

IS13252



(KC62368-1) (By request)

(CNS15598-1) (By request)

(GB4943.1)

(TPTC004)



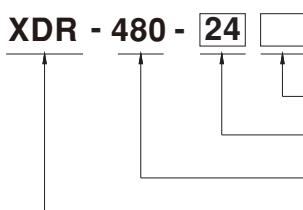
## ■ Features

- 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
- 48mm ultra slim width
- High efficiency up to 96% and no load power dissipation<1W by R.C.
- Built-in MODBus protocol
- 200% peak power capability
- 600% pulse current capability
- Built-in constant current limiting circuit
- Current sharing up to 1920W (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~+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

## ■ Description

The XDR-480 series is a 480W AC/DC high-end ultra slim industrial DIN rail power. Key features of this series include a narrow 48mm casing, optimizing system installation space, and an ultra-wide input range of 85~305Vac suitable for global use. It boasts a maximum efficiency of 96% and a low standby power consumption of 1W by R.C for energy savings and carbon reduction. It supports MODBus communication interface, 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°C (up to +60°C at full load); OVCIII compliance; parallel function capability up to 1920W; 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-480 series is a compact, high-performance, and highly reliable DIN rail power supply.

## ■ Model Encoding



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

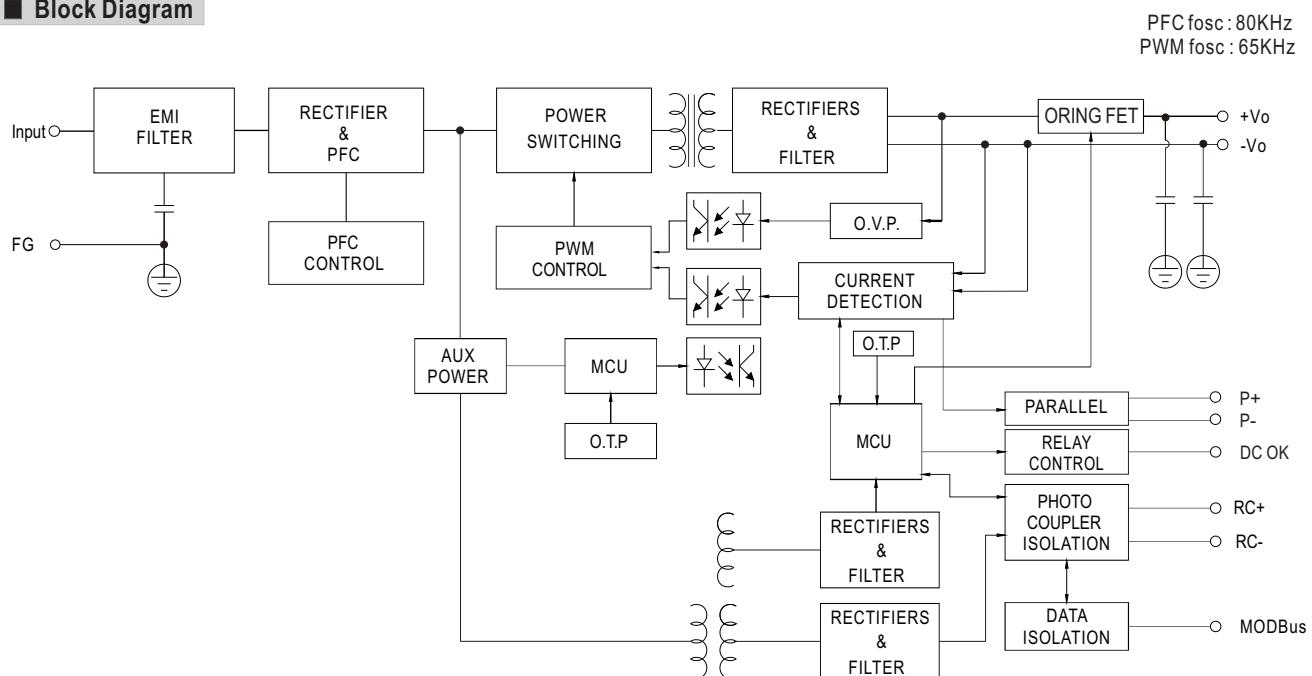
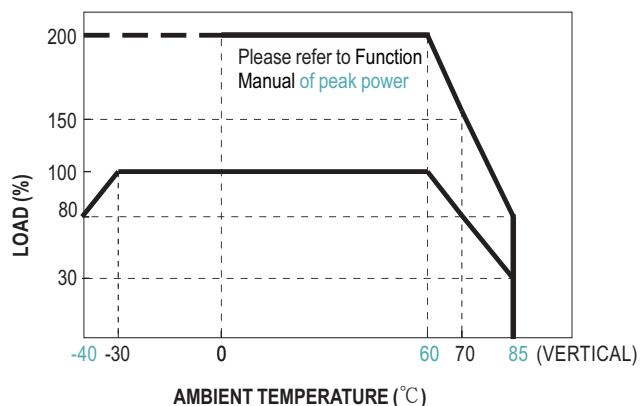
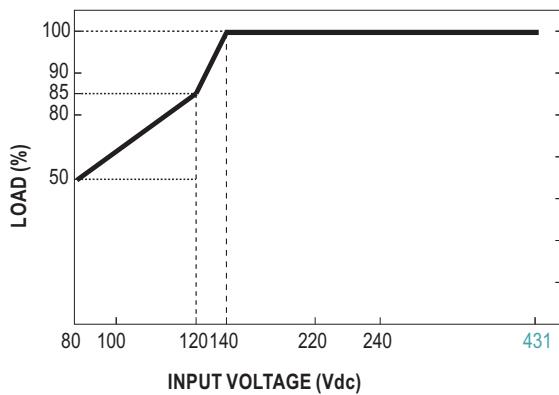
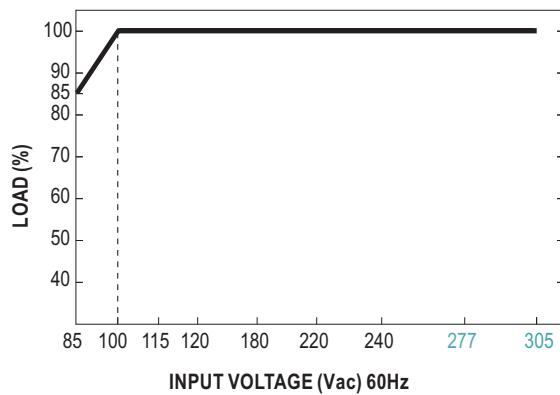
Terminal Type Options		Note
Blank	Screw Terminal	In stock
LA	Lever Actuated	In stock
PI	Push In	In stock



