

DINergy™ MDP18 SERIES



AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT

FEATURES

- UL / cUL / TUV / CE
- UNIVERSAL INPUT 90~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 3 YEARS WARRANTY



MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
MDP18-12A-1C	90~264 VAC	18 WATTS	+ 12 VDC	1500 mA	75%	77%
MDP18-24A-1C	90~264 VAC	18 WATTS	+ 24 VDC	750 mA	75%	77%

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			132		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		-20		+ 71	°C
Derating (see derating curve)	Vi nom, from +61°C to +71°C				2.5	% / °C
Storage temperature	Non operational		-25		+ 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	5V model		704,000		Hours
		12V model		721,000		Hours
		15V model		735,000		Hours
		24V model		764,000		Hours
Altitude during operation	EN 60950-1				5,000	m
Dimension	Screw terminal type		L90 x W22.5 x D114			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	100		240	VAC
Absolute input max. range	Ta min ... Ta max, AC in	90		264	VAC
	Io nom, DC in	120		375	VDC
Input current	Vi : 115 / 230 VAC, Io nom		335 / 210		mA
Rated input current	Vi : 90 VAC, Io nom			500	mA
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC, Io nom			15/30	A
Power dissipation	Vi : 230 VAC, Io nom	5V model	5.0		W
		12V model	4.65		W
		15V model	4.25		W
		24V model	4.45		W
Leakage current	Input-Output			0.25	mA
	Input-FG			3.5	mA

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			± 1	%
Load regulation	Vi nom, Io min ... Io nom			± 2	%
Voltage trim range	Vi nom, 12V models	10.8		13.8	V
	0.8 Io nom, 24V model	21.6		28.8	V
Rated continuous loading	Vi nom	5V model	3 A @ 5Vdc / 2.6 A @ 5.75 Vdc		
		12V model	1.5 A @ 12Vdc / 1.3 A @ 13.8 Vdc		
		15V model	1.2 A @ 15Vdc / 1.0 A @ 17.25 Vdc		
		24V model	0.75 A @ 24Vdc / 0.6 A @ 28.8 Vdc		
Hold up time	Vi : 115 / 230 VAC, Io nom	20 / 75			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			50	mV
Power back immunity	Vi nom, Io nom 1 second	5V model	7.5		VDC
		12V model	18		VDC
		15V model	22		VDC
		24V model	35		VDC
Capacitor load	Vi nom, Io nom			7000	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	5V model	3.5	4.5	VDC
		12V model	9.0	10.8	VDC
		15V model	11.0	13.5	VDC
		24V model	18	21.6	VDC
DC LOW indicator threshold after start up (Red LED)	Vi nom, Io nom	5V model	3.5	4.5	VDC
		12V model	9.0	10.8	VDC
		15V model	11.0	13.5	VDC
		24V model	18	21.6	VDC
Efficiency	Vi nom, Io nom, Po / Pi	Up to 77%, See model list and typ efficiency curve			

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CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse				T2A / 250VAC internal	
Internal surge voltage protection	IEC 61000-4-5			Varistor	
Rated over load protection	Vi nom (see typ current limited curve)	110		165	%
Over voltage protection	Vi nom, 0.8 Io nom (Auto Recovery)	5V	6.25	7.25	V
		12V	15	17.4	V
		15V	18.75	21.75	V
		24V	30	34.8	V
Output short circuit				Hiccup mode	
Degree of protection				IP20	

