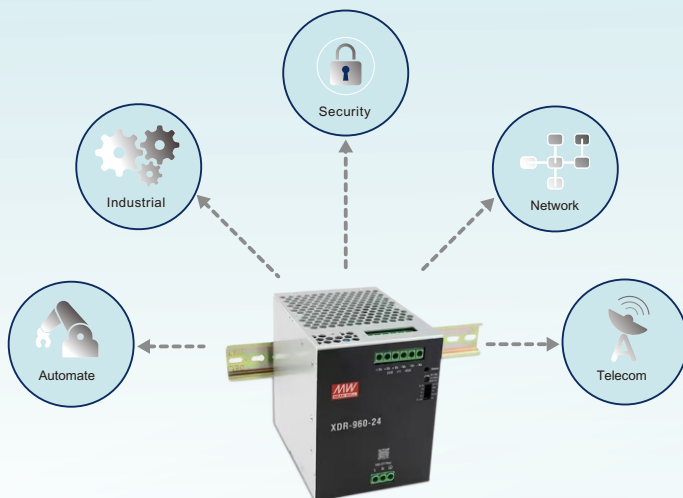




XDR Series

User Manual



High-End Industrial DIN Rail Power

.High Efficiency • Reliable Communication.



The XDR series is MEAN WELL's high-end, ultra-slim industrial DIN rail power supply series. Its primary feature is an ultra-slim, compact design that optimizes installation space while providing excellent electrical performance and reliability. The entire series features an ultra-wide input voltage range of 85~305Vac, making it suitable for global use; efficiency reaches up to 96% with low standby power consumption. It supports peak power output up to 200% and an instantaneous peak current of 600%. The entire series utilizes a fanless thermal design with a wide operating temperature range of -40°C to +85°C and meets OVCIII protection levels. The XDR-120/240/480/960 models all have built-in ORing FETs, and the XDR-240/480/960 models further support MODBus communication interfaces and parallel functions. Additionally, the entire series offers DC OK and remote ON/OFF control functions. The internal PCB is coated with a conformal coating, and multiple terminal block options are available (Screw, Lever-type, and Push-in). The XDR series is equipped with comprehensive protection functions and complies with international safety certifications.

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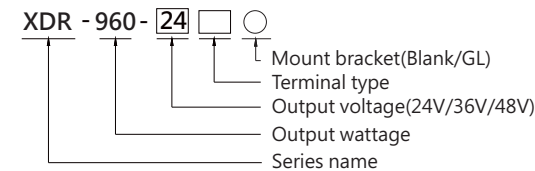
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1. Safety Guidelines

- This product contains high-voltage circuitry carrying potential risks and must be installed by qualified personnel. If abnormalities occur or the device fails to operate normally, do not disassemble or modify any parts of the product yourself.
- Install in a well-ventilated, dry location. Do not expose to rain or snow.
- Please install this equipment in a location with restricted access, such as a server room or an area accessible only to authorized personnel.
- Ensure the product is switched off before connecting or disconnecting cables.
- Risk of burns: Do not touch the equipment while it is running or shortly after disconnection!.
- Risk of fire and short circuit: Protect openings from foreign objects or dripping liquids.
- Do not stack other items around the unit to avoid affecting its heat dissipation.
- PE Connection: Must be connected to PE (Protective Earth).
- Indoor Use Only. 

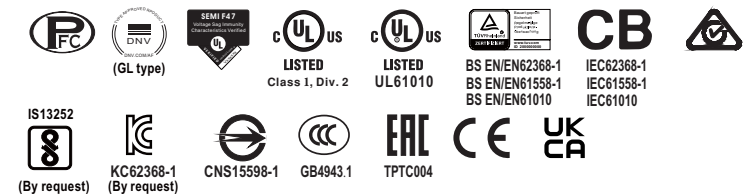
2. Introduction

2.1 Model Encoding



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

2.2 Safety Overview



2.3 Features

- Full range 85 Vac ~ 305 Vac input, suitable for global applications.
- Built-in active PFC function (XDR-120/240/480/960 only).
- Certified for multiple global sectors (ITE 62368-1, Industrial 61558-1/-2-16, 61010), Marine DNV, SEMI F47, and CID 2 Hazardous Locations.
- Up to 200% peak power capability.
- 600% transient peak current capability.
- Built-in constant current limiting circuit.
- Supports parallel operation up to 4pcs (XDR-240/480/960 only).
- Built-in remote ON/OFF control and DC OK relay contact.
- Protections: Short circuit / Overload / Over voltage / Over temperature.
- Wide operating temperature range: -40~+85°C (>+60°C derating).
- Ultra-low inrush current <6~15A.
- Built-in ORing FET (XDR-120/240/480/960 only).
- Supports MODBus communication (XDR-240/480/960 only).
- Certifications: CB/TUV/UL/RCM/BSMI/EAC/CCC/BIS/KC/CE/UKCA.
- 5-year warranty.

2.4 Electrical Specifications

XDR-75 series

SPECIFICATION		XDR-75-12□	XDR-75-24□	XDR-75-36□	XDR-75-48□
		□ =Blank, LA, PI			
OUTPUT					
DC VOLTAGE		12V	24V	36V	48V
LOAD CURRENT RANGE		0 ~ 6.24A	0 ~ 3.12A	0 ~ 2.08A	0 ~ 1.56A
RATED POWER		74.88W	74.88W	74.88W	74.88W
PEAK	CURRENT (5sec.)	12.5A	6.25A	4.17A	3.13A
	POWER (5sec.)	150W			
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		1200ms, 60ms/230Vac 2500ms, 60ms/115Vac at full load			
HOLD UP TIME (Typ.)		16ms/230Vac 10ms/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	0.7W @115Vac & 230Vac		1W @115Vac & 230Vac	
	Remote Power ON	1.5W @115Vac & 230Vac			
FREQUENCY RANGE		47 ~ 63Hz			
EFFICIENCY (Typ.)		89%	90%	91%	91%
AC CURRENT (Typ.)		1.5A/115Vac	0.9A/230Vac	0.8A/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=10%~100%; Constant current limiting or Latch mode when Vo<10% 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					
DC OK RELAY CONTACT		Relay Contact Ratings (max.):30Vdc/1A, 30Vac/0.5A resistive load			
REMOTE CONTROL		Power ON :RC + ~ RC- keep<0.5Vdc or open			
		Power OFF:RC + ~ RC- keep 4~5Vdc by external voltage			
TRANSIENT PEAK CURRENT CAPABILITY		12V: 500% rated current for 4ms; 24V/36V/48V: 600% rated current for 4ms			
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			

SPECIFICATION		XDR-75-12□	XDR-75-24□	XDR-75-36□	XDR-75-48□
		□ =Blank, LA, PI			
SAFETY & EMC Note.4&5&6					
SAFETY STANDARDS		CB IEC62368-1, IEC61558-1/-2-16, IEC61010-1/-2-201 TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16, BS EN/EN61010-1/-2-201 UL UL121201/CSA C22.2 NO.213.17 Class I, DIV2 Group A, B, C, D Hazardous Locations T4; UL61010-1/-2-201 CCC GB4943.1 BSMI CNS15598-1 EAC TPTC004 Marine DNV SEMI F47 approved KC/BIS KC62368-1 and BIS IS 13252 (Part 1) certified, no stock by request ,contact sales for inquiries			
	OVER VOLTAGE CATEGORY	Note.7 IEC/EN 61558-1/-2-16 (OVC III, altitude up to 2000m) IEC/EN/UL 61010-1/-2-201 (OVC II, altitude up to 5000m) IEC/EN 62368-1 (OVC II, altitude up to 5000m)			
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16 (SELV) 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 / KS C 9832		Class B	
	Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832		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) ,KS C 9835, SEMI F47 tested at 200Vac				
	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	1907.3K hrs min. Telcordia SR-332 (Bellcore); 333.9K hrs min. MIL-HDBK-217F (25℃)				
DIMENSION	30*125.2*116mm (W*H*D)				
PACKING	496g; 24pcs/12.9Kg/1.27CUFT				

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
	POWER (5sec.)	240W	240W	239.76W	240W
RIPPLE & NOISE (max.) Note.2		100mVp-p	100mVp-p	120mVp-p	120mVp-p
VOLTAGEADJ. 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, 60ms/230Vac	3000ms, 60ms/115Vac at full load		
HOLD UPTIME (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		
	Remote Power ON	2W@115Vac & 230Vac			
FREQUENCYRANGE		47 ~ 63Hz			
POWER FACTOR (Typ.)		PF>0.98/115VacPF>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			
REMOTECONTROL		Power ON :RC + ~ RC- keep <0.8Vdc or open			
		Power OFF:RC + ~ RC- keep 3.3~5Vdc by external voltage			
TRANSIENT PEAK CURRENT CAPABILITY		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			

SPECIFICATION		XDR-120-12	XDR-120-24	XDR-120-36	XDR-120-48
		□ =Blank, LA, PI			
SAFETY& EMC		Note.4&5&6			
SAFETY&STANDARDS	CB	IEC62368-1, IEC61558-1/2-16, IEC61010-1/2-201			
	TUV	BS EN/EN62368-1,BS EN/EN61558-1/2-16,BS EN/EN61010-1/2-201			
	UL	UL121201/CSA C22.2 NO 213.17 Class I,DIV2 Group A,B,C,D Hazardous Locations T4 ;UL61010-1/2-201			
	CCC	GB4943.1			
	BSMI	CNS15598-1			
	EAC	TPTC004			
	Marine DNV				
	SEMI F47	approved			
	KC/BIS	KC62368-1 and BIS IS 13252 (Part 1) certified, no stock by request ,contact sales for inquiries			
OVER VOLTAGE CATEGORY	Note.7	IEC/EN 61558-1/2-16	(OVC III ,altitude up to 2000m)		
		IEC/EN/UL 61010-1/2-201	(OVC II ,altitude up to 5000m)		
		IEC/EN 62368-1	(OVC II , altitude up to 5000m)		
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16	(SELV)		
		IEC/EN 62368-1	(SELV / ES I)		
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°C / 70%RH			
EMC EMISSION	Parameter	Standard		Test Level / Note	
	Conducted	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832		Class B	
	Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832		Class B	
	Harmonic Current	BS EN/EN61000-3-2		ClassA	
	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),KS C 9835,SEMI F47 tested at 200Vac				
	Parameter	Standard		Test Level / Note	
	ESD	BS EN/EN61000-4-2		Level 4, 15KV air ; Level 4, 8KV contact; criteriaA	
	Radiated	BS EN/EN61000-4-3		Level 3, 10V/m ; criteriaA	
	EFT/ Burst	BS EN/EN61000-4-4		Level 4, 4KV ; criteriaA	
	Surge	BS EN/EN61000-4-5		Level 4, 2KV/Line-Line ;Level 4, 4KV/Line-Line-Chassis ;criteriaA	
	Conducted	BS EN/EN61000-4-6		Level 3, 10V ; criteriaA	
	Magnetic Field	BS EN/EN61000-4-8		Level 4, 30A/m ; criteriaA	
OTHERS					
MTBF	1550.7K hrs min. Telcordia SR-332 (Bellcore); 246.3K hrs min. MIL-HDBK-217F (25°C)				
DIMENSION	30*125.2*116mm (W*H*D)				
PACKING	0.595Kg; 20pcs/ 12.9Kg / 1.27CUFT				

