

DDRH120 Series

DC/DC Converters High input voltage 120W



Features

- 250~ 1500Vdc 6:1 ultra-wide input range
- Withstand 1700Vdc surge input for 10 seconds
- 63mm slim width
- 4KVac I/O high isolation(Reinforced isolation)
- Protections: Short circuit / Overload / Over voltage / Over temperature
DC input under voltage / DC input reverse polarity
- Fanless design, cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- -40~+80°C ultra-wide operating temperature (> +50°C derating)
- Over voltage category II
- Operating altitude up to 5000 meters
- DC OK relay contact
- DC output voltage adjustable(12~15V, 24~29V, 30~36V, 48~58V)

Applications

- Photovoltaic power generation
- Renewable Energy System
- High voltage frequency conversion
- Industrial control system
- Semiconductor fabrication equipment
- Electro-mechanical apparatus
- DC bus centralized application
- Energy storage system(ESS)
- Charging pile
- Third rail

Description

DDRH-120 series is a 250 ~ 1500Vdc high reliable ultra-high input DIN rail type DC-DC converter which can supply stable working voltage for the load. It is suitable to be mounted on TS-35/7.5 or 15 rails. Main features are as following: easy to install DIN rail type, narrow width(63mm) in slim design, -40~+80°C wide range operating temperature, 4KVac high isolation voltage, operation at 5000m altitude, high efficiency, low ripple & noise, complete protections and so on.

DDRH-120 is compliant with BS EN/EN61000-6-2 standard regarding immunity for industrial environments. It is suitable for industrial automation, surveillance, telecommunication and can be widely deployed in the applications of new energy generation such as solar power, and windmill power generation, for instances, photovoltaic power systems, high voltage inverting , DC bus centralized application, ESS, charging pile, railway and so forth.

Model Encoding

DDRH - 120 - 24

Output voltage(12V/24V/32V/48V)

Rated wattage

Series name

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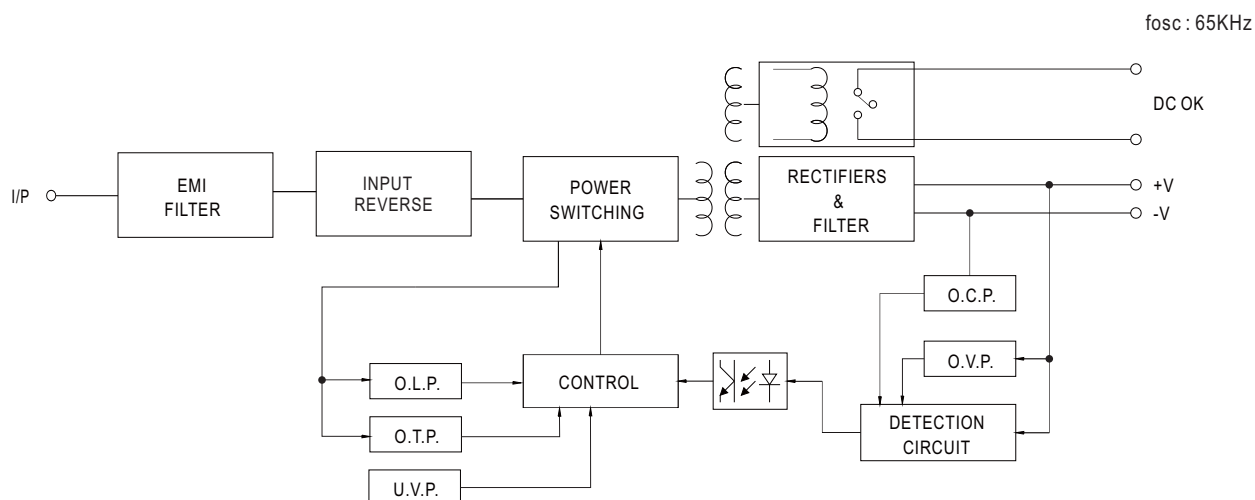
SPECIFICATION

