



60W Ultra Wide Input DIN Rail Type DC-DC Converter

DDRH-60 series

User's Manual



■ Features

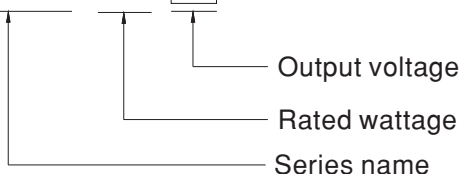
- 150 ~ 1500Vdc 10:1 ultra - wide input range
- 57mm slim width
- 4KVdc I/O high isolation(Reinforced isolation)
- Protections: Short circuit / Overload / Over voltage / Over temperature / DC input under voltage / DC input reverse polarity
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- -30~+80°C ultra-wide operating temperature (> +55°C derating)
- Over voltage category II
- Operating altitude up to 5000 meters
- DC OK relay contact
- DC output voltage adjustable(+20%)
- 3 years warranty

■ Description

DDRH-60 series is a 150 ~ 1500Vdc 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 TS-35/15 rails. Main features are as following: easy to install DIN rail type, narrow width(57mm) in slim design, -30~+80°C wide range operating temperature, 4KVdc high isolation voltage, operation at 5000m altitude, high efficiency, low ripple & noise, complete protections and so on. DDRH-60 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 and so forth.

■ Model Encoding

DDRH - 60 - 24



SPECIFICATION

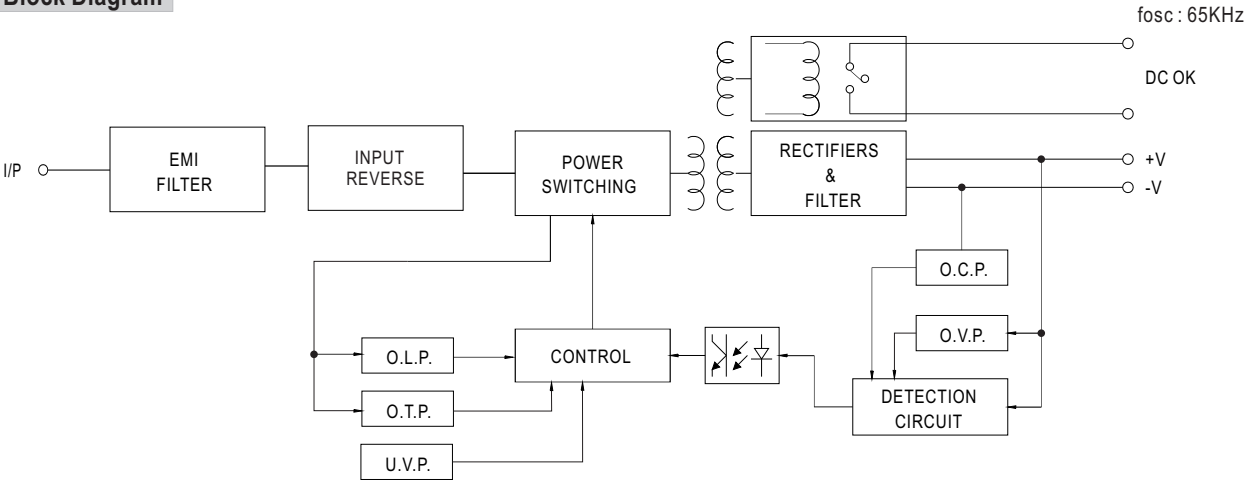
MODEL		DDRH-60-5		DDRH-60-12		DDRH-60-24		DDRH-60-48			
OUTPUT	DC VOLTAGE		5V		12V		24V		48V		
	RATED CURRENT		10A		5A		2.5A		1.25A		
	CURRENT RANGE		0 ~ 10A		0 ~ 5A		0 ~ 2.5A		0 ~ 1.25A		
	RATED POWER		50W		60W		60W		60W		
	RIPPLE & NOISE (max.) <small>Note.2</small>		100mVp-p		120mVp-p		150mVp-p		200mVp-p		
	VOLTAGE ADJ. RANGE		5 ~ 6V		12 ~ 15V		24 ~ 29V		48 ~ 54V		
	VOLTAGE TOLERANCE <small>Note.3</small>		± 1.5%		± 1.5%		± 1.0%		± 1.0%		
	LINE REGULATION		± 0.5%		± 0.5%		± 0.5%		± 0.5%		
	LOAD REGULATION		± 1.5%		± 0.5%		± 0.5%		± 0.5%		
	EXTERNAL CAPACITANCE LOAD (Max.)		6000 μ F		4000 μ F		2500 μ F		1000 μ F		
INPUT	VOLTAGE RANGE <small>Note.4</small>		150 ~ 1500Vdc								
	EFFICIENCY (Typ.)	200Vdc	80%		83%		86%		87%		
		800Vdc	81%		85%		87%		88%		
		1500Vdc	76%		81%		84%		83%		
INRUSH CURRENT (max.)		COLD START 120A/1500Vdc 80A/800Vdc 30A/150Vdc									
PROTECTION	OVERLOAD		105 ~ 135% rated output power Protection type : Hiccup up 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		6.6 ~ 8.4V		16.5 ~ 21V		30 ~ 38V		55 ~ 60V		
			Protection type : Hiccup up mode, recovers automatically after fault condition is removed								
	OVER TEMPERATURE		Protection type : Hiccup up 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:120 ~ 130Vdc , Under voltage release range:130 ~ 146.5Vdc								
FUNCTION	DC OK SIGNAL		Relay contact rating(max.) : 30V / 1A resistive								
ENVIRONMENT	WORKING TEMP.		-30 ~ +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 ~ 55℃)								
	VIBRATION		Component: 10 ~ 500Hz, 3G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting clip: Compliance to IEC60068-2-6								
	OPERATING ALTITUDE <small>Note.5</small>		5000 meters /OVC II								
	OVER VOLTAGE CATEGORY		II ; According to EN62109-1; altitude up to 5000 meters								
	SAFETY STANDARDS		IEC62109-1(LVD) , EAC TP TC 004 approved; Design refer to UL1741(By request)								
	WITHSTAND VOLTAGE		I/P-O/P:4KVAC O/P-DC OK:0.5KVAC								
	ISOLATION RESISTANCE		I/P-O/P, 100M Ohms / 500VDC / 25℃ / 70% RH								
SAFETY & EMC <small>(Note.7)</small>	EMC EMISSION		Parameter		Standard			Test Level / Note			
			Conducted		BS EN/EN55032(CISPR32)			Class A			
			Radiated		BS EN/EN55032(CISPR32)			Class A			
			Voltage Flicker		BS EN/EN61000-3-3			-----			
	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-, 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			
			Voltage Dips and interruptions		BS EN/EN61000-4-11			>95% dip 0. 5 periods, 30% dip 25 periods, >95% interruptions 250 periods			
	OTHERS	MTBF		454.5K hrs min. MIL-HDBK-217F (25℃); 503K hrs min. Telcordia TR/SR-332 (Bellcore) (25℃)							
		DIMENSION		57*93.5*105mm (W*H*D)							
PACKING		0.8Kg; 16pcs/12.8Kg/0.84CUFT									
NOTE	<div>1. All parameters NOT specially mentioned are measured at 600Vdc 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. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.” (as available on http://www.meanwell.com)</div> <div>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</div>										



