MDR-480WY

Single Output, Wide Input 480W DIN Rail AC/DC Power Supplies

Key Features:

- 480W Output Power
- 3,000 VAC I/O Isolation
- Universal AC Input
- Takes AC or DC Input
- Ultra Slim Case
- Pending UL Approval
- -30°C to 70°C Operation
- DC OK Relay Contact
- Meets EN 55032 B
- 112.8 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			180		550	VAC
			254		780	VDC
Input Frequency			47		63	Hz
Input Current	See Model Selection Guide					
Power Factor	Full Load	230/400 VAC			0.84	
Leakage Current		530 VAC			3.5	mA
Inrush Current, Cold Start					50	A Pk

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	24V Output				100	mVp-p
	48V Output				150	
Hold-Up Time	Full Load	230 VAC	16			ms
		400 VAC	18			
Temperature Coefficient	0°C to +50°C			±0.03		%/°C
Over Current Protection			105		130	%IOUT
Short Circuit Protection, See Note 2	Continuous (Autorecovery)					

General

Parameter	Conditions		Min.	Typ.	Max.	Units
Isolation Voltage		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	-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	3.37 x 5.08 x 4.92 in. (See Mechanical Drawing on Page 3)
Case Material	Aluminum and Steel
Weight	59.97 oz (1.7kg) (See Mechanical Drawing on Page 3)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C	112.8			kHours
Safety Standards	UL61010-1, UL61010-2-201, EN62368-1				
Vibration	IEC 60068-2-6, 10-500 Hz, 2G 10 min/1 cycle, 60 min each along X, Y, Z axis				

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Model Selection Guide

Model Number	Input		Output						
	Current (A)		Voltage (VDC)	Adjust Range (VDC)	Current (A)		Power (W)	Over Voltage Protection (VDC) See Note 4	Efficiency % (Typ @ 400 VAC)
	230 VAC	400 VAC			Rated	% Min.			
MDR-480WY-24	4	1.6	24	24.0 - 28.0	20	0	480	29.0 - 33.0	91
MDR-480WY-48	4	1.6	48	48.0 - 55.0	10	0	480	56.0 - 65.0	93

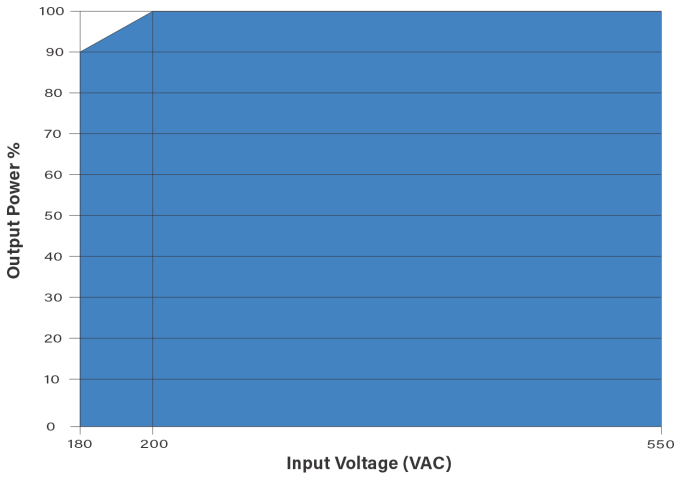
EMI/RFI

Parameter	Standard	Criteria	Level
Radiated Emissions	CISPR 32/EN 55032		B
Conducted Emissions	CISPR 32/EN 55032		B
Harmonic Current	EN 61000-3-2	A	
Voltage Flicker	EN 61000-3-3	A	
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	A	±1KV line to line
	EN 61000-4-5	A	±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	0%, 70%

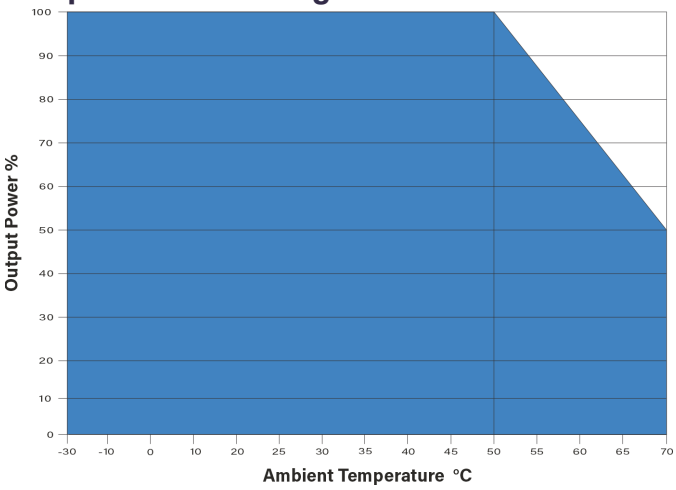
Notes:

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. Protection type: shutdown, recycle input to recover.
4. There is an ambient temperature derating of 3.5°C /1000m for operating higher than 2000m (6500ft).

