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DDRH-240 series

DC-DC Converter

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240W High Reliable 250~1500Vdc Ultra Wide Input DIN Rail Type DC-DC Converter DDRH-240 series

User's Manual
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UL1741 BS EN/EN62109-1 TPTC004 IEC62109-1

PV Renewable Energy Automate Industrial Security Network Telecom

Features

- 250~ 1500Vdc 6:1 ultra-wide input range
- Withstand 1700Vdc surge input for 10 seconds
- 85.5mm 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)
- Current sharing up to 960W(3+1)
- 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)
- Conformal coating
- 3 years warranty

Applications

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

GTIN CODE

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

Description

DDRH-240 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(85.5mm) in slim design, -40~+80°C wide range operating temperature, 4KVac high isolation voltage, current sharing up to 960W(3+1), operation at 5000m altitude, high efficiency, low ripple & noise, complete protections and so on.

DDRH-240 is compliant with UL1741 and 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, photovoltaic power systems, high voltage inverting , DC bus centralized application, ESS, charging pile, railway and so forth.

Model Encoding

DDRH - 240 - 24

- 24 — Output voltage(12V/24V/32V/48V)
- 240 — Rated wattage
- DDRH — Series name

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240W High Reliable 250~1500Vdc Ultra Wide Input DIN Rail Type DC-DC Converter **DDRH-240 series**

SPECIFICATION

MODEL			DDRH-240-12	DDRH-240-24	DDRH-240-32	DDRH-240-48
OUTPUT	DC VOLTAGE		12V	24V	32V	48V
	RATED CURRENT		16.7A	10A	7.5A	5A
	CURRENT RANGE		0 ~ 16.7A	0 ~ 10A	0 ~ 7.5A	0 ~ 5A
	RATED POWER		200.4W	240W	240W	240W
	RIPPLE & NOISE (max.) Note.2		120mVp-p	240mVp-p	240mVp-p	300mVp-p
	VOLTAGE ADJ. RANGE		12 ~ 15V	24 ~ 29V	30 ~ 36V	48 ~ 58V
	VOLTAGE TOLERANCE Note.3		±1.5%	±1.0%	±1.0%	±1.0%
	LINE REGULATION		±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION		±1.0%	±0.5%	±0.5%	±0.5%
	EXTERNAL CAPACITANCE LOAD (Max.)		8000 μF	5000 μF	4000 μF	2000 μF
INPUT	VOLTAGE RANGE Note.4		250 ~ 1500Vdc			
	EFFICIENCY (Typ.)	300Vdc	85%	87%	87%	87%
		800Vdc	88%	90%	90%	90%
		1500Vdc	85%	86%	86%	86%
	INRUSH CURRENT (max.)		COLD START 500A/1500Vdc 300A/800Vdc 120A/300Vdc			
	EXTERNAL INPUT FUSE		4A/1500VDC, required(Please refer to page 5 for more details)			
	INTERNAL INPUT FUSE		2A/1500VDC (optional)			
PROTECTION	OVERLOAD		105 ~ 135% rated output power			
			Protection type : Hiccup mode when output voltage<35%, recovers automatically after condition is removed; Constant current limiting, recovers automatically after fault condition is removed within 35% ~ 100% rated output voltage			
	OVER VOLTAGE		16.5 ~ 21V	32 ~ 42V	40 ~ 48V	62 ~ 70V
			Protection type : Shut down o/p voltage, re-power on to recover			
	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			
	CURRENT SHARING		Up to 960W(3+1 units).Please refer to the Function Manual			
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 Note.5		5000m			
	OVER VOLTAGE CATEGORY		OVC II 2000m, According to EN62109-1			
SAFETY & EMC (Note.7)	SAFETY STANDARDS		UL1741, CSA C22.2 No.107.1-16 , IEC62109-1, BS EN/EN62109-1, EAC TP TC 004 approved			
	WITHSTAND VOLTAGE		I/P-O/P:4KVAC I/P-FG:3.75KVAC 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		214.2Khrs min. MIL-HDBK-217F (25℃); 1391.8Khrs min. Telcordia TR/SR-332 (Bellcore) (25℃)			
	DIMENSION		85.5*125.2*129.2mm (W*H*D)			
	PACKING		0.96Kg; 8pcs/10.3Kg/1.02CUFT			

