

## ■ Features

- 180~264Vac input with PFC
- Global certificates in multi-fields (ITE 62368-1, Industrial 61558-1/-2-16, 61010)
- 96mm slim width
- High efficiency up to 95.5% and no load power dissipation <3.6W
- Built-in constant current limiting circuit
- Current sharing up to 3840W (3+1) for parallel use
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Fanless design, cooling by free air convection
- Over voltage category III (OVC III)
- -40~+70°C wide range operation temperature (>+50°C derating)
- Operating altitude up to 5000 meters
- Built-in DC OK relay contact
- Can be installed on DIN rail TS-35/7.5 or 15
- 3 years warranty

## ■ Description

The XDR-960E series is a 960W AC/DC economical ultra slim industrial DIN rail power. Key features of this series include a narrow 96mm casing, optimizing system installation space. It boasts a maximum efficiency of 95.5% and a low standby power consumption <3.6W for energy savings and carbon reduction. It has built-in constant current, fanless design, a wide operating temperature range of -40 to +70°C (up to +50°C at full load); OVCI compliance; parallel function capability up to 3840W; built-in DC OK signal. With comprehensive protection functions, complete safety certifications, and a 3-years warranty, the XDR-960E series is a compact, high-performance, and highly reliable DIN rail power supply.

## ■ Model Encoding

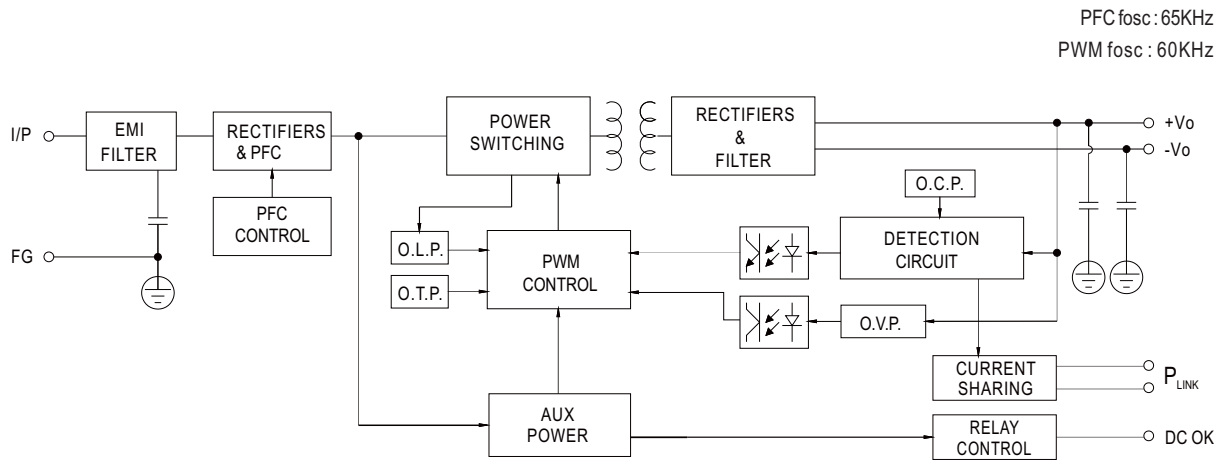
**XDR - 960E - 24**

- Output voltage(24V/36V/48V)
- Economical version
- Output wattage
- Series name

