MDR-240HY

Single Output, Very Compact 240W DIN Rail AC/DC Power Supplies

Key Features:

- 240W Output Power
- 3,000 VAC I/O Isolation
- Universal AC Input
- Takes AC or DC Input
- Ultra Slim Case
- UL Approved
- -25°C to 70°C Operation
- DC OK Relay Contact
- Meets EN 55032 B
- >150 kHour MTBF
- High Efficiency

Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range		90		264	VAC
		124		370	VDC
Input Frequency		47		63	Hz
Input Current	See Model Selection Guide				
Power Factor	115 VAC			0.99	
	230 VAC			0.94	
Leakage Current	240 VAC			1.0	mA
Start Up, Full Load	115 VAC			1300	mS
	230 VAC			650	
Inrush Current, Cold Start	115 VAC		33		A Pk
	230 VAC		55		

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.0		%
Line Regulation			±0.5		%
Load Regulation			±1.0		%
Ripple & Noise (20 MHz), See Note 1	12V Output			100	mVp-p
	24V Output			100	
	48V Output			120	
Hold-Up Time	115 VAC		20		mSec
	230 VAC		20		
Temperature Coefficient			±0.03		%/°C
Over Current Protection		110		150	%IOUT
Short Circuit Protection, See Note 2	Continuous (Autorecovery)				

General

Parameter	Conditions		Min.	Typ.	Max.	Units
Isolation Voltage, See Note 3	Input to Output		3,000			VAC
	Input to Field Ground		2,000			
	Output to Field Ground		500			
	Output to DC OK Relay		500			
Isolation Resistance	500VDC	Input to Output	>100			MΩ
		Input to Field Ground				
		Output to Field Ground				

EMI **See Page 2**

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-25		+70	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curves on Page 2)				
Humidity, RH, Non-condensing	Working	20		95	%
	Storage	10		95	
Overtemperature Protection	Autorecovery +95°C (±5°C)				

Physical

Size and Weight	See Mechanical Drawing (Page 3)
Case Material	Aluminum and Steel

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C	150			kHours
Safety Standards	UL61010-1, UL61010-2-201				
Vibration	IEC 60068-2-6, 10-500 Hz, 2G 10 min/1 cycle, 60 min each along X, Y, Z axis				
Safety Class	Class I				

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Model Selection Guide

Model Number	Input		Output					Over Voltage Protection (VDC) See Note 4	Efficiency % (Typ @ 230 VAC)	Peak Power (3 seconds) (W) (See Fig. 2 & 4)
	Current (A)		Voltage (VDC)	Adjust Range (VDC)	Current (A)		Power (W)			
	115 VAC	230 VAC			Rated	% Min.				
MDR-240HY-12	2.6	1.3	12	12 - 14	16	0	192	14 - 17	93	288
MDR-240HY-24	2.6	1.3	24	24 - 28	10	0	240	29 - 33	93	360
MDR-240HY-48	2.6	1.3	48	48 - 55	5	0	240	56 - 65	93	360

EMI/RFI

Parameter	Standard	Criteria	Level
Radiated Emissions	CISPR 32/EN 55032		B
Conducted Emissions	CISPR 32/EN 55032		B
ESD	EN 61000-4-2	B	±4KV Contact, ±8KV Air
RS	EN 61000-4-3	A	3V/m
EFT	EN 61000-4-4	B	±1KV
Surge	EN 61000-4-5	B	±1KV line to line
	EN 61000-4-5	B	±2KV line to ground
CS	EN 61000-4-6	A	3V.r.m.s
EMC	EN 61000-4-8	A	1A/m
Voltage Dip, Short, Interruption	EN61000-4-11	B	Voltage Dip >95% /30% Interruption >95%

Notes:

1. Output ripple is measured at 20 MHz bandwidth using 0.1 μF and 47 μF capacitors connected in parallel as close to the power supply terminals as possible.
2. Output short circuit protection is provided by constant current limiting until hiccup after 3 seconds. The unit recovers automatically when the fault condition is removed.
3. Isolation is tested for 60 seconds with a leakage current of <5 mA.
4. Protection type: shutdown, recycle input to recover.
5. There is an ambient temperature derating of 3.5°C /1000m for operating higher than 2000m (6500ft).

