



60W Ultra Slim Step Shape DIN Rail

**HDR-60** series

User's Manual



### Features

- Ultra slim design with 52.5mm(3SU) width
- Universal input 85~264VAC(277VAC operational)
- 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

### GTIN CODE

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

### 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 operational) and conforms to BS EN/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. The complete protection functions and relevant certificates for home automations and industrial control apparatus (IEC62368-1,UL508,UL62368-1,BS EN/EN61558-2-16) make HDR-60 a very competitive power supply solution for household and industrial applications.

### Model Encoding

**HDR - 60 - 12**

Output voltage

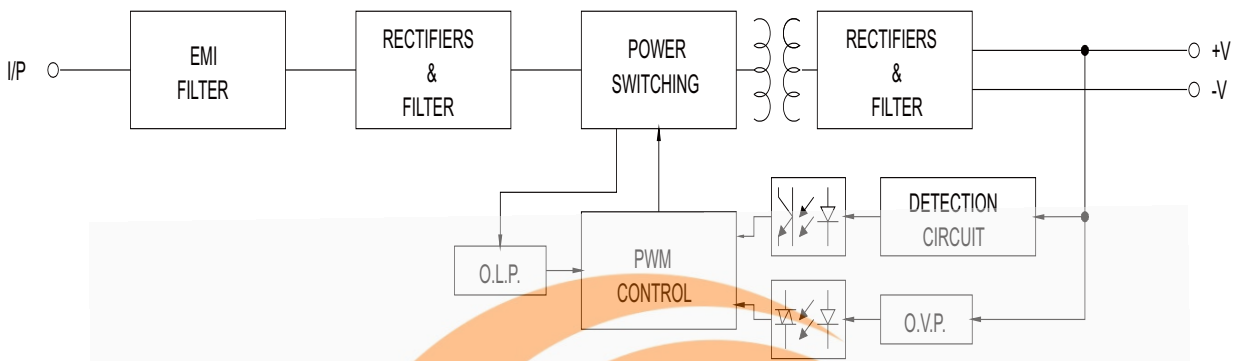
Rated wattage

Series name

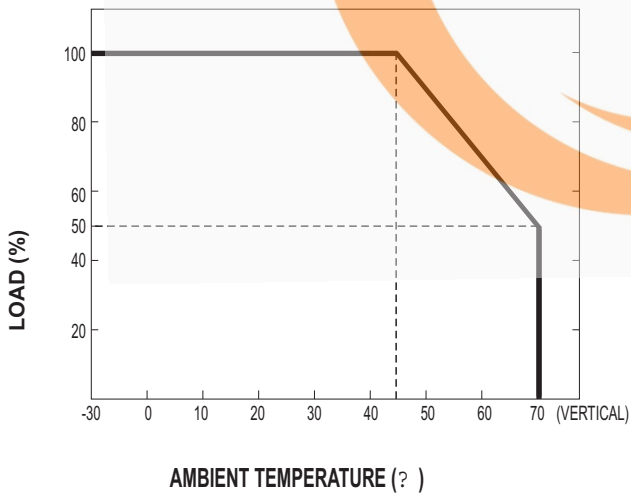
## SPECIFICATION

| 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.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 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 <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ± 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 operational)      120 ~ 370VDC (390VDC operational)                                                                                                                                                                                     |                                  |              |                                                                              |                   |  |
|                                         | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 105 ~ 160% rated output power<br>Hiccup mode when output voltage <50%, recovers automatically after fault condition is removed<br>Constant current limiting within 50% ~ 100% rated output voltage, 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      |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 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 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                                                                                                                                                                                                                                                 |                                  |              |                                                                              |                   |  |
|                                         | OVER VOLTAGE CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | III ; According to EN61558, EN50178, EN60664-1, EN62477-1 ; altitude up to 2000 meters                                                                                                                                                                      |                                  |              |                                                                              |                   |  |
| SAFETY & EMC<br><small>(Note 4)</small> | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | UL62368-1, UL508, TUV BS EN/EN61558-2-16, BS EN/EN61558-1, IEC62368-1, EAC TP TC 004, BSMI CNS15598-1, IS13252(Part1)/IEC60950-1 approved; Design refer to BS EN/EN62368-1                                                                                  |                                  |              |                                                                              |                   |  |
|                                         | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I/P-O/P:4KVAC                                                                                                                                                                                                                                               |                                  |              |                                                                              |                   |  |
|                                         | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH                                                                                                                                                                                                                  |                                  |              |                                                                              |                   |  |
|                                         | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Parameter                                                                                                                                                                                                                                                   | Standard                         |              |                                                                              | Test Level / Note |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Conducted                                                                                                                                                                                                                                                   | BS EN/EN55032(CISPR32), CNS15936 |              |                                                                              | Class B           |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Radiated                                                                                                                                                                                                                                                    | BS EN/EN55032(CISPR32), CNS15936 |              |                                                                              | Class B           |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Harmonic Current                                                                                                                                                                                                                                            | BS EN/EN61000-3-2                |              |                                                                              | Class A           |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Voltage Flicker                                                                                                                                                                                                                                             | BS EN/EN61000-3-3                |              |                                                                              | -----             |  |