SPECIFICATION		XDR-480-12 <input type="checkbox"/>	XDR-480-24 <input type="checkbox"/>	XDR-480-36 <input type="checkbox"/>	XDR-480-48 <input type="checkbox"/>			
<input type="checkbox"/> =Blank, LA, PI								
OUTPUT								
DC VOLTAGE		12V	24V	36V	48V			
LOAD CURRENT RANGE		0 ~ 30A	0 ~ 20A	0 ~ 13.3A	0 ~ 10A			
RATED POWER		360W	480W					
PEAK	CURRENT (5sec.)	60A	40A	26.6A	20A			
	POWER (5sec.)	720W	960W					
RIPPLE & NOISE (max.)	Note.2	100mVp-p	100mVp-p	120mVp-p	120mVp-p			
VOLTAGE ADJ. RANGE		12 ~ 15V	24 ~ 29V	36 ~ 42V	48 ~ 55V			
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, 150ms/230Vac	3000ms, 150ms/115Vac at full load					
HOLD UP TIME (Typ.)		15ms/230Vac	15ms/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	1W@115Vac & 230Vac						
	Remote Power ON	3W@115Vac & 230Vac						
FREQUENCY RANGE		47 ~ 63Hz						
POWER FACTOR (Typ.)		PF>0.98/115Vac	PF>0.95/230Vac	PF>90%/277Vac	at full load			
EFFICIENCY (Typ.)		94%	95.5%	95.5%	96%			
AC CURRENT (Typ.)		6A/115Vac	3A/230Vac	2.5A/277Vac				
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 ~ 66V			
		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		Up to 1920W (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						
REMOTE CONTROL		Power ON :RC(Pin9) and 5V_AUX(Pin10) short .	Please refer to Function Manual for more details.					
		Power OFF:RC(Pin9) and 5V_AUX(Pin10) open.						
MODBus INTERFACE		Communication provides functions such as control, setting, and monitoring.						
PULSE CURRENT CAPABILITY		600% rated current for 15ms						
ENVIRONMENT								
WORKING TEMP.		-40 ~ +85°C (Refer to "Derating Curve")						
WORKING HUMIDITY		20 ~ 95% RH non-condensing						
STORAGE TEMP., HUMIDITY		-40 ~ +85°C, 10 ~ 95% RH non-condensing						
TEMP. COEFFICIENT		±0.03%/°C (0 ~ 60°C)						
VIBRATION		Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6						



