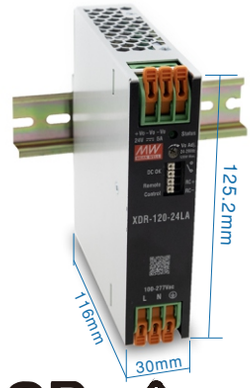
# 120W AC/DC High-End Ultra Slim Industrial DIN Rail Power XDR-120 series




LISTED Class I, Div. 2 | LISTED UL61010 | BS EN/EN62368-1, BS EN/EN61558-1, BS EN/EN61010 | IEC62368-1, IEC61558-1, IEC61010 | AS/NZS61558-1, AS/NZS62368-1

IS13252 (By request) | KC62368-1 (By request) | CNS15598-1 | GB4943.1 (Applying) | TPTC004

Automate | Industrial | Security | Network | Telecom

## Features

- 85~305Vac input with PFC (277Vac available)
- Global certificates in multi-fields(ITE 62368-1,Industrial 61558-1/-2-16,61010) & Marine DNV,SEMI47,CID2 HazLoc approved
- 30mm ultra slim width
- High efficiency up to 94% and no load power dissipation 0.9W~1W by R.C.
- 200% peak power capability
- 600% pulse current capability
- Built-in constant current limiting circuit
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Fanless design, cooling by free air convection
- Over voltage category III (OVC III)
- -40~+85°C wide range operation temperature(>+60°C derating)
- Operating altitude up to 5000 meters
- Built-in remote ON/OFF control and DC OK relay contact
- Ultra low inrush current <6~15A
- Built-in ORing FET
- Tool free terminal block (LA Type)
- Conformal coating
- Can be installed on DIN rail TS-35/75 or15
- 5 years warranty

## Applications

- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

## GTIN CODE

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

## Description

The XDR-120 series is a 120W AC/DC high-end ultra slim industrial DIN rail power. Key features of this series include a narrow 30mm casing, optimizing system installation space, and an ultra-wide input range of 85~305Vac suitable for global use. It boasts a maximum efficiency of 94% and a low standby power consumption of 0.9W~1W for energy savings and carbon reduction. It provides constant current with up to 200% peak power, and can handle instantaneous peak current of 600%. It has a fanless design, ultra-wide operating temperature range of -40 to +85℃ (up to +60℃ at full load); OVCIII compliance; ultra-low inrush current of <6~15A, and includes DC OK and remote ON/OFF functions. It also has a built-in ORing FET, the internal PCB has a coating for basic moisture and dust protection, and it has multiple terminal blocks for selection. With comprehensive protection functions, complete safety certifications, and a 5-years warranty, the XDR-120 series is a compact, high-performance, and highly reliable DIN rail power supply.

## Model Encoding

**XDR - 120 - 24 ☐**

- Output terminal type
- Output voltage(12V/24V/36V/48V)
- Output wattage
- Series name

| Terminal Type Options | | Note |
|---|---|---|
| Blank | Screw Terminal | In stock |
| LA | Lever Actuated | In stock |
| PI | Push In | In stock |

