



## Features

- Compliance to EN50155 and EN45545-2 railway standard
- Width only 85.5mm
- 2:1 wide input range
- -40~+80°C wide operating temperature
- 150% peak load capability
- Current sharing up to 1920W(3+1)
- DC output adjustable
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Protections: Short circuit / Overload / Over voltage /  
Over temperature / Input reverse polarity/  
Input under voltage protection
- 4KVdc I/O isolation(Reinforced isolation)
- DC OK relay contact
- Remote ON-OFF control
- Operating attitude up to 5000 meters(Note.6)
- 3 years warranty

## Description

DDR-480 series is a 480W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (85.5mm), 2:1 wide input voltage, fanless design, -40~+80°C wide operating temperature, 4KVdc I/O isolation, 150% peak load, current sharing, DC OK, adjustable output voltage and full protective functions. This series of models has various input options: 16.8~33.6V / 33.6~67.2V / 67.2~154V and multiple output options: 12V / 24V / 48V and can be used for industrial & railway control, security control, communication system and other fields. Suitable applications include to DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

## Model Encoding

**DDR - 480 B - 24**

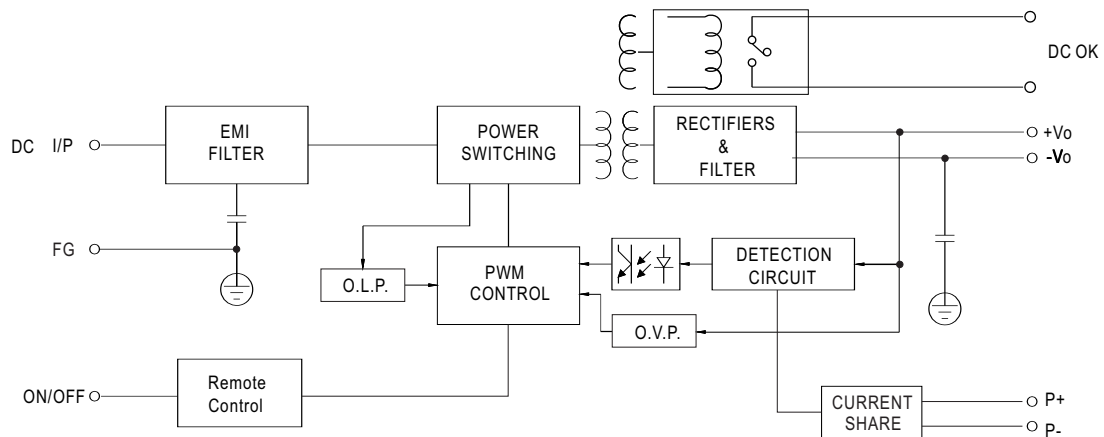
- Output voltage(12/24/48Vdc)
- Input voltage (B:16.8~33.6Vdc, C:33.6~67.2Vdc, D:67.2~154Vdc)
- Rated wattage
- Series name