SPECIFICATION	XDR-480-12 <input type="checkbox"/>	XDR-480-24 <input type="checkbox"/>	XDR-480-36 <input type="checkbox"/>	XDR-480-48 <input type="checkbox"/>						
	<input type="checkbox"/> =Blank, LA, PI									
<b>SAFETY &amp; EMC</b>										
<b>SAFETY STANDARDS</b>	CB DEKRA UL RCM CCC BSMI EAC KC	IEC62368-1, IEC61558-1, IEC61010; BS EN/EN62368-1,BS EN/EN61558-1/-2-16,BS EN/EN61010 <a href="#">UL121201/CSA C22.2 NO.213.17 Class I, DIV2 Group A,B,C,D Hazardous Locations T4</a> ;UL61010 AS/NZS 62368-1, AS/NZS 61558-1/-2-16; GB4943.1; CNS15598-1; EAC TPTC004 approved; <a href="#">KC62368-1 and BIS IS13252 (Part 1):2010 certified, no stock ,contact sale for inquires</a>								
<b>OVER VOLTAGE CATEGORY</b>	<b>Note.5</b>	IEC/EN 61558-1/-2-16 ( <a href="#">OVC III</a> , altitude up to 2000m ) IEC/EN/UL 61010 ( <a href="#">OVC II</a> , altitude up to <a href="#">5000m</a> ) IEC/EN 62368-1 ( <a href="#">OVC II</a> , altitude up to <a href="#">5000m</a> )								
<b>SAFETY EXTRA-LOW VOLTAGE(SELV)</b>		IEC/EN 61558-2-16 (SELV) IEC/EN/UL 61010-2-201 (SELV ) IEC/EN 62368-1 (SELV / ES1 )								
<b>WITHSTAND VOLTAGE</b>		I/P-O/P: <a href="#">4KVac</a> I/P-FG: <a href="#">2KVac</a> O/P-FG: 1.5KVac O/P-DC OK: 0.5KVac								
<b>ISOLATION RESISTANCE</b>		I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC/25°C / 70%RH								
<b>EMC EMISSION</b>	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>							
	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	----							
<b>EMC IMMUNITY</b>	BS EN/EN55035 , BS EN/EN61204-3, BS EN/EN61000-6-2(BS EN/EN50082-2)									
	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>							
	ESD	BS EN/EN61000-4-2	Level 4, <a href="#">15KV</a> air ; Level 4, <a href="#">8KV</a> 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							
<b>OTHERS</b>										
<b>MTBF</b>	1139.7K hrs min. Telcordia SR-332 (Bellcore); 154.5K hrs min. MIL-HDBK-217F (25°C)									
<b>DIMENSION</b>	<a href="#">48*125.2*125mm (W*H*D)</a>									
<b>PACKING</b>	1.1Kg; 12pcs/ 14.2Kg / 1.16CUFT									
<b>NOTE</b>										
1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 $\mu$ F & 47 $\mu$ F 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 <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> ) 5. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 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 <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>										