# 120W AC/DC High-End Ultra Slim Industrial DIN Rail Power XDR-120 series

| SPECIFICATION | XDR-120-12□ | XDR-120-24□ | XDR-120-36□ | XDR-120-48□ |
|---|---|---|---|---|
| | □ =Blank, LA, PI | | | |
| **OUTPUT** | | | | |
| DC VOLTAGE | 12V | 24V | 36V | 48V |
| LOAD CURRENT RANGE | 0 ~ 10A | 0 ~ 5A | 0 ~ 3.33A | 0 ~ 2.5A |
| RATED POWER | 120W | 120W | 119.88W | 120W |
| PEAK CURRENT (5sec.) | 20A | 10A | 6.66A | 5A |
| PEAK POWER (5sec.) | 240W | 240W | 239.76W | 240W |
| RIPPLE & NOISE (max.) Note.2 | 100mVp-p | 100mVp-p | 120mVp-p | 120mVp-p |
| VOLTAGE ADJ. RANGE | 12 ~ 15V | 24 ~ 29V | 36 ~ 42V | 48 ~ 56V |
| VOLTAGE TOLERANCE Note.3 | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| LOAD REGULATION | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| SETUP, RISE TIME | 1500ms, 60ms/230Vac 3000ms, 60ms/115Vac at full load | | | |
| HOLD UP TIME (Typ.) | 20ms/230Vac 20ms/115Vac at full load | | | |
| **INPUT** | | | | |
| AC VOLTAGE RANGE | 85 ~ 305Vac | | | |
| DC VOLTAGE RANGE | 80 ~ 431Vdc (Derating 50% Load @80Vdc) | | | |
| NO LOAD CONSUMPTION(Typ.) Remote Power OFF | 0.9W@115Vac & 230Vac | 1W@115Vac & 230Vac | | |
| NO LOAD CONSUMPTION(Typ.) Remote Power ON | 2W@115Vac & 230Vac | | | |
| FREQUENCY RANGE | 47 ~ 63Hz | | | |
| POWER FACTOR (Typ.) | PF>0.98/115Vac PF>0.95/230Vac PF>0.9/277Vac at full load | | | |
| EFFICIENCY (Typ.) | 93.5% | 94% | 94% | 94% |
| AC CURRENT (Typ.) | 2.3A/115Vac 1.2A/230Vac | | | |
| INRUSH CURRENT (Typ.) | COLD START 6A/115Vac 10A/230Vac 15A/277Vac | | | |
| LEAKAGE CURRENT | <1mA / 240Vac <1.5mA / 277Vac | | | |
| **PROTECTION** | | | | |
| OVERLOAD | 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when Vo=30%~100% ; Hiccup mode when Vo<30% rated voltage | | | |
| OVER VOLTAGE | 16 ~ 19V | 30 ~ 34V | 43 ~ 50V | 57 ~ 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** | | | | |
| DC OK RELAY CONTACT | Relay Contact Ratings (max.):30Vdc/1A, 30Vac/0.5A resistive load | | | |
| REMOTE CONTROL | Power ON :RC + ~ RC- keep <0.8Vdc | | | |
| | Power OFF:RC + ~ RC- keep 3.3~5Vdc | | | |
| PULSE CURRENT CAPABLILTY | 12V:600% rated current for 4ms; 24V/36V/48V:600% rated current for 10ms | | | |
| **ENVIRONMENT** | | | | |
| WORKING TEMP. | -40 ~ +85℃ (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 ~ 60℃) on Load output | | | |
| VIBRATION | Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6 | | | |