XDR-240 series

SPECIFICATION		XDR-240-12 □	XDR-240-24 □	XDR-240-36 □	XDR-240-48□
□ =Blank, LA, PI					
OUTPUT					
DC VOLTAGE		12V	24V	36V	48V
LOAD CURRENT RANGE		0 ~ 20A	0 ~ 10A	0 ~ 6.66A	0 ~ 5A
RATED POWER		240W			
PEAK	CURRENT (5sec.)	40A	20A	13.32A	10A
	POWER (5sec.)	480W(5sec.)			
RIPPLE & NOISE (max.)		Note.2	100mVp-p	100mVp-p	120mVp-p
VOLTAGEADJ. RANGE			12 ~ 15V	24 ~ 29V	36 ~ 42V
VOLTAGE TOLERANCE		Note.3	± 2.0%	± 1.0%	± 1.0%
LINE REGULATION			± 0.5%	± 0.5%	± 0.5%
LOAD REGULATION			± 1.0%	± 1.0%	± 1.0%
SETUP, RISE TIME		1500ms, 150ms/277Vac	1500ms, 150ms/230Vac	1500ms, 150ms/115Vac at full load	
HOLD UPTIME (Typ.)		20ms/277VAC	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	1W @115Vac & 230Vac & 277Vac			
	Remote Power ON	2.5W @115Vac & 230Vac & 277Vac			
FREQUENCYRANGE		47 ~ 63Hz			
POWER FACTOR (Typ.)		PF>0.98/115VacPF>0.95/230Vac	PF>0.9/277Vac at full load		
EFFICIENCY(Typ.)		94%	95%	95.5%	95.5%
AC CURRENT (Typ.)		2.6A/115Vac	1.3A/230Vac1.1A/277Vac		
INRUSH CURRENT (Typ.)		COLD START	6A/115Vac	10A/230Vac	15A/277Vac
LEAKAGE CURRENT		<1mA/ 240Vac	<1.3mA/ 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 960W (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			
REMOTECONTROL		Power ON :RC(Pin9) and 5V_AUX(Pin10) short . Power OFF:RC(Pin9) and 5V_AUX(Pin10) open.	Please refer to Function Manual for more details.		
MODBusINTERFACE		Communication provides functions such as control, setting, and monitoring.			
TRANSIENT PEAK CURRENT CAPABILITY		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℃) on Load output			
VIBRATION		Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X,Y, Z axes; Mounting: Compliance to IEC60068-2-6			

SPECIFICATION		XDR-240-12	XDR-240-24	XDR-240-36	XDR-240-48
		□ =Blank, LA, PI			
SAFETY& EMC Note.4&5&6					
SAFETYSTANDARDS	CB	IEC62368-1, IEC61558-1/-2-16, IEC61010-1/-2-201			
	TUV	BS EN/EN62368-1,BS EN/EN61558-1/-2-16,BS EN/EN61010-1/-2-201			
	UL	UL121201/CSA C22.2 NO.213.17 Class I,DIV2 Group A,B,C,D Hazardous Locations T4;UL61010-1/-2-201			
	CCC	GB4943.1			
	BSMI	CNS15598-1			
	EAC	TPTC004			
	Marine DNV				
	SEMI F47	approved			
KC/BIS	KC62368-1 and BIS IS 13252 (Part 1) certified, no stock by request ,contact sales for inquires				
OVER VOLTAGE CATEGORY	Note.7	IEC/EN 61558-1/-2-16	(OVC III ,altitude up to 2000m)		
		IEC/EN/UL 61010-1/-2-201	(OVC II ,altitude up to 5000m)		
		IEC/EN 62368-1	(OVC II , altitude up to 5000m)		
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16	(SELV)		
		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 / KS C 9832		Class B	
	Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832		Class B	
	Harmonic Current	BS EN/EN61000-3-2		ClassA	
	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),KS C 9835,SEMI F47 tested at 200Vac				
	Parameter	Standard		Test Level / Note	
	ESD	BS EN/EN61000-4-2		Level 4, 15KV air ; Level 4, 8KV contact; criteriaA	
	Radiated	BS EN/EN61000-4-3		Level 3, 10V/m ; criteriaA	
	EFT/ Burst	BS EN/EN61000-4-4		Level 4, 4KV ; criteriaA	
	Surge	BS EN/EN61000-4-5		Level 4, 2KV/Line-Line ;Level 4, 4KV/Line-Line-Chassis ;criteriaA	
	Conducted	BS EN/EN61000-4-6		Level 3, 10V ; criteriaA	
	Magnetic Field	BS EN/EN61000-4-8		Level 4, 30A/m ; criteriaA	
OTHERS					
MTBF	1066.2K hrs min. Telcordia SR-332 (Bellcore); 129.1K hrs min. MIL-HDBK-217F (25℃)				
DIMENSION	40*125.2*116mm (W*H*D)				
PACKING	0.79Kg; 16pcs/ 13.6Kg / 1.27CUFT				

XDR-480 series

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
VOLTAGEADJ. RANGE		12 ~ 15V	24 ~ 29V	36 ~ 42V	48 ~ 55V
VOLTAGE TOLERANCE		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		1500ms, 150ms/277Vac	1500ms, 150ms/230Vac	1500ms, 150ms/115Vac at full load	
HOLD UPTIME (Typ.)		15ms/277Vac	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 & 277Vac			
	Remote Power ON	3W@115Vac & 230Vac & 277Vac			
FREQUENCYRANGE		47 ~ 63Hz			
POWER FACTOR (Typ.)		PF>0.98/115VacPF>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			
REMOTECONTROL		Power ON :RC(Pin9) and 5V_AUX(Pin10) short . Power OFF:RC(Pin9) and 5V_AUX(Pin10) open.		Please refer to Function Manual for more details.	
MODBusINTERFACE		Communication provides functions such as control, setting, and monitoring.			
TRANSIENT PEAK 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	XDR-480-24	XDR-480-36	XDR-480-48
		□ =Blank, LA, PI			
SAFETY& EMC					
Note.4&5&6					
SAFETYSTANDARDS		CB TUV UL CCC BSMI EAC Marine DNV SEMI F47 KC/BIS	IEC62368-1, IEC61558-1/2-16, IEC61010-1/2-201 BS EN/EN62368-1,BS EN/EN61558-1/2-16,BS EN/EN61010-1/2-201 UL121201/CSA C22.2 NO.213.17 Class I,DIV2 Group A,B,C,D Hazardous Locations T4 ;UL61010-1/2-201 GB4943.1 CNS15598-1 TPTC004 approved KC62368-1 and BIS IS 13252 (Part 1) certified, no stock by request ,contact sales for inquiries		
OVER VOLTAGE CATEGORY	Note.7	IEC/EN 61558-1/2-16 IEC/EN/UL 61010-1/2-201 IEC/EN 62368-1	(OVC III ,altitude up to 2000m) (OVC II ,altitude up to 5000m) (OVC II , altitude up to 5000m)		
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16 IEC/EN 62368-1	(SELV) (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 / KS C 9832	Class B	
		Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832	Class B	
		Harmonic Current	BS EN/EN61000-3-2	ClassA	
		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),KS C 9835,SEMI F47 tested at 200Vac			
		Parameter	Standard	Test Level / Note	
		ESD	BS EN/EN61000-4-2	Level 4, 15KV air ; Level 4, 8KV contact; criteriaA	
		Radiated	BS EN/EN61000-4-3	Level 3, 10V/m ; criteriaA	
		EFT/ Burst	BS EN/EN61000-4-4	Level 4, 4KV ; criteriaA	
		Surge	BS EN/EN61000-4-5	Level 4, 2KV/Line-Line ;Level 4, 4KV/Line-Line-Chassis ;criteriaA	
		Conducted	BS EN/EN61000-4-6	Level 3, 10V ; criteriaA	
		Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m ; criteriaA	
OTHERS					
MTBF		1139.7K hrs min. Telcordia SR-332 (Bellcore); 154.5K hrs min. MIL-HDBK-217F (25℃)			
DIMENSION		48*125.2*125mm (W*H*D)			
PACKING		1.1Kg; 12pcs/ 14.2Kg / 1.16CUFT			

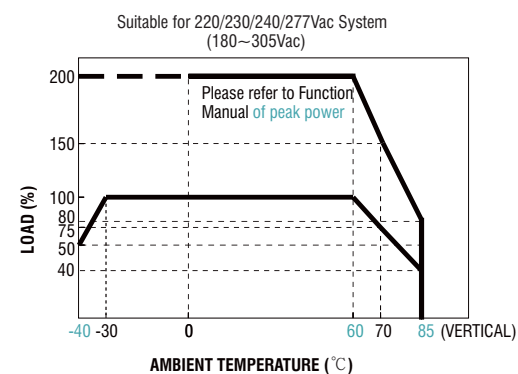
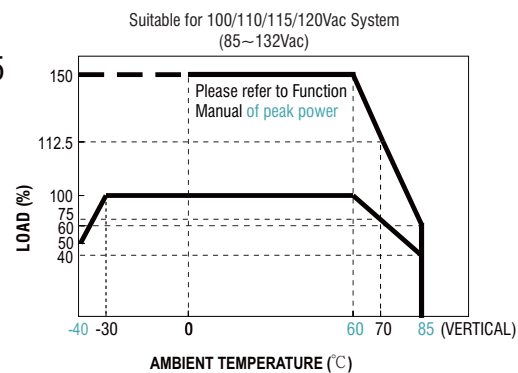
XDR-960 series

SPECIFICATION		XDR-960-24 □○	XDR-960-36 □○	XDR-960-48 □○
□ =Blank, LA, PI ○ =Blank, GL				
OUTPUT				
DC VOLTAGE		24V	36V	48V
LOAD CURRENT RANGE		0 ~ 40A	0 ~ 26.6A	0 ~ 20A
RATED POWER		960W	957.6W	960W
PEAK	CURRENT (5sec.)	80A	53.3A	40A
	POWER (5sec.)	1920W		
RIPPLE & NOISE (max.) Note.2		100mVp-p	120mVp-p	150mVp-p
VOLTAGEADJ. RANGE		24 ~ 29V	36 ~ 42V	48 ~ 55V
VOLTAGE TOLERANCE 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		1500ms, 100ms/277vac	1500ms, 100ms/230Vac	1500ms, 100ms/115Vac at full load
HOLD UPTIME (Typ.)		20ms/277Vac	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	1.5W@115Vac & 230Vac & 277Vac		
	Remote Power ON	6.7W@115Vac 4.5W@230Vac & 277Vac		
FREQUENCYRANGE		47 ~ 63Hz		
POWER FACTOR (Typ.)		PF>0.98/115VacPF>0.95/230Vac		PF>0.9/277Vac at full load
EFFICIENCY(Typ.)		95%	95.5%	96%
AC CURRENT (Typ.)		10A/115Vac	5A/230Vac	4.2A/277Vac
INRUSH CURRENT (Typ.)		COLD START	23A/115Vac	10A/230Vac 15A/277Vac
LEAKAGE CURRENT		<3.5mA/ 240Vac	<4.5mA/ 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		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 3840W (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		
REMOTECONTROL		Power ON :RC(Pin9) and 5V_AUX(Pin10) short . Power OFF:RC(Pin9) and 5V_AUX(Pin10) open.		Please refer to Function Manual for more details.
MODBUSINTERFACE		Communication provides functions such as control, setting, and monitoring.		
TRANSIENT PEAK CURRENT CAPABILITY		600% transient peak 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		