**Block Diagram**

**Derating Curve**

**Output derating VS input voltage**


**■ Peak Power**

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

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

$t \leq 5 \text{ sec}$

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

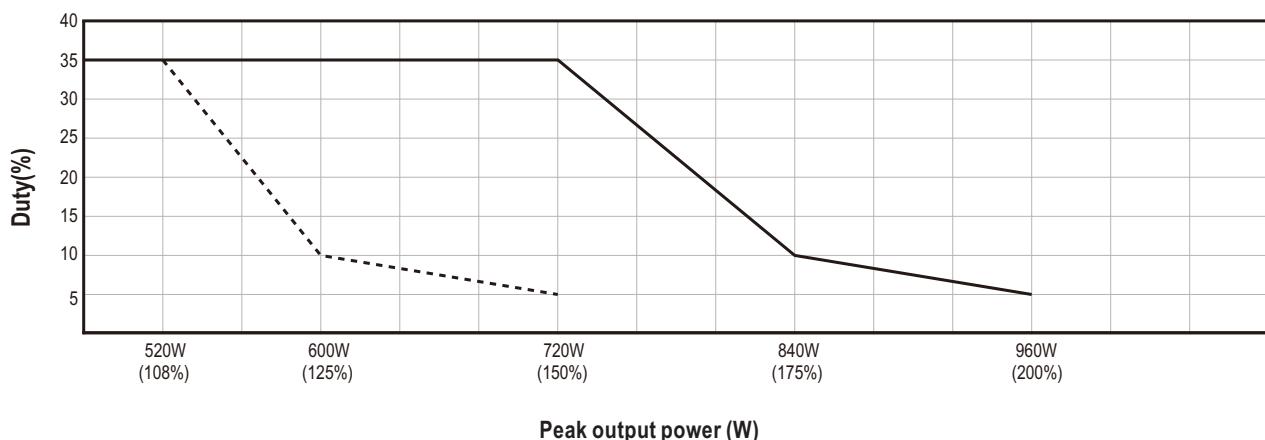
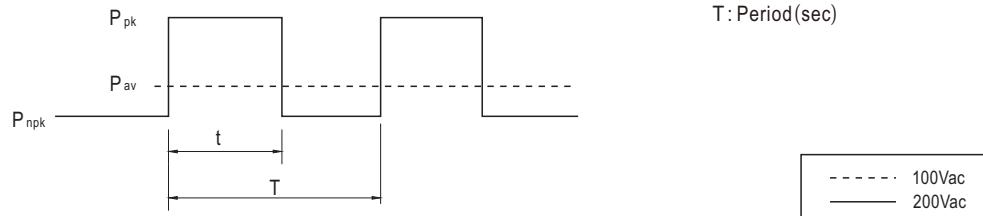
$P_{pk}$  : Peak output power (W)

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

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

$t$  : Peak power width (sec)

$T$  : Period (sec)


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

$V_{in} = 200\text{Vac}$     $\text{Duty\_max} = 5\%$

$$P_{av} = P_{rated} = 480\text{W}$$

$$P_{pk} = 960\text{W}$$

$t \leq 5 \text{ sec}$

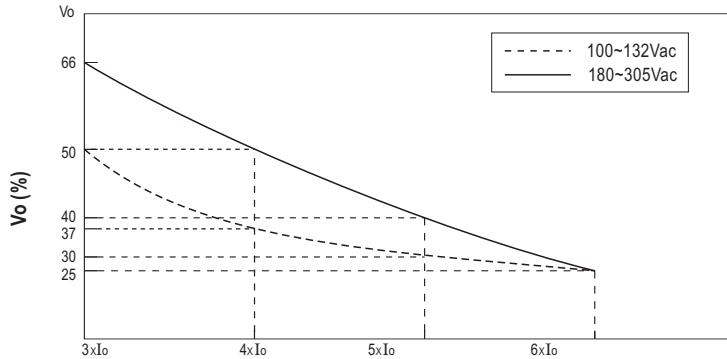
$$T \geq \frac{5 \text{ sec}}{5\%} \geq 100\text{sec}$$

