



## 10W Single Output Industrial DIN Rail Power Supply

## MDR-10 series



### ■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- NEC class 2 / LPS compliant
- Built in DC OK active signal
- LED indicator for power on
- No load power consumption<0.75W
- 100% full load burn-in test
- 3 years warranty



### SPECIFICATION

| MODEL                                   | MDR-10-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                         | MDR-10-12 |                  | MDR-10-15 |                     | MDR-10-24 |                 |  |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------|------------------|-----------|---------------------|-----------|-----------------|--|
| OUTPUT                                  | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 5V                                                                                                                      |           | 12V              |           | 15V                 |           | 24V             |  |
|                                         | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2A                                                                                                                      |           | 0.84A            |           | 0.67A               |           | 0.42A           |  |
|                                         | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0 ~ 2A                                                                                                                  |           | 0 ~ 0.84A        |           | 0 ~ 0.67A           |           | 0 ~ 0.42A       |  |
|                                         | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10W                                                                                                                     |           | 10W              |           | 10W                 |           | 10W             |  |
|                                         | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 80mVp-p                                                                                                                 |           | 120mVp-p         |           | 120mVp-p            |           | 150mVp-p        |  |
|                                         | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ±5.0%                                                                                                                   |           | ±3.0%            |           | ±3.0%               |           | ±2.0%           |  |
|                                         | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±1.0%                                                                                                                   |           | ±1.0%            |           | ±1.0%               |           | ±1.0%           |  |
|                                         | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ±5.0%                                                                                                                   |           | ±3.0%            |           | ±3.0%               |           | ±2.0%           |  |
|                                         | SETUP, RISE TIME <small>Note.5</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 500ms, 30ms/230VAC      1000ms, 30ms/115VAC at full load                                                                |           |                  |           |                     |           |                 |  |
| HOLD UP TIME (Typ.)                     | 120ms/230VAC      25ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                         |           |                  |           |                     |           |                 |  |
| INPUT                                   | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 85 ~ 264VAC                                                                                                             |           | 120 ~ 370VDC     |           |                     |           |                 |  |
|                                         | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 47 ~ 63Hz                                                                                                               |           |                  |           |                     |           |                 |  |
|                                         | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 77%                                                                                                                     |           | 81%              |           | 81%                 |           | 84%             |  |
|                                         | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.33A/115VAC                                                                                                            |           | 0.21A/230VAC     |           |                     |           |                 |  |
|                                         | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | COLD START 35A/115VAC                                                                                                   |           | 70A/230VAC       |           |                     |           |                 |  |
|                                         | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <1mA / 240VAC                                                                                                           |           |                  |           |                     |           |                 |  |
| PROTECTION                              | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Above 105% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |           |                  |           |                     |           |                 |  |
|                                         | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.75 ~ 6.75V                                                                                                            |           | 13.8 ~ 16.2V     |           | 17.25 ~ 20.25V      |           | 27.6 ~ 32.4V    |  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Protection type : Shut down o/p voltage, re-power on to recover                                                         |           |                  |           |                     |           |                 |  |
| FUNCTION                                | DC OK ACTIVE SIGNAL (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.75 ~ 6V / 50mA                                                                                                        |           | 9 ~ 13.5V / 40mA |           | 11.5 ~ 16.5V / 40mA |           | 18 ~ 27V / 20mA |  |
| ENVIRONMENT                             | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -20 ~ +70℃ (Refer to output load derating curve)                                                                        |           |                  |           |                     |           |                 |  |
|                                         | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 20 ~ 90% RH non-condensing                                                                                              |           |                  |           |                     |           |                 |  |
|                                         | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -40 ~ +85℃, 10 ~ 95% RH                                                                                                 |           |                  |           |                     |           |                 |  |
|                                         | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ±0.03%/℃ (0 ~ 50℃ )                                                                                                     |           |                  |           |                     |           |                 |  |
|                                         | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6           |           |                  |           |                     |           |                 |  |
| SAFETY & EMC<br><small>(Note 4)</small> | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | UL508, TUV EN60950-1 approved, NEC class 2 / LPS compliant                                                              |           |                  |           |                     |           |                 |  |
|                                         | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | I/P-O/P:3KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC                                                                       |           |                  |           |                     |           |                 |  |
|                                         | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC                                                                                |           |                  |           |                     |           |                 |  |
|                                         | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN55011,EN55022 (CISPR22), EN61204-3 Class B                                                              |           |                  |           |                     |           |                 |  |
|                                         | HARMONIC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Compliance to EN61000-3-2,-3                                                                                            |           |                  |           |                     |           |                 |  |
|                                         | EMS IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024,EN61000-6-1,EN61204-3, light industry level, criteria A |           |                  |           |                     |           |                 |  |
| OTHERS                                  | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 584K hrs min.    MIL-HDBK-217F (25℃ )                                                                                   |           |                  |           |                     |           |                 |  |
|                                         | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 22.5*90*100mm (W*H*D)                                                                                                   |           |                  |           |                     |           |                 |  |
|                                         | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.17Kg; 72pcs/13.2Kg/0.91CUFT                                                                                           |           |                  |           |                     |           |                 |  |
| NOTE                                    | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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. 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.<br>5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time. |                                                                                                                         |           |                  |           |                     |           |                 |  |

