MDR-60WY

Single Output, Very Compact 60W AC/DC Power Supplies



Key Features:

- 60W Output Power
- 4,700 VAC I/O Isolation
- Universal AC Input
- Takes AC or DC Input
- Ultra Slim Case
- UL Approved
- -30°C to 85°C Operation
- DC OK Relay Contact
- Meets EN 55032 B
- >220 kHour MTBF

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				
Leakage Current	530 VAC			2.0	mA
Start Up	400 VAC			1000	mSec
Inrush Current, Cold Start	230 VAC		30		A Pk
	400 VAC		50		

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.0		%
Line Regulation			±0.5		%
Load Regulation	5V Output		±1.5		%
	Others		±0.5		
Ripple & Noise (20 MHz), See Note 1	5V Output			100	mV
	12V Output			120	
	24V Output			150	
	48V Output			200	
Hold-Up Time	230 VAC	10			mSec
Temperature Coefficient			±0.03		%/°C
Over Current Protection		105		135	%IOUT
Short Circuit Protection, See Note 2	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, See Note 3	Input to Output	4,700			VAC
	Input to Field Ground	2,500			
	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		40	70		kHz

EMI See Page 2

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-30		+85	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curves on Page 2)				
Humidity, RH, Non-condensing	Working	20		90	%
	Storage	0		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	220			kHours
Safety Standards	UL61010-1, UL61010-2-201, Meets EN 62368-1				
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				

MicroPower Direct

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Model Selection Guide

Model Number	Input		Output				Over Voltage Protection (VDC) See Note 4	Efficiency % (Typ @ 400 VAC)
	Current (mA)		Voltage (VDC)	Adjust Range (VDC)	Current (A)			
	230 VAC	400 VAC			Rated	% Min.		
MDR-60WY-5	700	400	5	5 - 6	10	0	6.2 - 7.2	83.5
MDR-60WY-12	700	400	12	12 - 15	5	0	16 - 18	86.5
MDR-60WY-24	700	400	24	24 - 29	2.5	0	31 - 37	89.0
MDR-60WY-48	700	400	48	48 - 57	1.25	0	58 - 60.5	90.5

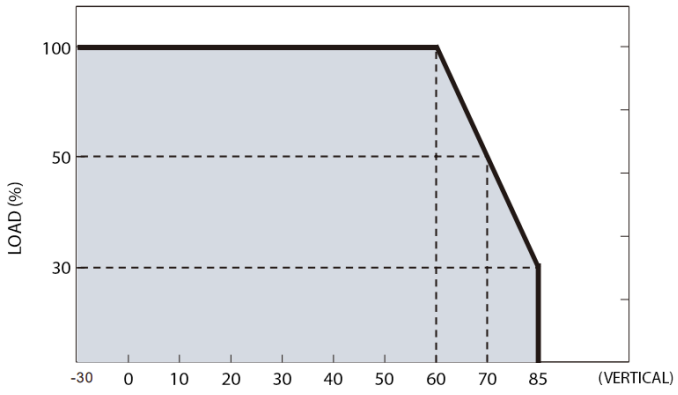
EMI/RFI

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. 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. After an overvoltage fault, the unit must be shutdown and repowered when the fault condition is removed.
5. There is an ambient temperature derating of 3.5°C /1000m for operating higher than 2000m (6500ft).

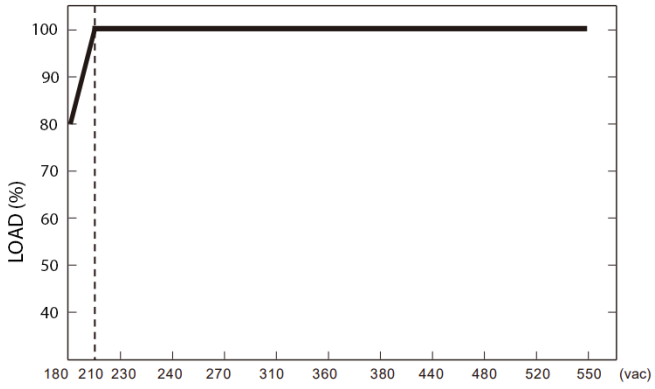
Input Voltage Derating



AMBIENT TEMPERATURE(℃)

