MDR-240TY

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

Key Features:

- 240W Output Power
- 4,870 VAC I/O Isolation
- Universal AC Input
- Takes AC or DC Input
- Ultra Slim Case
- UL Approved
- -30°C to 70°C Operation
- DC OK Relay Contact
- Meets EN 55032 B
- >210 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		340		550	VAC
		450		850	VDC
Input Frequency		47		63	Hz
Input Current	See Model Selection Guide				
Leakage Current	530 VAC			2.0	mA
Start Up, Rise Time, Full Load	400 VAC			2,000	mS
	500 VAC			1,500	
Inrush Current, Cold Start			50		A Pk

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0		%
Line Regulation			±0.5		%
Load Regulation			±1.0		%
Ripple & Noise (20 MHz), See Note 1	24V Output			100	mV
	48V Output			120	
Hold-Up Time	400 VAC		20		mSec
	500 VAC		40		
Temperature Coefficient			±0.05		%/°C
Over Current Protection		105		130	%IOUT
Short Circuit Protection, See Note 2	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, See Note 3	Input to Output	4,870			VAC
	Input to Field Ground	2,400			
	Output to Field Ground	500			
	Output to DC OK Relay	500			
Isolation Resistance	Input to Output	>100			MΩ
	Input to Field Ground				
	Output to Field Ground				
Switching Frequency			60		kHz

EMI See Page 2

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-30		+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				

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	210			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)
	Current (A)		Voltage (VDC)	Adjust Range (VDC)	Current (A)			
	400 VAC	500 VAC			Rated	% Min.		
MDR-240TY-24	0.69	0.6	24	24 - 28	10	0.00	30 - 36	92
MDR-240TY-48	0.69	0.6	48	48 - 55	5	0.00	56 - 65	92

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	
RS	EN 61000-4-3	A	
EFT	EN 61000-4-4	B	
Surge	EN 61000-4-5	B	
CS	EN 61000-4-6	A	
EMC	EN 61000-4-8	A	

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: hiccup mode, recovers automatically when the fault condition is removed.
5. There is an ambient temperature derating of 3.5°C /1000m for operating higher than 2000m (6500ft).