|                                         | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | BS EN/EN55035, BS EN/EN61000-6-2, BS EN/EN61204-3                                                                                                                                                                                                           |                                  |              |                                                                              |                   |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Parameter                                                                                                                                                                                                                                                   | Standard                         |              |                                                                              | Test Level / Note |  |
| ESD                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-2                                                                                                                                                                                                                                           |                                  |              | Level 3, 8KV air; Level 2, 4KV contact, criteria A                           |                   |  |
| Radiated Susceptibility                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-3                                                                                                                                                                                                                                           |                                  |              | Level 3, criteria A                                                          |                   |  |
| EFT/Burest                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-4                                                                                                                                                                                                                                           |                                  |              | Level 3, criteria A                                                          |                   |  |
| Surge                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-5                                                                                                                                                                                                                                           |                                  |              | Level 4, 2KV/L-N, criteria A                                                 |                   |  |
| Conducted                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-6                                                                                                                                                                                                                                           |                                  |              | Level 3, criteria A                                                          |                   |  |
| Magnetic Field                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | BS EN/EN61000-4-8                                                                                                                                                                                                                                           |                                  |              | Level 4, criteria A                                                          |                   |  |
|                                         | Voltage Dips and interruptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | BS EN/EN61000-4-11                                                                                                                                                                                                                                          |                                  |              | >95% dip 0. 5 periods, 30% dip 25 periods,<br>>95% interruptions 250 periods |                   |  |
| OTHERS                                  | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3524.8K hrs min.      Telcordia SR-332 (Bellcore) ; 927.6K hrs min.      MIL-HDBK-217F (25°C)                                                                                                                                                               |                                  |              |                                                                              |                   |  |
|                                         | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 52.5*90*54.5mm (W*H*D)                                                                                                                                                                                                                                      |                                  |              |                                                                              |                   |  |
|                                         | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 190g;60pcs/13Kg/0.91CUFT                                                                                                                                                                                                                                    |                                  |              |                                                                              |                   |  |
| 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 0.1 μ F & 47 μ F parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )<br>5. 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).<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                                                                                                                                                                                                                                             |                                  |              |                                                                              |                   |  |