## SPECIFICATION

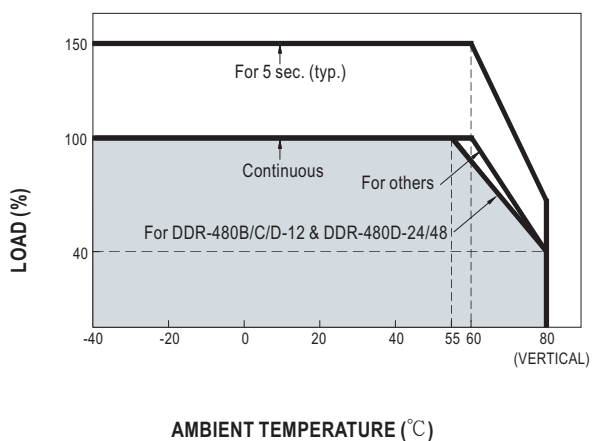
| MODEL                          |                                    | DDR-480B-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DDR-480B-24                                                                                                                                               | DDR-480B-48       | DDR-480C-12 | DDR-480C-24                 | DDR-480C-48                                                   | DDR-480D-12 | DDR-480D-24   | DDR-480D-48 |            |  |
|--------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|-----------------------------|---------------------------------------------------------------|-------------|---------------|-------------|------------|--|
| OUTPUT                         | DC VOLTAGE                         | 12V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24V                                                                                                                                                       | 48V               | 12V         | 24V                         | 48V                                                           | 12V         | 24V           | 48V         |            |  |
|                                | RATED CURRENT                      | 33.4A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20A                                                                                                                                                       | 10A               | 33.4A       | 20A                         | 10A                                                           | 33.4A       | 20A           | 10A         |            |  |
|                                | CURRENT RANGE                      | 0 ~ 33.4A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0 ~ 20A                                                                                                                                                   | 0 ~ 10A           | 0 ~ 33.4A   | 0 ~ 20A                     | 0 ~ 10A                                                       | 0 ~ 33.4A   | 0 ~ 20A       | 0 ~ 10A     |            |  |
|                                | RATED POWER                        | 400.8W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 480W                                                                                                                                                      | 480W              | 400.8W      | 480W                        | 480W                                                          | 400.8W      | 480W          | 480W        |            |  |
|                                | PEAK                               | CURRENT 5sec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 50.1A                                                                                                                                                     | 30A               | 15A         | 50.1A                       | 30A                                                           | 15A         | 50.1A         | 30A         | 15A        |  |
|                                |                                    | POWER 5sec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 12Vo: 601.2W, 24Vo / 48Vo : 720W                                                                                                                          |                   |             |                             |                                                               |             |               |             |            |  |
|                                | RIPPLE & NOISE (max.)              | Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100mVp-p                                                                                                                                                  | 120mVp-p          | 150mVp-p    | 100mVp-p                    | 120mVp-p                                                      | 150mVp-p    | 100mVp-p      | 120mVp-p    | 150mVp-p   |  |
|                                | VOLTAGE ADJ. RANGE                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 12 ~ 14V                                                                                                                                                  | 24 ~ 28V          | 48~ 56V     | 12 ~ 14V                    | 24 ~ 28V                                                      | 48~ 56V     | 12 ~ 14V      | 24 ~ 28V    | 48~ 56V    |  |
|                                | VOLTAGE TOLERANCE                  | Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ±1.0%                                                                                                                                                     | ±1.0%             | ±1.0%       | ±1.0%                       | ±1.0%                                                         | ±1.0%       | ±1.0%         | ±1.0%       | ±1.0%      |  |
|                                | LINE REGULATION                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.5%                                                                                                                                                     | ±0.5%             | ±0.5%       | ±0.5%                       | ±0.5%                                                         | ±0.5%       | ±0.5%         | ±0.5%       | ±0.5%      |  |
| LOAD REGULATION                |                                    | ±1.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ±1.0%                                                                                                                                                     | ±1.0%             | ±1.0%       | ±1.0%                       | ±1.0%                                                         | ±1.0%       | ±1.0%         | ±1.0%       |            |  |
| SETUP, RISE TIME               |                                    | 500ms, 60ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| HOLD UP TIME (Typ.)            |                                    | Please refer to page 6 hold up time (Load de-rating curve )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| INPUT                          | VOLTAGE RANGE                      | CONTINUOUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 16.8 ~ 33.6Vdc                                                                                                                                            |                   |             | 33.6 ~ 67.2Vdc              |                                                               |             | 67.2 ~ 154Vdc |             |            |  |
|                                |                                    | 100ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 14.4 ~ 16.8Vdc                                                                                                                                            |                   |             | 28.8 ~ 33.6Vdc              |                                                               |             | 66 ~ 67.2Vdc  |             |            |  |
|                                | EFFICIENCY (Typ.)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 90%                                                                                                                                                       | 91%               | 90.5%       | 91%                         | 92%                                                           | 92%         | 91%           | 92%         | 93%        |  |
|                                | DC CURRENT (Typ.)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 23A @24Vdc                                                                                                                                                |                   |             | 11.2A @48Vdc                |                                                               |             | 5A @110Vdc    |             |            |  |
|                                | INRUSH CURRENT (Typ.)              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30A                                                                                                                                                       |                   |             |                             |                                                               |             |               |             |            |  |
| INTERRUPTION OF VOLTAGE SUPPLY |                                    | EN50155: 2017-B/C/D type comply with S2 level (10ms)@ full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| PROTECTION                     | OVERLOAD                           | Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Normally works within 150% rated output power for more than 5 seconds and then constant current protection 105~135% rated output power with auto-recovery |                   |             |                             |                                                               |             |               |             |            |  |
|                                | OVER VOLTAGE                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14.4 ~ 17.5V                                                                                                                                              | 28.8 ~ 35V        | 57.6 ~ 65V  | 14.4 ~ 17.5V                | 28.8 ~ 35V                                                    | 57.6 ~ 65V  | 14.4 ~ 17.5V  | 28.8 ~ 35V  | 57.6 ~ 65V |  |
|                                | OVER TEMPERATURE                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Protection type : Shut down o/p voltage, re-power on to recover                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
|                                | REVERSE POLARITY                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Shut down o/p voltage, re-power on to recover                                                                                                             |                   |             |                             |                                                               |             |               |             |            |  |
|                                | UNDER VOLTAGE LOCKOUT              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | By internal, MOSFET, no damage, recovers automatically after fault condition is removed                                                                   |                   |             |                             |                                                               |             |               |             |            |  |
| FUNCTION                       | DC OK REALY CONTACT RATINGS (max.) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 24Vin (B - type) :Power ON≥16.8V , OFF≤16.5V                                                                                                              |                   |             |                             |                                                               |             |               |             |            |  |
|                                | CURRENT SHARING                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 48Vin (C - type) :Power ON≥33.6V , OFF≤33V                                                                                                                |                   |             |                             |                                                               |             |               |             |            |  |
|                                | REMOTE ON-OFF CONTROL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 110Vin (D - type):Power ON≥67.2V , OFF≤65V                                                                                                                |                   |             |                             |                                                               |             |               |             |            |  |