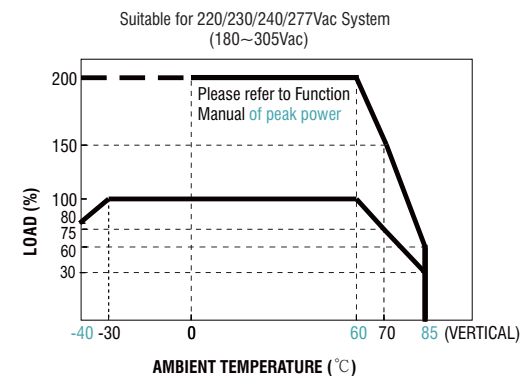
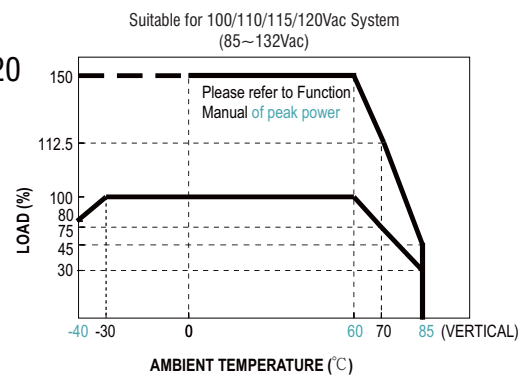
SPECIFICATION		XDR-960-24		XDR-960-36		XDR-960-48	
		□ =Blank, LA, PI		○ =Blank, GL			
SAFETY& EMC							
Note.4&5&6							
SAFETYSTANDARDS		CB TUV UL CCC BSMI EAC Marine DNV (for GL type only) SEMI F47 KC/BIS	IEC62368-1, IEC61558-1/2-16, IEC61010-1/2-201 BS EN/EN62368-1,BS EN/EN61558-1/2-16,BS EN/EN61010-1/2-201 UL 121201/CSA C22.2 NO.213.17 Class I,DIV2 Group A,B,C,D Hazardous Locations T4 GB4943.1 CNS15598-1 TPTC004 approved KC62368-1 and BIS IS 13252 (Part 1) certified, no stock by request ,contact sales for inquiries				
OVER VOLTAGE CATEGORY	Note.7	IEC/EN 61558-1/2-16 (OVC III , altitude up to 2000m) IEC/EN/UL 61010-1/2-201 (OVC II ,altitude up to 5000m) IEC/EN 62368-1 (OVC II , altitude up to 5000m)					
SAFETY EXTRA-LOW VOLTAGE(SELV)		IEC/EN 61558-2-16 (SELV) 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 / KS C 9832			Class B	
		Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936 / KS C 9832			Class B	
		Harmonic Current	BS EN/EN61000-3-2			ClassA	
		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),KS C 9835,SEMI F47 tested at 200Vac					
		Parameter	Standard			Test Level / Note	
		ESD	BS EN/EN61000-4-2			Level 4, 15kV air ; Level 4, 8kV contact; criteriaA	
		Radiated	BS EN/EN61000-4-3			Level 3, 10V/m ; criteriaA	
		EFT/ Burst	BS EN/EN61000-4-4			Level 4, 4kV ; criteriaA	
		Surge	BS EN/EN61000-4-5			Level 4, 2kV/Line-Line ;Level 4, 4kV/Line-Line-Chassis ;criteriaA	
		Conducted	BS EN/EN61000-4-6			Level 3, 10V ; criteriaA	
	Magnetic Field	BS EN/EN61000-4-8			Level 4, 30A/m ; criteriaA		
OTHERS							
MTBF		819.6K hrs min. Telcordia SR-332 (Bellcore); 113.3K hrs min. MIL-HDBK-217F (25℃)					
DIMENSION		96*125.2*132mm (W*H*D)					
PACKING		2.06Kg; 6pcs/ 13.4Kg /1.47CUFT					

2.5 Derating Curve

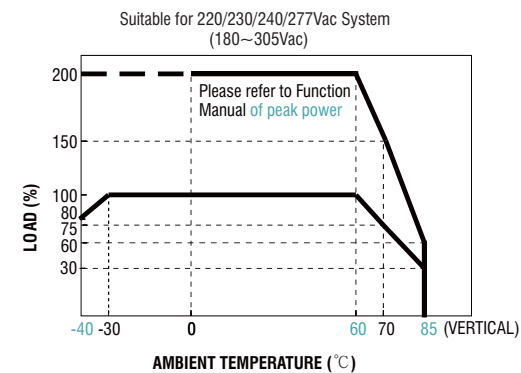
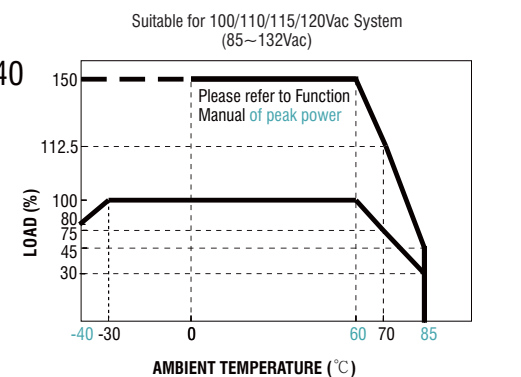
XDR-75



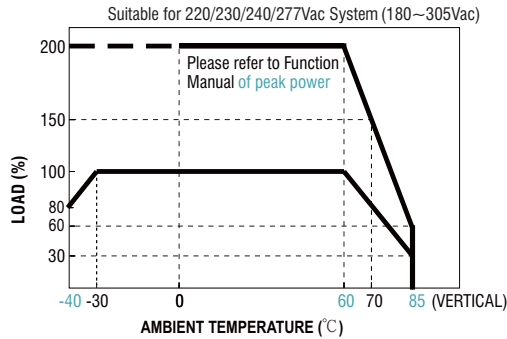
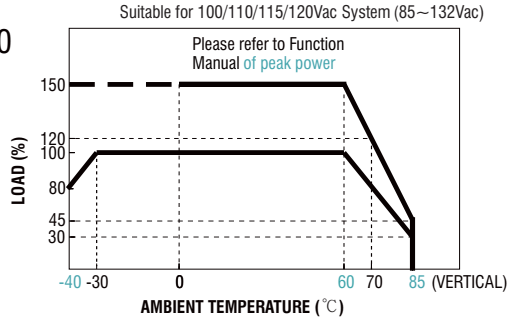
XDR-120



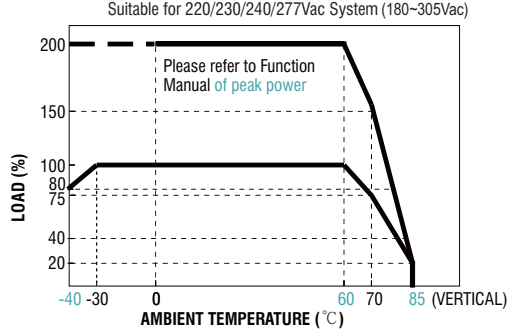
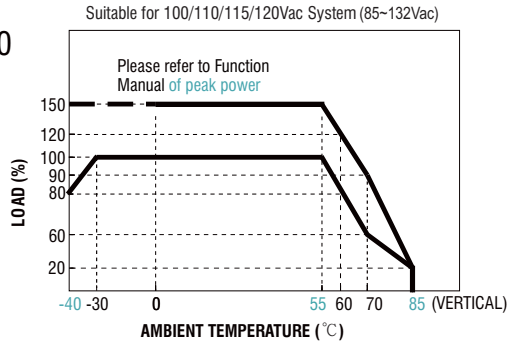
XDR-240



XDR-480



XDR-960



2.6 Mechanical Specifications

XDR-75 series
(Unit:mm, Tolerance ±1mm)

Case No.301

(A): Terminal Pin No.Assignment

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

(B): Control Pin No.Assignment

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

(C): Terminal Pin No.Assignment

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

(Unit:mm , Tolerance ± 1 mm)



(Unit:mm , Tolerance ± 1 mm)



XDR-480 series

(Unit:mm , Tolerance ±1mm)

Case No. 303

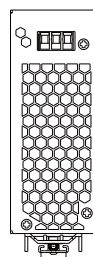
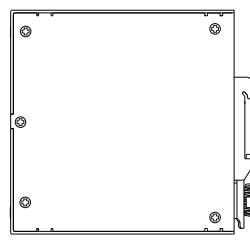
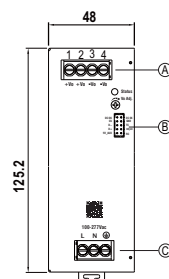
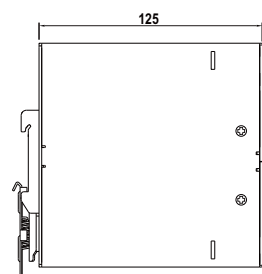
Ⓑ: Control Pin No. Assignment: JS-2008R-2x05 or equivalent

Mating Housing	Terminal
 JS-2007-2x05-BK or equivalent	JS-2007-T or equivalent

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

Ⓐ: Terminal Pin No. Assignment

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



Ⓒ: Terminal Pin No. Assignment

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

XDR-960 series

(Unit:mm , Tolerance ±1mm)

Case No. 304

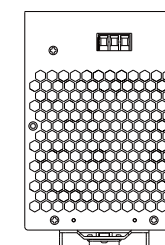
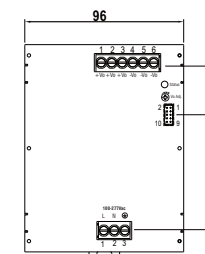
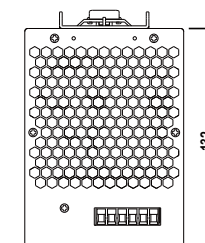
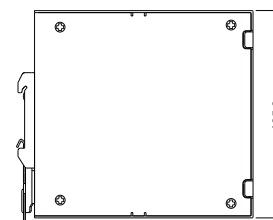
Ⓑ: Control Pin No. Assignment : JS-2008R-2x05 or equivalent

Mating Housing	Terminal
 JS-2007-2x05-BK or equivalent	JS-2007-T or equivalent

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

Ⓐ: Terminal Pin No. Assignment

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



Ⓒ: Terminal Pin No. Assignment

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

2.7 Optional Accessories: GL Application Mounting Kit

2.7.1 Introduction

For marine, railway, and high-vibration industrial applications, the XDR series offers a dedicated GL Application Mounting Kit. This kit is designed to reinforce the mechanical stability of the power supply on the DIN rail, ensuring secure operation under extreme mechanical stress and vibration. It should be noted that the GL type is only available for the XDR-960 series.

