MDR-240WC

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

Key Features:

- 240W Output Power
- 4,000 VAC I/O Isolation
- DIN-Rail Mountable
- 150% Peak Load for 3s
- 91% Efficiency
- Wide AC or DC Input
- Active PFC
- -40°C to 70°C Range
- DC ON Light
- Over Current Protection
- Over Temp Protection
- Meets OVC III
- >300 kHour MTBF

LISTED

RoHS

MicroPower Direct
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USA

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E: sales@micropowerdirect.com
W: www.micropowerdirect.com

MICROPOWER DIRECT

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	Rated Input	200		480	VAC
		180		550	VAC
		254		780	VDC
Input Frequency	AC Input	47		63	Hz
Input Current	See Model Selection Guide				
Leakage Current	480 VAC			0.10	mA RMS
Power Factor Correction	230 VAC			0.93	
	400 VAC			0.90	
Inrush Current	Cold Start			110	A Pk
Input Temporary Over-Voltage	Rated Output Load, 600 VAC Input				See Note 2
Hot Plug		Not Available			

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy, See Note 1			±1.0		%
Line Regulation	At Rated Load		±0.5		%
Load Regulation	400 VAC		±1.0		%
Ripple & Noise (20 MHz), See Note 2				150	mV
Hold-Up Time, Room Temp, Full Load	230 VAC		18		mSec
	400 VAC		18		
DC OK Signal	Resistive Load		30 VDC/1A Max.		
Temperature Coefficient			±0.03		%/°C
Over Current Protection, See Note 3	Self Recovery		≥ 150		$\%I_{OUT}$
Over Temperature Protection, See Note 4	400 VAC Input, Full Load		>70		°C
Minimum Load		0			%
Start Up Time	230 VAC		1.50	3.00	s
	400VAC		0.80	1.50	
Short Circuit Protection, See Note 5	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, See Note 6	Input to Output	4,000			VAC
	Input	2,000			
	Output	500			
Operating Altitude				5,000	m
Switching Frequency			100		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+70	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curves)				
Humidity	RH, Non-condensing			95	%

Physical

Size and Weight and Material	See Mechanical Drawing (Page 4)
Case Material	Metal (AL1100, SGCC)
DIN Rail	TS35X7.5 & TS35x15 "TOP HAT" Rail

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	300			kHours
Safety Standards	Meets UL 61010-1, UL 61010-2, Meets EN 61558-1, OVC II				
Safety Class	Class I				

Model Selection Guide

Model Number	Input		Output				Over Voltage Protection (VDC) See Note 7	Max Output Capacitance (µF)	Efficiency % (Typ @ 400 VAC)	Certification
	Current (A Max)		Voltage (VDC)	Adjust Range (VDC)	Current (A)					
	230 VAC	400 VAC			Rated	% Min.				
MDR-240WC-24	2.0	1.0	24.0	24.00 - 28.00	10.0	0.00	33.0	10,000	91.0	EN/BS, EN/UL
MDR-240WC-48	2.0	1.0	48.0	48.00 - 55.00	5.00	0.00	65.0	10,000	91.0	EN/BS, EN

Notes:

1. Output voltage accuracy is specified for 0 to 100% Load.
2. 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.
3. The unit resumes normal operation automatically (hiccup mode) when the fault condition is removed.
4. Specified at 400 VAC input. The unit recovers automatically when the temperature drops.
5. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers <10 seconds after the fault condition is removed.
6. Isolation is tested for 60 seconds with a leakage current of <5 mA.
7. After an overvoltage fault the unit will recover automatically.

EMC/RFI

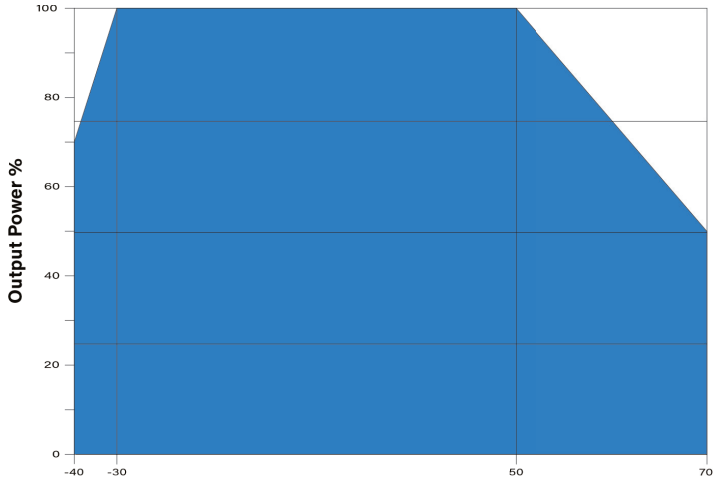
Parameter	Standard	Criteria	Level
Radiated Emissions	CISPR 32/EN 55032		Class B
Conducted Emissions	CISPR 32/EN 55032		Class B
Harmonic Current	EN 61000-3-2		Class A & D
ESD	EN 61000-4-2	A	±8 kV Contact
			±15 kV Air
RS	EN 61000-4-3	A	10V/m
EFT	EN 61000-4-4	A	±4 kV
Surge	EN 61000-4-5	A	±2 kV L-L
		A	±4 kV L-G
CS	EN 61000-4-6	A	10 Vrms
Voltage Dips	EN 61000-4-11	B	0%, 70%

In addition to DIN rail supplies, **MPD** offers 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.