|                                | UNDER VOLTAGE LOCKOUT              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| ENVIRONMENT                    | DC OK REALY CONTACT RATINGS (max.) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30Vdc/1A resistive load                                                                                                                                   |                   |             |                             |                                                               |             |               |             |            |  |
|                                | CURRENT SHARING                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Up to 1920W (3+1 units). Please refer to the Function Manual                                                                                              |                   |             |                             |                                                               |             |               |             |            |  |
|                                | REMOTE ON-OFF CONTROL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Please refer to the Function Manual                                                                                                                       |                   |             |                             |                                                               |             |               |             |            |  |
|                                | WORKING TEMP.                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -40 ~ +80℃ (Refer to "Derating Curve")                                                                                                                    |                   |             |                             |                                                               |             |               |             |            |  |
|                                | WORKING HUMIDITY                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5 ~ 95% RH non-condensing                                                                                                                                 |                   |             |                             |                                                               |             |               |             |            |  |
|                                | STORAGE TEMP., HUMIDITY            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -40 ~ +85, 5 ~ 95% RH non-condensing                                                                                                                      |                   |             |                             |                                                               |             |               |             |            |  |
|                                | TEMP. COEFFICIENT                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.03%/℃ (0 ~ 55℃ )                                                                                                                                       |                   |             |                             |                                                               |             |               |             |            |  |
|                                | VIBRATION                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC61373                                                  |                   |             |                             |                                                               |             |               |             |            |  |
| OPERATING ALTITUDE             | Note.6                             | 5000 meters / OVCII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| SAFETY & EMC<br>(Note 7)       | SAFETY STANDARDS                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | UL 62368-1, IEC 62368-1, AS/NZS 62368-1, EAC TP TC 004 approved                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
|                                | WITHSTAND VOLTAGE                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I/P-O/P:4KVdc I/P-FG:2.5KVdc O/P-FG:0.71KVdc                                                                                                              |                   |             |                             |                                                               |             |               |             |            |  |
|                                | ISOLATION RESISTANCE               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500Vdc / 25℃ / 70% RH                                                                                                |                   |             |                             |                                                               |             |               |             |            |  |
|                                | EMC EMISSION                       | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           | Standard          |             |                             | Test Level / Note                                             |             |               |             |            |  |
|                                |                                    | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           | EN55032 (CISRP32) |             |                             | Class A                                                       |             |               |             |            |  |
|                                |                                    | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                           | EN55032 (CISRP32) |             |                             | Class B                                                       |             |               |             |            |  |
|                                |                                    | Voltage Flicker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                           | EN61000-3-3       |             |                             | -----                                                         |             |               |             |            |  |
|                                |                                    | Harmonic Current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                           | -----             |             |                             | -----                                                         |             |               |             |            |  |
|                                | EMC IMMUNITY                       | EN55035                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
|                                |                                    | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           | Standard          |             |                             | Test Level / Note                                             |             |               |             |            |  |
|                                |                                    | ESD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                           | EN61000-4-2       |             |                             | Level 3, 8KV air ; Level 3, 6KV contact; criteria A           |             |               |             |            |  |
|                                |                                    | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                           | EN61000-4-3       |             |                             | Level 3, 10V/m ; criteria A                                   |             |               |             |            |  |
|                                |                                    | EFT / Burst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                           | EN61000-4-4       |             |                             | Level 3, 2KV ; criteria A                                     |             |               |             |            |  |
|                                |                                    | Surge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                           | EN61000-4-5       |             |                             | Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-FG ;criteria A |             |               |             |            |  |
|                                |                                    | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                           | EN61000-4-6       |             |                             | Level 3, 10V ; criteria A                                     |             |               |             |            |  |
| Magnetic Field                 |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EN61000-4-8                                                                                                                                               |                   |             | Level 4, 30A/m ; criteria A |                                                               |             |               |             |            |  |
| RAILWAY STANDARD               |                                    | Compliance to EN45545-2 for fire protection ; Meet EN50155 / IEC60571 including IEC61373 for shock & vibration, EN50121-3-2 for EMC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |
| OTHERS                         | MTBF                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 280.0K hrs min. Telcordia SR-332 (Bellcore) ; 101.7K hrs min. MIL-HDBK-217F (25℃)                                                                         |                   |             |                             |                                                               |             |               |             |            |  |
|                                | DIMENSION                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 85.5*125.2*128.5mm (W*H*D)                                                                                                                                |                   |             |                             |                                                               |             |               |             |            |  |
|                                | PACKING                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.375Kg;8pcs/12Kg/0.98CUFT                                                                                                                                |                   |             |                             |                                                               |             |               |             |            |  |
| NOTE                           |                                    | 1. All parameters NOT specially mentioned are measured at normal input (B:24Vdc , C:48Vdc , D:110Vdc ) , 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 0.1μf & 47μf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Derating may be needed under low input voltage. Please check the derating curve for more details.<br>5. 150% 5 seconds, please refer to peak loading curves.<br>6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than2000m(6500ft).<br>7. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br>(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) |                                                                                                                                                           |                   |             |                             |                                                               |             |               |             |            |  |