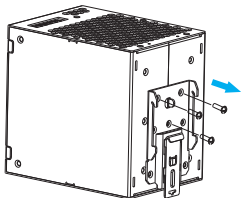
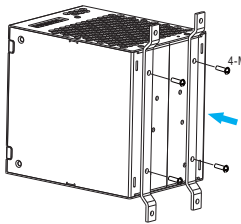
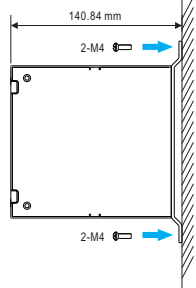
2.7.2 Accessory Checklist

Please verify the contents of your accessory kit based on the table below:

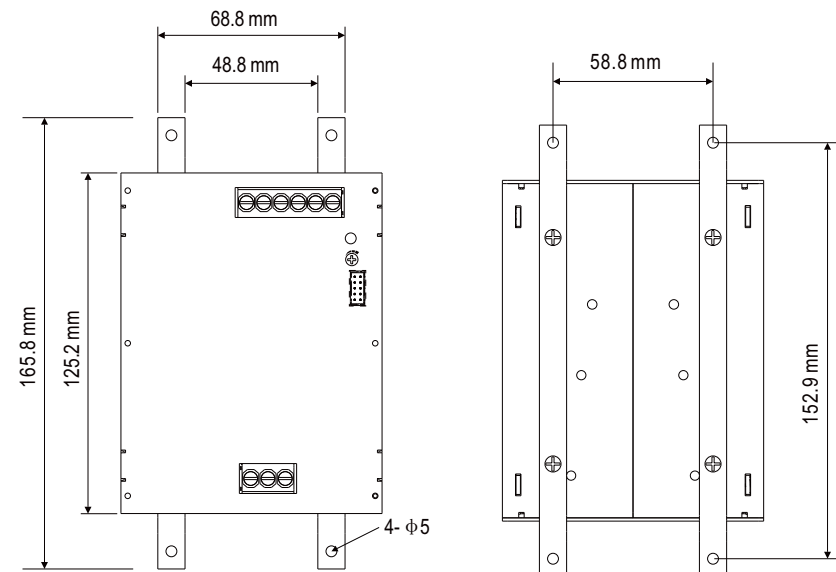
Component	Qty	Description
GL Reinforcement Bracket 	2	Fixed to both sides of the PSU to enhance rail gripping force.
M3x8mm Screws 	4	Used to secure the brackets to the PSU chassis.
M4x 8mm Screws 	4	For enhanced base plate locking.

2.7.3 Installation Procedure

CAUTION: Ensure that the AC power is disconnected before installing or adjusting the accessories.

Step1	Step2	Step3
		
Detach the DIN Rail clip by removing screws.	Mount the steel brackets to the back of the case with M3*8 (L=8mm) screws. Recommended screw torque setting is 5 Lb-In.	Mount the XDR-960 power supply directly to the wall/panel through the mounting holes on the brackets.

2.7.4 GL Type mechanical specification



2.7.5 Compliance & Applications

※ Vibration Resistance:

When installed with this kit, the unit complies with the vibration testing requirements of DNV (Marine Certification).

※ Target Environments:

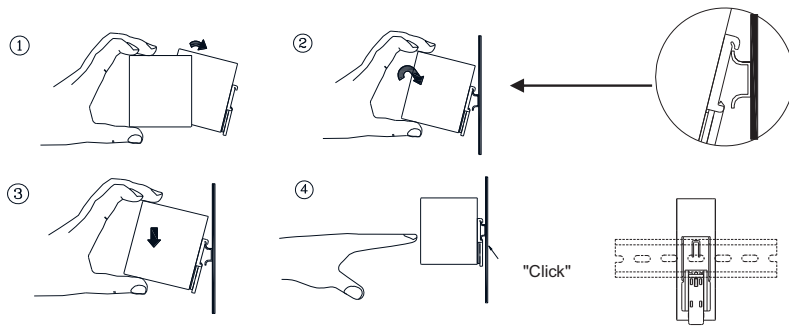
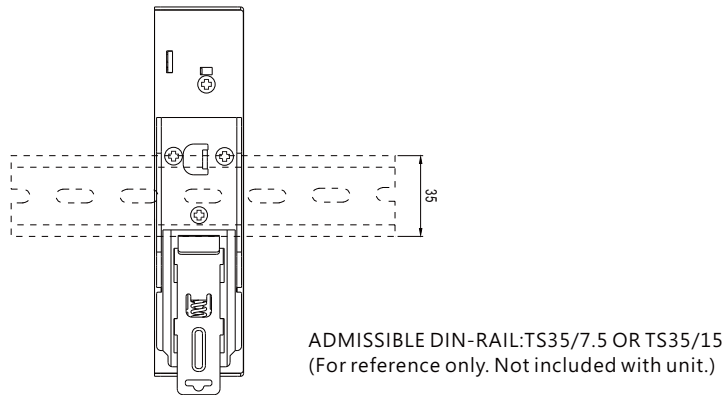
Marine engine rooms and offshore platforms.
Surroundings of heavy-duty stamping machinery.
Railway trackside control cabinets.

2.7.6 Installation Precautions

1. Installation Spacing: To ensure optimal heat dissipation and vibration damping, it is recommended to follow the installation clearance requirements specified in Section 3.2.
2. Environmental Requirements: Please ensure the mounting surface is flat and level to avoid uneven stress on the enclosure, which could lead to a reduction in anti-vibration performance.

3 Installation Instructions

3.1 Mounting Method



Installation Steps:

1. Tilt the unit slightly backward.
2. Press onto the rail from the top.
3. Slide it downward until it stops.
4. Push the bottom to lock it.
5. Shake slightly to check if locked ("Click" sound indicates secure lock).

3.2 Installation Clearance Requirements

To ensure the power supply effectively dissipates heat through natural convection and to prevent overheating, minimum recommended clearances must be maintained around the unit during installation. Please refer to the clearance specification table below for details (Including GL series products).

Position	Recommended Clearance	Functional Description
Top	$\geq 40\text{mm}$	Hot Air Outlet: Ensures the rising hot airflow can be exhausted smoothly.
Bottom	$\geq 20\text{mm}$	Cold Air Inlet: Ensures external cool air can enter the power supply.
Sides	5~15mm	Horizontal Spacing: If adjacent to other heat sources, 15mm is recommended.

3.3 Wiring Selection and Terminal Specifications

1. Wire Requirements: Use wires with a minimum temperature rating of 80°C (e.g., UL 1007/1015). Ensure all strands of a stranded wire are fully inserted into the terminal and the screws are tightened securely to prevent poor contact. If the power supply has multiple output terminals, ensure each terminal is connected to a wire to prevent excessive current on a single terminal.

Note: Use copper wire only. Keep wiring as short as possible. Wire gauge selection must comply with safety regulations based on the rated current. Undersized wires will lead to low efficiency, failure to output full power, and fire hazards due to overheating. Please refer to the table below:

Recommendations for the use of wires

AWG	20	18	16	14	12	10	8	6	4	2
Rated Current (A)	3A	6A	10A	16A	25A	32A	40A	63A	80A	100A
Cross-section (mm ²)	0.5	0.75	1	1.5	2.5	4	6	10	16	25

Note: When using 5 or more wires connected to the power supply, the current for each wire should be derated to 80% of the recommended values above.

2. Stripping & Tools: The recommended stripping length for wires is 5mm (0.197"). A 3mm flat-head screwdriver is recommended for tightening.

3. Input/Output Terminal Types

Terminal Type		Usage
Blank 	Crew Terminal	Loosen terminal screw, insert wire, and tighten screw.
LA 	Lever-type Terminal	Pull up the lever, insert wire, and press down the lever.
PI 	Push-in Terminal	Insert the wire directly into the terminal.

4. DC OK Terminal :

Contact Rating(max)	30V / 1A Resistive Load
Solid Wire	Max 1.5mm ²
Applicable Wire Gauge	24~16AWG
Usage	Loosen terminal screw, insert wire, and tighten screw.

Note: Applicable to XDR-75 and XDR-120 series.

5. Terminal Torque Specifications(Applicate to the blank model) :

Model	Input Terminal Torque	Output Terminal Torque
XDR-75	5.8kgf-cm(5Lb-in)	5.8kgf-cm(5Lb-in)
XDR-120	5.8kgf-cm(5Lb-in)	5.8kgf-cm(5Lb-in)
XDR-240	5.8kgf-cm(5Lb-in)	5.8kgf-cm(5Lb-in)
XDR-480	5.8kgf-cm(5Lb-in)	5.8kgf-cm(5Lb-in)
XDR-960	5.8kgf-cm(5Lb-in)	5.8kgf-cm(5Lb-in)

6. Recommended Fuse Specifications and Circuit Breaker Configuration Guide

Model	Fuse	Circuit Breaker	
		C16(16A)	D16(16A)
XDR-75	F4A/300VAC	14	14
XDR-120	F6.3A/300VAC	10	10
XDR-240	F8A/300VAC	9	9
XDR-480	F16A/300VAC	4	4
XDR-960	F20A/300VAC/420VAC	2	2

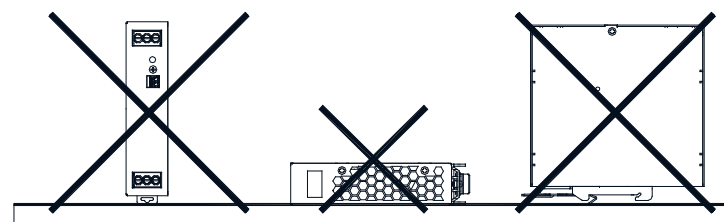
Note:

1. The numbers of units per circuit breaker shown in the table are based on a 230VAC input voltage. For applications with other input voltages, please consult MEAN WELL technical support to ensure system safety and prevent nuisance tripping of circuit breakers.

2. Type C Breaker: Recommended for standard resistive or slightly inductive loads (Trip range: 5-10x rated current). Type D Breaker: Recommended for high inrush current applications, such as large motor starts or high-power inductive loads (Trip range: 10-20x rated current).

3.4 Installation Precautions

1. Mounting Orientation: The standard mounting orientation is vertical (input terminal at the bottom, output terminal at the top). Non-standard orientations (such as horizontal, upside-down, or tabletop mounting) will cause a significant drop in heat dissipation efficiency.



2. Power Derating:

If the installation clearance requirements are not met, or if a non-standard mounting orientation (other than the standard method described in Section 3.1) is used, or if the unit is operated in a high-temperature environment, the temperature of internal components will increase. In these cases, output power must be appropriately reduced. Please refer to the Derating Curves in the product datasheet for detailed guidance.

3. Ventilation Protection:

Do not block or cover the ventilation holes on the power supply chassis. Obstruction of these vents may cause internal heat accumulation, which could trigger the Over Temperature Protection (OTP) and lead to system shutdown.

4.  Power-off Safety:

Before performing any installation or maintenance work, please ensure that your system is completely disconnected from the mains power. Take necessary precautions to ensure the power cannot be reconnected accidentally due to human error or wiring issues (Lockout/Tagout procedures are recommended).

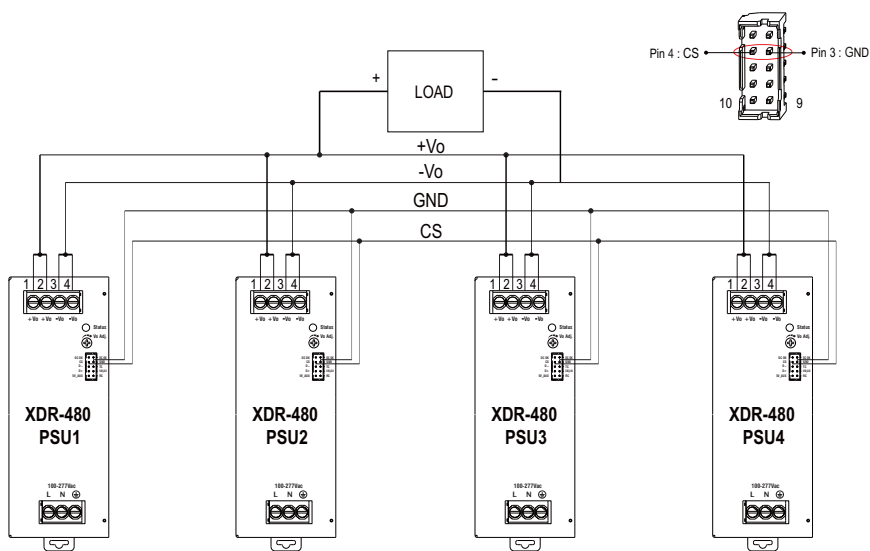
3.5 Parallel Connection Wiring

XDR series power supplies feature built-in active current sharing and support parallel connection of up to 4 units for higher output power:

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

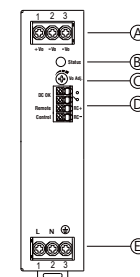
$$= (\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9.$$
- (5) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (6) The power supplies should be paralleled using short and large diameter wiring and then connected to the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

$$(\text{Min. load} > 5\% \text{ rated current per unit} \times \text{number of unit})$$
- (8) 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.
- (9) CS and GND lines should be twisted in pairs.