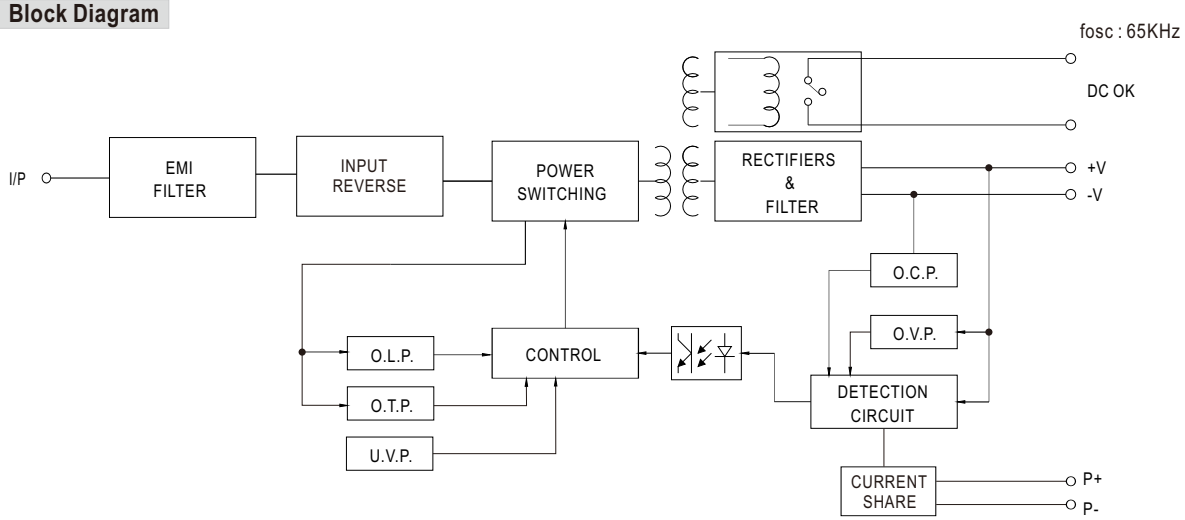
NOTE

1. All parameters NOT specially mentioned are measured at 800Vdc 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 0.1μF & 47μF parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltage. Please check the derating curve for more details.
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.
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. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)

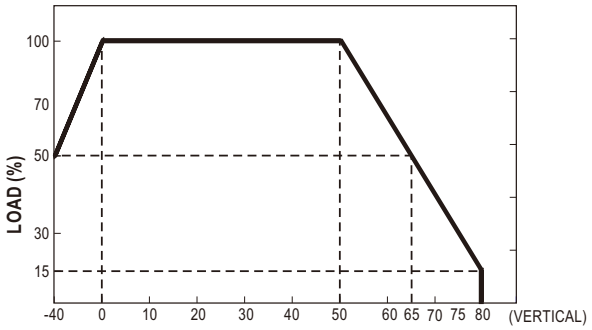
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■ Block Diagram