## Block Diagram

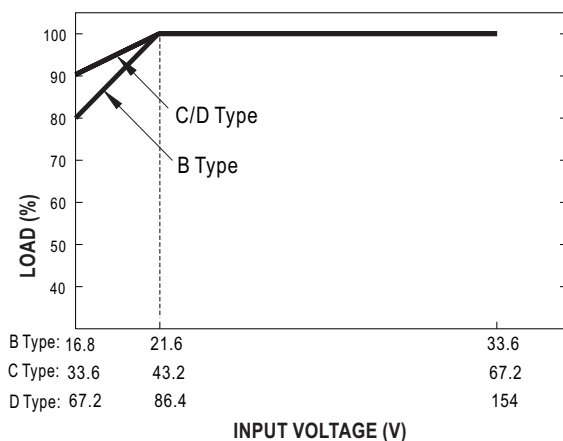
fosc : 65KHz



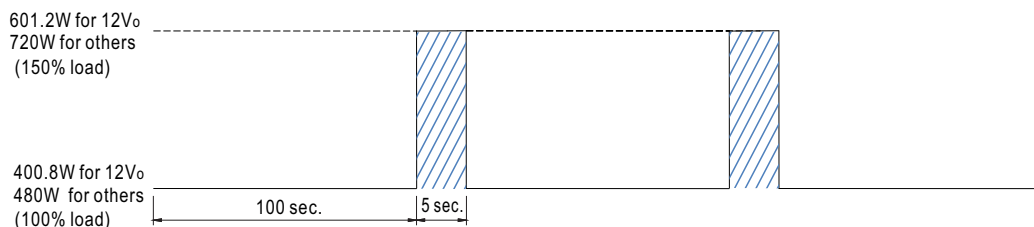
## Derating Curve



## Output derating VS Input Voltage



## ■ Peak Loading



## ■ DC OK Relay Contact

|                        |                          |
|------------------------|--------------------------|
| Contact Close          | PSU turns on / DC OK.    |
| Contact Open           | PSU turns off / DC Fail. |
| Contact Ratings (max.) | 30V/1A resistive load.   |

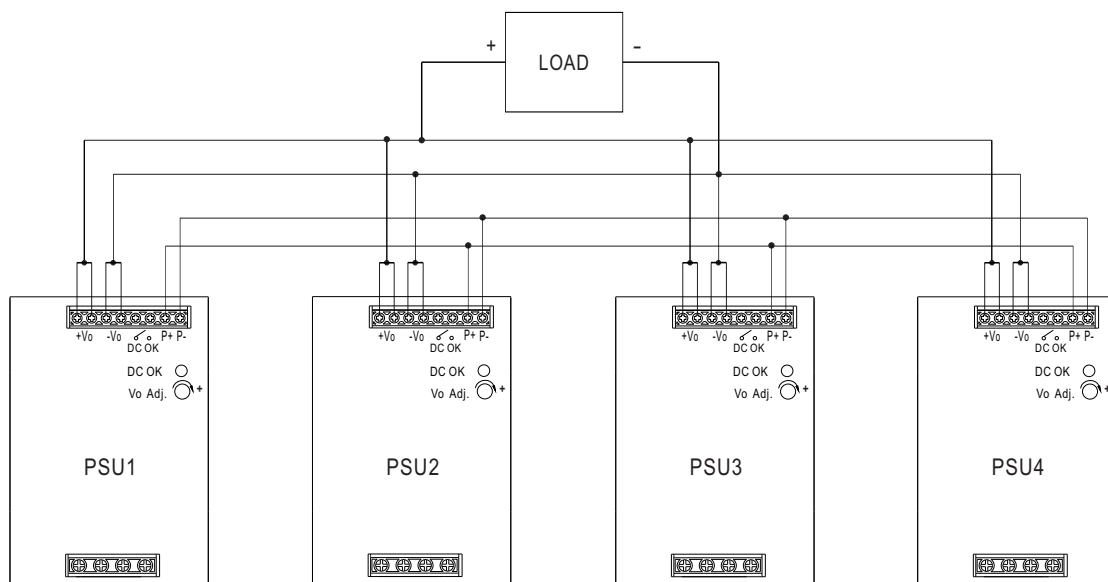
## ■ Function Manual

### 1. Current sharing

- (1) Parallel operation is available by connecting the units shown as below (P+,P- are connected mutually in parallel) :
- (2) The voltage difference among each output should be minimized that less than 0.2V is required.
- (3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)  

$$= (\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9.$$
- (4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (5) When in parallel operation, the minimum output load should be greater than 3% of total output load.  