APPROVALS AND STANDARDS

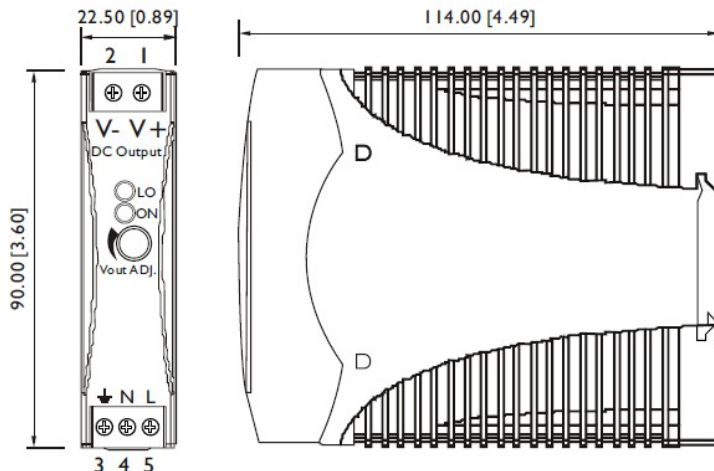
UL / cUL	UL 508 Listed UL 60950-1, UL 1310 Class 2 Power Recognized ISA 12.12.01(Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1
CE	EN 61000-6-3, EN 55032 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 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
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	90 x 22.5 x 114 mm (3.6 x 0.89 x 4.49 inches)
Case material	Plastic
Weight	150 g
Packing	0.23 kg ; 56 pcs / 14 kg / 2.16 CUFT

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:
AWG26-12 (0.2~2.5mm²) flexible / solid cable, connector can withstand torque at maximum 5 pound-inches.
4~5 m/m stripping at cable end recommends
Use copper conductors only, 60 / 75°C

GENERAL TOLERANCE

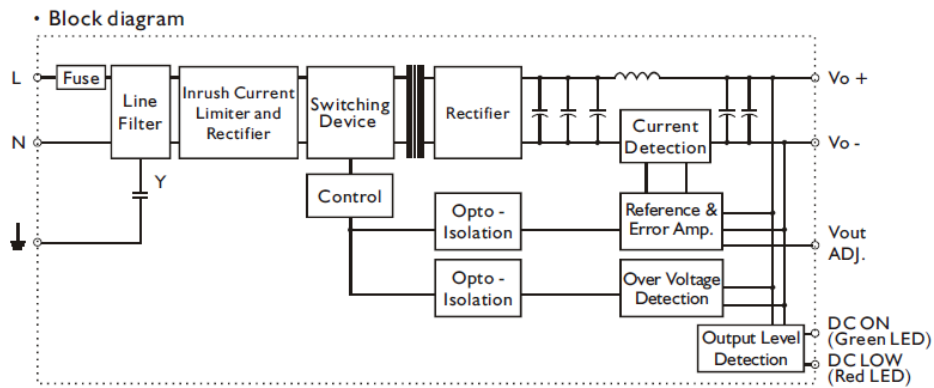
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

PIN ASSIGNMENT

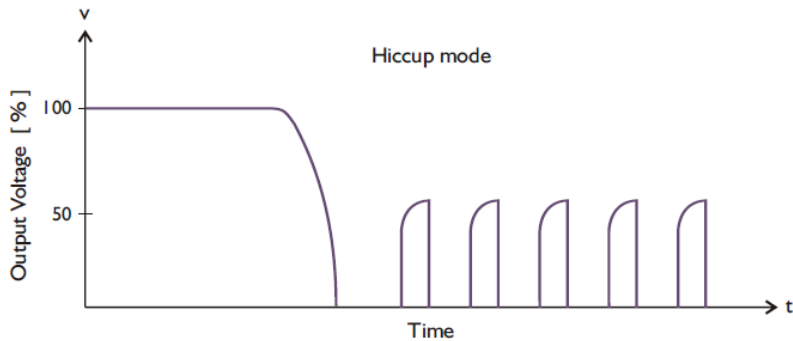
PIN NO.	Designation	Description
1	OUT	V +
2		V -
3		⏚
4	IN	N
5		L
	OTHER	ON
		LO
		Vout ADJ.

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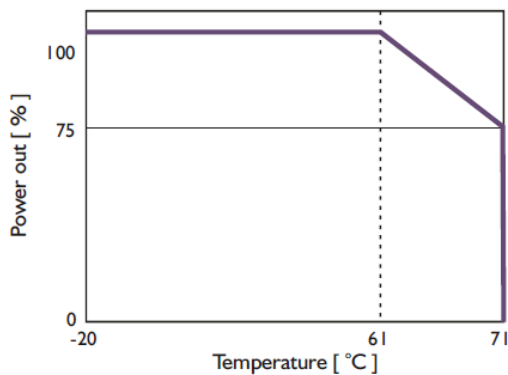
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