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

$$P_{npk} \leq 454.7\text{W}$$

### ■ Transient peak current Capability

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

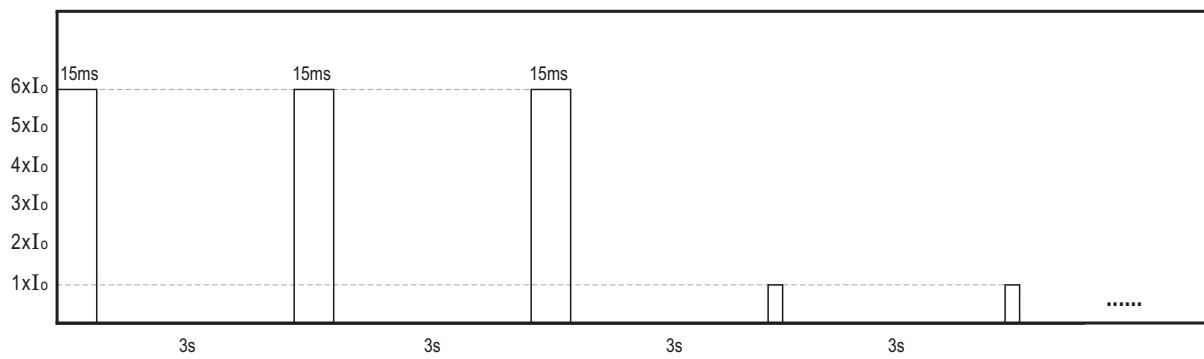


Peak current voltage dip

Load	100~132Vac Vo(%)	180~305Vac Vo(%)	Time
3xI <sub>o</sub>	50	66	100ms
4xI <sub>o</sub>	37	50	70ms
5xI <sub>o</sub>	30	40	40ms
6xI <sub>o</sub>	25	25	15ms

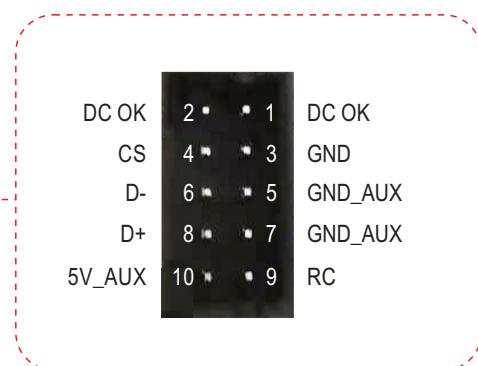
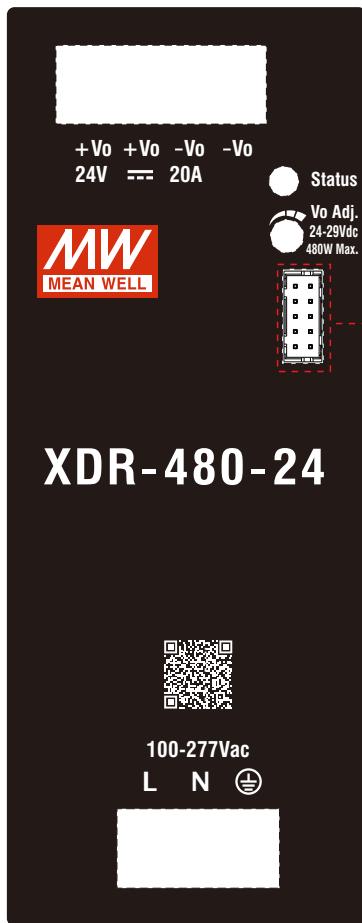
※ After a transient peak current event occurs, the power supply must remain within its rated output for at least 5 seconds before the next event. If three transient peak current events occur consecutively, the power supply will limit the output current to 100% for at least 15 seconds.

**For example : (600% transient peak current)**



## ■ Function Manual

Pin No.	Function	Description
1,2	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.
3	GND	Current sharing signal. When units are connected in parallel, the GND pins of the units should be connected mutually to allow current balance between units.
4	CS	Current sharing signal. When units are connected in parallel, the CS pins of the units should be connected mutually to allow current balance between units.
5,7	GND_AUX	The signal return is isolated from the output terminal. (+Vo & -Vo)
6	D-	Data line used in MODBUS interface
8	D+	
9	RC	The unit can turn the output ON/OFF by electrical signal or dry contact between RC ON/OFF(Pin9) and 5V_AUX(Pin10). Power ON: Short(4~5Vdc);Power OFF: Open(<0.5Vdc);The Maximum input voltage is 5Vdc.
10	5V_AUX	For remote control signal only. Isolated from the output terminals.