$$(\text{Min. load} > 3\% \text{ rated current per unit} \times \text{number of unit})$$



### 2. Remote ON-OFF Control

※ The power supply can be turned ON-OFF by using the "Remote ON-OFF" function.

|                               |                  |
|-------------------------------|------------------|
| Remote ON-OFF<br>(TB1 PIN2,4) | Output Status    |
| Open or 5.5 ~ 10VDC           | power supply ON  |
| Short or 0 ~ 0.8VDC           | power supply OFF |

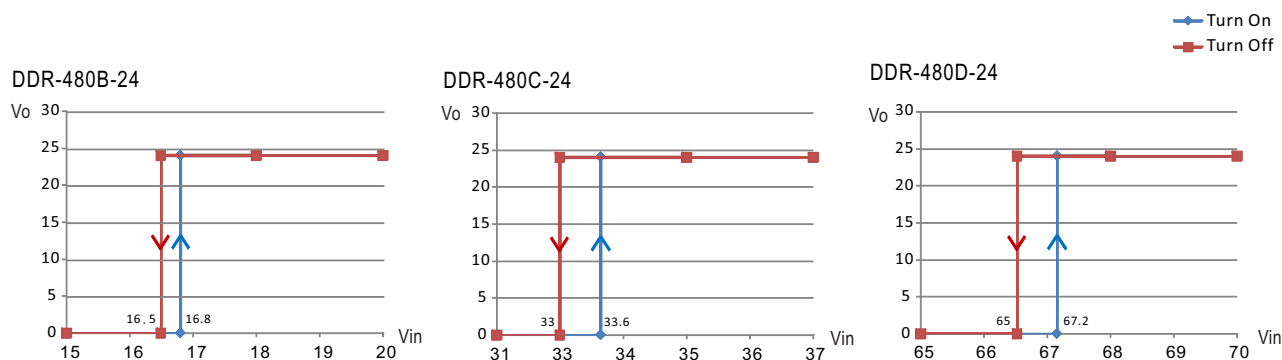
## Input Fuse

There is one fuse connected in series to the positive input line, which is used to protect against abnormal surge. Fuse specifications of each model are shown as below.

| Type | Fuse Type | Reference and Rating       |
|------|-----------|----------------------------|
| B    | Time-Lag  | Conquer MST, 10A, 250V *5  |
| C    | Time-Lag  | Conquer MST, 8A, 250V *3   |
| D    | Time-Lag  | Conquer MST, 6.3A, 250V *2 |

## Input Under-Voltage Protection

If input voltage drops below  $V_{imin}$ , the internal control IC shuts down and there is no output voltage. It recovers automatically when input voltage reaches above  $V_{imin}$ , please refer to the curve below.

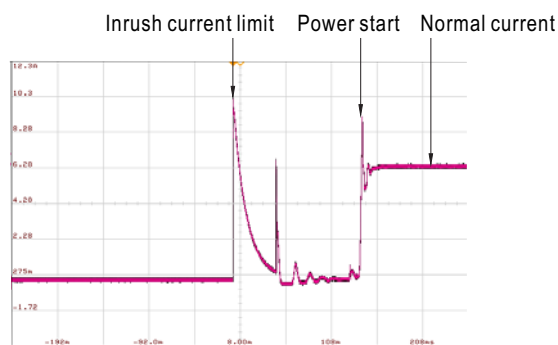


## Input Reverse Polarity Protection

There are two MOSFETs connected in series to the negative input line. If the input polarity is connected reversely, the MOSFETs open and there will be no output to protect the unit.

## Inrush Current

Inrush current is suppressed by a resistor during the initial start-up, and then the resistor is bypassed by MOSFETs to reduce power consumption after accomplishing the start-up.



## Hold-up Time

- EN50155:2017 version- B/C/D type comply with S2 level (10ms) @ full load , please refer to the table and curves show below for the hold up time specification.

| Model \ Load    | 100% load | 70% load  | other load   |
|-----------------|-----------|-----------|--------------|
| B type (24Vin)  | 10ms min. | 16ms min. | figure 1,2,3 |
| C type (48Vin)  | 11ms min. | 17ms min. | figure 4,5,6 |
| D type (110Vin) | 16ms min. | 24ms min. | figure 7,8,9 |

