

■ 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

■ Applications

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

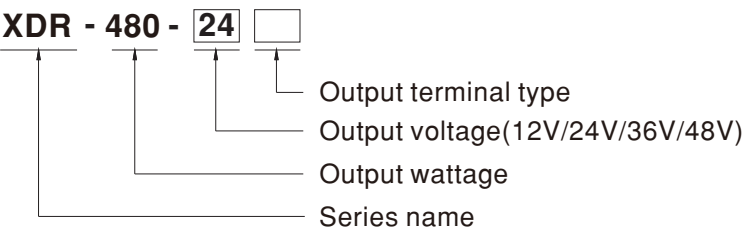
■ GTIN CODE




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

■ Description

The XDR-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



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



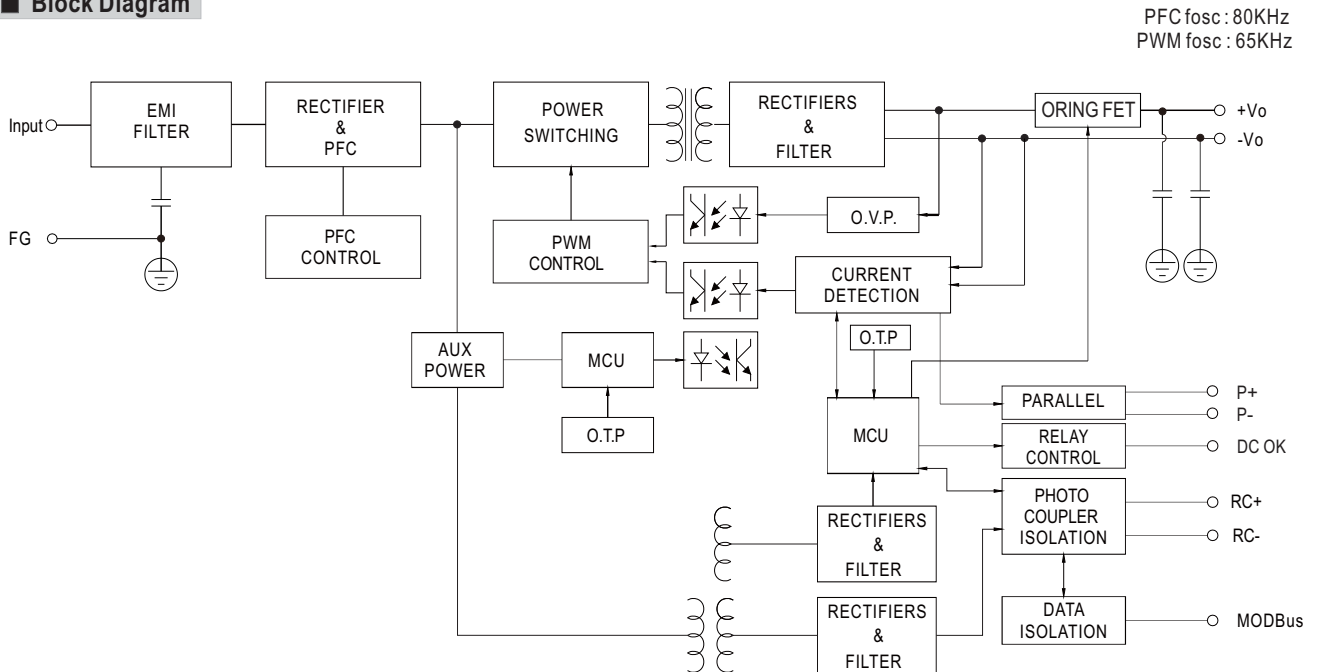
480W AC/DC High-End Ultra Slim Industrial DIN Rail Power