# 120W AC/DC High-End Ultra Slim Industrial DIN Rail Power XDR-120 series

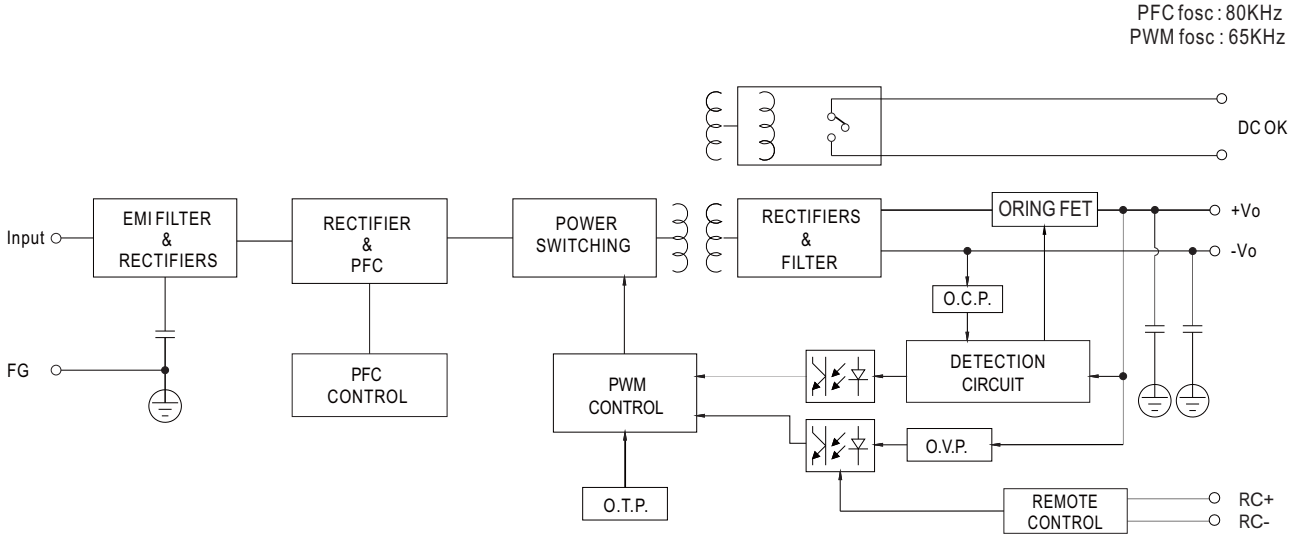
| SPECIFICATION | XDR-120-12□ | XDR-120-24□ | XDR-120-36□ | XDR-120-48□ |
|---|---|---|---|---|
| | □ =Blank, LA, PI | | | |
| **SAFETY & EMC** Note.4 | | | | |
| SAFETY STANDARDS | CB IEC62368-1, IEC61558-1, IEC61010;<br>DEKRA BS EN/EN62368-1,BS EN/EN61558-1/-2-16,BS EN/EN61010<br>UL UL121201/CSA C22.2 NO.213.17 Class I,DIV2 Group A,B,C,D Hazardous Locations T4;UL61010<br>RCM AS/NZS 62368-1, AS/NZS 61558-1/-2-16;<br>CCC GB4943.1;<br>BSMI CNS15598-1;<br>EAC EAC TPTC004 approved;<br>KC KC62368-1 and BIS IS13252 (Part 1):2010 certified, no stock ,contact sale for inquires | | | |
| OVER VOLTAGE CATEGORY Note.5 | 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 4, 15KV air ; Level 4, 8KV contact; criteria A | |
| | Radiated | BS EN/EN61000-4-3 | Level 3, 10V/m ; criteria A | |
| | EFT / Burst | BS EN/EN61000-4-4 | Level 4, 4KV ; 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 | 1550.7K hrs min. Telcordia SR-332 (Bellcore); 246.3K hrs min. MIL-HDBK-217F (25℃) | | | |
| DIMENSION | **30*125.2*116mm (W*H*D)** | | | |
| PACKING | 0.595Kg; 20pcs/ 12.9Kg / 1.35CUFT | | | |

**NOTE**

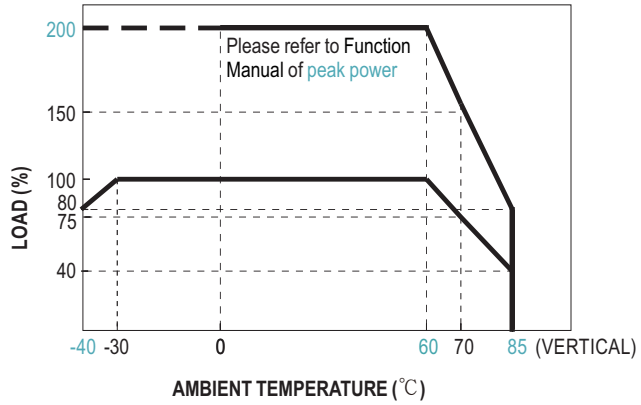
1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 47 μF parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf )
5. 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).
6. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