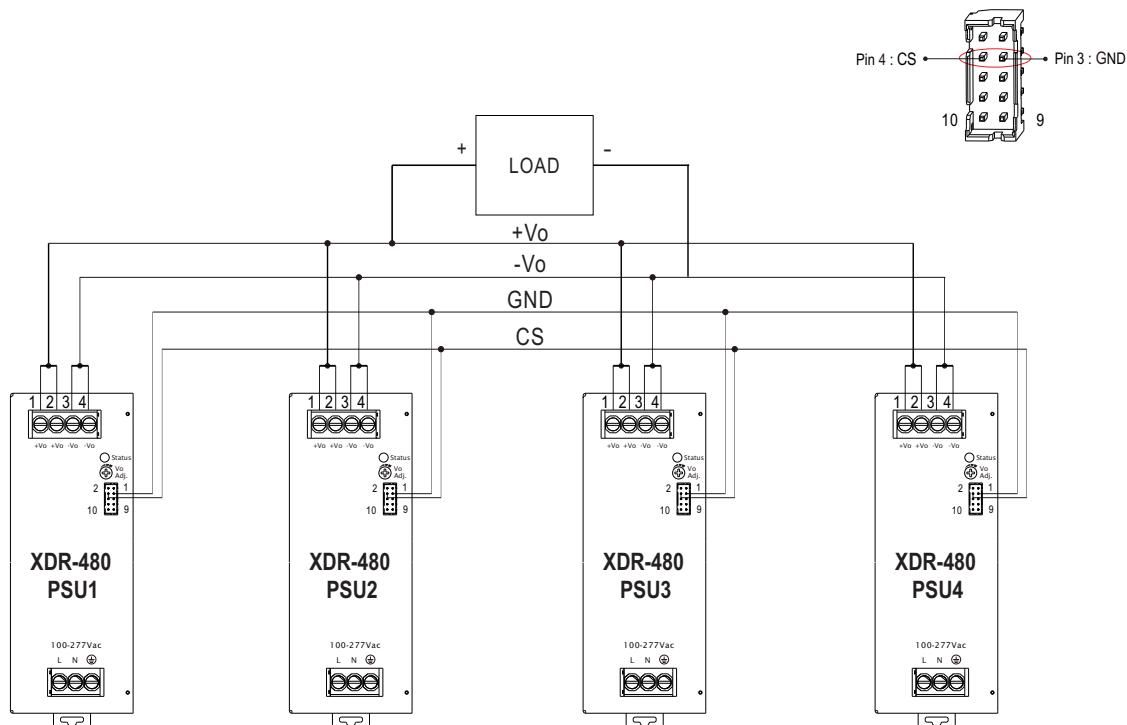
## 1. Parallel Use

XDR-480 has the built-in active current sharing function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below :

- (1) Parallel operation is available by connecting the units shown as below (CS, GND are connected mutually in parallel).
- (2) Difference of output voltages among parallel units should be less than 0.2V.
- (3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)  

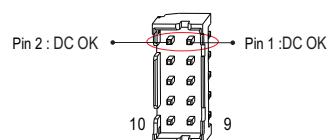
$$=(\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9.$$
- (4) In parallel operation 4 units is the maximum, please consult the manufacturer for other applications.
- (5) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- (6) When in parallel operation, the minimum output load should be greater than 5% of total output load.  

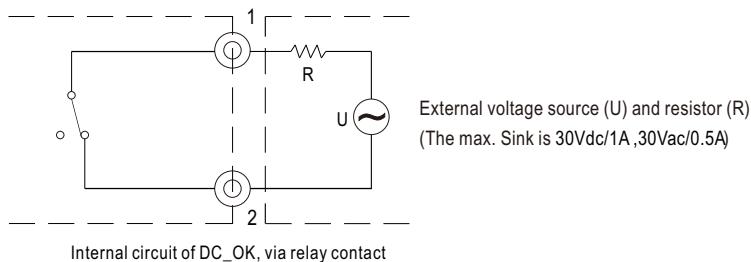
$$(\text{Min. load} > 5\% \text{ rated current per unit} \times \text{number of unit})$$
- (7) In parallel connection, maybe only one unit (master) operate if the total output load is less than 5% of rated load condition.  
 The other PSUs (slaves) may go into standby mode and their output Green LEDs & relays will not turn on.
- (8) CS and GND lines should be twisted in pairs



