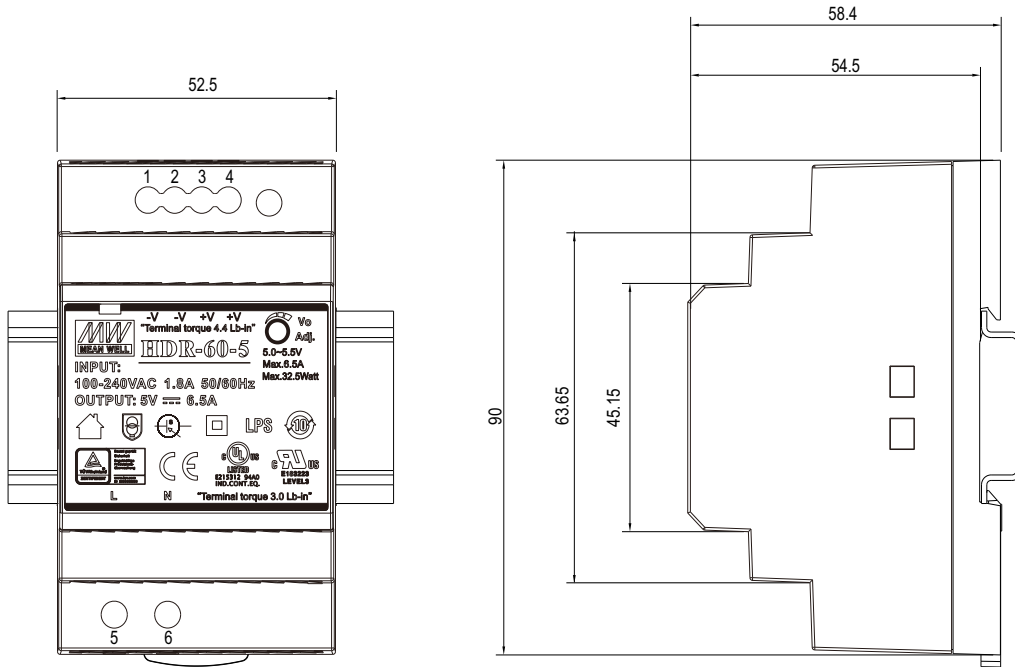


## Output Derating VS Input Voltage



■ **Mechanical Specification**

(Unit: mm , tolerance  $\pm 0.5\text{mm}$ )



ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15

Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment |
|---------|------------|---------|------------|
| 1,2     | -V         | 5       | AC/L       |
| 3,4     | +V         | 6       | AC/N       |

■ **Installation Manual**

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