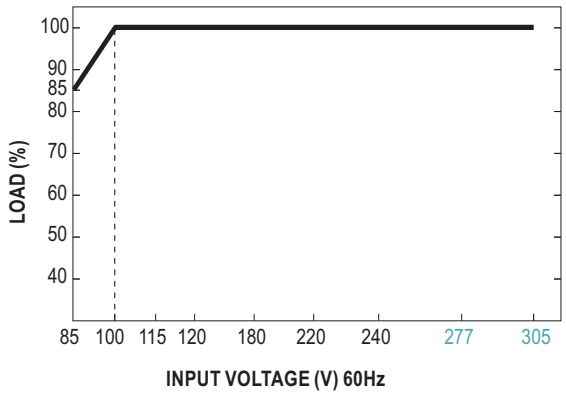
## ■ Block Diagram




## ■ Derating Curve




## ■ Output derating VS input voltage

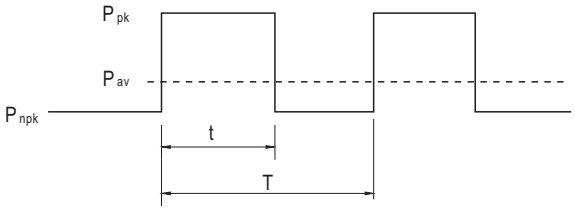


## ■ Peak Power (≤2 *Io)

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leqslant P_{rated}$$

$$Duty = \frac{t}{T} \times 100\% \leqslant 35\%$$

$t \leqslant 5$ sec




$P_{av}$ : Average output power (W)

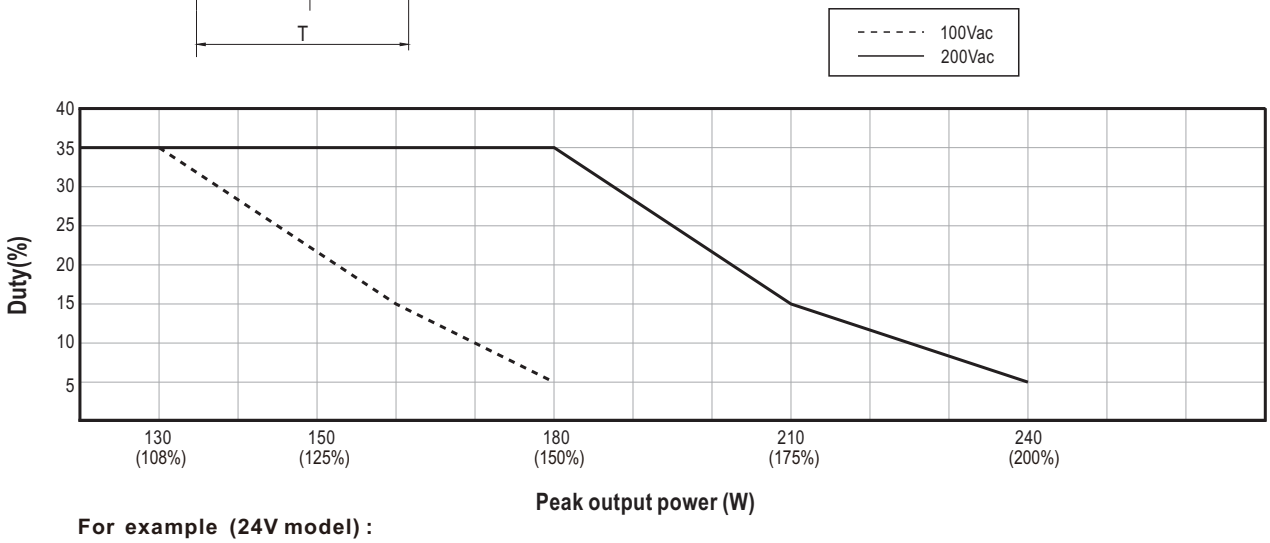
$P_{pk}$ : Peak output power (W)

$P_{npk}$ : Non-peak output power(W)

$P_{rated}$ : Rated output power(W)

t : Peak power width(sec)

T : Period(sec)