XDR-480series

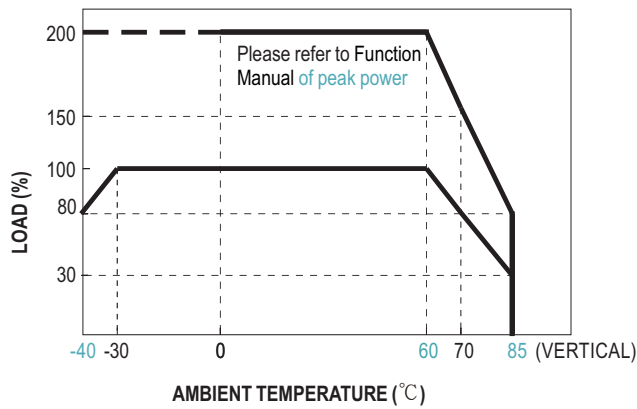
SPECIFICATION		XDR-480-12	XDR-480-24	XDR-480-36	XDR-480-48
		=Blank, LA, PI			
OUTPUT					
DC VOLTAGE		12V	24V	36V	48V
LOAD CURRENT RANGE		0 ~ 30A	0 ~ 20A	0 ~ 13.3A	0 ~ 10A
RATED POWER		360W	480W		
PEAK	CURRENT (5sec.)	60A	40A	26.6A	20A
	POWER (5sec.)	720W	960W		
RIPPLE & NOISE (max.) Note.2		100mVp-p	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 CAPABILTY		600% rated current for 15ms			
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℃)			
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			
SAFETY & EMC					
Note.4					
SAFETY STANDARDS	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>			
OVER VOLTAGE CATEGORY	Note.5	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> )			
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16 (SELV) IEC/EN/UL 61010-2-201 (SELV ) IEC/EN 62368-1 (SELV / ES1 )			
WITHSTAND VOLTAGE		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			
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, <a href="#">15KV</a> air ; Level <a href="#">4, 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	
OTHERS					
MTBF	1139.7K hrs min. Telcordia SR-332 (Bellcore); 154.5K hrs min. MIL-HDBK-217F (25℃)				
DIMENSION	<a href="#">48*125.2*125mm (W*H*D)</a>				
PACKING	1.1Kg; 12pcs/ 14.2Kg / 1.16CUFT				
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 μ F & 47 μ 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℃/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 <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>					

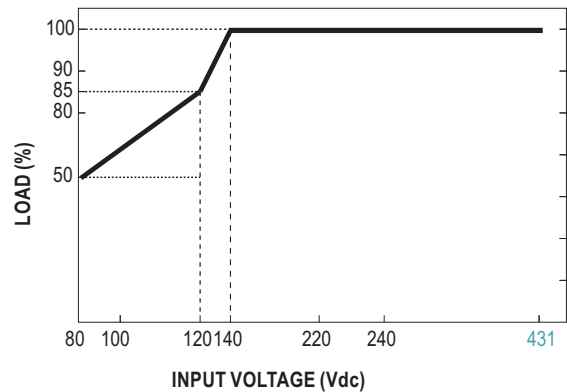
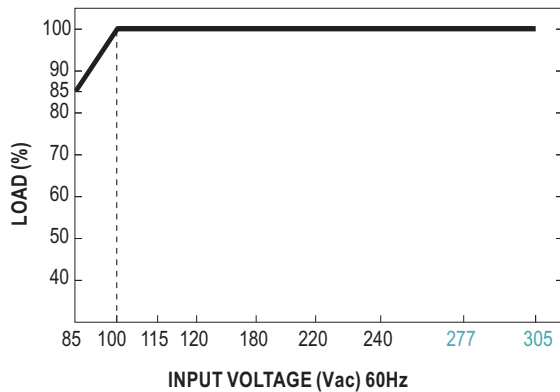
## Block Diagram