Temperature Derating

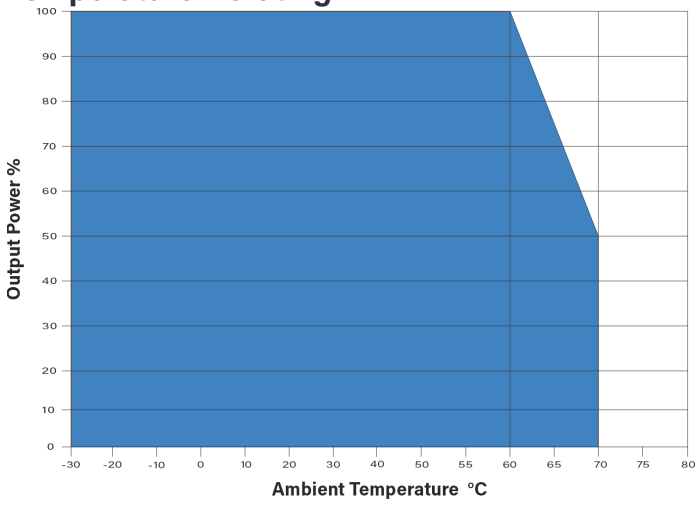

Fig. 1

Input Voltage Derating

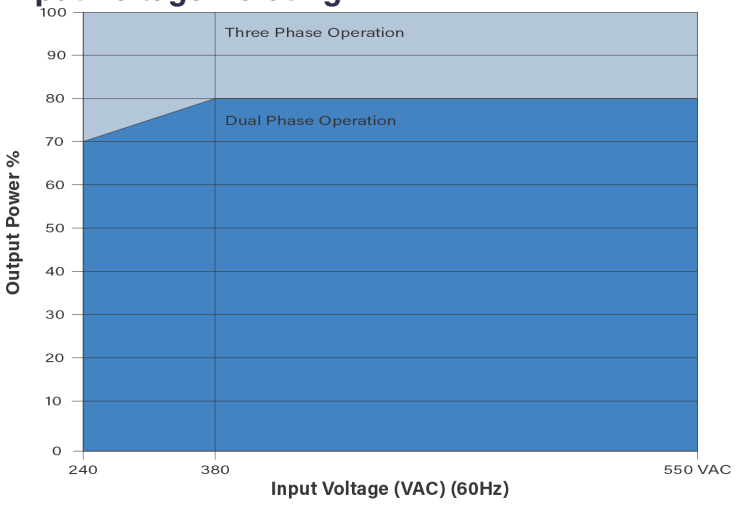

Fig. 2

Block Diagram

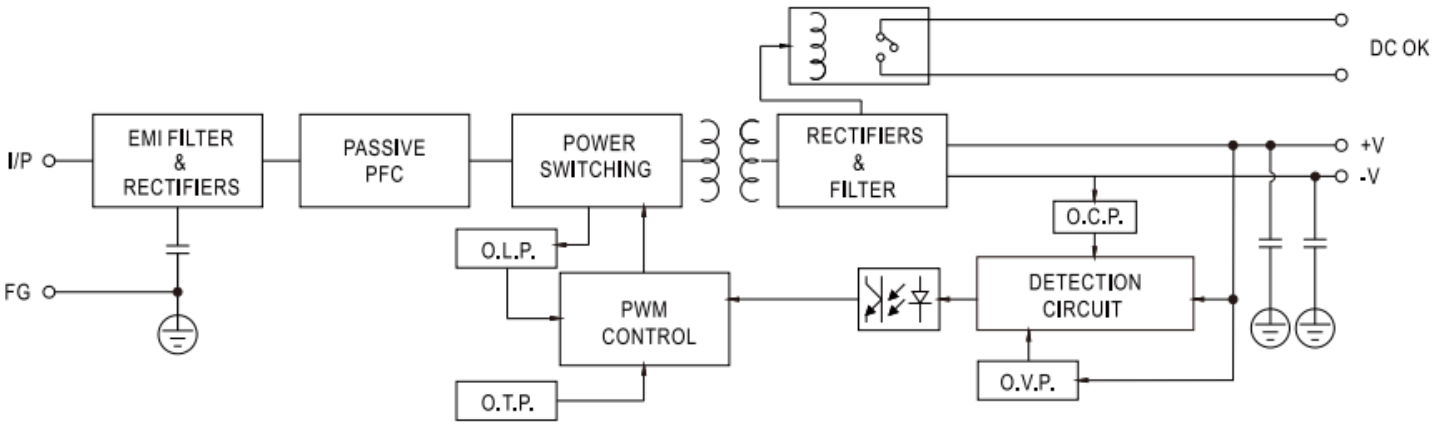

Fig. 3

DC OK Signal

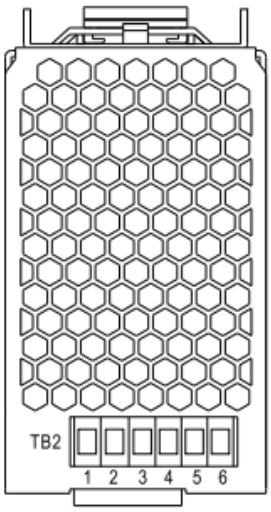

Fig. 4

Contact Closed	PSU turns on · DC OK
Conact Open	PSU turns off · DC Fail
Conact Ratings (Max.)	30VDC/1A, 60VDC/0.3A, 30VAC/0.5A resistive load