DDR-480B-12

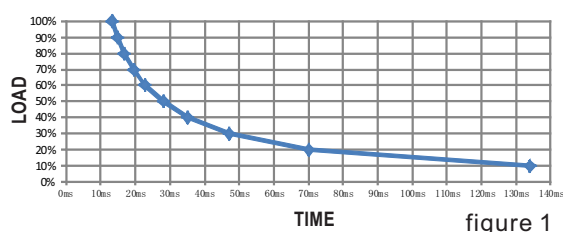


figure 1

DDR-480B-24

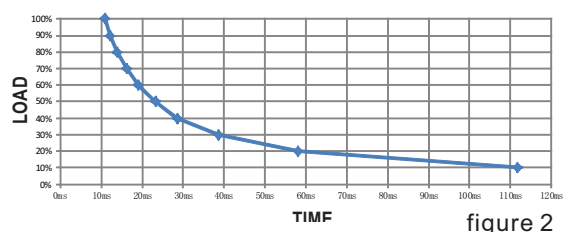


figure 2

DDR-480B-48

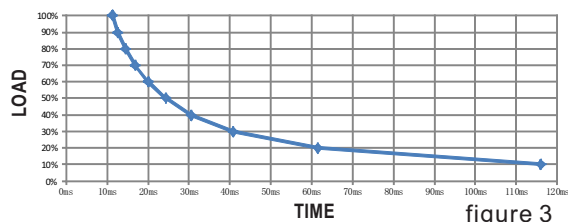


figure 3

DDR-480C-12

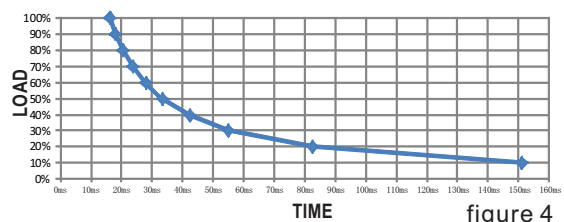


figure 4

DDR-480C-24

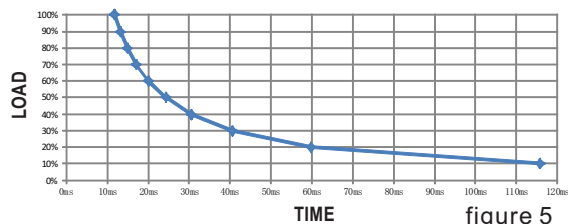


figure 5

DDR-480C-48

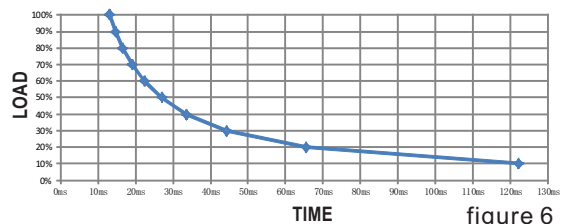


figure 6

DDR-480D-12

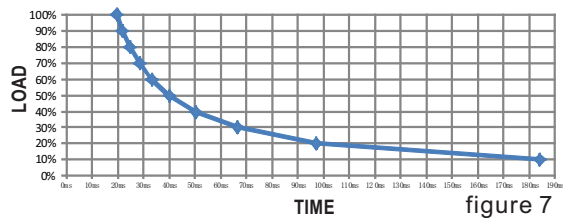


figure 7

DDR-480D-24

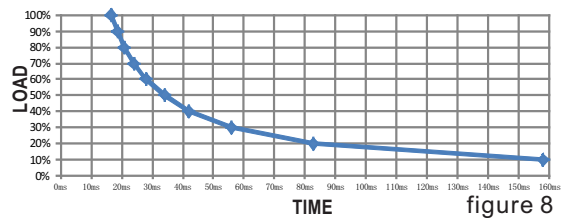


figure 8

DDR-480D-48

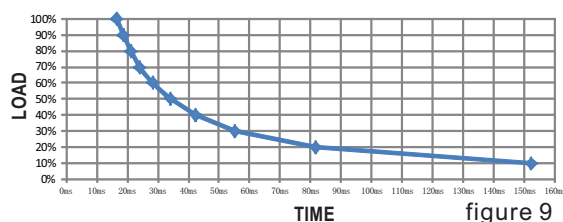
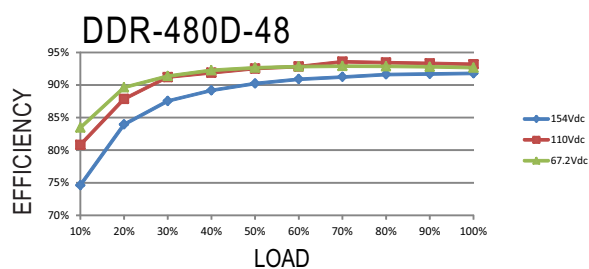
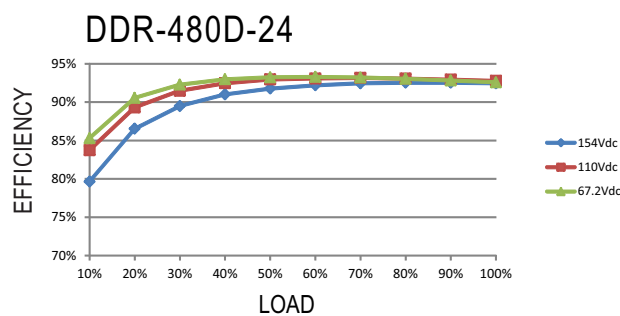
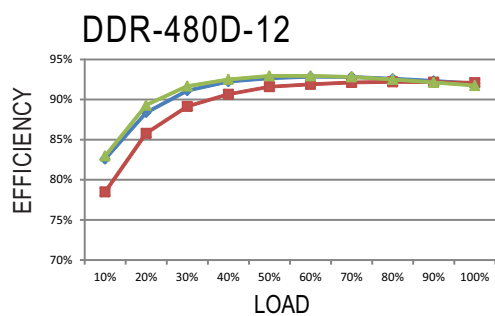
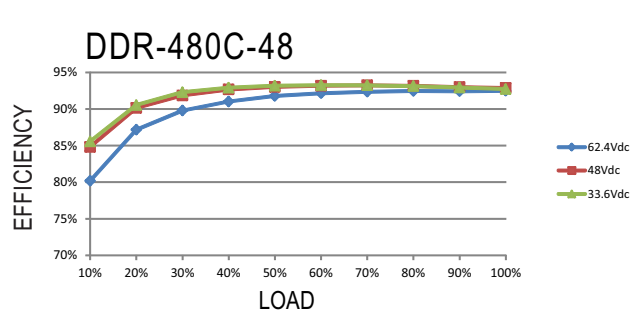
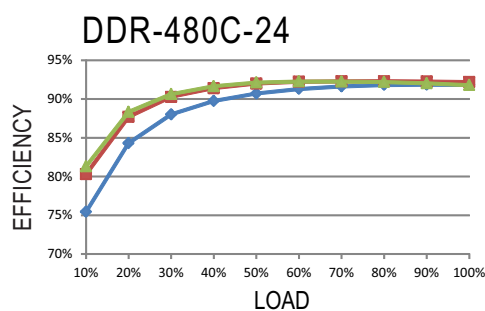
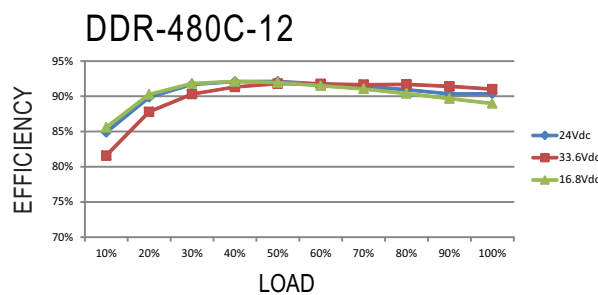
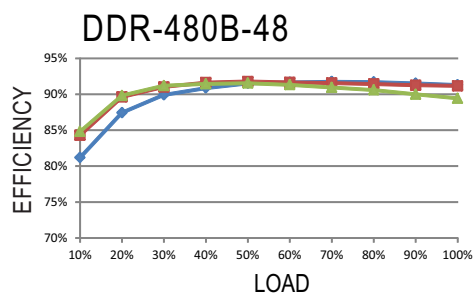
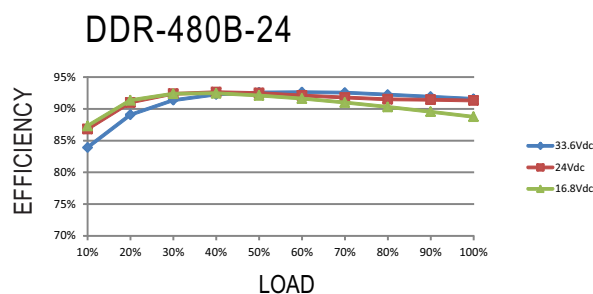
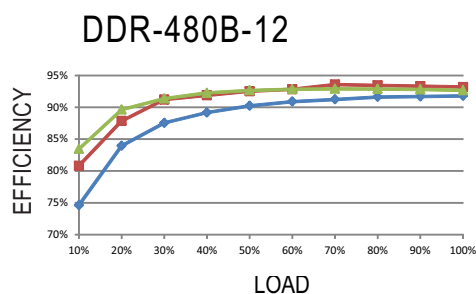


figure 9

## ■ Efficiency vs Load & Vin Curve

The efficiency vs load & Vin curves of each model are shown as below.



### ■ Immunity to Environmental Conditions

| Test method                  | Standard                                                                                                                          | Test conditions                                                     | Status    |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------|
| Cooling Test                 | EN 50155 section 12.2.3 (Column 2, Class TX)<br>EN 60068-2-1                                                                      | Temperature: -40°C<br>Dwell Time: 2 hrs/cycle                       | No damage |