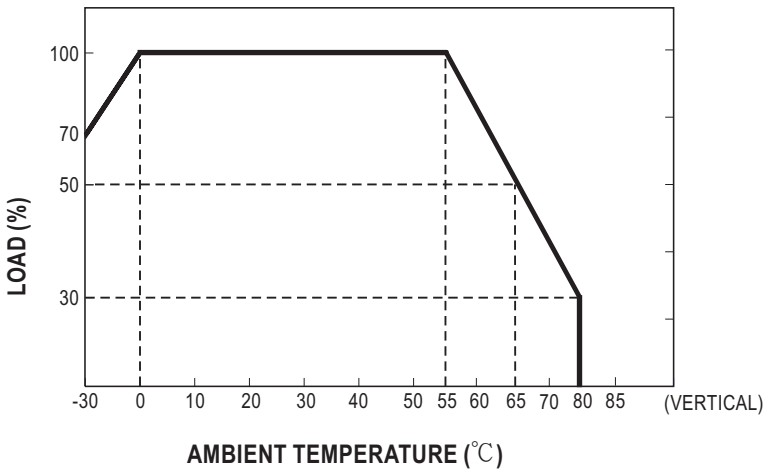
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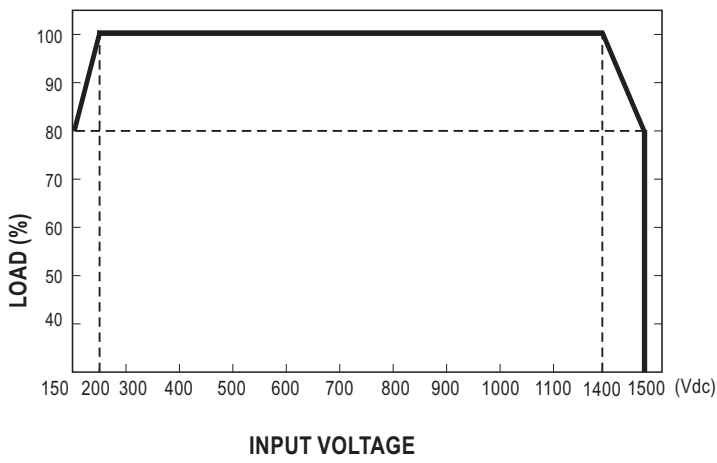
Block Diagram



