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

PV Automate Industrial Security Network Telecom

Features

- 150~ 1500Vdc 10:1 ultra - wide input range
- 57mm 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
- 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

Applications

- Photovoltaic power generation
- High voltage freqency conversion
- Industrial control system
- Semiconductor fabrication equipment
- Electro-mechanical apparatus
- DC bus centralized application

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, 4KVAC high isolation voltage, operation at 5000m altitude, high efficiency, low ripple & noise, complete protections and so on. DDRH-60 is compliant with EN-61000-6-2 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

- 24 — Output voltage
- 60 — Rated wattage
- DDRH — Series name

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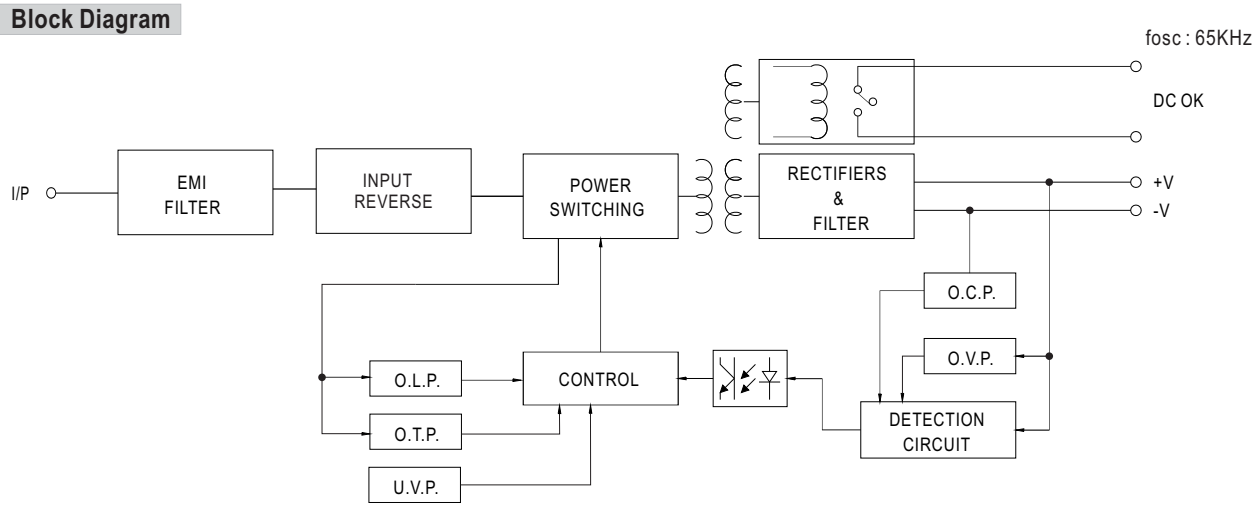
SPECIFICATION

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.) Note.2		100mVp-p	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE		5 ~ 6V	12 ~ 15V	24 ~ 29V	48 ~ 54V
	VOLTAGE TOLERANCE Note.3		±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 μF	4000 μF	2500 μF	1000 μF
INPUT	VOLTAGE RANGE Note.4		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 Note.5		5000 meters /OVC II			
	OVER VOLTAGE CATEGORY		II ; According to EN62109-1; altitude up to 5000 meters			
SAFETY & EMC (Note.7)	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			
	EMC EMISSION		**Parameter**	**Standard**	**Test Level / Note**	
			Conducted	EN55032(CISPR32)	Class A	
			Radiated	EN55032(CISPR32)	Class A	
			Voltage Flicker	EN61000-3-3	-------	
	EMC IMMUNITY		EN55035, EN61000-6-2			
			Parameter	**Standard**	**Test Level /Note**	
			ESD	EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact, criteria A	
			Radiated Susceptibility	EN61000-4-3	Level 3, 10V, criteria A	
			EFT/Burest	EN61000-4-4	Level 3, 2KV, criteria A	
			Surge	EN61000-4-5	Level 4, 2KV/Vin+ ~ Vin-, criteria A	
			Conducted	EN61000-4-6	Level 3, 10V, criteria A	
			Magnetic Field	EN61000-4-8	Level 4, 30A, criteria A	
			Voltage Dips and interruptions	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/0.82CUFT			

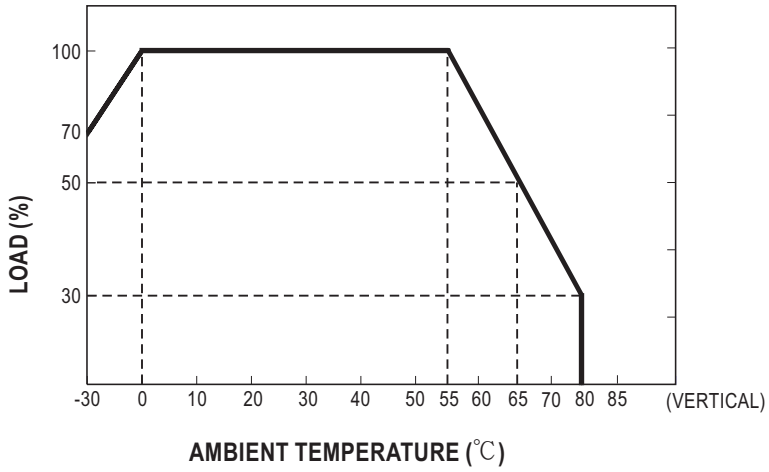
NOTE

1. All parameters NOT specially mentioned are measured at 600Vdc 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 http://www.meanwell.com)