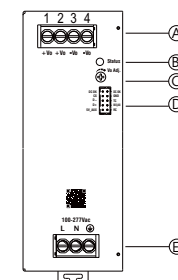
4 Panel and LED Indicators

4.1 Panel Function Description



(XDR-75~120)

- Ⓐ DC Output Terminals
- Ⓑ LED Status Indicator
- Ⓒ Vo Adj: Voltage Adjustment
- Ⓓ Function Connector: Output status display and remote control
- Ⓔ AC Input Terminals



(XDR-240~960)

- Ⓐ DC Output Terminals
- Ⓑ LED Status Indicator
- Ⓒ Vo Adj: Voltage Adjustment
- Ⓓ Function Connector: Control & Monitoring
- Ⓔ AC Input Terminals

※ For reference only, please refer to the SPEC of the corresponding model for details.

4.2 LED Indicator

Description	Output of alarm
Restore Factory Settings	Green : 3 Blink  
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: 1. Others include protection status AC UVP、Internal Communication error and EEPROM error.
2. Only for XDR-240 and higher power rating models.

4.3 Function Pin Description

The XDR series has two versions: XDR-75/120 (no communication) and XDR-240/360/480 (with MODBus). And they have different pin configurations.

4.3.1 XDR-75/120: Pins 1-2 (DC OK Relay), Pins 3-4 (Remote ON-OFF).

Pin No.	Function	Description	CN1
1 · 2	DC OK	Open = DC Fail. Closed = Power ON / DC OK Contact Rating (Max): 30Vdc/1A, 30Vac/0.5A resistive load.	 DC OK RC+ RC-
3 · 4	Remote ON-OFF	ontrols output ON/OFF via remote signal and +5V_AUX Short (4~5V): Power ON Open (0~0.5V): Power OFF	

4.3.2 XDR-240/480/960: Full 10-pin interface including Modbus (D+, D-), Current Sharing (CS), and AUX Power.

Pin No.	Function	Description	CN1
1 · 2	DC OK	Closed = Power ON / DC OK	 DC OK 2* 1 DC OK CS 4* 3 GND D- 6* 5 TC D+ 8* 7 GND_AUX 5V_AUX 10* 9 RC
		Open = DC Fail	
		Contact Rating (Max): 30Vdc/1A, 30Vac/0.5A resistive load.	
3	GND	Current sharing ground interface.	
4	CS	Current sharing interface.	
5	TC	Transient current Enable Function by dry contact between TC(Pin5) and GND(Pin3). Short: enable the peak power and transient peak current functions (default). Open: disable the peak power and transient peak current functions.	
6	D-	MODBus mode: Serial data for MODBus interface, referenced to GND-AUX.	
8	D+		
7	GND_AUX	Auxiliary voltage output GND. This signal circuit is isolated from the main output (+V & -V).	
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.	

5.Function Description

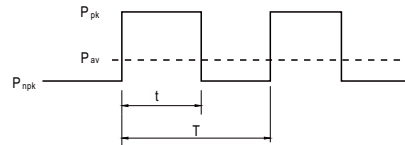
5.1 Peak Power

The XDR series provides high power load output. Actual usage must satisfy the load cycle in the diagram below to avoid over-temperature and overload protection.

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

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

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



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)

Refer to Figure below in the source for the XDR-240 curve example:

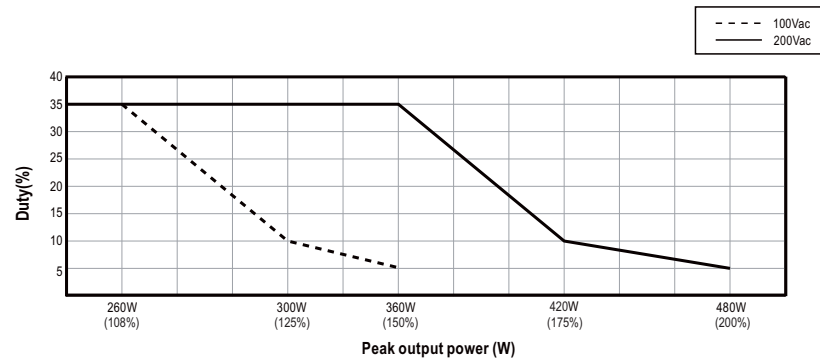


Figure 5.1

$$V_{in} = 200Vac \quad Duty_max = 5\% \quad T \geq \frac{5 \text{ sec}}{5\%} \geq 100sec$$

$$P_{av} = P_{rated} = 240W$$

$$P_{pk} = 480W$$

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

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

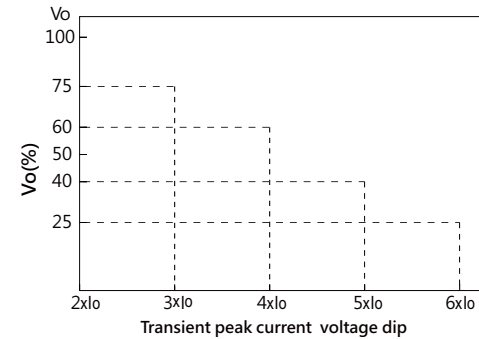
$$P_{npk} \leq 227.4W$$

Note: To ensure stable operation, strictly adhere to peak power limits. For example, the above formula indicates that under a 200VAC input condition, the maximum duty cycle for peak power is 5%. When the peak power reaches 480W with a duration of $t \leq 5s$, the non-peak power must be maintained at 227.4W to meet the requirements for normal operation.

5.2 Transient peak current Capability

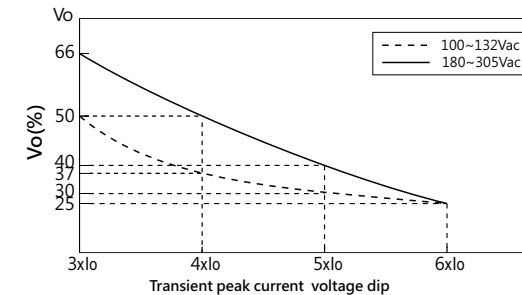
The XDR series provides >200% transient peak current capability for several milliseconds to handle inductive or capacitive loads. The duration depends on the model.

XDR-75/120



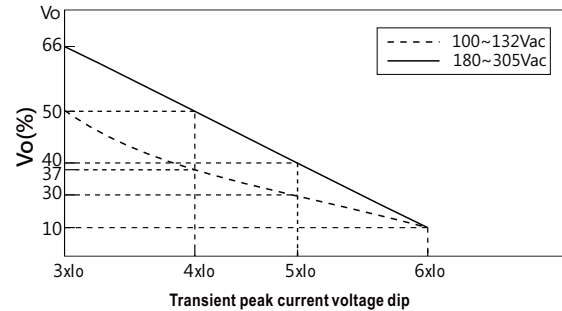
Load	Vo(%)	XDR-75		XDR-120	
		12V	24V/36V/48	12V	24V/36V/48
		Time		Time	
3xlo	75	6ms	8ms	15ms	35ms
4xlo	60	3ms	6ms	8ms	17ms
5xlo	40	2ms	5ms	5ms	13ms
6xlo	25	-	4ms	4ms	10ms

XDR-240/480



XDR-240/480			
Load	100~132Vac Vo(%)	180~305Vac Vo (%)	Time (Max.)
3xlo	50	66	100ms
4xlo	37	50	70ms
5xlo	30	40	40ms
6xlo	25	25	15ms

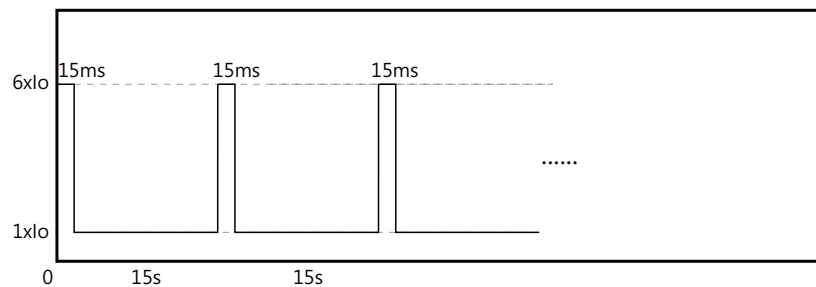
XDR-960



XDR-960			
Load	100~132Vac Vo(%)	180~305Vac Vo(%)	Time (Max.)
3xIo	50	66	100ms
4xIo	37	50	70ms
5xIo	30	40	40ms
6xIo	10	10	15ms

※ After a transient peak current event occurs, the rated load must be maintained for at least 15 seconds before the next event.
it the output current to 100% for at least 15 seconds(XDR-240~960).

For example : (600% transient peak current)



Note: For the XDR-240~960 series, when operating in Constant Current (CC) mode (e.g. charging applications), please refer to the instructions regarding the TC pin in Section 4.3.2. Ensure the pin is kept open(disconnected from GND) to disable the peak power and transient peak current functions.

5.3 Output Voltage Adjustment

The XDR series offers dual voltage adjustment modes to satisfy diverse requirements for precision and automation (Note: Communication adjustment is only available for XDR-240 and rating models). When increasing the output voltage, the output current must be decreased accordingly to ensure the total output power ($V \times I$) does not exceed the rated power rating.

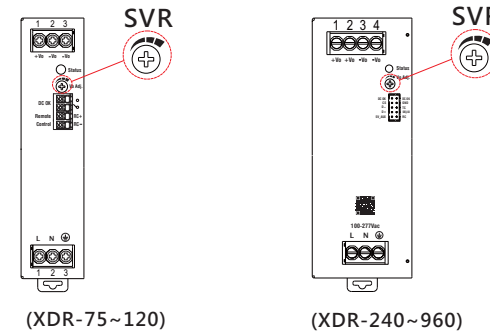
1. Potentiometer Adjustment (SVR): Manual fine-tuning via the onboard potentiometer, ideal for on-site line drop compensation or customized voltage requirements.
2. Communication Adjustment (MODBus): Digital adjustment via the Modbus protocol, supporting remote parameter configuration and automated control.

5.3.1 Potentiometer Adjustment (SVR)

Please refer to the following pictures for SVR locations (marked with red circles).

Clockwise: Increases voltage.

Counter-clockwise: Decreases voltage.



⚠ Safety Warning: Always use a 3mm small flat-head screwdriver with an insulated handle for adjustment. Simultaneously monitor the output voltage with a multimeter to ensure the final setting does not exceed the maximum tolerance of the load.