**For example (24V model) :**

Vin = 200Vac Duty_max = 5%

$P_{av} = P_{rated} = 120W$

$P_{pk} = 240W$

$t \leqslant 5$ sec

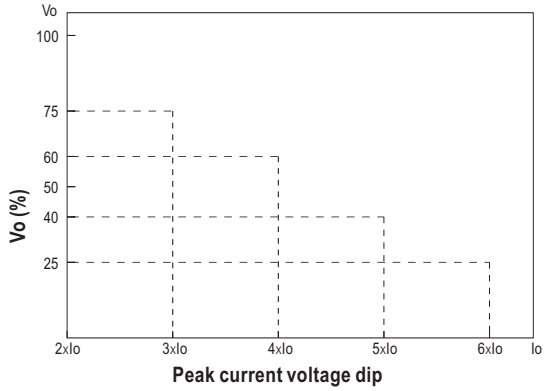
$$T \geqq \frac{5 \text{ sec}}{5\%} \geqq 100\text{sec}$$

$$P_{npk} \leqslant \frac{T P_{av} - t P_{pk}}{T-t}$$

$P_{npk} \leqslant 113.7W$

## ■ Peak Current Capability (>2*Io)

The device can deliver peak currents (up to several milliseconds) which are higher than the specified short term currents.

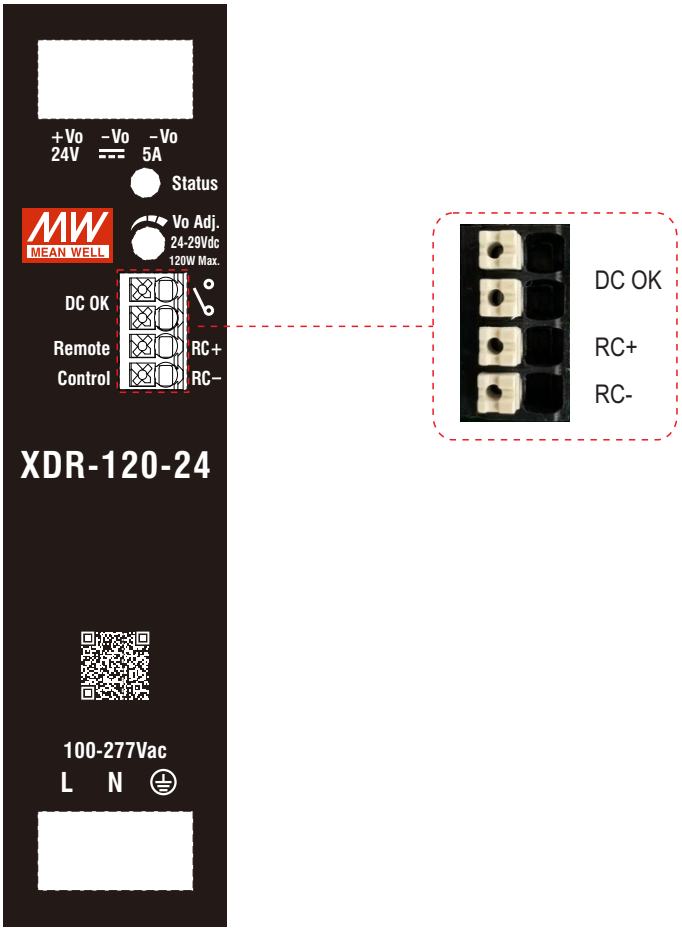



| Load | Vo(%) | 12V | 24V/36V/48V |
|---|---|---|---|
| | | Time | Time |
| 3xIo | 75 | 15ms | 35ms |
| 4xIo | 60 | 8ms | 17ms |
| 5xIo | 40 | 5ms | 13ms |
| 6xIo | 25 | 4ms | 10ms |

Note:The 4ms~35ms in the table must be after AC mains is turned on.