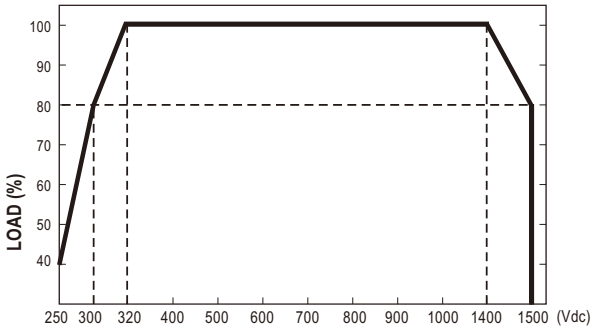


■ Derating Curve



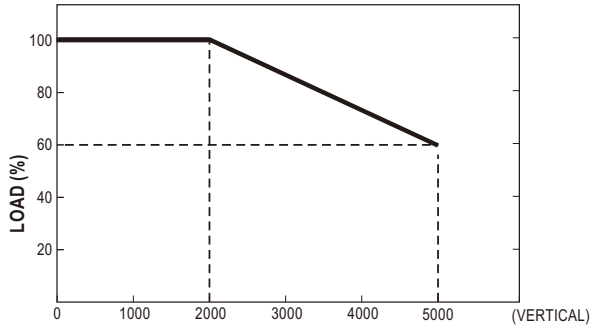
AMBIENT TEMPERATURE (℃)

■ Static Characteristics



INPUT VOLTAGE

■ Altitude Curve



ALTITUDE (m)

Note: Multiply by the regular power limit factor

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■ 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.

■ Function Manual

1. Current sharing

(1) Parallel operation is available by connecting the units shown as below (P+,P- are connected mutually in parallel) .

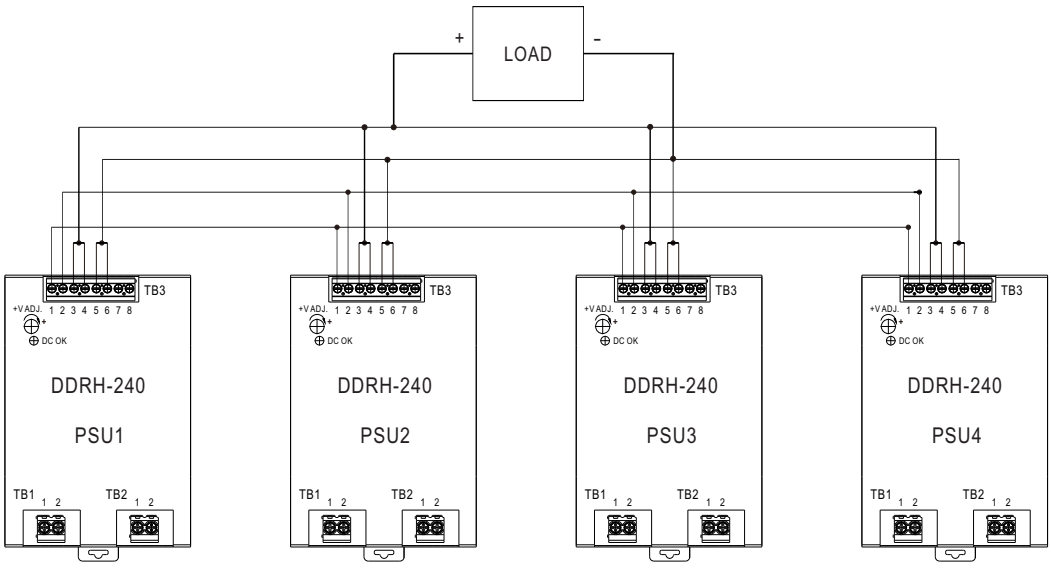
(2) The voltage difference among each output should be minimized that less than 0.2V is required.

(3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation) =(The rated current per unit) x (Number of unit) x 0.9.

(4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.

(5) When in parallel operation, the minimum output load should be greater than 3% of total output load. (Min. load > 3% rated current per unit x number of unit)

(6) In parallel operation,after overload or short circuit fault occurs, re-power on to recover.