Output Voltage Adjustment Range:

Rated output voltage	SVR Range	Accuracy
12V	12~15V	±1%
24V	24~29V	±1%
36V	36~42V	±1%
48V	48~55V	±1%

Note: The XDR-960 series is only available with 24V and higher output voltage models.

5.3.2 Communication Adjustment:

For XDR-240 and above models, the output voltage can be adjusted via the MODBus communication protocol. Please refer to Chapter 6 for detailed control commands and register descriptions.

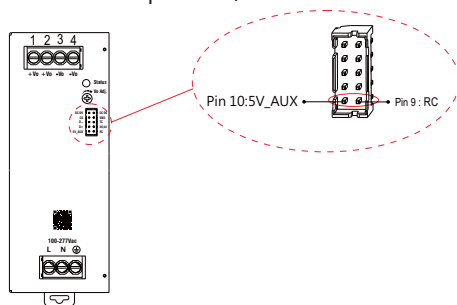
5.4 Output Current Adjustment

For XDR-240 and above models, the output current limit value can be adjusted via the MODBus communication protocol. Please refer to Chapter 6 for detailed operational procedures.

Note: When using MODBus communication to adjust the output voltage/current, functions such as peak power and transient peak current will be invalid.

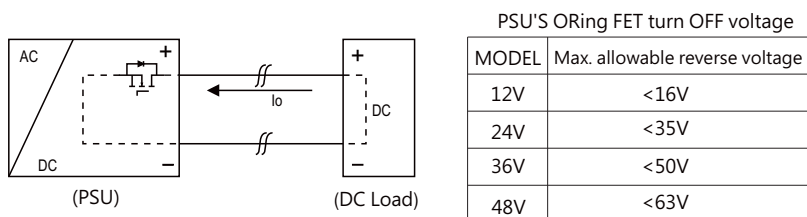
5.5 Remote Control

Control output ON/OFF via "Remote Control" function.



Remote ON-OFF && +5V_AUX	Status
short	ON
open	OFF

5.6 Protection Against Inverse Voltages From The Load



MODEL	Max. allowable reverse voltage
12V	<16V
24V	<35V
36V	<50V
48V	<63V

Note: 1. This feature is only available on XDR-120 and above models.
2. The XDR-960 series is only available with 24V and higher output voltage models.

6 MODBus Communication Interface

The MODBus communication interface facilitates the monitoring and control of Power Supply Unit (PSU) parameters, including output enablement (On/Off), voltage and current regulation, and protection status monitoring.

6.1 MODBus Specifications

6.1.1 Physical Interface & Protocol

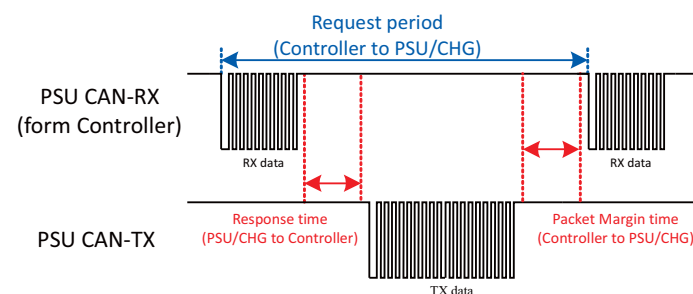
The device utilizes the MODBus RTU Master/Slave transmission mode. With the exception of the Error Check (CRC-16) field, all word-length data must adhere to the Big-Endian (High Byte first) transmission protocol.

Physical Layer Configuration:

Control	Setting
Baud Rate	115200
Data Bits	8
Stop Bit	1
Parity	None
Flow Control	None

6.1.2 Communication Timing

Minimum Request Cycle (Controller to PSU): 20 ms
Maximum Response Latency (PSU to Controller): 5 ms
Minimum Packet Interval (Controller to PSU): 5 ms



6.1.3 MODBus RTU Frame Structure

The MODBus RTU message frame consists of an Additional Address, Function Code, Data Field, and Error Check.

Additional address	Function code	Data	Error check
8-bits	8-bits	N×8bits	2×8bits

Additional Address (1 byte): Valid PSU Slave ID.

Function Code (1 byte): Command code for read or write operations.

Data (N bytes): Data exchange structure; length depends on the command.

Error Check (2 bytes): CRC-16 checksum.

6.1.4 Slave Address Definition

The "Additional Address" serves as the PSU Slave ID. In a MODBus network, each XDR unit must be assigned a unique, non-conflicting address.

Slave ID	Additional Address Definition
0x8x	8x means device address
0x00	Broadcast(Writing only)

Note:XX means the address of XDR, default address is 0x83.

Address modification via command (0x0900) requires a complete system restart (AC power cycle) to take effect.

6.1.5 Function Code Description

Function Codes instruct the Slave device on the specific operation to execute.

Function Code		Description
Read Holding Register	0x03	Read Parameter Registers
Read Input Register	0x04	Read Analog/Status Registers
Preset Single Register	0x06	Write Single Register

6.2 MODBus Command Register Map

Communication is achieved by reading/writing to specific Register Addresses.

FC=03/04

Starting Address	Quantity of (Input) Registers
2Bytes	2Bytes

FC=06

RegisterAddress	Register Value
2Bytes	2Bytes

Command Table:

Address	Command Name	Function code	data Bytes	Description
0x0000	OPERATION	0x03 · 0x06	2	Remote Control: ON (0x00 01), OFF (0x 00 00)
0x0020	VOUT_SET*	0x03 · 0x06	2	Output voltage set (Factor=0.01)
0x0030	IOUT_SET*	0x03 · 0x06	2	Output current set (Factor= 0.01)
0x0040	FAULT_STATUS_1	0x03	2	Abnormal status 1
0x0041	FAULT_STATUS_2	0x03	2	Abnormal status 2
0x0050	READ_VIN	0x04	2	Input Voltage (Factor=0.1)
0x0060	READ_VOUT	0x04	2	Output Voltage (Factor= 0.01)
0x0061	READ_IOUT	0x04	2	Output Current (Factor= 0.01)
0x0062	READ_TEMPERATURE_1	0x04	2	Internal Ambient Temp (Factor= 0.1)
0x0063	READ_POUT	0x04	2	Output Power (Factor=1)
0x0080~0x0082	MFR_ID_B0B5	0x03	6	Manufacturer Name(ASCII)
0x0083~0x0085	MFR_ID_B6B11	0x03	6	Manufacturer Name(ASCII)
0x0086~0x0088	MFR_MODEL_B0B5	0x03	6	Model Name (ASCII)
0x0089~0x008B	MFR_MODEL_B6B11	0x03	6	Model Name (ASCII)
0x008C~0x008E	MFR_REVISION_B0B5	0x03	6	Firmware Revision
0x008F~0x0090	MFR_LOCATION_B0B2	0x03	4	Manufacturer Place
0x0091~0x0093	MFR_DATE_B0B5	0x03	6	Manufacturer Date
0x0094~0x0096	MFR_SERIAL_B0B5	0x03	6	Serial Number

0x0097~ 0x0099	MFR_SERIAL_B6B11	0x03	6	Serial Number
0x00C0~ 0x00C2	SCALING_FACTOR	0x03	6	Scaling Factor
0x00C3	SYSTEM_STATUS	0x03	2	System Operational Status
0x00C4	SYSTEM_CONFIG	0x03 · 0x06	2	System Configuration
0x00C5	PROTECT_CONFIG	0x03 · 0x06	2	Protection Configuration
0x00C6	RESET_DEFAULT	0x03 · 0x06	2	Factory Reset (Write 0xAA to restore)
0x00E0	AC_Fail_LL_SET	0x03 · 0x06	2	AC Low-Line Failover Threshold ((Factor=0.1)
0x00E2	AC_OK_LL_SET	0x03 · 0x06	2	AC Low-Line Recovery Threshold (Factor= 0.1)
0x00F0	DC_OK_SET	0x03 · 0x06	2	DC OK Threshold (Factor=0.01)
0x00F1	PEAK_SET	0x03 · 0x06	2	Peak Output Current Limit (Factor=0.01)
0x00F3	OL_ALARM_LEVEL	0x03 · 0x06	2	Overload Pre-Alarm Threshold(Factor= 0.01)
0x0900	MODBUS_ID	0x03 · 0x06	2	Modbus Address Setting
0x0901	MODBUS_BAUD	0x03 · 0x06	2	Baud Rate Setting
0x0902	MODBUS_FORMAT	0x03 · 0x06	2	Frame Format Setting
0x910	CLEAR_LOG	0x03 · 0x06	2	Clear Event Log
0x913~ 0x914	TOTAL_PSON_TIME	0x03	4	Total Runtime
0x915~ 0x916	PSON_TIME	0x03	4	"The current total runtime (AC ON cleared)
0x0919	OVP_CNT	0x03	2	OVP Protection Trigger Counters
0x091A	OLP_CNT	0x03	2	OLP Protection Trigger Counters
0x091B	OTP_CNT	0x03	2	OTP Protection Trigger Counters
0x091C	ACUVP_CNT	0x03	2	ACUVP Protection Trigger Counters
0x0921	EVENT_0	0x03	2	Latest Event Log
0x0922	EVENT_1	0x03	2	Last Time Event Log
0x0923	EVENT_2	0x03	2	Last Two Time Event Logs

NOTE: 1. Commands marked with "*" support EEP_OFF and EEP_CONFIG functions. Refer to SYSTEM_CONFIG (0x00C4) for details on enabling/disabling parameter storage.
 2. The 0x910 CLEAR_LOG command can be used to clear the fault information from 0x0919~0x0923 by writing " 0xAA" to the PSU, and it needs to restart to take effect.

Data Scaling Definition:

The Scaling Factor is distinct for each command and can be verified via the SCALING_FACTOR (0x00C0~0x00C2) register.

Example: If READ_VOUT returns 0x0960 (2400 decimal) and the Factor is 0.01, the actual voltage is 2400*0.01=24V.

◎FAULT_STATUS_1(0x0040)

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
High byte	-	-	-	-	-	-	-	-
Low byte	HI_TEMP	OP_OFF	AC_FAIL	-	OLP	OVP	OTP	-

Bit1 OTP: Over temperature protection

0 = Internal temperature normal
 1 = Internal temperature abnormal

Bit2 OVP: Output over-voltage protection

0 = Output voltage normal
 1 = Output over voltage protected

Bit3 OLP: Output over load protection

0 = Output load normal
 1 = Output over-load protected

Bit5 AC FAIL: AC abnormal flag

0 = AC range normal
 1 = AC range abnormal

Bit6 OP_OFF: DC status

0 = DC turned on
 1 = DC turned off

Bit7 HI TEMP: Internal high temperature alarm

0 = Internal temperature normal
 1 = Internal temperature abnormal

© **FAULT_STATUS_2(0x0041):**

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
High byte	-	-	-	-	-	-	-	OL_ALM
Low byte	-	-	-	-	-	-	-	EMFP

Low byte:

Bit 0 EMFP : Back-EMF Protection Flag

0 = Normal

1 = Triggered

High byte:

Bit 0 OL_ALM : Overload Pre-alarm Flag

0 = Normal

1 = Triggered

Note: Unsupported settings display with " 0" .

© **MFR_ID_B0B5(0x0080~0x0082)is the first 6 codes of the manufacturer's name(ASCII); MFR_ID_B6B11 (0x0083~0x0085) is the last 6 codes of the manufacturer's name (ASCII) .**

EX: manufacturer's name is MEANWELL →MFR_ID_B0B5 is MEANWE ; MFR_ID_B6B11 is LL .