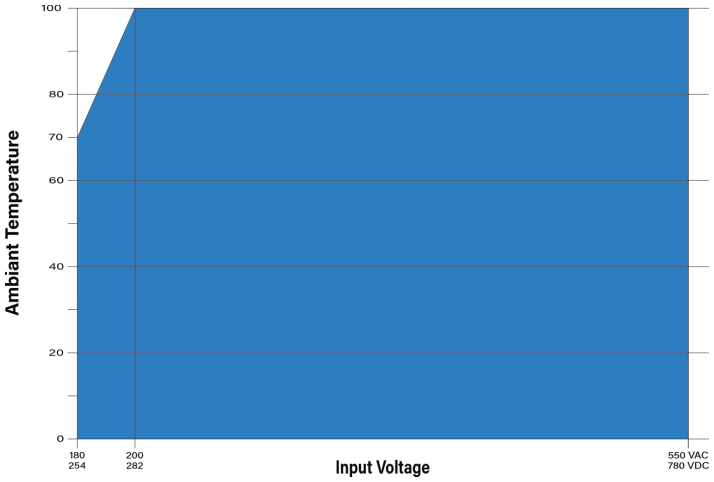
We have AC/DC supplies approved for use in medical equipment, DIN rail supplies, "Green" energy supplies and constant power supplies.

We also offer a wide variety of DC/DC converters, LED Drivers, POL regulators and IGBT drivers. All products are available with short lead times. Call today for complete information or product samples. Or go to our website:

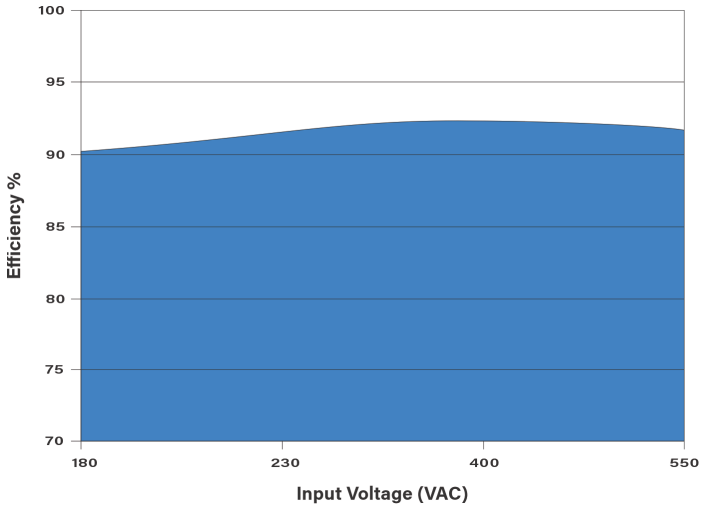
Input Voltage Derating



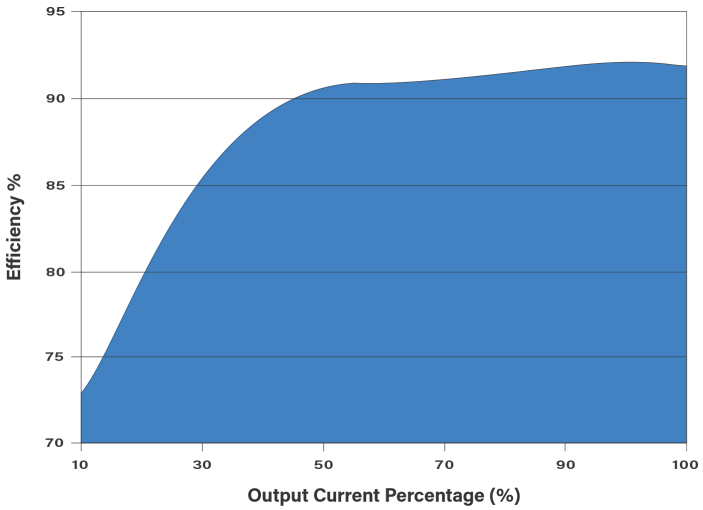
Temperature Derating



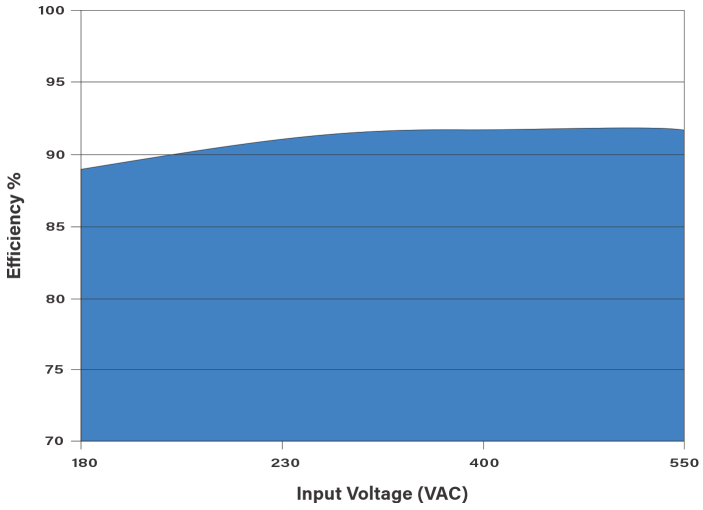
Efficiency vs Input Voltage: 24 VOUT



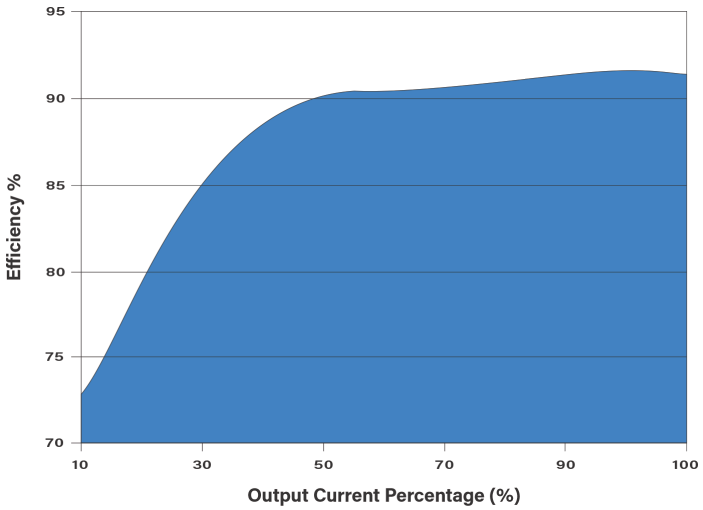
Efficiency vs Output Load: 24 VOUT



Efficiency vs Input Voltage: 48 VOUT

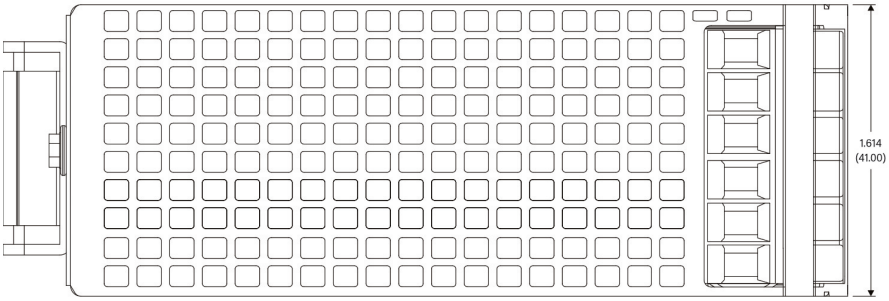


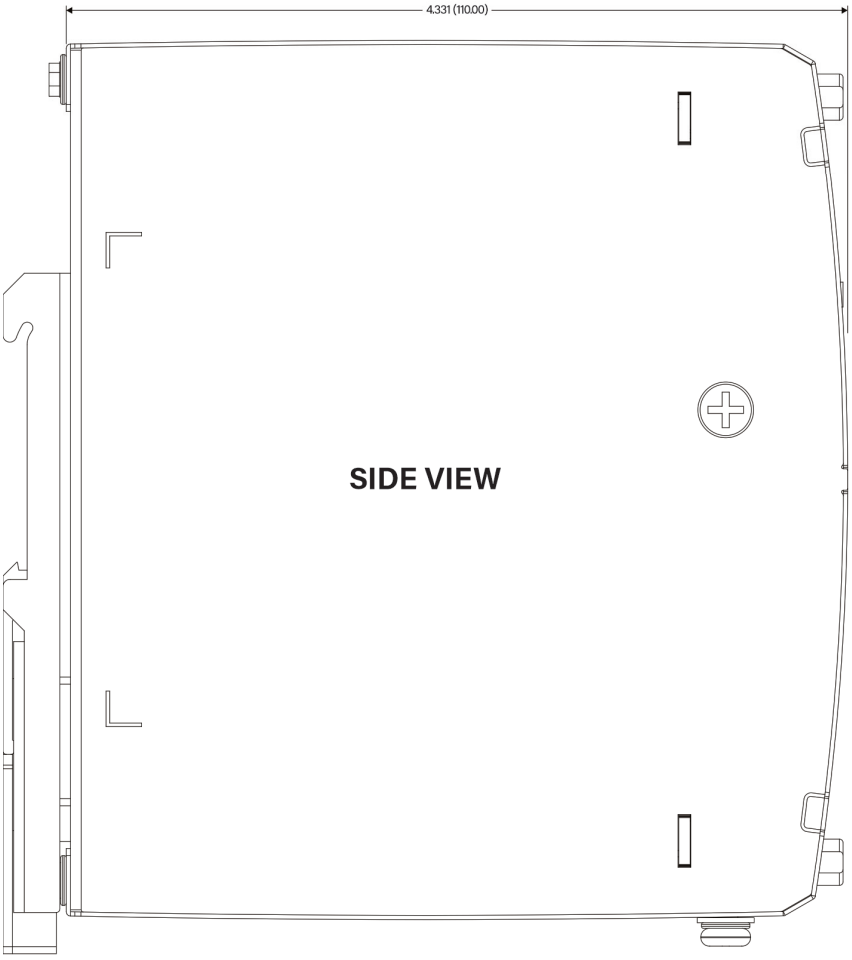
Efficiency vs Output Load: 48 VOUT

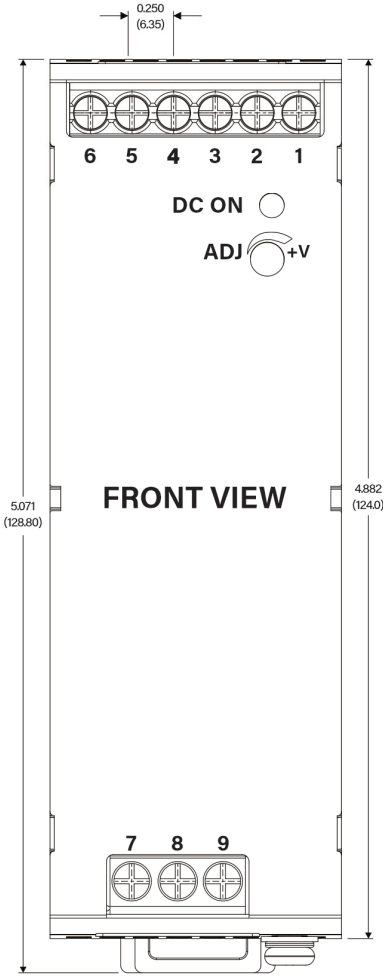


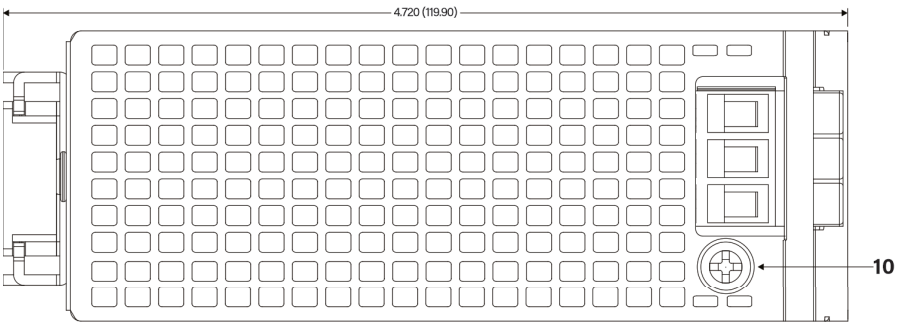
Mechanical Dimensions

TOP VIEW









BOTTOM VIEW

Connections

Pin	Function
1	+Vout
2	+Vout
3	-Vout
4	-Vout

Pin	Function
5	DC OK
6	
7	AC-Line 1
8	AC-Line 2
9	Gnd

- For permanent installations where the typical load is greater than 50% of rated power, it is recommended that installation clearences of 20mm on top/bottom and 5 mm on each side be used. If the average power is greater than 50%, the side clearence should be increased to 15 mm.

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.039 (±1.00)
- Mounting Rail: TS35 (must connect to safety ground)
- DC ON: LED, Indicates unit is on
- ADJ: Output voltage adjust
- Wire range:
  - Input: 24 - 10 AWG for Pins 7 & 8
    12 - 10 AWG for Pin 9
  - Output (Pins 1, 2, 3 & 4)
    24V: 16 - 10 AWG
    48V: 18 - 10 AWG
  - DC OK: 24 - 16 AWG
- Tightening torque: 0.50 N•M
- Weight = 27.866 Oz (790g) Typ.
- Material: Metal (AL1100, SGCC)