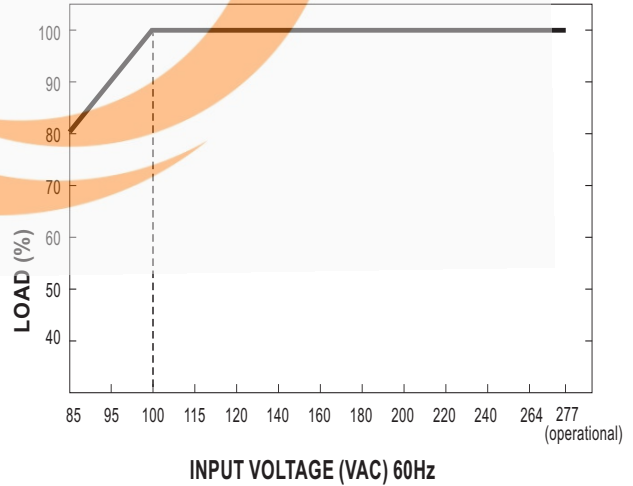
### Block Diagram



### Derating Curve

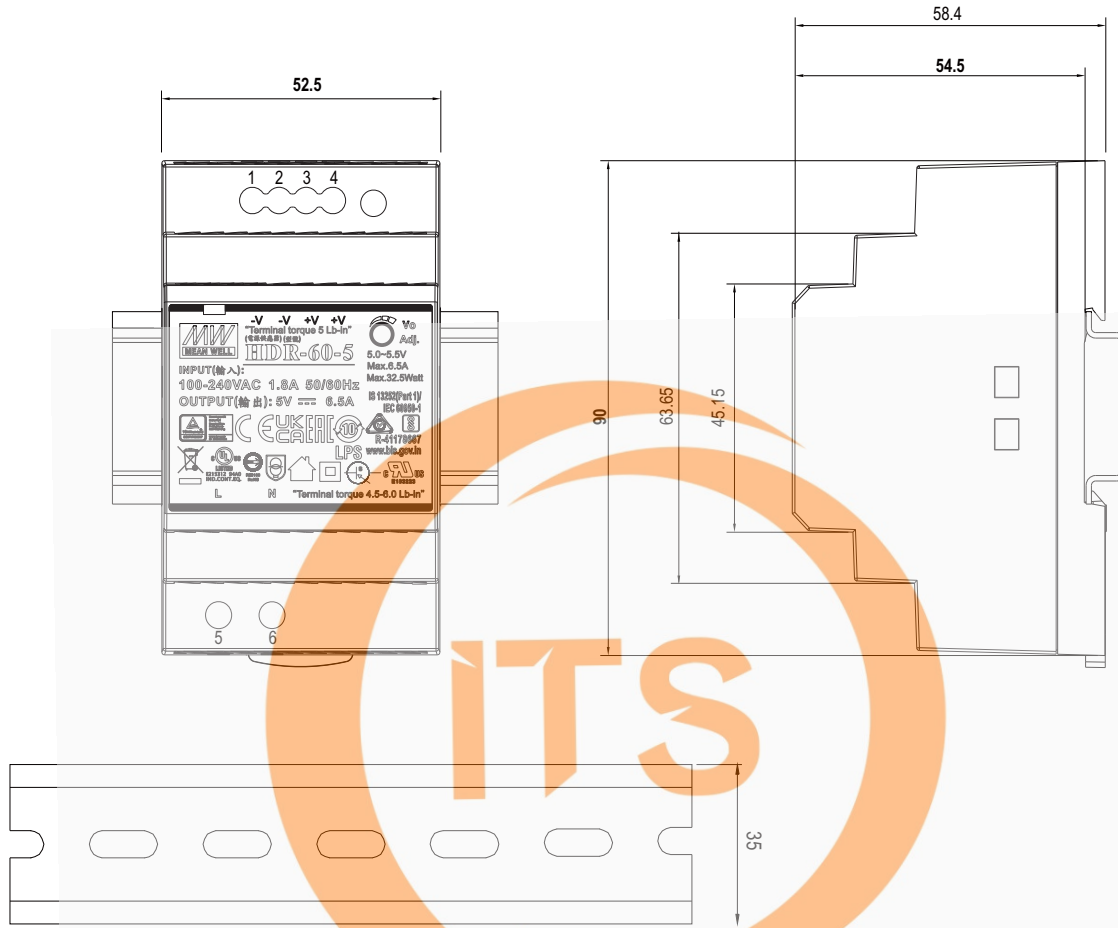


### Output Derating VS Input Voltage



## 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