## 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)

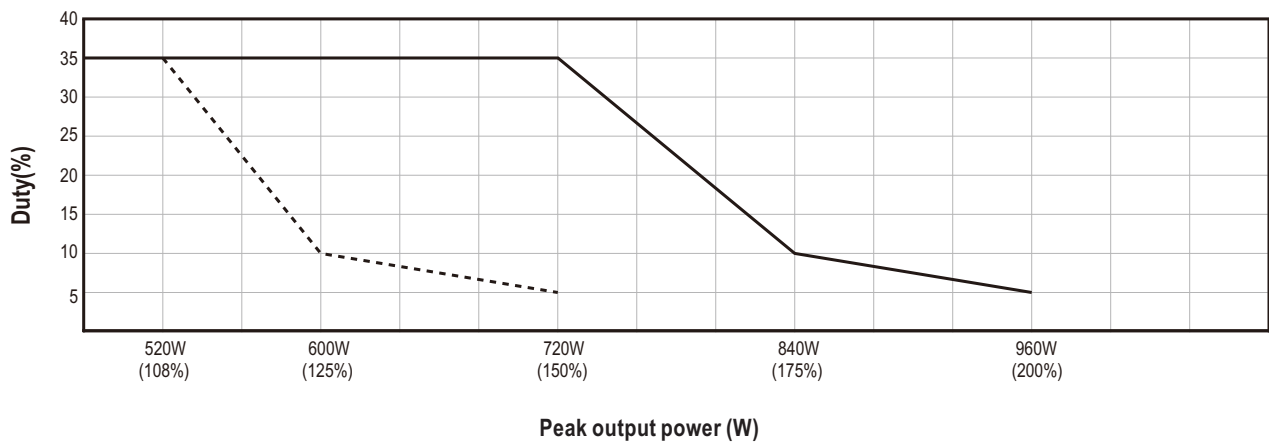
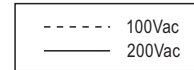
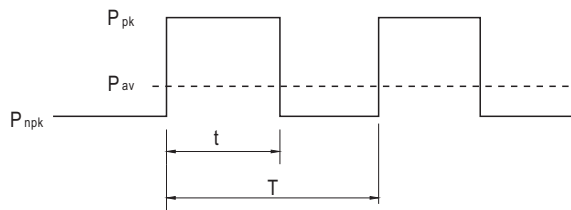
$P_{pk}$  : Peak output power (W)

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

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

$t$  : Peak power width(sec)

$T$  : Period(sec)



### For example (24V model) :

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

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

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

$$t \leq 5 \text{ sec}$$

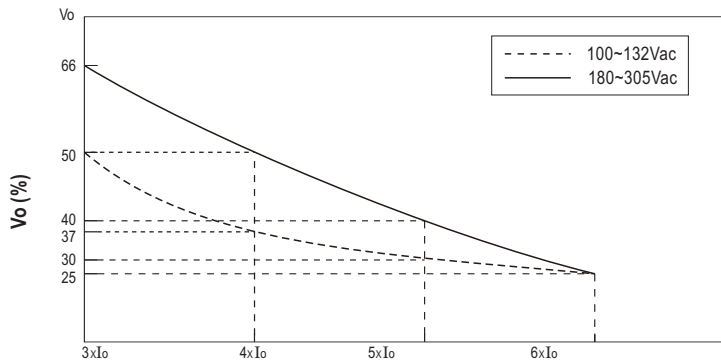
$$T \geq \frac{5 \text{ sec}}{5\%} \geq 100\text{sec}$$

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

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

## ■ Transient peak current Capability

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

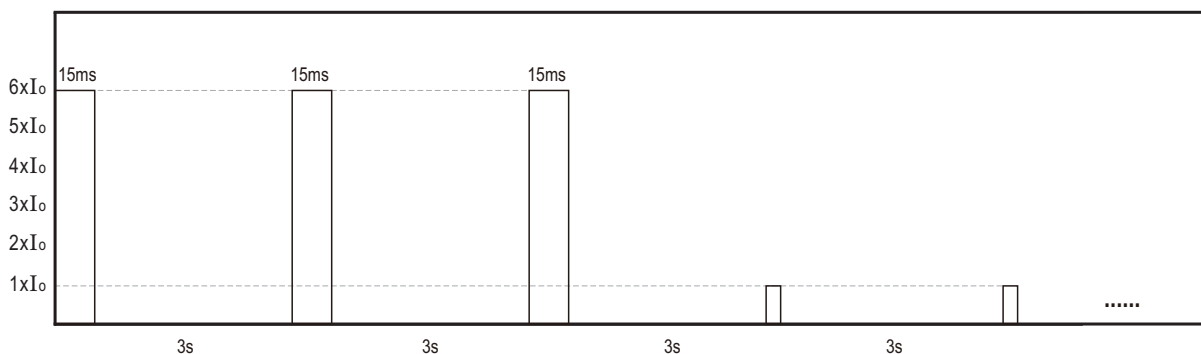


Peak current voltage dip

Load	100~132Vac Vo(%)	180~305Vac Vo(%)	Time
3xIo	50	66	100ms
4xIo	37	50	70ms
5xIo	30	40	40ms
6xIo	25	25	15ms