Pin	Function
5, 6	DC OK Relay Conact

Mechanical Dimensions

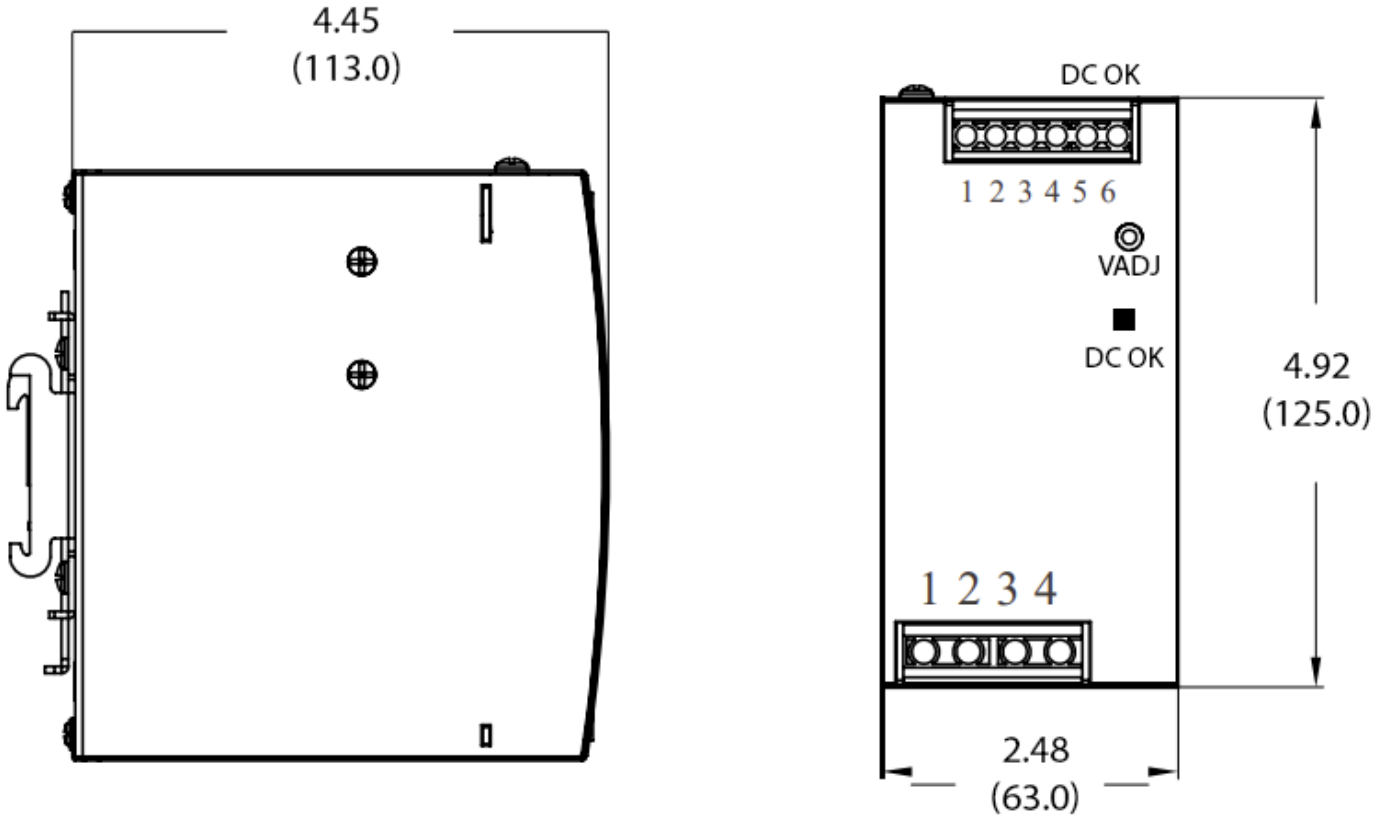

Fig. 5

Connections

Input	
Pin	Function
1	AC/L1
2	AC/L2 or DC-
3	AC/L3 or DC+
4	FG

Output (TB2)	
Pin	Function
1, 2	VOUT +
3, 4	VOUT -
5, 6	DC OK Relay Conact

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