MFR_ID_B0B5						MFR_ID_B6B11					
Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit0	Bit1	Bit2	Bit3	Bit4	Bit5
0x4D	0x45	0x41	0x4E	0x57	0x45	0x4C	0x4C	0x20	0x20	0x20	0x20

© **MFR_MODEL_B0B5(0x0086~0x0088)is the first 6 codes of the model name(ASCII); MFR_MODEL_B6B11 (0x0089~0x008B) is the last 6 codes of the model name (ASCII) .**

EX: Model name is XDR-240-24 MFR_MODEL_B0B5 is XDR-24 ; MFR_ID_B6B11 is 0-24 .

MFR_MODEL_B0B5						MFR_MODEL_B6B11					
Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8	Bit9	Bit10	Bit11
0x58	0x44	0x52	0x2D	0x32	0x34	0x30	0x32	0x34	0x32	0x34	0x20

© **MFR_REVISION BOB5 (0x008C-0x008E)is the firmware revision.** Arrange of 0x00 hexadecimal(R00.0)~0xFE(R25.4) represents the firmware version of an MCU;0xFF represents no MCU existed.

EX: The supply has two MCUs, the firmware version of the MCU number1 is version R25.4 (0xFE),the MCU number 2 is version R10.5 (0x69).

Bit0	Bit1	Bit2	Bit3	Bit4	Bit5
0xFE	0x69	0xFF	0xFF	0xFF	0xFF

© **MFR_DATE_B0B5(0x0091~0x0093) is manufacture date and manufacture serial number(ASCII).**

EX: MFR_DATE_B0B5 is 251201, meaning 2025/12/1.

Bit0	Bit1	Bit2	Bit3	Bit4	Bit5
0x32	0x35	0x31	0x32	0x30	0x31

© **MFR_SERIAL_B0B5(0x0094~0x0096) and MFR_SERIAL_B6B11(0x0097~0x0099) are defined as manufacture date and manufacture serial number(ASCII).**

EX: The first unit manufactured on 2025/12/1 → MFR_SERIAL_B0B5: 251201; MFR_SERIAL_B6B11: 000001.

Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8	Bit9	Bit10	Bit11
0x32	0x35	0x31	0x32	0x30	0x31	0x30	0x30	0x30	0x30	0x30	0x31

© **SCALING_FACTOR(0x00C0~0x00C2) :**

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte5	-				-			
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte4	-				-			
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte3	-				-			
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte2	-				TEMPERATURE_1 Factor			
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte1	-				VIN Factor			
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
byte0	IOUT Factor				VOUT Factor			

byte0:

Bit 0:3 VOUT Factor : The factor of output voltage

0x0=The relevant commands of output voltage unsupported

0x4=0.001

0x5=0.01 (factory default)

0x6=0.1

0x7=1.0

0x8=10

0x9=100

Bit 4:7 IOUT Factor : The Factor of Output current

0x0=The relevant commands of output current unsupported

0x4=0.001

0x5=0.01 (factory default)

0x6=0.1

0x7=1.0

0x8=10

0x9=100

byte1:

Bit 0:3 VIN Factor : The Factor of AC input voltage

0x4=0.001

0x5=0.01

0x6=0.1 (factory default)

0x7=1.0

0x8=10

0x9=100

byte2:

Bit 0:3 TEMPERATURE_1 Factor: The Factor of internal ambient temperature

0x4=0.001

0x5=0.01

0x6=0.1 (factory default)

0x7=1.0

0x8=10

0x9=100

Bit 4:7 Reserved , default=0

byte 3~5: Reserved, default=0

© SYSTEM_STATUS(0x00C3) :

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
High byte	-	-	-	-	-	-	-	RC
Low byte	-	EEPER	INITIAL_STATE	-	-	-	DC_OK	-

Low byte:

Bit 1 DC_OK : Secondary DD output voltage status

0 = Secondary DD output voltage too low

1 = Secondary DD output voltage status normal

Bit 5 INITIAL_STATE : Device initialized status

0 = Not in initialized status

1 = in initialized status

Bit 6 EEPER : EEPROM data access error

0 = EEPROM data access normal

1 = EEPROM data access error

High byte:

Bit 0 RC : Remote Hardware Control Status

0 = OFF

1 = NO

Note: 1. Unsupported settings displays with "0" ;

2. When EEPROM data error occurs in the power supply, it will shut down and enter protection, and the LED will not light up. It cannot be started until the situation is relieved and restarted.

© SYSTEM_CONFIG(0x00C4) :

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
High byte	-	-	-	-	-	EEP_OFF	EEP_CONFIG	
Low byte	-	-	-	-	PEAK_EN	OPERATION_INIT		MOD_CTRL

Low byte:

Bit 0 MOD_CTRL : MODBus communication control status

0 = The output voltage/current defined by control over

SVR/PV/PC(factory default)

1 = The output voltage 、 output current 、 ON/OFF control defined by control over ModBus(VOUT_SET 、 IOUT_SET 、 OPERATION)

Bit 1:2 OPERATION_INIT : Pre-set value of power on operation command

0b00 = Power OFF, pre-set 0x00(OFF)

0b01 = Power ON, pre-set 0x01(ON) (factory default)

0b10 = Pre-set is previous set value

0b11 = Not used, reserved

Bit 3 PEAK_EN : Peak power and transient peak current functions Enable

0=Disable

1=Enable (factory default)

Note : The PEAK_EN function only takes effect when CN1's PIN5 TC and PIN3 GND are short-circuited.

High byte:

Bit0:1 EEP_CONFIG: EEPROM Configuration

00: Immediately. The changes to parameters are written to EEPROM immediately(factory default)

01: 1Min delay. Write changes to EEPROM if all parameters remain unchanged for 1 minute

10: 10Min delay. Write changes to EEPROM if all parameters remain unchanged for 10 minutes

11: Reserved

Bit 2 EEP_OFF: EEPROM storage function ON/OFF

0: Enable save (factory default)

1: Disable save

Note : Owing the limited write cycles of the EEPROM, it is advisable to consider using the SYSTEM_CONFIG(0x00C4) command to select an appropriate EEPROM writing logic, especially if communication settings are frequently altered.

© PROTECT_CONFIG(0x00C5) :

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
High byte	-	-	-	-	-	-		EMFP_EN
Low byte	-	-	-	-	-	-	OLP_TYPE	

Low byte:

Bit 0:1 OLP_TYPE: Over Load Protection type select

00 = Reserved

01 = Constant Current (CC) Mode (factory default)

10 = Immediate Shutdown (Latch-off)

11 = Reserved

High byte:

Bit 0 EMFP_EN: Back-EMF Protection Enable

0 = Disable

1 = Enable (factory default)

6.3 Communication Examples

The following provides examples of request and response for each function code of the MODBus RTU.

6.3.1 Read Holding Register(FC=03)

The request message specifies the starting register and quantity of registers to be read.

For example: The master requests to read Manufacturer Name (0x0080~0x0085) from Slave ID 83.

Request:

0x83	0x03	0x00 80	0x00 06	0xDA 02
------	------	---------	---------	---------

0x83 :Slave ID 83

0x03: Function code 3(Read Analog Output Holding R Registers)

0x00 80: The Data Address of the first register requested

0x00 06: The total number of registers requested(Read 6 registers from 0x0080 to 0x0085)

0xDA 02: CRC-16 Error Check, please be aware that CRC sending the low byte first

Response:

0x83	0x03	0x0C	0x4D 45 41 4E 57 45 4C 4C 20 20 20 20	0x4A 8C
------	------	------	--	---------

0x83 : Slave ID 83

0x03: Function code 3(Read Analog Output Holding R Registers)

0x0C: The number of data bytes to follow(12 bytes)

0x4D 45 41 4E 57 45 4C 4C 20 20 20 20: means that the
Manufacturer Name is "MEANWELL"

0x4A 8C: CRC-16 Error Check, please be aware that CRC sending
the low byte first

6.3.2 Read Input Register (FC=04)

The request message specifies the starting register and quantity
of registers to be read.

For example: The master requests the content of analog input
register 0x0060 (READ_VOUT) from Slave ID 83

Request:

0x83	0x04	0x00 60	0x00 01	0x2F F6
------	------	---------	---------	---------

0x83: Slave ID 83

0x04: Function code 4(Read Analog Input Register)

0x0060: The Data Address of the first register requested

0x0001: The number of data bytes to follow(1 byte)

0x2F F6: CRC-16 Error Check, please be aware that CRC sending
the low byte first

Response:

0x83	0x04	0x02	0x04 B0	0xC 25A
------	------	------	---------	---------

0x83: SlaveID 83

0x04: Function code4(Read Analog Input Register)

0x02: The number of data bytes to follow(2 bytes)

0x04B0: The contents of register: 0x0060(READ_VOUT),

0x04B0=1200=12V

0xC25A: CRC-16 Error Check, please be aware that CRC sending
the low byte first

6.3.3 Write Single Register (FC=06)

The request message specifies the register reference to be written.
For example: The master writes PSU ON to analog output holding
register of 0x0000(OPERATION) from Slave ID 83.

Request

0x83	0x06	0x00 00	0x00 01	0x56 28
------	------	---------	---------	---------

0x83: Slave ID 83

0x06: Function code 6(Preset Single Register)

0x0000: The Data Address of the register

0x0001: The value to write

0x5628: CRC-16 Error Check, please be aware that CRC sending the
low byte first

Response:

The normal response is an echo of the query, returned after the
register contents have been written.

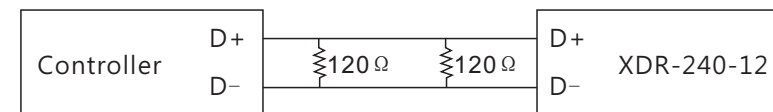
6.4 MODBus Practical Operation

The following steps will describe how to configure the output
voltage of XDR-240-12 to 15V

1. Verification: Ensure Slave ID is 0x83.
2. Wiring: Connect D+ (Pin 8) and D- (Pin 6). Connecting GND_AUX
is recommended for signal integrity (Common Ground).

Control	Setting
Baud Rate	115200
Data Bits	8
Stop Bit	1
Parity	None
Flow Control	None

3. Termination: Install a 120 Ω termination resistor at the
controller end to enhance stability.



4. Enable MODBus Control: The device defaults to Potentiometer
control. MODBus control must be enabled via SYSTEM_CONFIG.

© Confirm SYSTEM_CONFIG status:

Request:

0x83	0x03	0x00 C4	0x00 01	0xDB D5
------	------	---------	---------	---------

0x83 :Slave ID 83

0x03 : Function code 3(Read Analog Output Holding R Registers)

0x00C4 : The Data Address of the first register requested

0x0001 : The number of data bytes to follow(1 byte)

0xDBD5 : CRC-16 Error Check, please be aware that CRC sending the low byte first

Response:

0x83	0x03	0x02	0x00 0A	0x40 5D
------	------	------	---------	---------

0x83:Slave ID 83

0x03: Function code 3(Read Analog Output Holding R Registers)

0x0002: The number of data bytes to follow(2 bytes)

0x000A:0x000A->0b:0000 0000 0000 1010

0x405D: CRC-16 Error Check, please be aware that CRC sending the low byte first

© If we want to modify the relevant parameters through Modbus communication, we need to change SYSTEM_CONFIG Low Byte Bit 0 to 1.