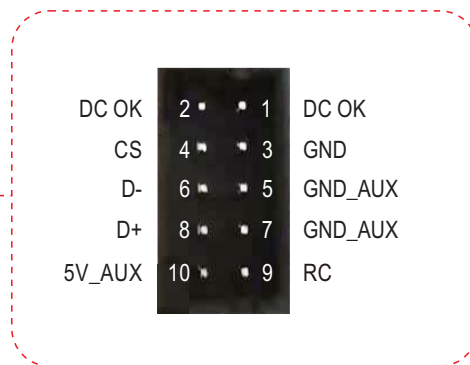
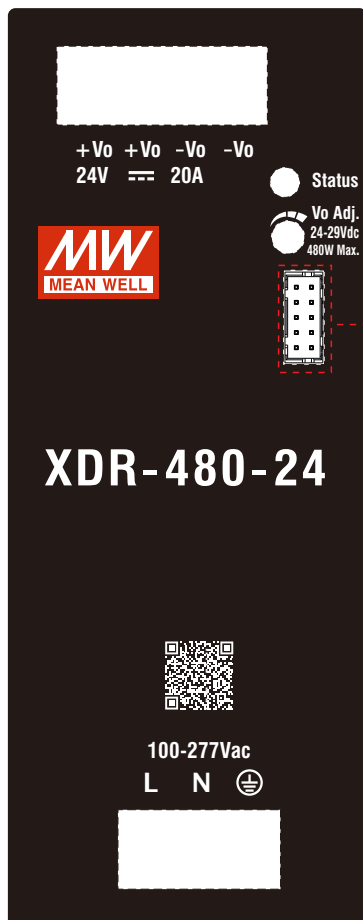
※ After a transient peak current event occurs, the power supply must remain within its rated output for at least 5 seconds before the next event. If three transient peak current events occur consecutively, the power supply will limit the output current to 100% for at least 15 seconds.