## 2. 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.



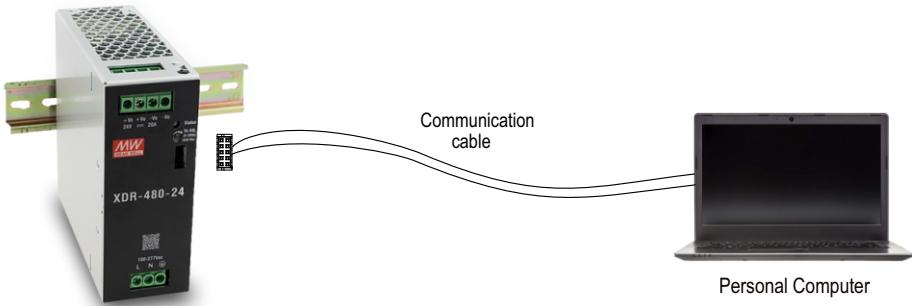
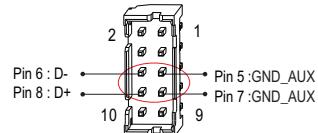


### 3. Support MODBus Communication

Communication provides functions such as control, setting, and monitoring.

Parameters include output voltage, output power, input voltage, etc

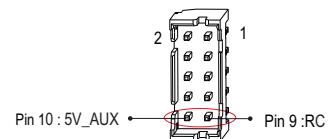
For details, Please refer to: <http://www.meanwell.com/manual.html>

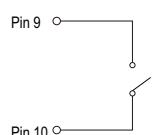
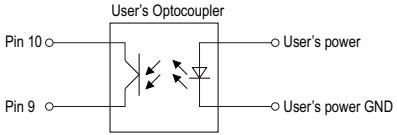
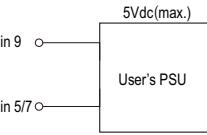
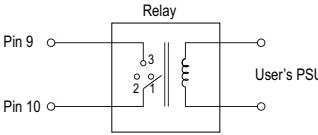


### 4. Remote ON/OFF Control

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

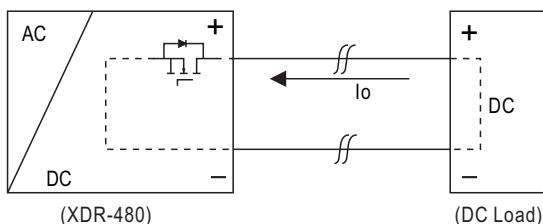
PSU Vo Status	Between RC(Pin9) and 5V_AUX(Pin10)
Remote power ON	Short or keep 4~5Vdc
Remote power OFF	Open or keep <0.5Vdc



 R.C. by external switch.	 R.C. by user's optocoupler control module.	 R.C. by user's external auxiliary power.	 R.C. by user's relay control module.
---	---	--	---

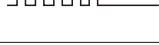
## 5. Protection Against Inverse Voltages From The Load

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



PSU'S ORing FET turn OFF voltage	
MODEL	Max. allowable reverse voltage
XDR-480-12	<16V
XDR-480-24	<35V
XDR-480-36	<50V
XDR-480-48	<63V

## 6. LED Status Indicators

Description	Output of alarm
Restore Factory Settings	Green : 3 Blink/Pause  
DC OK	Green 
DC Fail	Red 
Overload (115Vac: >150% rated current) (230Vac: >200% rated current)	Red : 1 Blink/Pause  
Over voltage	Red : 2 Blink/Pause  
Over temperature	Red : 3 Blink/Pause  
Against Inverse Voltages From The Load	Red : 4 Blink/Pause  
High Ambient Temperature Warning	Red : Blink  
Others (Note)	Red : 5 Blink/Pause  

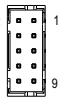
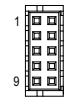
Note: Others include protection status AC UVP、Internal Communication error and EEPROM error.