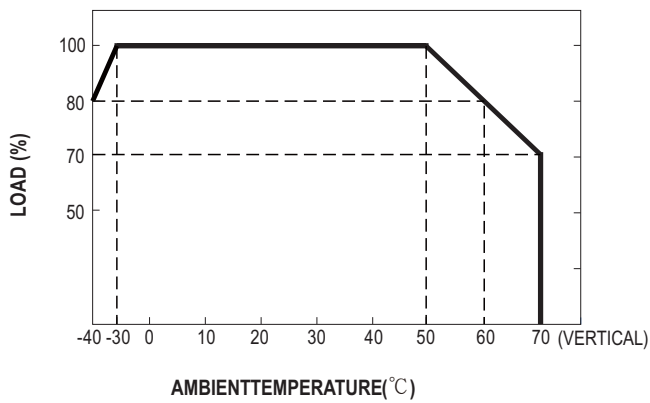
**SPECIFICATION**

| MODEL                    |   | XDR-960E-24  | XDR-960E-36  | XDR-960E-48   |
|--------------------------|---|--|--|---|
| OUTPUT                   | DC VOLTAGE  | 24V  | 36V  | 48V   |
|                          | RATED CURRENT   | 40A  | 26.6A  | 20A   |
|                          | CURRENT RANGE   | 0 ~ 40A  | 0 ~ 26.6A  | 0 ~ 20A   |
|                          | RATED POWER   | 960W   | 957.6W   | 960W  |
|                          | RIPPLE & NOISE (max.)<br>Note.2   | 120mVp-p   | 150mVp-p   | 150mVp-p  |
|                          | VOLTAGE ADJ. RANGE  | 24 ~ 29V   | 36 ~ 42V   | 48 ~ 55V  |
|                          | VOLTAGE TOLERANCE<br>Note.3   | ± 1.0%   | ± 1.0%   | ± 1.0%  |
|                          | LINE REGULATION   | ± 0.5%   | ± 0.5%   | ± 0.5%  |
|                          | LOAD REGULATION   | ± 1.0%   | ± 1.0%   | ± 1.0%  |
|                          | SETUP, RISE TIME  | 500ms, 50ms/230Vac at full load  |  |   |
|                          | HOLD UP TIME (Typ.)   | 15ms/230Vac at full load   |  |   |
| INPUT                    | AC VOLTAGE RANGE  | 180 ~ 264Vac   |  |   |
|                          | DC VOLTAGE RANGE  | 254.5 ~ 370Vdc   |  |   |
|                          | NO LOAD POWER CONSUMPTION (Typ.)  | 2.7W @ 230Vac  | 3.6W @ 230Vac  |   |
|                          | FREQUENCY RANGE   | 47 ~ 63Hz  |  |   |
|                          | POWDR FACTOR (Typ.)   | PF>0.95/230Vac at full load  |  |   |
|                          | EFFICIENCY (Typ.)   | 94.5%  | 95%  | 95.5%   |
|                          | AC CURRENT (Typ.)   | 4.5A/230Vac  |  |   |
|                          | INRUSH CURRENT (Typ.)   | COLD START 30A/230Vac  |  |   |
|                          | LEAKAGE CURRENT   | <3.5mA / 240Vac  |  |   |
| PROTECTION               | OVERLOAD  | 105~130% rated output power<br>Hiccup mode when output voltage <30%, recovers automatically after fault condition is removed<br>Constant current limiting without shutdown within 30%~100% rated output voltage, recovers automatically after fault condition is removed                           |  |   |
|                          | OVER VOLTAGE  | 30 ~ 34V   | 43 ~ 50V   | 56 ~ 65V  |
|                          |   | Protection type : Shut down o/p voltage, re-power on to recover  |  |   |
|                          | OVER TEMPERATURE  | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down  |  |   |
| FUNCTION                 | PARALLEL(Droop Mode)  | Up to 3840W or (3+1) units;Please refer to Function Manual for more details  |  |   |
|                          | DC OK RELAY CONTACT   | Relay Contact Ratings (max.):30Vdc/1A, 30Vac/0.5A resistive load   |  |   |
| ENVIRONMENT              | WORKING TEMP.   | -40 ~ +70℃ (Refer to "Derating Curve")   |  |   |
|                          | WORKING HUMIDITY  | 20 ~ 95% RH non-condensing   |  |   |
|                          | STORAGE TEMP., HUMIDITY   | -40 ~ +85℃, 10 ~ 95% RH non-condensing   |  |   |