Fig. 1

Temperature Derating



INPUT VOLTAGE (VAC) 60Hz

Fig. 2

YSDT240 Block Diagram

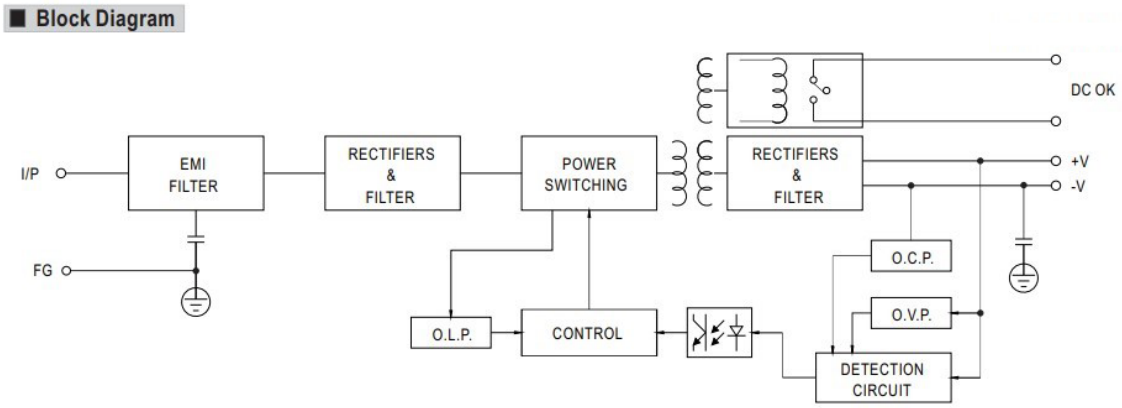


Fig. 3

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

Mechanical Dimensions

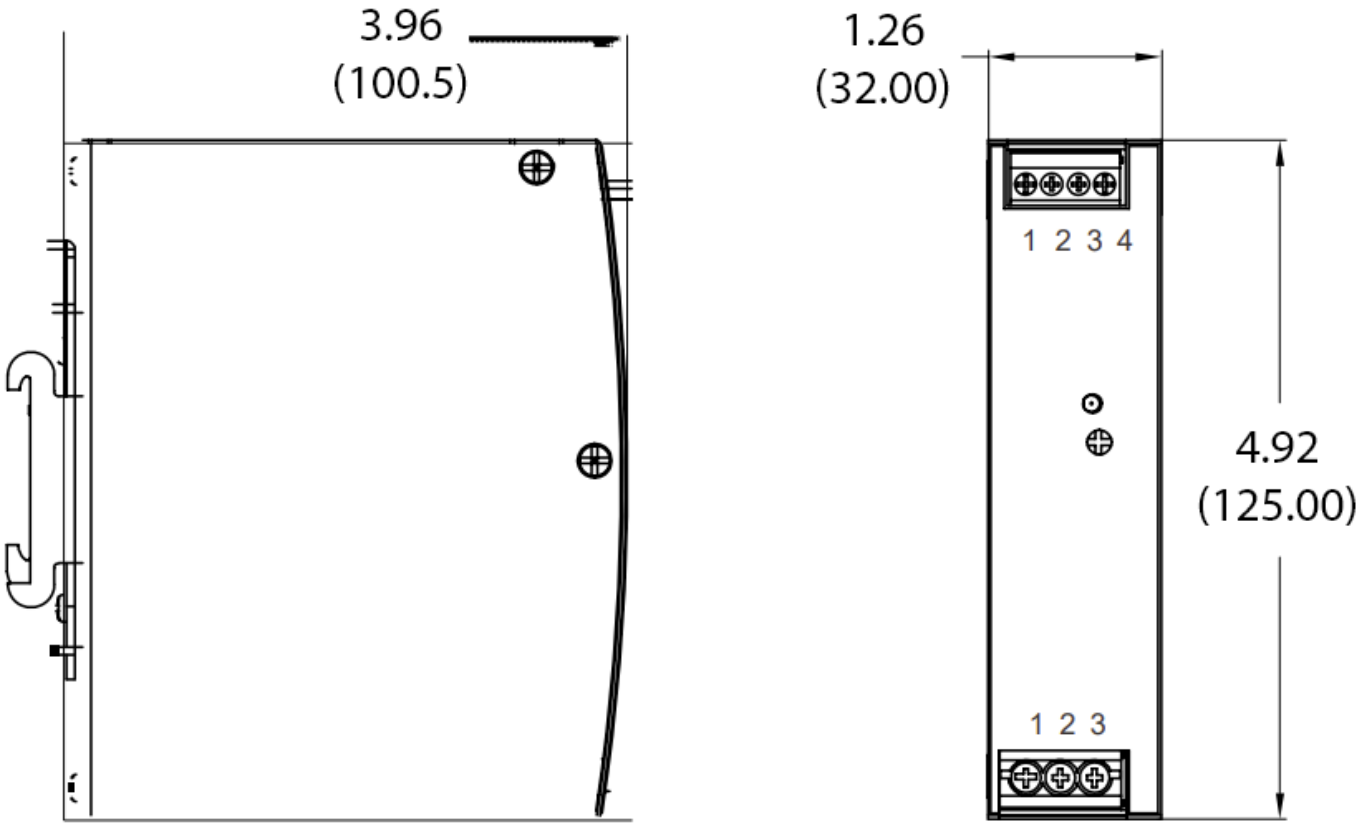


Fig. 5

Connections

Input	
Pin	Function
1	FG
2	AC/L2
3	AC/L1

Output	
Pin	Function
1	VOUT -
2	VOUT +
3, 4	DC OK Relay Conact

Notes:
- All dimensions are typical in inches (mm)
- Weight: 15.87 Oz (450g)

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