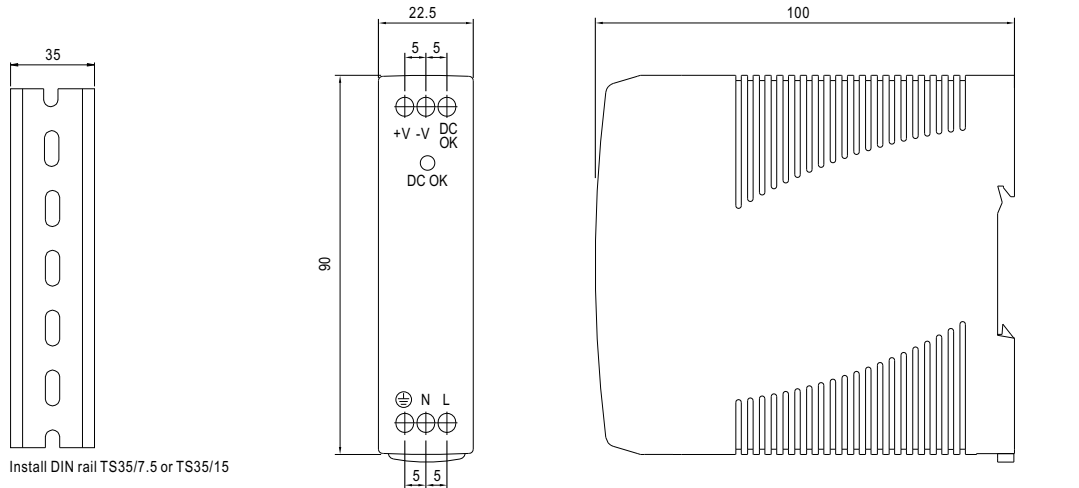
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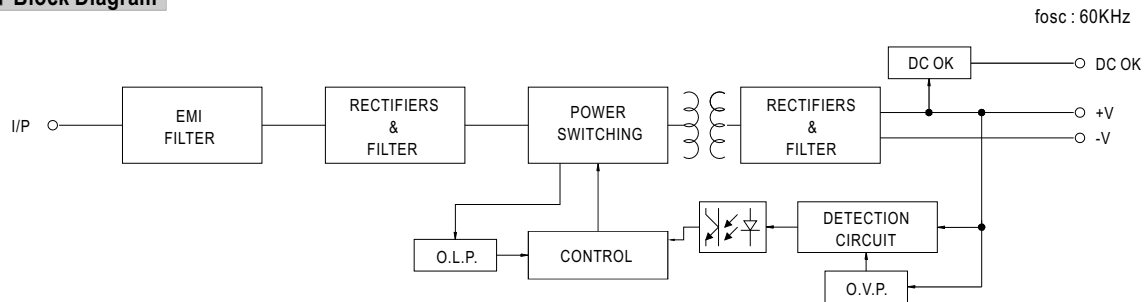
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## MDR-10 series

### Mechanical Specification

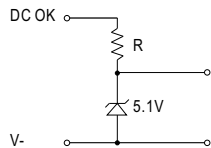


### Block Diagram



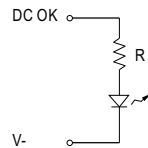
### Application of DC OK Active Signal

#### (a) 5V signal



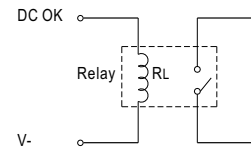
| Model | R                 |
|-------|-------------------|
| 5V    | $\geq 200\Omega$  |
| 12V   | $\geq 1.5K\Omega$ |
| 15V   | $\geq 2K\Omega$   |
| 24V   | $\geq 3.9K\Omega$ |

#### (b) LED



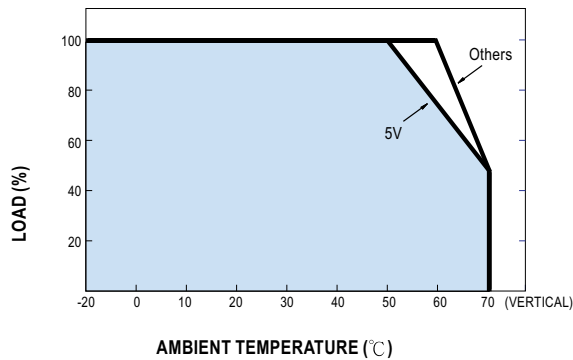
| Model | R                 |
|-------|-------------------|
| 5V    | $\geq 1K\Omega$   |
| 12V   | $\geq 2.4K\Omega$ |
| 15V   | $\geq 3K\Omega$   |
| 24V   | $\geq 4.7K\Omega$ |

#### (c) Relay

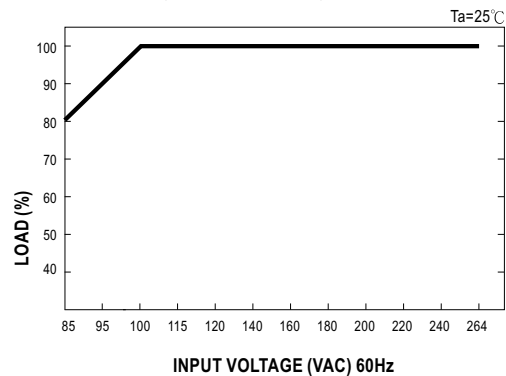


| Model | RL                |
|-------|-------------------|
| 5V    | $\geq 120\Omega$  |
| 12V   | $\geq 700\Omega$  |
| 15V   | $\geq 700\Omega$  |
| 24V   | $\geq 1.2K\Omega$ |

### Derating Curve



### Output Derating VS Input Voltage



File Name:MDR-10-SPEC 2008-06-07

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