

## DINergy™ MD240-1C SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT



### FEATURES

- P.F.C. FUNCTION AVAILABLE
- PARALLEL FUNCTION AVAILABLE (SWITCH)
- INPUT VOLTAGE 115/230VAC AUTO SELECT
- SELV COMPONENTS DESIGN
- 3 YEARS WARRANTY



MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
MD240-24A-1C	115 / 230 VAC	240 WATTS	+ 24 VDC	10 A	87%	89%
MD240-48A-1C	115 / 230 VAC	240 WATTS	+ 48 VDC	5 A	88%	90%

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL						
Characteristics	Conditions	min.	typ.	max.	unit	
Switching frequency	Vi nom, Io nom		40		KHz	
Isolation voltage	Input-Output	3000 / 4242			VAC / VDC	
	Input-FG	1500 / 2121			VAC / VDC	
	Output-FG	500 / 710			VAC / VDC	
Isolation resistance	Input-Output, @ 500VDC	100			MΩ	
Ambient temperature	Operating at Vi nom	-40		+ 71	°C	
Derating (see derating curve)	Vi nom, from +61 to +71°C			2.5	% / °C	
Storage temperature	Non operational	-40		+ 85	°C	
Relative humidity	Vi nom, Io nom	20		95	% RH	
Temperature coefficient	Vi nom, Io min			± 0.03	% / °C	
MTBF	Bellcore Issue 6 @40°C, GB	24V model		423000	Hours	
		48V model		437000	Hours	
Altitude during operation	IEC 60068-2-13			4850	m	
Dimension	Screw terminal type	L124.5 x W83.5 x D123.6			mm	
	Detachable connector type	L143.5 x W83.5 x D123.6			mm	
Cooling	Free air convection					
Installation position	Vertical ( other direction may derating using )					
Pollution degree		2				

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### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Rated input voltage	Io nom	115 / 230 (auto select)			VAC
Absolute input max. range	Ta min ... Ta max, AC in	90		132	VAC
	Io nom, AC in	180		264	VAC
	Io nom, DC in	210		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom		4.0 / 1.55		A
Rated input current	Vi : 90 / 180 VAC, Io nom			5.4 / 2.2	A
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC, Io nom			30 / 60	A
Power dissipation	Vi : 230 VAC, Io nom, 24V model		35		W
	48V model		32		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	mA
P.F.C. (Passive)	Vi : 230VAC, Io nom		0.7		

### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, Io max	0		+ 1	%
Minimum load	Vi nom	0			%
Line regulation	Io nom, Vi min ... Vi max			± 0.5	%
Load regulation	Vi nom, Io min ... Io nom, single mode			± 1	%
	parallel mode			± 5	%
Voltage trim range	Vi nom, 24V model	22.5		28.5	VDC
	0.8 Io nom, 48V model	47		56	VDC
Rated continuous loading	Vi nom, 24V model	10A @ 24Vdc / 8.4A @ 28.5 Vdc			
	48V model	5A @ 48Vdc / 4.2A @ 56 Vdc			
Hold up time	Vi : 115 / 230 VAC, Io nom	25 / 30			ms
Turn on time	Vi nom, Io nom			1000	ms
	Vi nom, Io nom → with 7000 μF CAP			1500	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → with 7000 μF CAP			500	ms
Fall time	Vi nom, Io nom			150	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom			2	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz			100	mV
Power back immunity	Vi nom, Io nom, 24V model	35			VDC
	48V model	63			VDC
Capacitor load	Vi nom, Io nom			7000	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom, 24V model	17.6		19.4	VDC
	48V model	37		43	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom, 24V model	17.6		19.4	VDC
	48V model	37		43	VDC
Parallel operation	0.1 Io min ~ 0.9 Io max			3	unit
Efficiency	Vi nom, Io nom, Po / Pi	Up to 90%, See model list and typ efficiency curve			

### CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T6.3A / 250VAC internal			
Internal surge voltage protection	IEC 61000-4-5	Varistor			
Rated over load protection	Vi nom (see typ current limited curve)	120		145	%
Power Rdy (for 24V model only)	Threshold voltage of contact closed(at start up)	17.6		19.4	VDC
	Electrical isolation	500			VDC
	Contact rating at 60VDC			0.3	A
Over voltage protection	Vi nom, Io nom (Auto Recovery)	125		140	%
Output short circuit		Fold forward			
Degree of protection		IP20			

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## APPROVALS AND STANDARDS

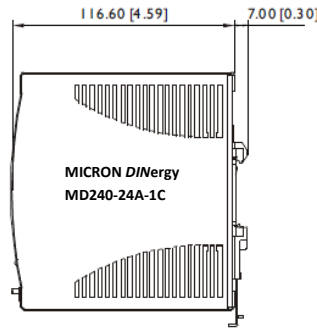
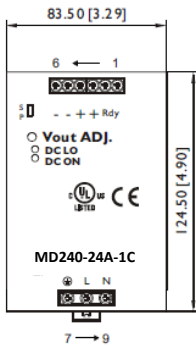
UL / cUL	UL 508 Listed UL 60950-1 Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D)
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, EN 61204-3
Vibration resistance	meet IEC 60068-2-6 (Mounting by rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis )
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)