Input Voltage Derating

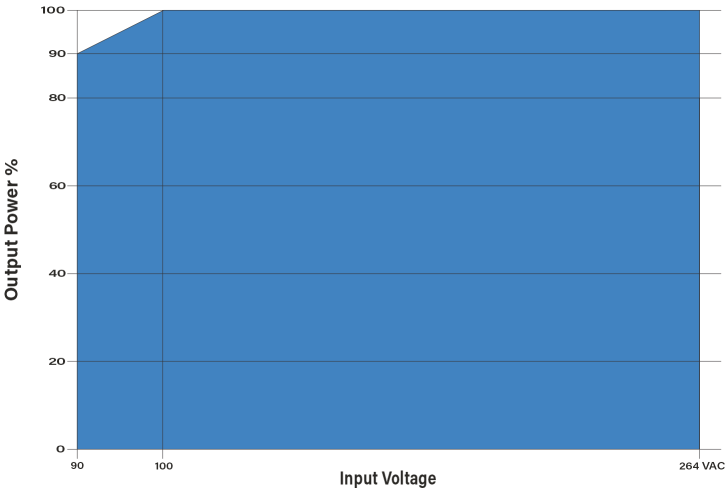

Fig. 1

Temperature Derating

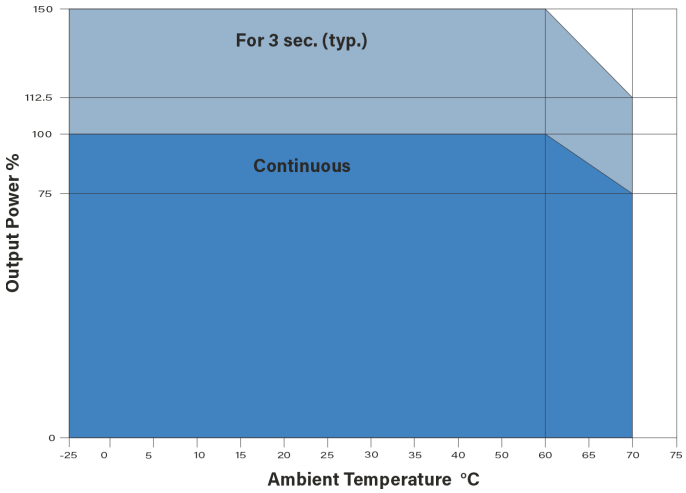

Fig. 2

MDR-240HY Block Diagram

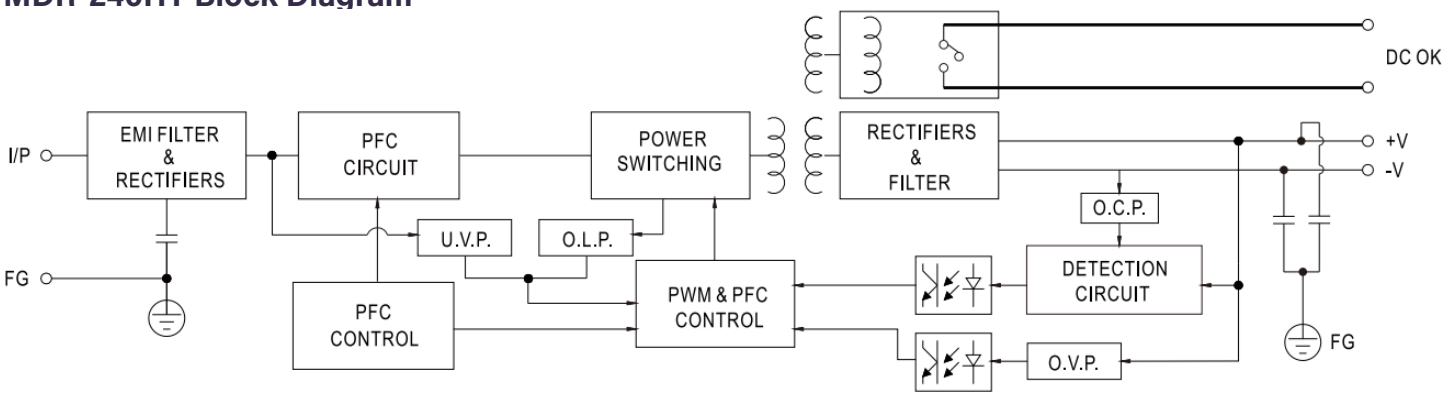

Fig. 3

Peak Loading

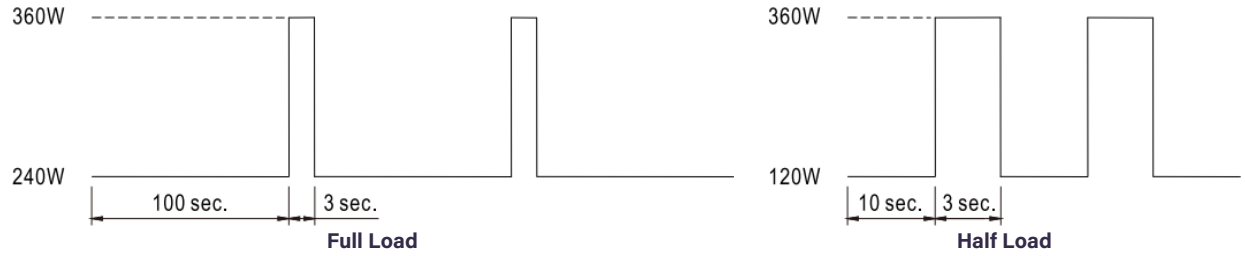

Fig. 4

Mechanical Dimensions

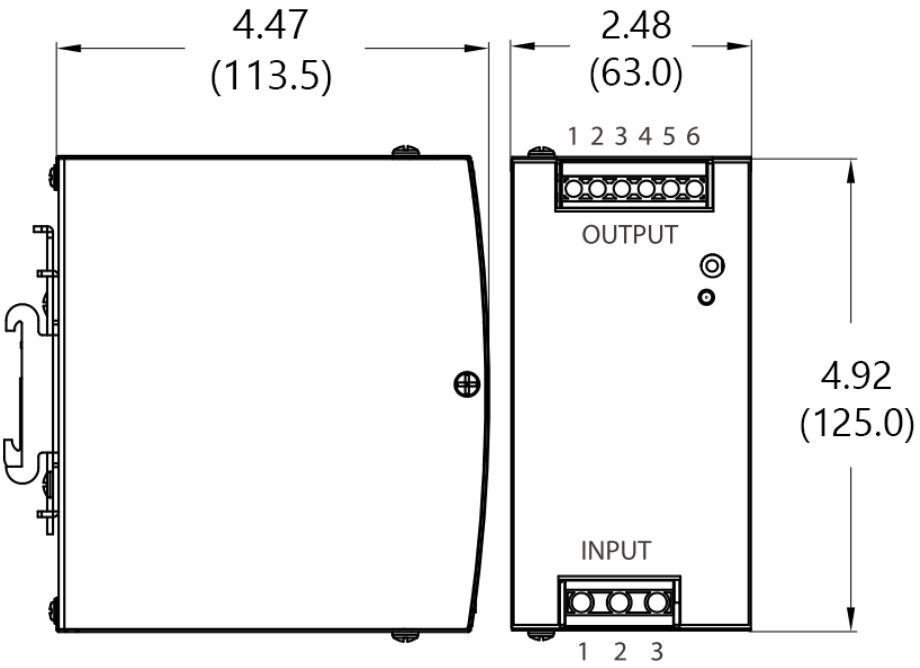

Fig. 5

DC OK Relay Contact	
Contact Closed	PSU turns on · DC OK
Conact Open	PSU turns off · DC Fail
Conact Ratings (Max.)	30VDC/1A resistive load

Installation Clearance:

- Top: 40mm
- Bottom: 20mm
- Sides: 5mm, increase space to 10-15mm if adjacent device is heat source

Input	
Pin	**Function**
1	GRND
2	AC (N)
3	AC (L)

Output	
Pin	**Function**
1, 2	Relay Contact
3, 4	+VOUT
5, 6	-VOUT

Notes:

- All dimensions are typical in inches (mm)
- Weight: 35.27 Oz (1,000g)