That is

0x83	0x06	0x00 C4	0x00 0B	0x97 D2
------	------	---------	---------	---------

0x83 :Slave ID 83

0x06: Function code 6(Preset Single Register)

0x00C4: The Data Address of the first register requested

0x000B: 0000 0000 0000 1011

0x97D2: CRC-16 Error Check, please be aware that CRC sending the low byte first

Note: It will only take effect after the AC power is restored.

4. Set Output voltage to 15V

Slave Address	Function Code	Data Address of The register	Data	CRC
0x83	0x06	0x00 20	0x05 DC	0x94 EB

0x83:Slave ID 83

0x06: Function code 6(Preset Single Register)

0x0020: The Data Address of the register

0x05DC:15V→1500→0x05DC

0x94EB: CRC-16 Error Check, please be aware that CRC sending the low byte first

NOTE: Conversion factor for VOUT_SET is 0.01, so 15V/0.01=1500

5. It is recommended to review all of the settings and parameters using the appropriate commands. In the event that they do not meet your requirements, you may rewrite them as needed.

EX: Read VOUT_SET to check whether the output voltage was set to a proper level.

Read VOUT_SET:

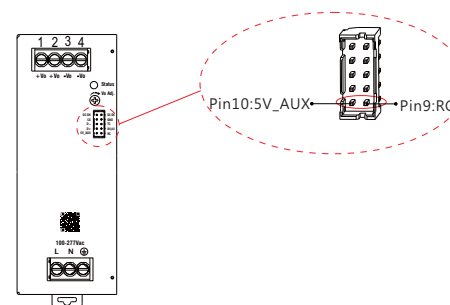
Slave Address	Function Code	The number of data bytes to follow	The total number of requested	CRC
0x83	0x03	0x00 20	0x00 01	0x9B E2

The unit returns data below:

Slave Address	Function Code	The number of data bytes to follow	Data	CRC
0x83	0x03	0x02	0x05 DC	0xC2 93

Data: 0x05DC →1500=15V

6. Finally, check whether RC(PIN 9) and 5V_AUX(PIN10) pins of the Control connector are short-circuited if there is no output voltage.



6.5 Measurement & Control Specifications

(1) Display parameters

Command		Model		Display value range	Tolerance
0x0050	READ_VIN	ALL		80 ~ 305V	±5V
0x0060	READ_VOUT	12V		0 ~ 15V	±0.12V
		24V		0 ~ 30V	±0.24V
		36V		0 ~ 45V	±0.36V
		48V		0 ~ 60V	±0.48V
0x0061	READ_IOUT	XDR-240	12V	0 ~ 120A	±1.2A
			24V	0 ~ 60A	±0.6A
			36V	0 ~ 40A	±0.4A
			48V	0 ~ 30A	±0.3A
		XDR-480	12V	0 ~ 180A	±1.8A
			24V	0 ~ 120A	±1.2A
			36V	0 ~ 80A	±0.8A
			48V	0 ~ 60A	±0.6A
		XDR-960	12V	0 ~ 240A	±2.4A
			24V	0 ~ 160A	±1.6A
			36V	0 ~ 120A	±1.2A
0x0062	READ_TEMPERATURE_1	ALL		-40 ~ 120℃	±5℃
0x0063	READ_POUT	XDR-240		480W	±9.6W
		XDR-480		960W	±19.2W
		XDR-960		1920W	±38.4W
0x0919	OVP_CNT	ALL		0~65535	-
0x091A	OLP_CNT	ALL		0~65535	-
0x091B	OTP_CNT	ALL		0~65535	-
0x091C	ACUVP_CNT	ALL		0~65535	-
0x091D	ACOV_P_CNT	ALL		0~65535	-

(2) Control parameters

Command		Model		Control value range	Tolerance	Default
0x0000	OPERATION	ALL		00h(OFF)/01h(ON)	N/A	01h(ON)
0x0020	VOUT_SET	12V		12 ~ 15V	±0.12V	12V
		24V		24 ~ 29V	±0.24V	24V
		36V		36 ~ 42V	±0.36V	36V
		48V		48 ~ 55V	±0.48V	48V
0x0030	IOUT_SET	XDR-240	12V	4 ~ 25A	±0.2A	20A
			24V	2 ~ 12.5A	±0.1A	10A
			36V	1.33 ~ 8.32A	±0.06A	6.66A
			48V	1 ~ 6.25A	±0.05A	5A
		XDR-480	12V	6 ~ 37.5A	±0.3A	30A
			24V	4 ~ 25A	±0.2A	20A
			36V	2.66 ~ 16.66A	±0.13A	13.33A
			48V	2 ~ 12.5A	±0.1A	10A
		XDR-960	24V	8 ~ 50A	±0.4A	40A
			36V	5.33 ~ 33.32A	±0.26A	26.66A
			48V	4 ~ 25A	±0.2A	20A
			0x00F0	DC_OK_SET	ALL	70%~95%
0x00F1	PEAK_SET	ALL	125~600%	±6%	600%	
0x00F3	OL_ALARM_LEVEL	ALL	70%~95%	±1%	90%	
0x0900	MODBUS_ID	ALL	80h~BFh	-	83h	
0x0901	MODBUS_BAUD	ALL	0:4800 1:9600 2:19200 3:37400 4:57600 5:115200	-	5	
0x0902	MODBUS_FORMAT	ALL	0: No parity bit, 2 stop bits 1: No parity bit, 1 stop bit 2: Odd parity, 1 stop bit 3: Even parity, 1 stop bit	-	1	
0x00E0	AC_FaiL_LL_SET	ALL	74~ 264V	±5V	74Vac	
0x00E2	AC_OK_LL_SET	ALL	79~ 269V	±5V	79Vac	

(3)EVENT LOG :

The EVENT LOG displays error types using an encoding method, which can be read via 0x921~0x923. The content is as follows:

Error Code	Error Type	Description	Error Code	Error Type	Description
0x0001	OUTPUT OLP	Over load protection	0x0002	OUTPUT OVP	Output overvoltage protection
0x0003	OTP	Over-temperature protection	0x0004	/	/
0x0005	INPUT AC FAIL	Input AC fail	0x0006	/	/
0x0007	EEPROM ERROR	EEPROM error	0x0008	COMM ERROR	Communication error
0x0009	EMFP	Back-EMF Protection	0x000A	OL ALARM	Overload protection alarm

Note :

Fault Status Log Instructions

1. Fault Sequence: 0x921, 0x922, and 0x923 represent the status information of the most recent, second-most recent, and third-most recent fault events, respectively.
2. Data Format : Each instruction occupies 2 bytes.
3. Storage Capacity: Registers 0x921 through 0x923 can only store a single fault record each. Multiple simultaneous faults cannot be stored in a single register.
4. Registers 0x921 to 0x923 function as a 3-level cascading buffer to provide historical traceability. When a new fault event is triggered, the existing data shifts to the next historical address sequentially, ensuring that 0x921 always points to the most recent fault status.
Example: Sequential occurrences of OLP, OVP, OTP, and INPUT AC FAIL:

Timeline	Fault Event	0x0921 (Latest)	0x0922 (Previous)	0x0923 (Historical)	Logic Description
T1	OLP	0x0001	0x0000	0x0000	First fault record fills the primary position.
T2	OVP	0x0002	0x0001	0x0000	OLP shifts to the 2nd stage; OVP takes the primary position .
T3	OTP	0x0003	0x0002	0x0001	Data shifts sequentially to the next register.
T4	INPUT AC FAIL	0x0005	0x0003	0x0002	OLP is pushed out of memory.

5. Log Persistence & Clearing: The EVENT LOG is non-volatile and will not be lost after a power cycle. To clear the log, use the 0x910 (CLEAR_LOG) instruction. For details, please refer to the notes in Section 6.2.

6.6 Restore factory Settings

To revert all configurable parameters (0x0020、0x0030、0x00C4、0x00C5、0x00E0、0x00E2、0x00F0~0x00F3、0x900~0x902) to factory defaults:

- (1) Write 0xAA to Register 0x00C6 (RESET_DEFAULT).
- (2) The Green LED will flash 3 times to indicate success.
- (3) Restart the device to complete the process.

7. Protection Functions & Troubleshooting

7.1 Protection Functions

7.1.1 Input Under-Voltage Protection (XDR-240, 480, 960)

Built-in input under-voltage protection prevents damage to the unit when the mains voltage is too low. The XDR unit will enter protection mode when the voltage drops below the threshold and will automatically recover (auto-recover) once the mains voltage returns to a normal level.

7.1.2 Output Over-Voltage Protection

The output over-voltage protection circuit triggers if the output voltage exceeds the rated limit. Once the over-voltage condition is resolved, the XDR unit must be re-powered (restart AC source) to return to normal operation.

7.1.3 Output Overload Protection

The protection circuit activates when the load current exceeds the specified rating (please refer to the specifications for details). The unit will automatically recover to normal status once the overload condition is removed.

7.1.4 Output Short-Circuit Protection

The XDR unit enters protection mode in the event of an output short circuit. Normal output will resume only after the short-circuit condition is removed.

7.1.5 Over-Temperature Protection (OTP)

A built-in thermal detection circuit shuts down the output if the internal temperature becomes too high. In this case, switch off the AC power, eliminate the cause of overheating, and allow the XDR unit to cool down to a normal temperature (approximately tens of minutes) before re-powering.

7.2 Troubleshooting

In the event of an abnormal condition, the LED indicator will display specific fault signals. The abnormality can be identified by the number of red light flashes. It is recommended to check and troubleshoot based on the table below.

If the unit still fails to operate normally, please contact your local MEAN WELL authorized distributor or the head office for technical consultation.

Note : This function is only applicable to XDR-240 and above models.

LED Status	Possible Causes	Recommended Solutions
 Red Constant On	Remote OFF	Check if RC is connected to 5V_AUX and try again.
 Red Flashes Once	Overload Protection	Check if the load exceeds the rated value or requires excessive starting current (e.g., inductive/capacitive loads). Re-power on after clearing the fault.
	Short Circuit Protection	Check for load short circuits. Re-power on after clearing the fault.
 Red Flashes Twice	Overvoltage Protection	Check if the voltage of the back-end device (e.g., battery) is too high. Re-power on after clearing the fault.
 Red Flashes Thrice	Over-temperature Protection	Ensure ventilation inlets/outlets are clear. If ambient temperature is too high, derate the load or lower the temperature
 Red Flashes 4 Times	Back EMF Protection	Check for inductive devices and adjust the braking circuit if necessary. Re-power on after clearing the fault.
 Red Flashes 5 Times	Other Anomalies	Includes AC Input Under-voltage (UVP), internal communication failure, or EEPROM error.
 Red Continuous Flashing	High Ambient Temp Warning	Check ventilation flow. If ambient temperature is too high, derate the load or lower the temperature.

Fault Status Table

8. Warranty

This product provides 5 years warranty under normal usage. Do not replace parts or any form of modification to the product in order to keep the warranty effectively.

※ MEAN WELL possesses the right to adjust the content of this manual. Please refer to the latest version of the manual on our website.

<https://www.meanwell.com>



9. Environmental Declaration Information

https://www.meanwell.com//Upload/PDF/RoHS_PFOS.pdf

https://www.meanwell.com//Upload/PDF/REACH_SVHC.pdf

https://www.meanwell.com//Upload/PDF/Declaration_RoHS-C.pdf

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