| Dry Heat Test                | EN 50155 section 12.2.4 (Column 2, Class TX)<br>EN 50155 section 12.2.4 (Column 3, Class TX & Column 4, Class TX)<br>EN 60068-2-2 | Temperature: 70°C / 85°C<br>Duration: 6 hrs / 10min                 | PASS      |
| Damp Heat Test, Cyclic       | EN 50155 section 12.2.5<br>EN 60068-2-30                                                                                          | Temperature: 25°C~55°C<br>Humidity: 90%~100% RH<br>Duration: 48 hrs | PASS      |
| Vibration Test               | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: 19°C<br>Humidity: 65%<br>Duration: 10 mins             | PASS      |
| Increased Vibration Test     | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: 19°C<br>Humidity: 65%<br>Duration: 5 hrs               | PASS      |
| Shock Test                   | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: 21 ± 3°C<br>Humidity: 65 ± 5%<br>Duration: 30ms*18     | PASS      |
| Low Temperature Storage Test | EN 50155 section 12.2.3 (Column 2, Class TX)<br>EN 60068-2-1                                                                      | Temperature: -40°C<br>Dwell Time: 16 hrs                            | PASS      |
| Salt Mist Test               | EN 50155 section 12.2.10 (Class ST4)                                                                                              | Temperature: 35°C ± 2°C<br>Duration: 48 hrs                         | PASS      |