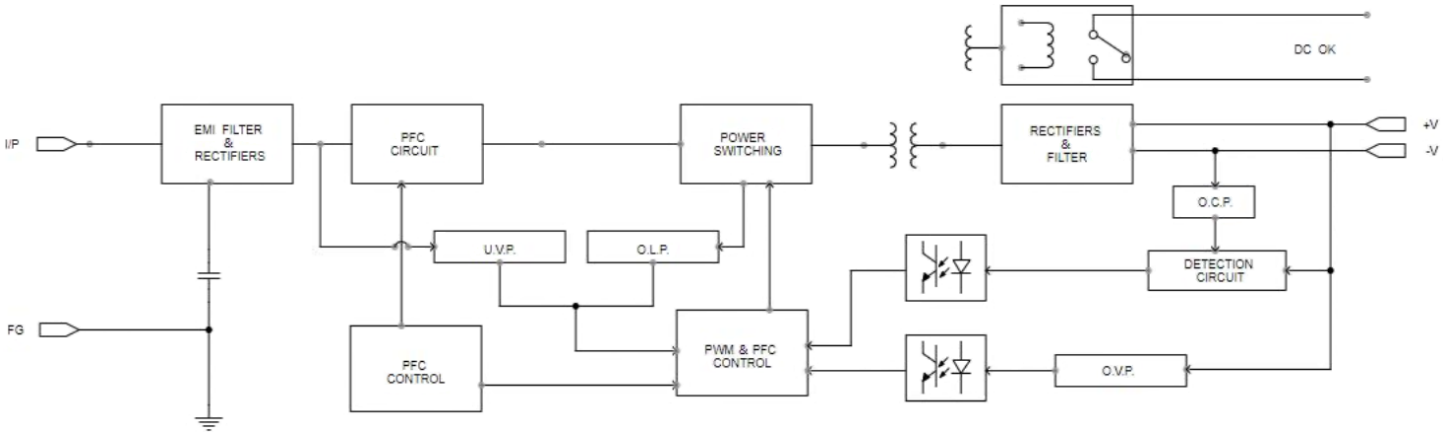
Input Voltage Derating



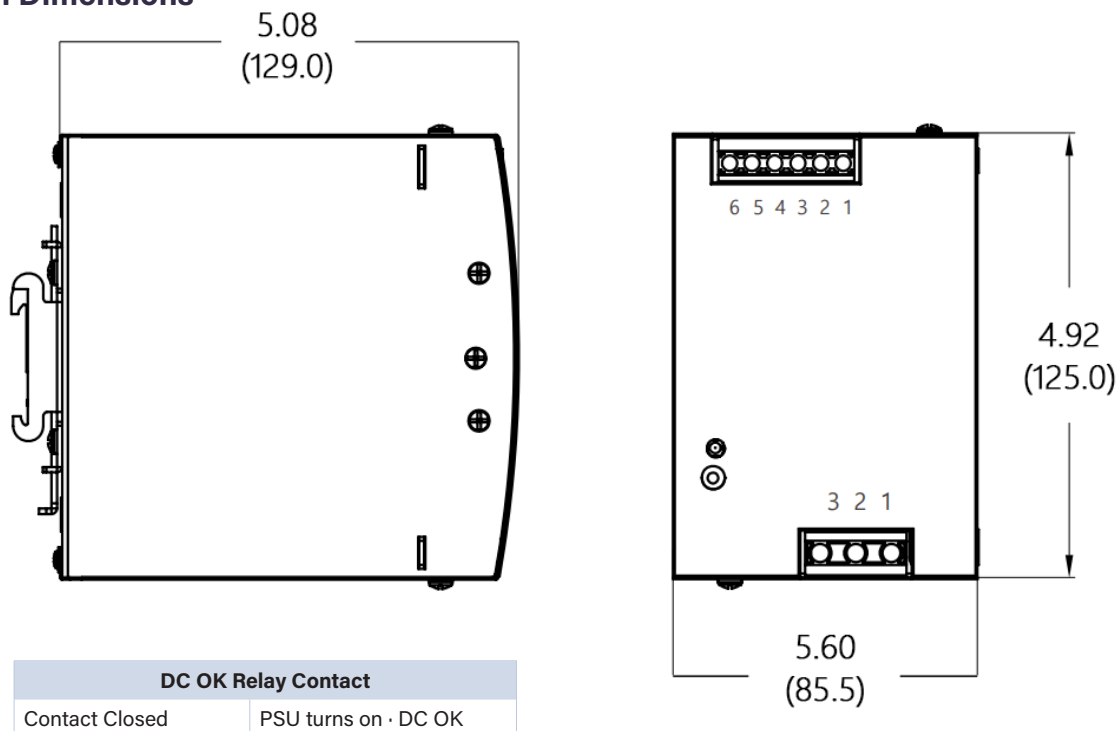
Temperature Derating



Block Diagram



Mechanical Dimensions



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

Input	
Pin	**Function**
1	GRND
2	AC/L2
3	AC/L1

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

Notes:
- All dimensions are typical in inches (mm)
- Weight: 59.97 oz (1.7kg)

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

MPD has a very wide range of high performance AC/DC power supplies ranging from 600W UChannel units to 1W units in miniature Single-In-Line (SIP) packages. All are designed and certified to international safety and EMC/EMI standards.
We have AC/DC supplies approved for use in medical equipment, DIN rail supplies, "Green" energy supplies and constant power supplies.
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