**■ Mechanical Specification**

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

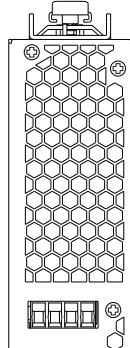
Case No. 303

**(B)** : Control Pin No. Assignment:JS-2008R-2x05 or equivalent

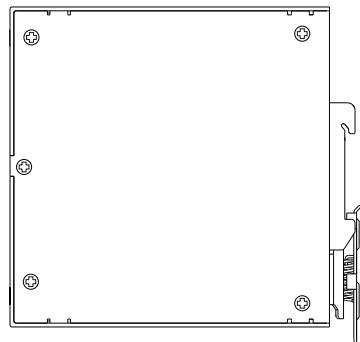
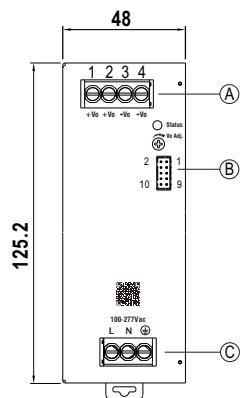
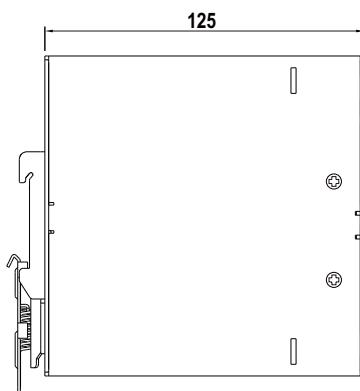
Mating Housing	Terminal
	
JS-2008R-2x05 or equivalent	H20J1-10 or equivalent

**(A)** : Terminal Pin No.Assignment

Pin No.	Assignment
1,2,3	DC Output +Vo
4,5,6	DC Output -Vo

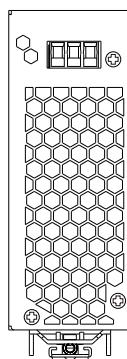


Pin No.	Assignment
1,2	DC OK
3	GND(Current sharing)
4	CS(Current sharing)
5,7	GND_AUX
6	D-
8	D+
9	RC
10	5V_AUX



**(C)** : Terminal Pin No.Assignment

Pin No.	Assignment
1	AC/L or DC Input +Vin
2	AC/N or DC Input -Vin
3	FG $\ominus$

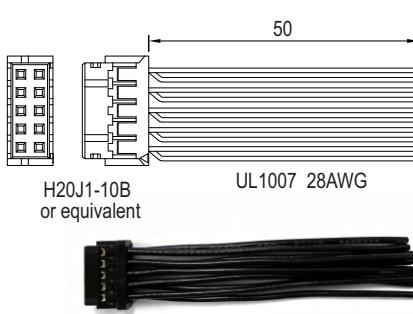


### ■ Recommend Wiring

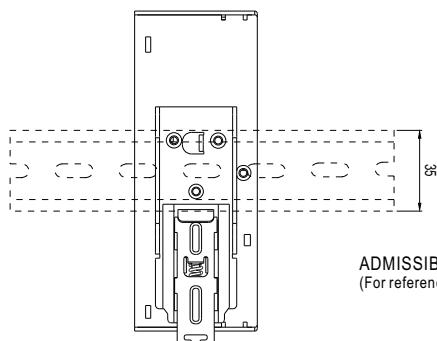
		AC Input T.B	DC Output T.B	Signal connector
Solid Wire		6mm <sup>2</sup> max.	6mm <sup>2</sup> max.	1.5mm <sup>2</sup> max.
A.W.G	XDR-480-12	18~10 AWG	12~10 AWG	24~16 AWG
	XDR-480-24/36/48		16~10 AWG	
Wire Stripping Length		10~11mm	10~11mm	8~9mm
Screw Terminal Torque		5 Lb-In	5 Lb-In	/

### ■ Accessory List

Communication interface mating wire (standard accessory)

No.	Item	Quantity
1	Mating wire 	1pcs/per model

### ■ Installation Instruction



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

### ■ Installation Manual

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