

DINergy™ MD240-1C SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT



FEATURES

- PFC 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	3,000 / 4,242			VAC / VDC	
	Input-FG	1,500 / 2,121			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		481,000	Hours	
		48V model		568,000	Hours	
Altitude during operation	EN 60950-1			5,000	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, Io nom	AC in 115V selected	90		132	VAC
		AC in 230V selected	180		264	VAC
		DC in	210		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom			4.0 / 1.55		A
						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/48V		35 / 32		W
						W
Leakage current	Input-Output				0.25	mA
	Input-FG				3.5	mA
Power factor (Passive)	Vi : 230VAC, Io nom			0.75		

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, 0.8 Io nom	24V	22.5		28.5	VDC
		48V	47		56	VDC
Rated continuous loading	Vi nom	24V	10A @ 24Vdc / 8.4A @ 28.5 Vdc			
		48V	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				2,500	ms
	Vi nom, Io nom with 7000µF CAP				2,500	ms
Rise time	Vi nom, Io nom				150	ms
	Vi nom, Io nom with 7000µF CAP				500	ms
Fall time	Vi nom, Io nom				150	ms
Transient recovery time	Vi nom, 1~0.5 Io nom				2	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				100	mV
Power back immunity	Vi nom, Io nom		24V / 48V	35 / 63		VDC
Capacitor load	Vi nom, Io nom				7,000	µ F
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	24V	17.6		19.4	VDC
		48V	37		43	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	24V	17.6		19.4	VDC
		48V	37		43	VDC
Parallel operation	0.1 Io min ~ 0.9 Io max				3	u n i t
Efficiency	Vi nom, Io nom, Po / Pi		Up to 90%, See model list and typ efficiency curve			

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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 onl)	Threshold voltage of contact closed(at start up)	17.6		19.4	VDC
	Electrical isolation	500			VDC
Over voltage protection	Contact rating at 60VDC			0.3	A
		Vi nom, 0.8 Io nom (Auto Recovery)	24V	30	33
		48V	60	66	V
Output short circuit		Fold forward			
Degree of protection		IP20			

APPROVALS AND STANDARDS

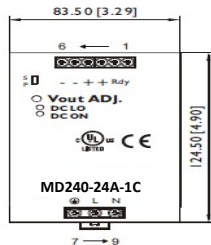
UL / cUL	UL 508 Listed UL 60950-1 Recognized ISA 12.12.01(Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1 EN 61558-1, EN 61558-2-16 (meet EN 60204-1)
CE	EN 61000-6-3, EN 55032 Class B, EN 61000-3-2 Class D, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 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
CCC	GB4943.1, GB9254, GB17625.1 (for DRA240 model only)
Vibration resistance	meet IEC 60068-2-6 (Mounting on 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

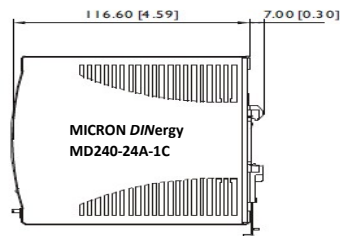
Case size	Screw terminal type	124.5 × 83.5 × 123.6 mm (4.9 × 3.29 × 4.87 inches)
	Detachable connector type	143.5 × 83.5 × 123.6 mm (5.65 × 3.29 × 4.87 inches)
Case material	Metal	
Weight	1380g	
Packing	1.5kg ; 16 pcs / 25kg / 2.01CUFT	

MECHANISM & PIN CONFIGURATION

mm [inch]



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]



CONSTRUCTION

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

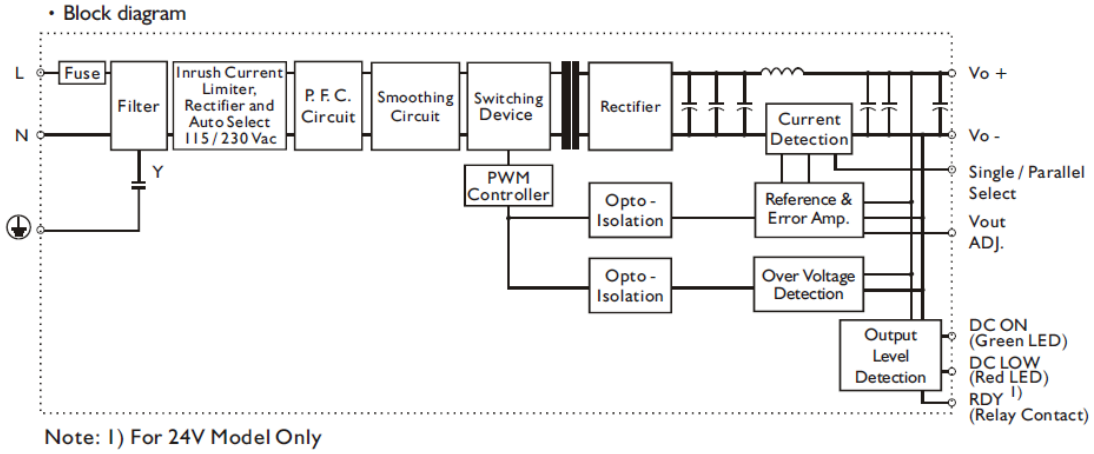
INSTALLATION

Ventilation / Cooling
Normal convection
All sides 25mm free space
For cooling recommended
Connector size range
Screw terminal:
AWG24-10 (0.2~4mm²) 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 (0.2~2.5mm²) 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

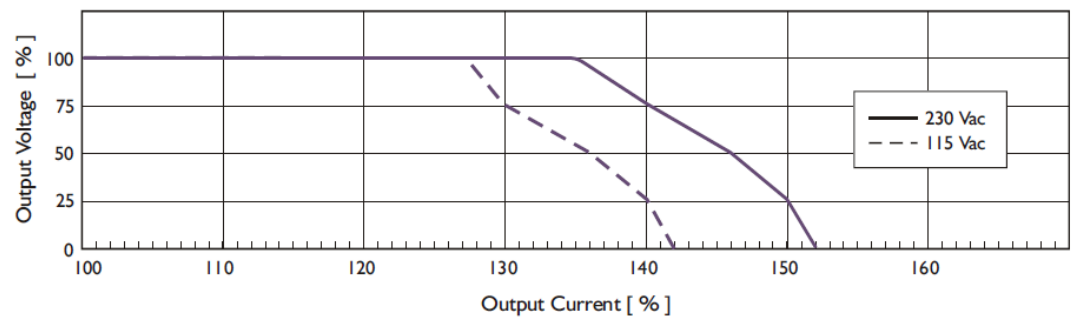
PIN ASSIGNMENT

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
		Operation indicator LED
		DC LOW voltage indicator LED
		Trimmer-potentiometer for Vout adjustment
		Single / Parallel select switch

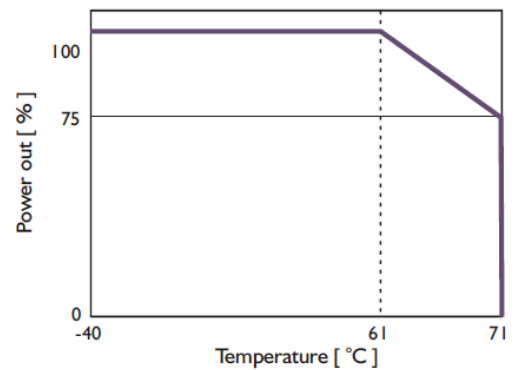
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