MODEL		DDRH-120-12		DDRH-120-24		DDRH-120-32		DDRH-120-48		
OUTPUT	DC VOLTAGE		12V		24V		32V		48V	
	RATED CURRENT		8.4A		5A		3.75A		2.5A	
	CURRENT RANGE		0 ~ 8.4A		0 ~ 5A		0 ~ 3.75A		0 ~ 2.5A	
	RATED POWER		100.8W		120W		120W		120W	
	RIPPLE & NOISE (max.) <small>Note.2</small>		120mVp-p		240mVp-p		240mVp-p		300mVp-p	
	VOLTAGE ADJ. RANGE		12 ~ 15V		24 ~ 29V		30 ~ 36V		48 ~ 58V	
	VOLTAGE TOLERANCE <small>Note.3</small>		± 1.5%		± 1.0%		± 1.0%		± 1.0%	
	LINE REGULATION		± 0.5%		± 0.5%		± 0.5%		± 0.5%	
	LOAD REGULATION		± 1.5%		± 1.5%		± 1.0%		± 1.0%	
	EXTERNAL CAPACITANCE LOAD (Max.)		4000 μ F		2500 μ F		2000 μ F		1000 μ F	
INPUT	VOLTAGE RANGE <small>Note.4</small>		250 ~ 1500Vdc							
	EFFICIENCY (Typ.)	300Vdc	88%		89%		90%		91%	
		800Vdc	87%		90%		91%		91%	
		1500Vdc	84%		86%		87%		87%	
	INRUSH CURRENT (max.)		COLD START 300A/1500Vdc 200A/800Vdc 70A/250Vdc							
EXTERNAL INPUT FUSE		4A/1500VDC, required(Please refer to page 4 for more details)								
PROTECTION	OVERLOAD		105 ~ 135% rated output power							
			Protection type : Hiccup mode when output voltage<55%, recovers automatically after condition is removed; Constant current limiting, recovers automatically after fault condition is removed within 55% ~ 100% rated output voltage							
	OVER VOLTAGE		16.5 ~ 21V		33 ~ 42V		40 ~ 48V		62 ~ 70V	
			Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	OVER TEMPERATURE		Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	DC INPUT	REVERSE POLARITY	By internal Bridge Diode, no damage , recovers automatically after fault condition removed							
UNDER VOLTAGE LOCKOUT		Under voltage protection range:200 ~ 230Vdc , Under voltage release range:230 ~ 245Vdc								
FUNCTION	DC OK SIGNAL		Relay contact rating(max.) : 30V / 1A resistive							
ENVIRONMENT	WORKING TEMP.		-40 ~ +80℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY		20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY		-40 ~ +80℃, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT		± 0.03%/℃ (0 ~ 50℃)							
	VIBRATION		Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting clip: Compliance to IEC60068-2-6							
	OPERATING ALTITUDE <small>Note.5</small>		5000m							
	OVER VOLTAGE CATEGORY		OVC II 2000m; According to EN62109-1							
SAFETY & EMC (Note.7)	SAFETY STANDARDS		IEC62109-1, BS EN/EN62109-1, EAC TP TC 004 approved; Design refer to UL1741(By request)							
	WITHSTAND VOLTAGE		I/P-O/P:4KVAC I/P-FG :2KVAC O/P-FG :2KVAC O/P-DC OK:0.5KVAC							
	ISOLATION RESISTANCE		I/P-O/P, 100M Ohms / 500VDC / 25℃ / 70% RH							
	EMC EMISSION		Parameter		Standard			Test Level / Note		
			Conducted		BS EN/EN55032(CISPR32)			Class A		
			Radiated		BS EN/EN55032(CISPR32)			Class A		
	EMC IMMUNITY		BS EN/EN55035, BS EN/EN61000-6-2							
			Parameter		Standard			Test Level /Note		
			ESD		BS EN/EN61000-4-2			Level 3, 8KV air; Level 2, 4KV contact, criteria A		
			Radiated Susceptibility		BS EN/EN61000-4-3			Level 3, 10V, criteria A		
			EFT/Burest		BS EN/EN61000-4-4			Level 3, 2KV, criteria A		
			Surge		BS EN/EN61000-4-5			Level 4, 2KV/Vin+ ~ Vin-, 4KV/Vin ~ FG, criteria A		
			Conducted		BS EN/EN61000-4-6			Level 3, 10V, criteria A		
			Magnetic Field		BS EN/EN61000-4-8			Level 4, 30A, criteria A		
OTHERS	MTBF		257.2 hrs min. MIL-HDBK-217F (25℃); 1596.3 hrs min. Telcordia TR/SR-332 (Bellcore) (25℃)							
	DIMENSION		63*125.2*115mm (W*H*D)							
	PACKING		0.845Kg; 12pcs/12.6Kg/1.02CUFT							
NOTE	<div>1. All parameters NOT specially mentioned are measured at 800Vdc input, rated load and 25℃ of ambient temperature.</div> <div>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.</div> <div>3. Tolerance : includes set up tolerance, line regulation and load regulation.</div> <div>4. Derating may be needed under low input voltage. Please check the derating curve for more details.</div> <div>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).</div> <div>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.</div> <div>7. 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.</div>									