**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.

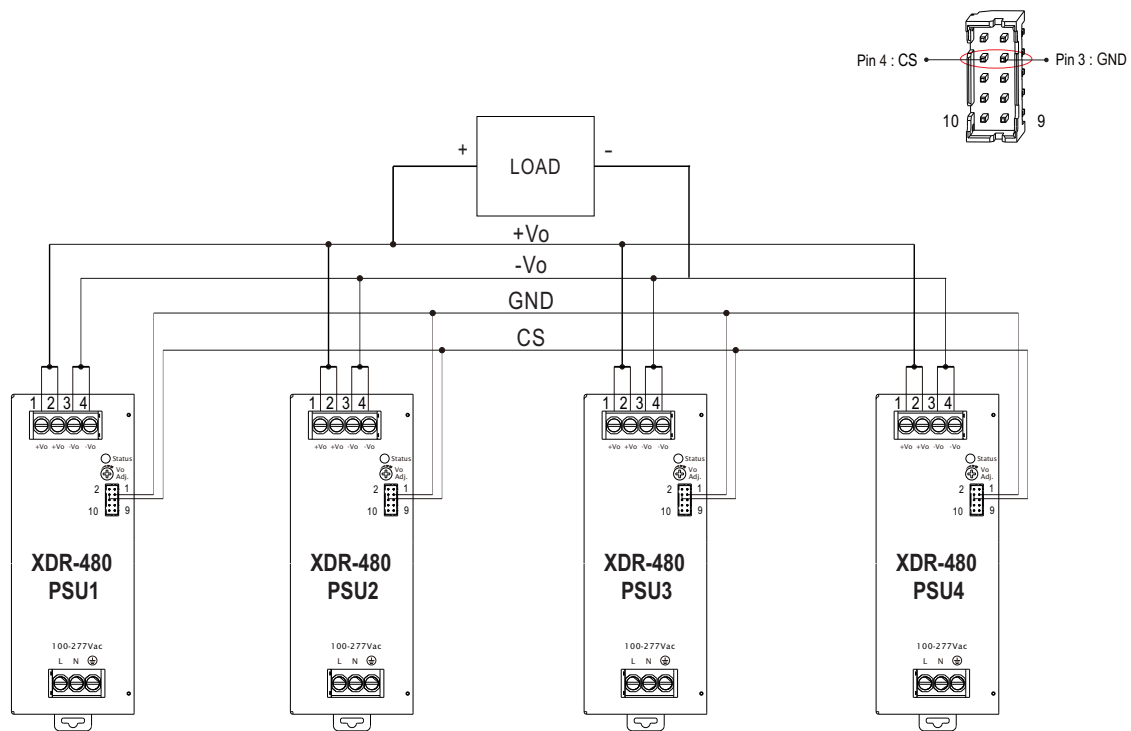


## 1.Parallel Use

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 :

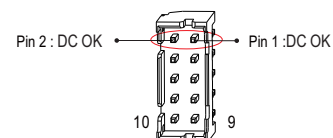
- (1) Parallel operation is available by connecting the units shown as below (CS,GND are connected mutually in parallel).
- (2) Difference of output voltages among parallel units should be less than 0.2V.
- (3) The total output current must not exceed the value determined by the following equation (Output 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 manufacture 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.  
 (Min. load >5% rated current per unit x 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

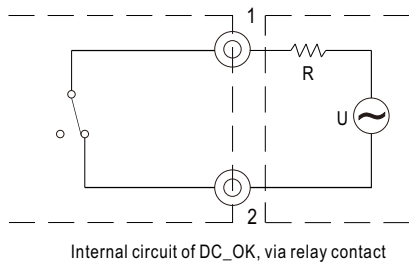


## 2.DC OK Relay Contact

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



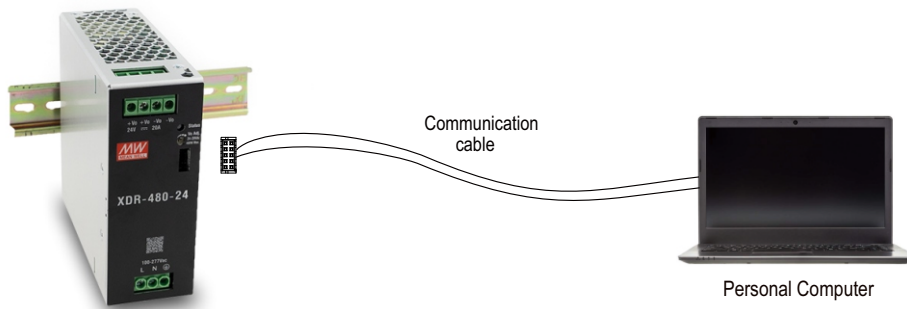
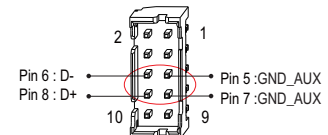




External voltage source (U) and resistor (R)  
(The max. Sink is 30Vdc/1A, 30Vac/0.5A)

### 3. Support MODBus Communication

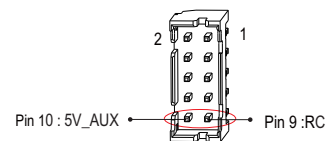
Communication provides functions such as control, setting, and monitoring.  
Parameters include output voltage, output power, input voltage, etc  
For details, Please refer to: <http://www.meanwell.com/manual.html>

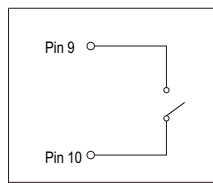
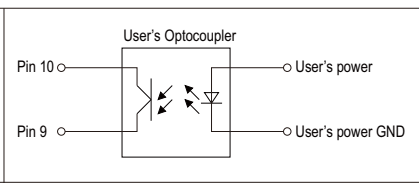
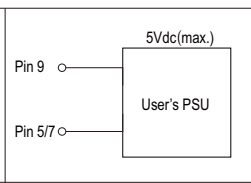
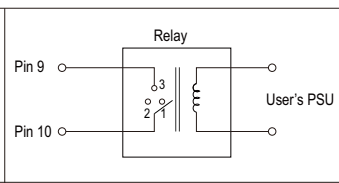