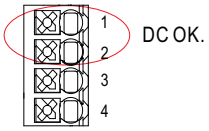
## ■ Function Manual

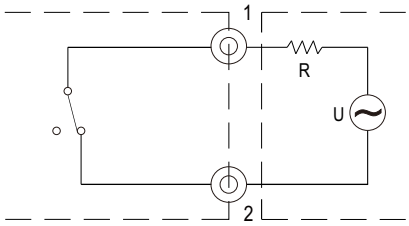
| Pin No. | Function | Description |
|---|---|---|
| 1,2 | DC OK<br>Relay Contact | Contact close : PSU turns ON/DC_OK ;<br>Contact open : PSU turns OFF/DC_fail;<br>Contact ratings (max.): 30Vdc/1A ,30Vac/0.5A resistive load. |
| 3 | RC+ | Turns the output ON and OFF by electrical signal<br>Remote power ON : Keep <0.8Vdc<br>Remote power OFF: Keep 3.3~5Vdc |
| 4 | RC- | |



## 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. |



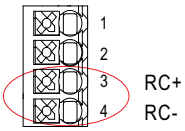

External voltage source (U) and resistor (R)
(The max. Sink is 30Vdc/1A ,30Vac/0.5A)

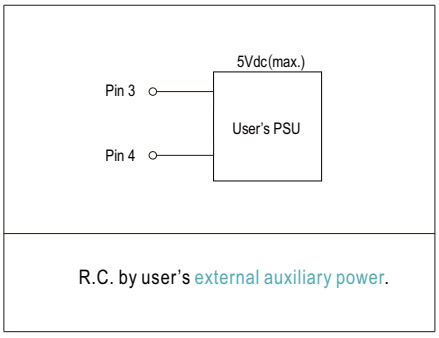
Internal circuit of DC_OK, via relay contact

## 2.Remote ON/OFF Control

The PSU can be turned ON/OFF by using the "Remote Control" function.

| | |
|---|---|
| PSU Vo Status | Between RC+(Pin3) and RC-(Pin 4) |
| Remote power ON | Keep<0.5Vdc |
| Remote power OFF | Keep 4~5Vdc |

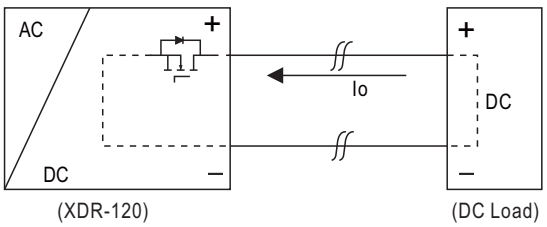



R.C. by user's external auxiliary power.

## 3.Protection Against Inverse Voltages From The Load

Prevent PSU damage from Back Electro magnetic Force during deceleration of motor or inductive load.