|                          | TEMP. COEFFICIENT   | ± 0.03% /℃ (0 ~ 50℃)   |  |   |
|                          | VIBRATION   | Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6   |  |   |
| SAFETY & EMC<br>(Note 6) | SAFETY STANDARDS  | UL61010; TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16, BS EN/EN61010; CB IEC62368-1, IEC61558-1, IEC61010; RCM AS/NZS 62368-1, AS/NZS 61558-1/-2-16; BSMI CNS15598-1; CCC GB4943.1; EAC TPTC004 approved; KC KC62368-1 and BIS IS13252 (Part 1):2010 certified, no stock ,contact sale for inquiries |  |   |
|                          | OVER VOLTAGE CATEGORY<br>Note.4   | IEC/EN 61558-1/-2-16 (OVC III, altitude up to 2000m )<br>IEC/EN/UL 61010 (OVC II, altitude up to 5000m )<br>IEC/EN 62368-1 (OVC II, altitude up to 5000m )   |  |   |
|                          | SAFETY EXTRA-LOW VOLTAGE(SELV)  | IEC/EN 61558-2-16 (SELV )<br>IEC/EN/UL 61010-2-201 (SELV )<br>IEC/EN 62368-1 (SELV / ES1 )   |  |   |
|                          | WITHSTAND VOLTAGE   | I/P-O/P: 4KVac I/P-FG: 2KVac O/P-FG: 1.5KVac O/P-DC OK: 0.5KVac  |  |   |
|                          | 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  | BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936               | Class B   |
|                          |   | Radiated   | BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936               | Class B   |
|                          |   | Harmonic Current   | BS EN/EN61000-3-2  | Class A   |
|                          |   | Voltage Flicker  | BS EN/EN61000-3-3  | -----   |
|                          | EMC IMMUNITY  | BS EN/EN55035, BS EN/EN61204-3, BS EN/EN61000-6-2(BS EN/EN50082-2)   |  |   |
|                          |   | Parameter  | Standard   | Test Level / Note                                   |
|                          |   | ESD  | BS EN/EN61000-4-2  | Level 3, 8KV air ; Level 2, 4KV contact; criteria A |
|                          |   | Radiated   | BS EN/EN61000-4-3  | Level 3, 10V/m ; criteria A                         |
|                          |   | EFT / Burst  | BS EN/EN61000-4-4  | Level 3, 2KV ; criteria A                           |
| Surge                    |   | BS EN/EN61000-4-5  | Level 4, 2KV/Line-Line ;Level 4, 4KV/Line-Line-Chassis ;criteria A |   |
| Conducted                |   | BS EN/EN61000-4-6  | Level 3, 10V ; criteria A  |   |
| Magnetic Field           |   | BS EN/EN61000-4-8  | Level 4, 30A/m ; criteria A  |   |
| OTHERS                   | MTBF  | 1147.2K hrs min. Telcordia SR-332 (Bellcore) ; 169.9K hrs min. MIL-HDBK-217F (25℃)   |  |   |
|                          | DIMENSION   | 96*125.2*132mm (W*H*D)   |  |   |
|                          | PACKING   | 1.7Kg; 6pcs/11.2Kg/1.57CUFT  |  |   |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power.<br>In case the adjacent device is a heat source, 15mm clearance is recommended.<br>6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. (as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |  |  |   |