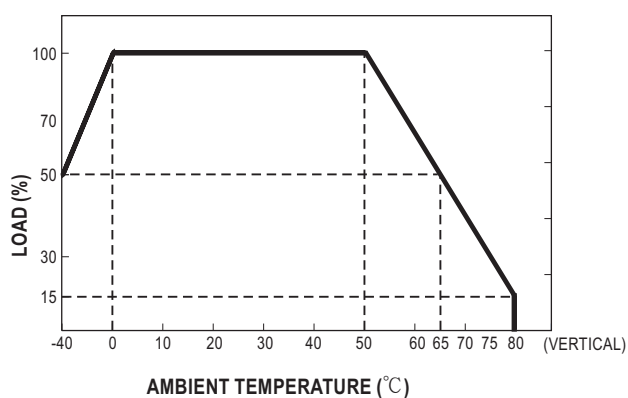
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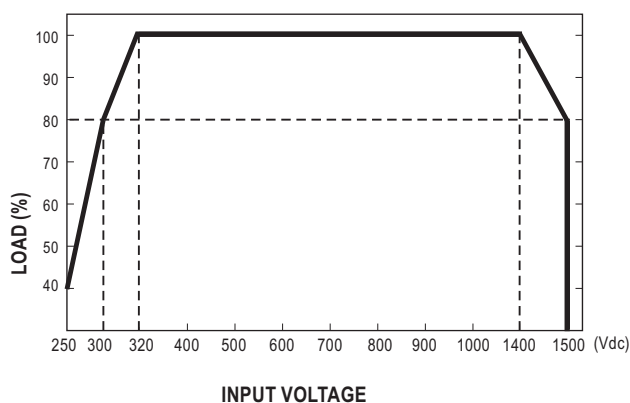
■ Block Diagram



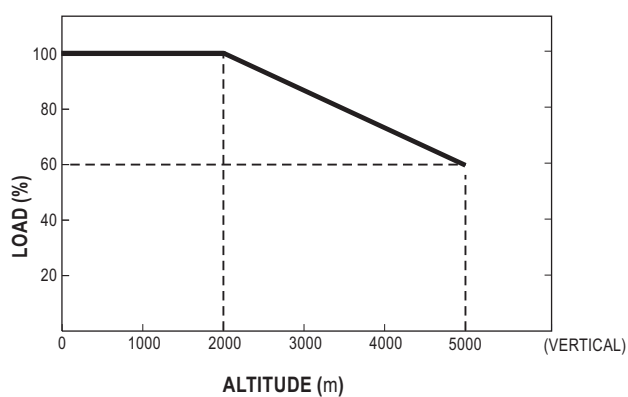
■ Derating Curve



■ Static Characteristics



■ Altitude Curve



Note: Multiply by the regular power limit factor

■ DC OK Relay Contact

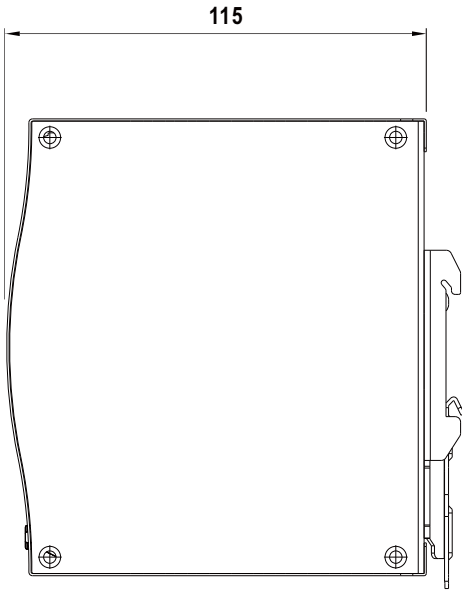
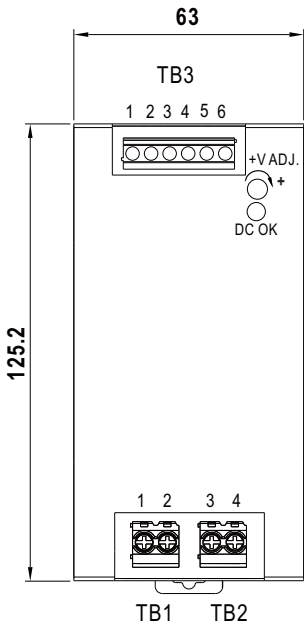
Contact Close	PSU turns ON / DC OK.
Contact Open	PSU turns OFF / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

Mechanical Specification

Case No. Unit:mm

Terminal Pin No. Assignment (TB3)

Pin No.	Assignment
1,2	DC OK Relay Contact
3,4	-Vo
5,6	+Vo



Terminal Pin No. Assignment (TB1,TB2)

Pin No.	Assignment
1,2	-Vin
3,4	+Vin

External FUSE wiring instruction

External FUSE is required.FUSE specification : 4A/1500Vdc.

Suggested model:

Fuse Brand	Manufacturer Part NO.		MW's Order NO.
	Fuse	Fuse Holder	Fuse + Fuse Holder
WalterFuse	WJ30-4	WJ30-H	WJ30-4_WJ30-H