### 4. Remote ON/OFF Control

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

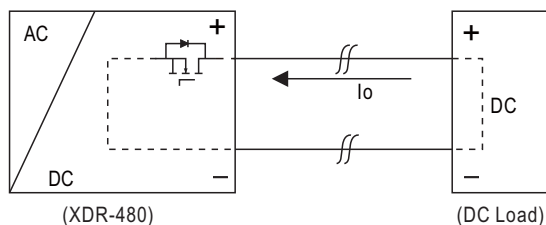
PSU Vo Status	Between RC(Pin9) and 5V_AUX(Pin10)
Remote power ON	Short or keep 4~5Vdc
Remote power OFF	Open or keep <0.5Vdc



			
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 Indictors

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

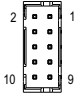
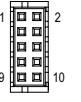
(Unit:mm , Tolerance  $\pm 1$ mm)

Case No. 303

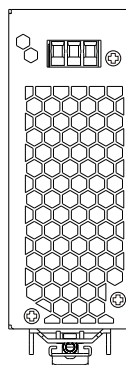
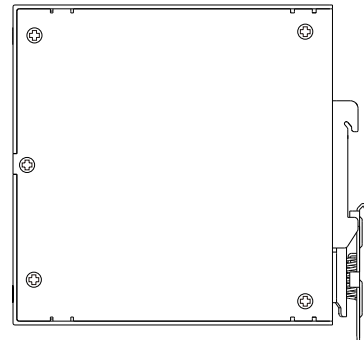
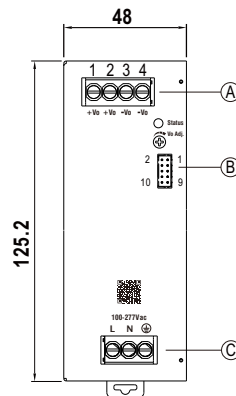
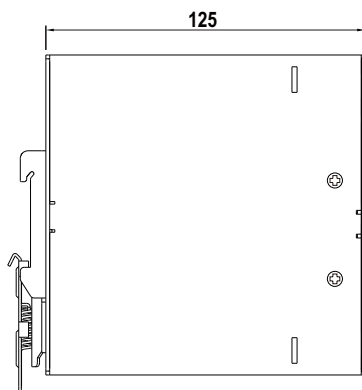
Ⓐ : Terminal Pin No.Assignment

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

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

Mating Housing	Terminal
 <p>JS-2008R-2x05 or equivalent</p>	 <p>H20J1-10 or equivalent</p>

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



Ⓒ : Terminal Pin No.Assignment

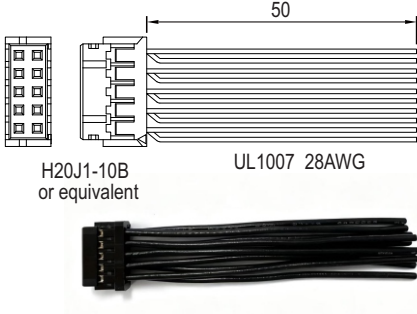
Pin No.	Assignment
1	AC/L or DC Input +Vin
2	AC/N or DC Input -Vin
3	FG ⚡

## Recommend Wiring

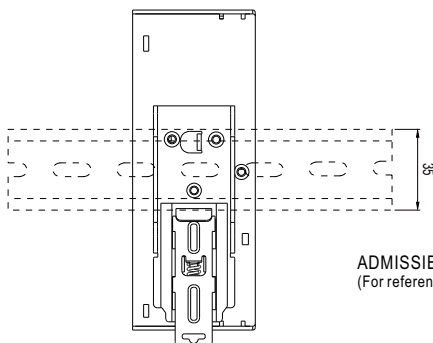
		AC Input T.B	DC Output T.B	Signal connector
Solid Wire		6mm <sup>2</sup> max.	6mm <sup>2</sup> max.	1.5mm <sup>2</sup> max.
A.W.G	XDR-480-12	18~10 AWG	12~10 AWG	24~16 AWG
	XDR-480-24/36/48		16~10 AWG	
Wire Stripping Length		10~11mm	10~11mm	8~9mm
Screw Terminal Torque		5 Lb-In	5 Lb-In	/

## Accessory List

Communication interface mating wire (standard accessory)

No.	Item		Quantity
1	Mating wire	 <p>H20J1-10B or equivalent UL1007 28AWG</p>	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.

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>