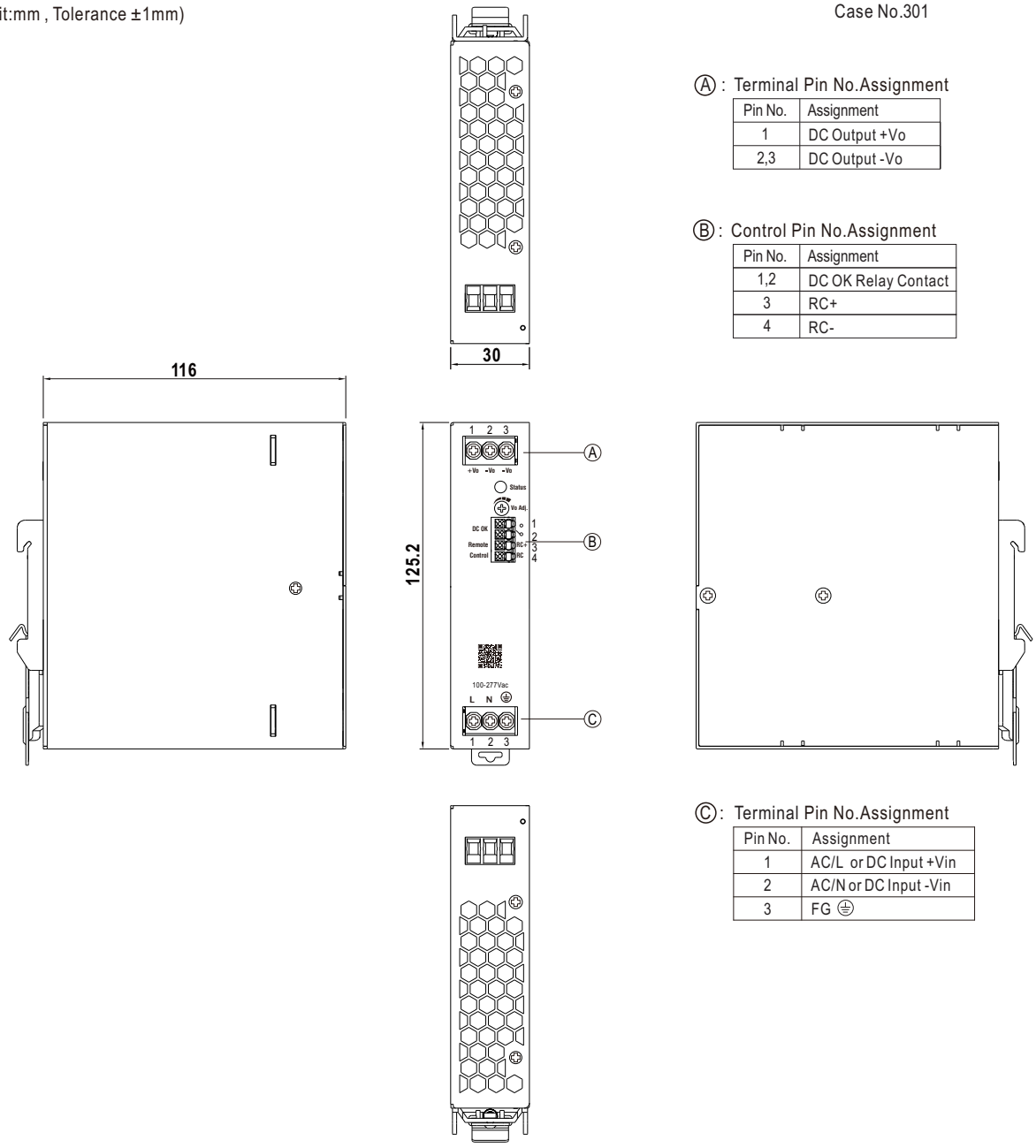

(XDR-120) (DC Load)

| PSU'S ORing FET turn OFF voltage | |
|---|---|
| MODEL | Max. allowable reverse voltage |
| XDR-120-12 | <16V |
| XDR-120-24 | <35V |
| XDR-120-36 | <50V |
| XDR-120-48 | <63V |

## ■ Mechanical Specification

(Unit:mm , Tolerance ±1mm)

Case No.301




Ⓐ: Terminal Pin No.Assignment

| Pin No. | Assignment |
|---|---|
| 1 | DC Output +Vo |
| 2,3 | DC Output -Vo |

Ⓑ: Control Pin No.Assignment

| Pin No. | Assignment |
|---|---|
| 1,2 | DC OK Relay Contact |
| 3 | RC+ |
| 4 | RC- |

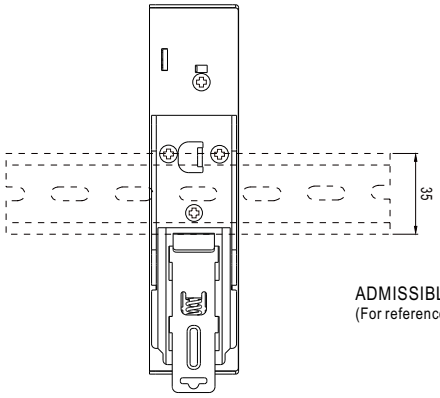
Ⓒ: Terminal Pin No.Assignment

| Pin No. | Assignment |
|---|---|
| 1 | AC/L or DC Input +Vin |
| 2 | AC/N or DC Input -Vin |
| 3 | FG ⏚ |

## ■ Recommend Wiring

| | AC Input T.B | DC Output T.B | Signal connector |
|---|---|---|---|
| Solid Wire | 6mm$^2$ max. | 6mm$^2$ max. | 1.5mm$^2$ max. |
| A.W.G | 22~10 AWG | 22~10 AWG | 24~16 AWG |
| 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