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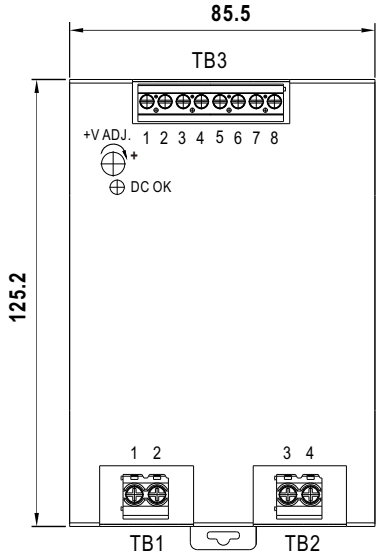
■ Mechanical Specification

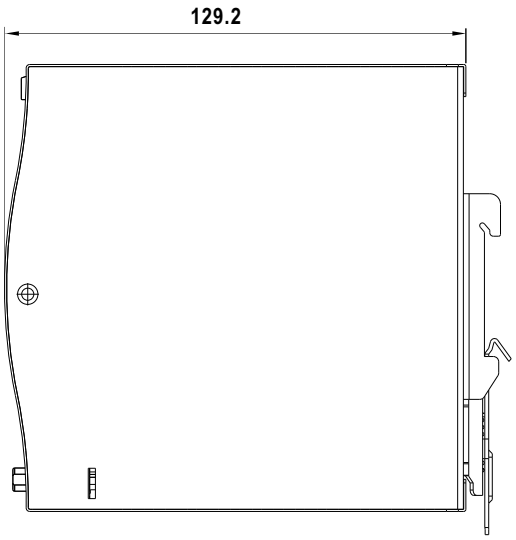
(Unit: mm , tolerance ± 1mm)

Case No.984H

Terminal Pin No. Assignment (TB3)

Pin No.	Assignment
1	P+(Current sharing)
2	P-(Current sharing)
3,4	+Vo
5,6	-Vo
7,8	DC OK Relay Contact





Terminal Pin No. Assignment (TB1,TB2)

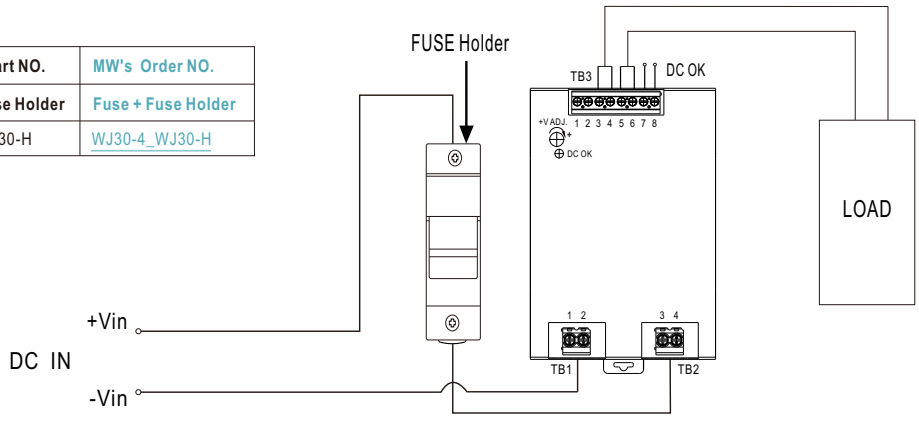
Pin No.	Assignment
1,2	-Vin
3,4	+Vin

■ External FUSE wiring instruction

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

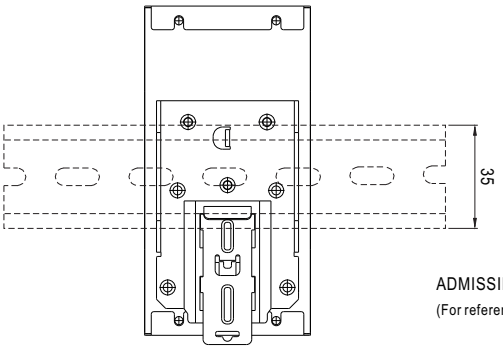
Suggested model:

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



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■ 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