## PHYSICAL CHARACTERISTICS

Case size	Screw terminal type 124.5 x 83.5 x 123.6 mm (4.9 x 3.29 x 4.87 inches) Detachable connector type 143.5 x 83.5 x 123.6 mm (5.65 x 3.29 x 4.87 inches)
Case material	Metal
Weight	1380g
Packing	1.5kg ; 16 pcs / 25kg / 2.01CUFT

## MECHANISM & PIN CONFIGURATION

mm [inch]



### CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail.

### INSTALLATION

Ventilation / Cooling  
Normal convection  
All sides 25mm free space  
For cooling recommended  
Connector size range  
Screw terminal:  
AWG24-10 (0.2~4mm<sup>2</sup>) flexible / solid cable,  
-Input connector can withstand torque at maximum 9 pound-inches.  
-Output connector can withstand torque at maximum 5.5 pound-inches.  
8 m/m stripping at cable end recommends  
Detachable connector:  
AWG24-12 (0.2~2.5mm<sup>2</sup>) flexible / solid cable,  
-Input connector can withstand torque at maximum 4.5 pound-inches.  
-Output connector can withstand torque at maximum 7 pound-inches.  
4~5 m/m stripping at cable end recommends  
Use copper conductors only, 60 / 75°C

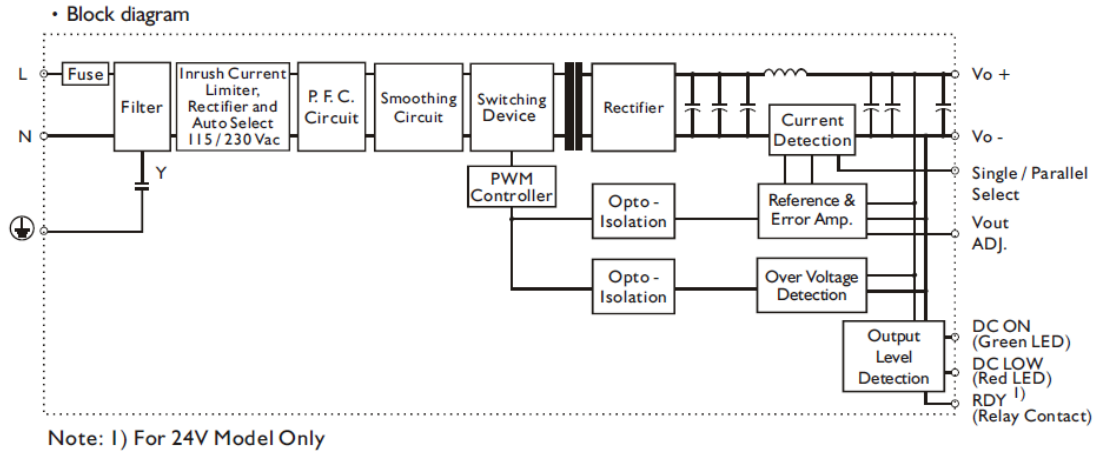
GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]
120.00[4.72] - 400.00[15.75]	±0.80[0.03]

## PIN ASSIGNMENT

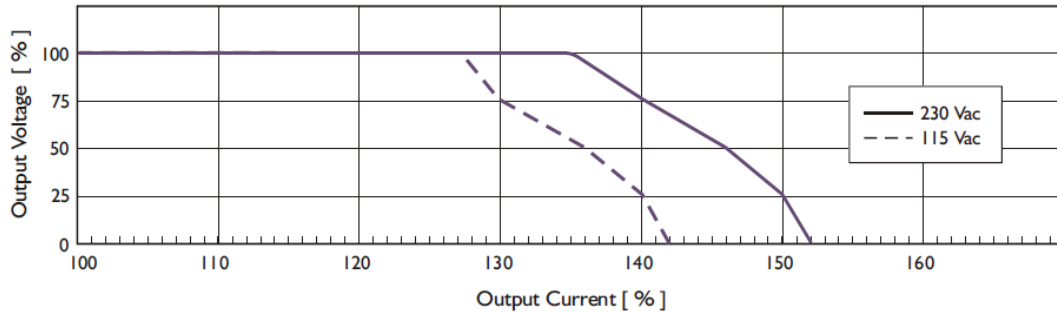
PIN NO.	Designation	Description
1	OUT	RDY
2		A normal open relay contact for DC ON level control (Never connect except 24V model)
3, 4		V +
5, 6	V -	Negative output terminal
7	IN	⊕
8		L
9		N
	OTHER	DC ON
		DC LO
		Vout ADJ.
	S / P	Single / Parallel select switch

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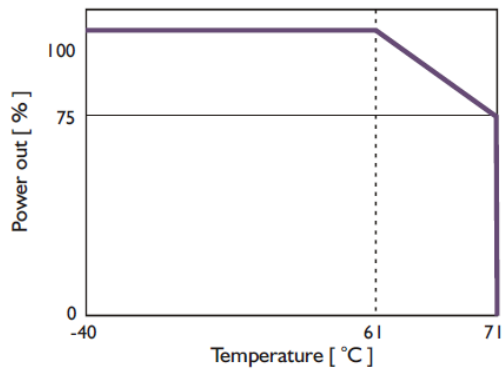
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