### ■ EN45545-2 Fire Test Conditions

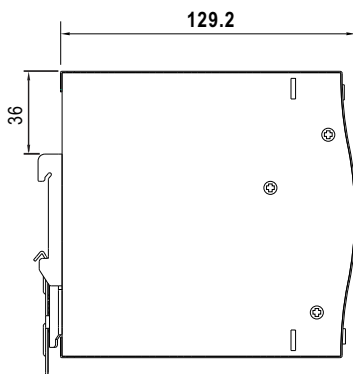
| Test Items |                     |                                       | Hazard Level |      |      |
|------------|---------------------|---------------------------------------|--------------|------|------|
|            | Items               | Standard                              | HL1          | HL2  | HL3  |
| R22        | Oxygen index test   | EN 45545-2:2013<br>EN ISO 4589-2:1996 | PASS         | PASS | PASS |
|            | Smoke density test  | EN 45545-2:2013<br>EN ISO 5659-2:2006 | PASS         | PASS | PASS |
|            | Smoke toxicity test | EN 45545-2:2013<br>NF X70-100:2006    | PASS         | PASS | PASS |
| R24        | Oxygen index test   | EN 45545-2:2013<br>EN ISO 4589-2:1996 | PASS         | PASS | PASS |
| R25        | Glow-wire test      | EN 45545-2:2013<br>EN 60695-2-11:2000 | PASS         | PASS | PASS |
| R26        | Vertical flame test | EN 45545-2:2013<br>EN 60695-11:2003   | PASS         | PASS | PASS |

## Mechanical Specification

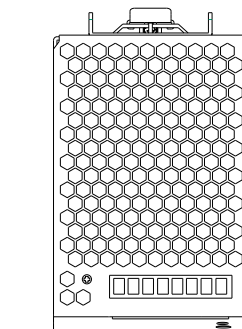
Case No. 984F Unit:mm

Terminal Pin No. Assignment (TB2)

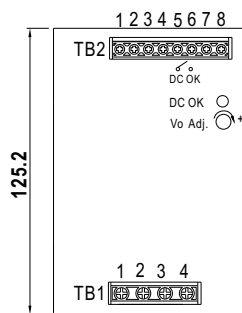
| Pin No. | Assignment             |
|---------|------------------------|
| 1,2     | DC output +Vo          |
| 3,4     | DC output -Vo          |
| 5,6     | DC OK Relay Contact    |
| 7,8     | P+,P-(Current sharing) |



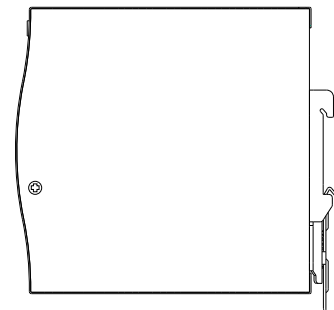
Side View



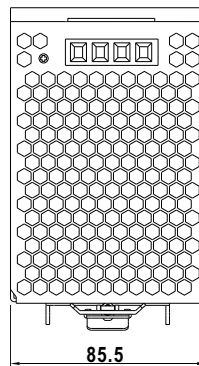
Top View



Front View



Side View

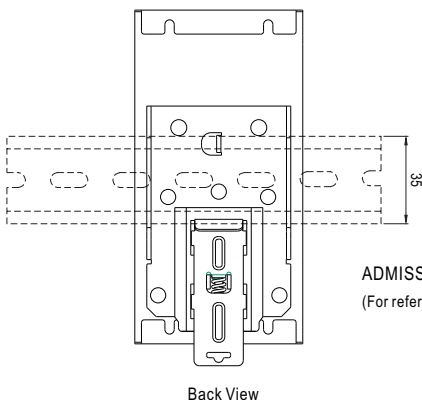


Bottom View

Terminal Pin No. Assignment (TB1)

| Pin No. | Assignment    |
|---------|---------------|
| 1       | FG ⚡          |
| 2       | DC input -Vin |
| 3       | DC input +Vin |
| 4       | Remote ON/OFF |

## Installation Instruction



Back View

This series fits DIN rail TS35/7.5 or TS35/15.  
For installation details, please refer to the Instruction manual.

ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15  
(For reference only. Not included with unit.)

## Installation Manual

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