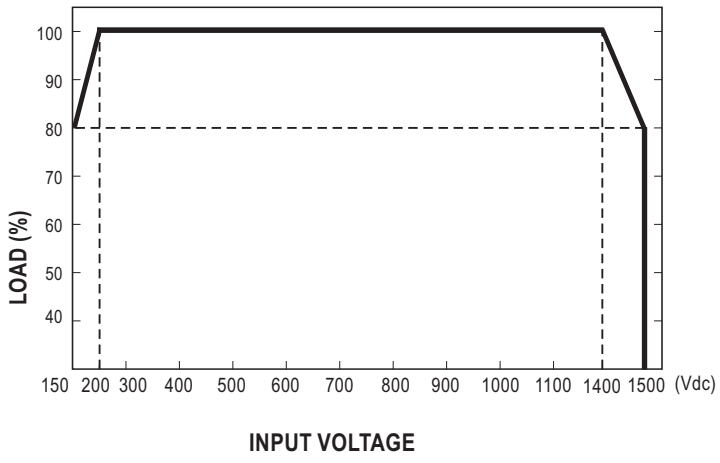
■ Block Diagram



■ Derating Curve



■ Static Characteristics

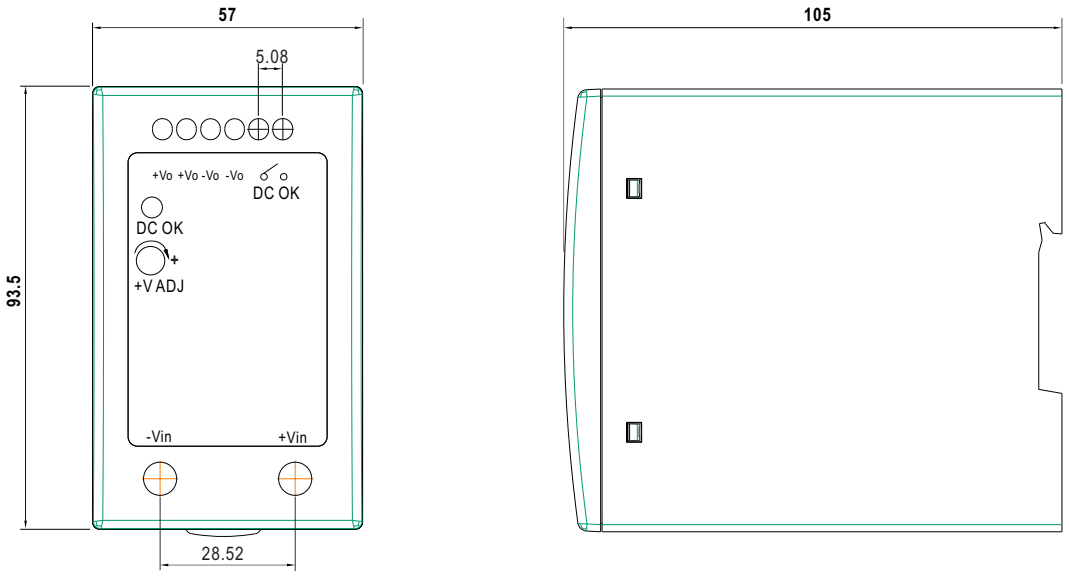


■ DC OK Relay Contact

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

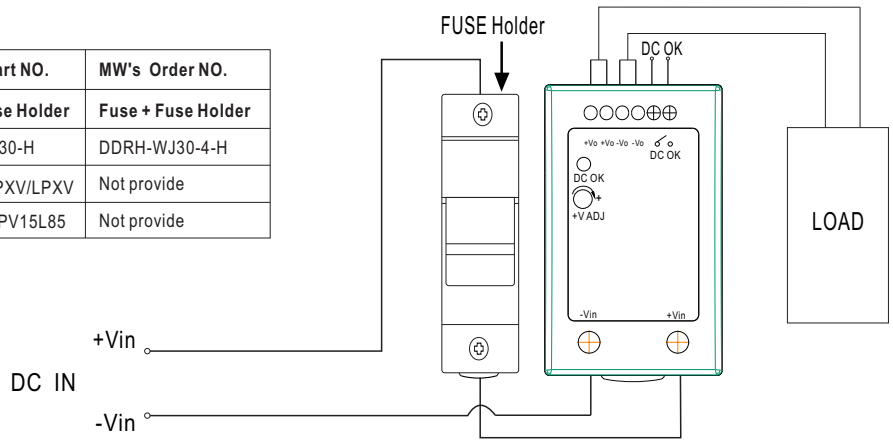


■ External FUSE wiring instruction

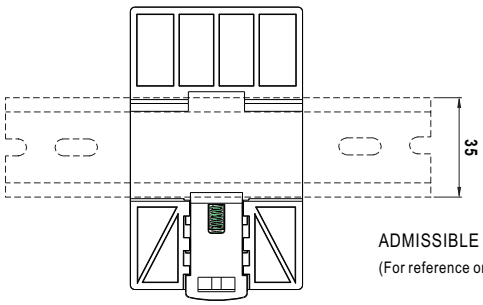
External FUSE is required.FUSE specification : 4A/1500Vdc.

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



ADMISSIBLE DIN-RAIL:TS35/7.5 or TS35/15
(For reference only. Not included with unit.)

Back View

■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html