Derating Curve



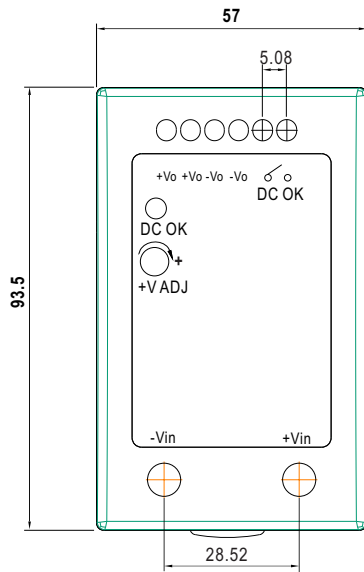
Static Characteristics



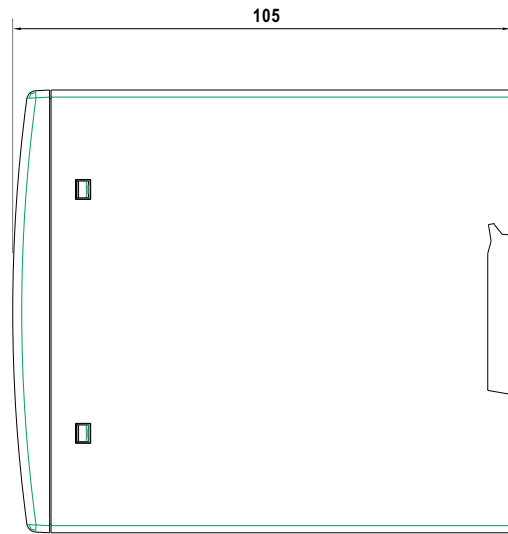
DC OK Relay Contact

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.DDRH-60 Unit:mm

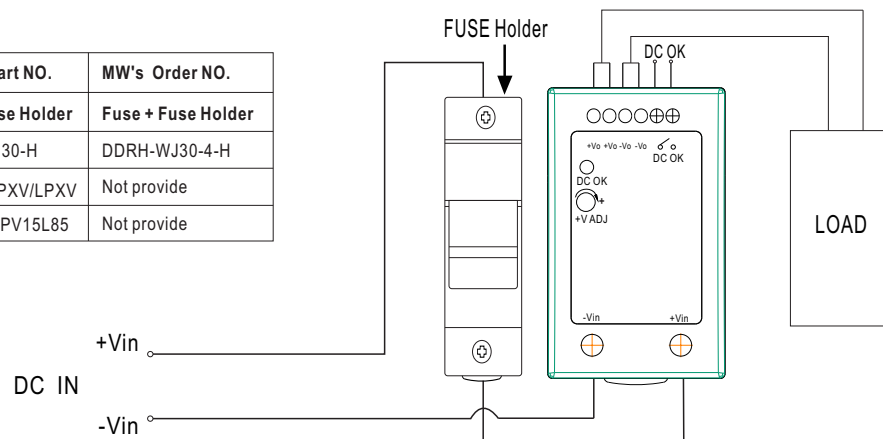


External FUSE wiring instruction

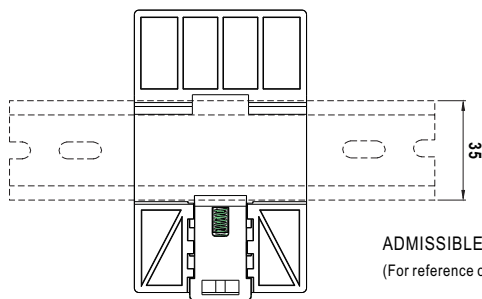
External FUSE is required.FUSE specification : 4A/1500Vdc.

Suggested model:

Fuse Brand	Manufacturer Part NO.		MW's Order NO.
	Fuse	Fuse Holder	Fuse + Fuse Holder
WalterFuse	WJ30-4	WJ30-H	DDRH-WJ30-4-H
Littelfuse	SPXV-4A	LFPXV/LPXV	Not provide
Bussmann	PV-4A10F85L	CHPV15L85	Not provide



Installation Instruction



Back View

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>