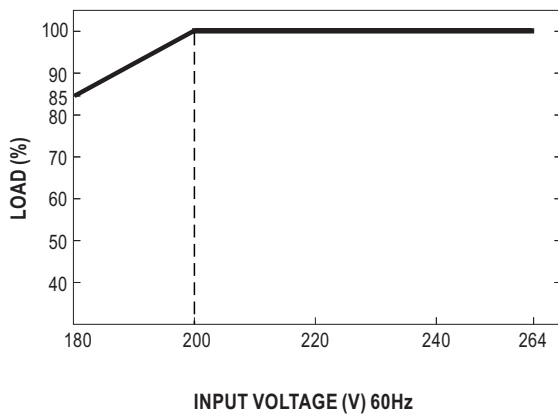
## ■ Block Diagram



## ■ Derating Curve



## ■ Static Characteristics

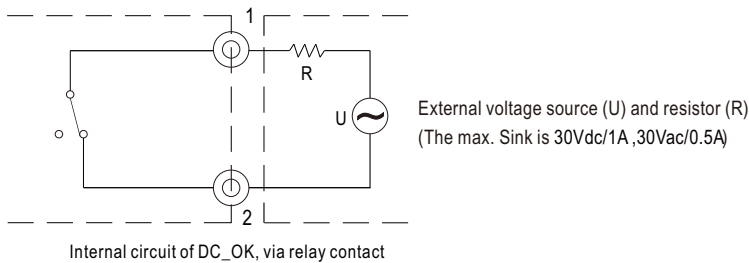


## Function Manual

| Pin No. | Function                              | Description  |
|---------|---------------------------------------|--|
| 1,2     | DC OK Relay Contact                   | Contact Close: PSU turns ON/DC_OK<br>Contact Open: PSU turns OFF/DC_fail         |
| 3,4     | Paraller Use Link(P <sub>LINK</sub> ) | P <sub>LINK</sub> should be short to enable droop parallel use.(Default disable) |

### 1.DC OK Relay Contact

|                        |                                      |
|------------------------|--------------------------------------|
| Contact Close          | PSU turns ON/DC OK.                  |
| Contact Open           | PSU turns OFF/DC Fail.               |
| Contact Ratings (max.) | 30Vdc/1A, 30Vac/0.5A resistive load. |



### 2.Parallel Use

XDR-960E has the built-in **droop mode current sharing** function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below :

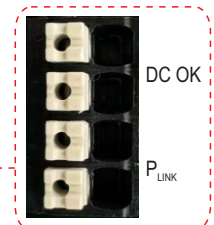
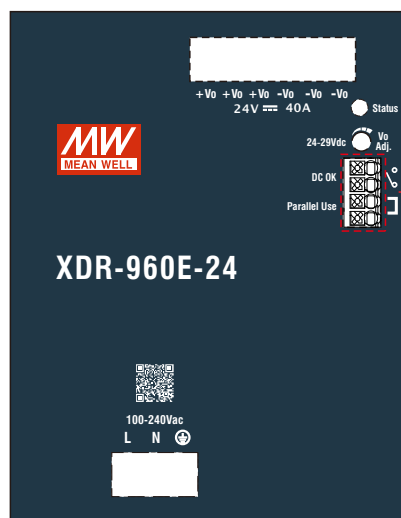
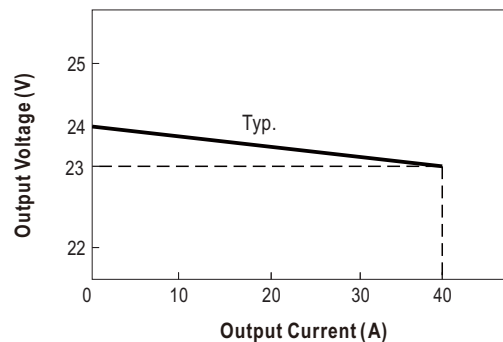
- (1) Difference of output voltages among parallel units should be less than **0.1V**.
- (2) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)=(The rated current per unit) x (Number of unit) x 0.9.
- (3) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (4) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- (5) When in parallel operation, the minimum output load should be greater than 7% of total output load. (Min. load >7% rated current per unit x number of unit)
- (6) In parallel connection, maybe only one unit (master) operate if the total output load is less than 7% of rated load condition.  
The other PSUs (slaves) may go into standby mode and their output LEDs & relays will not turn on.
- (7) **P<sub>LINK</sub> lines should be shorted locally.**
- (8) The "Parallel Use" mode regulates the output voltage in such a manner that the voltage at no load is approx. 4% higher than at normal load.

For example XDR-960E-24:

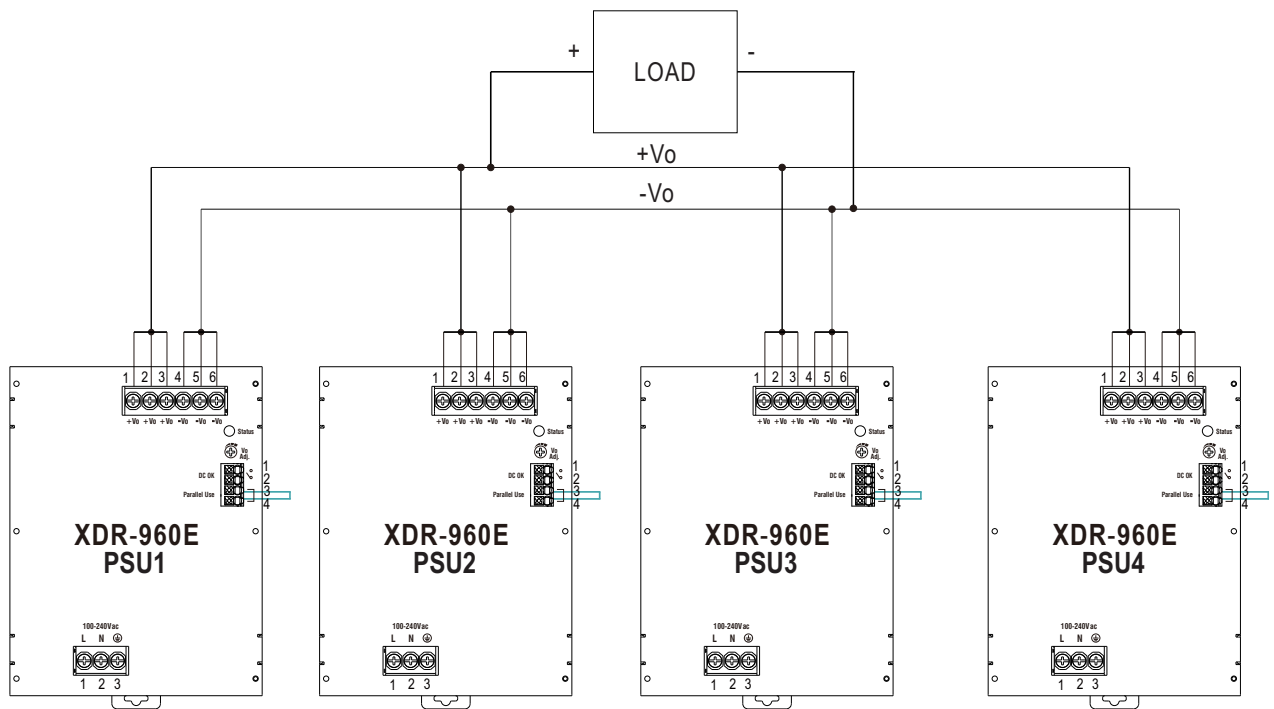
No load output voltage=24V

Normal load output current=40A

0~100% load output voltage=24V~23V



Enable : P<sub>LINK</sub> should be short

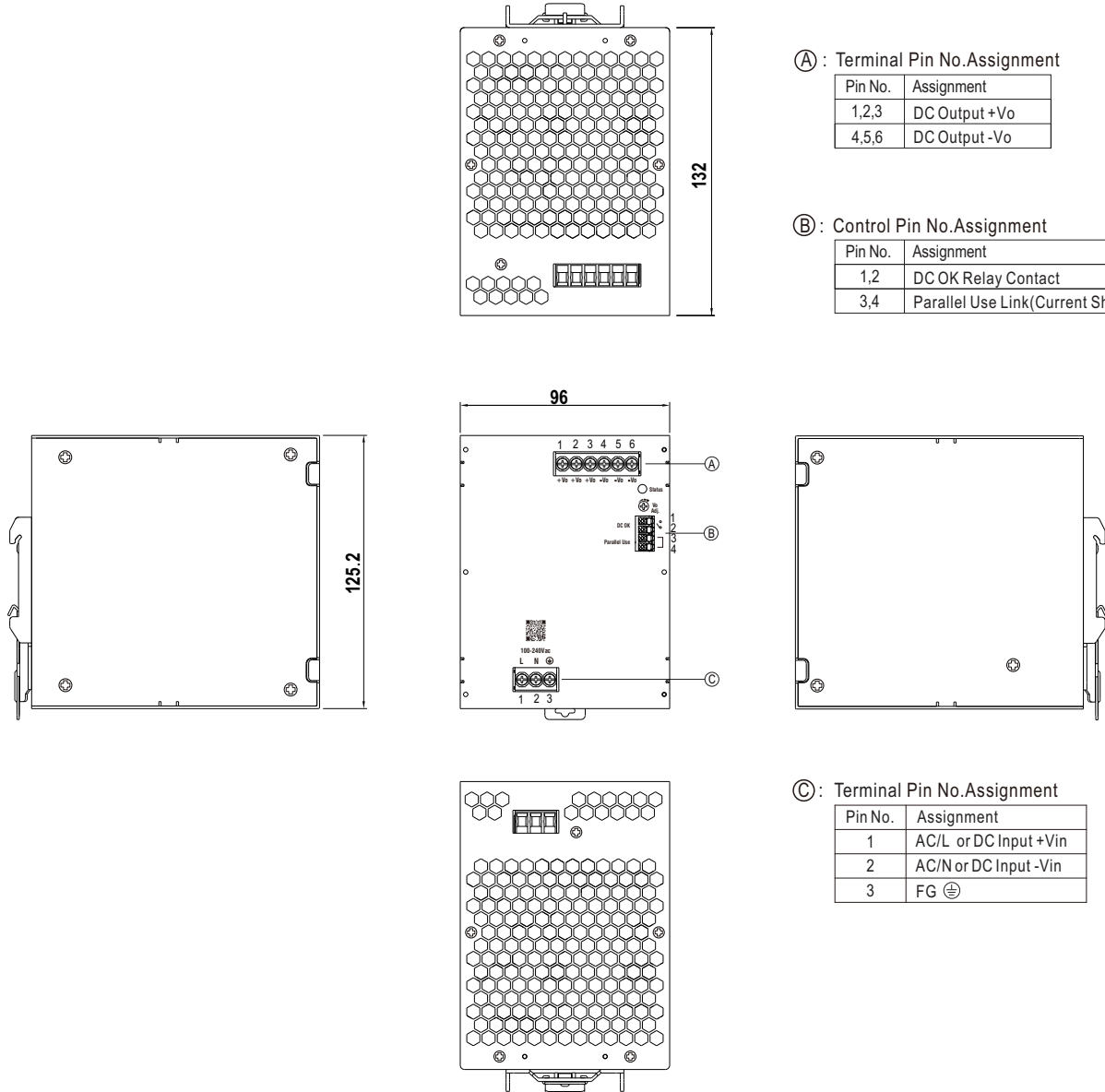


※ Please contact MEAN WELL for more details.

## ■ Mechanical Specification

(Unit:mm , Tolerance  $\pm 1$ mm)

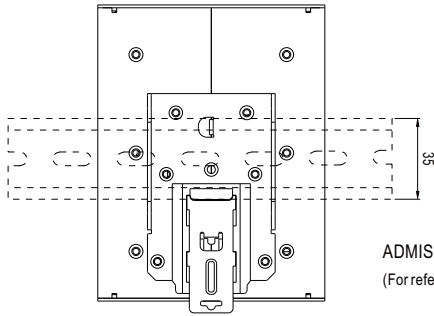
Case No. 304



## ■ Recommend Wiring

|                       | AC Input T.B          | DC Output T.B         | Signal connector        |
|-----------------------|-----------------------|-----------------------|-------------------------|
| Solid Wire            | 6mm <sup>2</sup> max. | 6mm <sup>2</sup> max. | 1.5mm <sup>2</sup> max. |
| A.W.G                 | 18~10 AWG             | 18~8 AWG              | 24~16 AWG               |
| Wire Stripping Length | 10~11mm               | 10~11mm               | 8~9mm                   |
| Screw Terminal Torque | 9 Lb-In               | 9 Lb-In               | /                       |

#### ■ Installation Instruction



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>