

AMR3 SERIES

AC - DC DIN RAIL MOUNTABLE POWER SUPPLY
INDUSTRIAL CONTROL EQUIPMENT



FEATURES

- UNIVERSAL INPUT 90~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- LOW PROFILE FOR BUILDING AUTOMATION



MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
AMR3-05	90~264 VAC	22.5 WATTS	+ 5 VDC	4500 mA	72%	75%
AMR3-12	90~264 VAC	33 WATTS	+ 12 VDC	2750 mA	80%	83%
AMR3-15	90~264 VAC	36 WATTS	+ 15 VDC	2400 mA	81%	84%
AMR3-24	90~264 VAC	36 WATTS	+ 24 VDC	1500 mA	81%	84%

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	45		65	KHz	
Isolation voltage	Input-Output	3000/4242			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 +56°C 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	5V model		689000	Hours	
		12V model		697000	Hours	
		15V model		710000	Hours	
		24V model		732000	Hours	
Altitude during operation	IEC 60068-2-13			4850	m	
Dimension		L91 x W53 x D56.5			mm	
Cooling	Free air convection					
Installation position	Vertical (other direction may derating using)					
Pollution degree		2				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Rated input voltage	Io nom	100		240	VAC
Absolute input max. range	Ta min ... Ta max, Io nom	AC in	90	264	VAC
		DC in	120	375	VDC
Input current	Vi : 115 / 230 VAC, Io nom	5V model	480 / 310		mA
		12V, 15V, 24V models	680 / 410		mA
Rated input current	Vi : 90 VAC, Io nom	5V model		600	mA
		12V, 15V, 24V models		900	mA
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi : 115 / 230 VAC , Io nom			25 / 50	A



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INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Power dissipation	Vi : 230 VAC, Io nom	5V model	7.5		W
		12V model	7.3		W
		15V model	7.4		W
		24V model	7.1		W
Leakage current	Input-Output			0.25	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			± 1	%
Voltage trim range	Vi nom, 0.8 Io nom	5V model	5	5.5	VDC
		12V model	12	14	VDC
		15V model	13.5	16.5	VDC
		24V model	24	28	VDC
Rated continuous loading	Vi nom,	5V model	4.5A @ 5VDC / 4A @ 5.5VDC		
		12V model	2.75A @ 12VDC / 2.3A @ 14VDC		
		15V model	2.4A @ 15VDC / 2.1A @ 16.5VDC		
		24V model	1.5A @ 24VDC / 1.25A @ 28VDC		
Hold up time	Vi : 115 / 230 VAC , Io nom	20 / 100			ms
Turn on time	Vi nom, Io nom			1000	ms
	Vi nom, Io nom → with 3500 μF CAP			1500	ms
Rise time	Vi nom, Io nom			150	ms
	Vi nom, Io nom → with 3500 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	5V model	7.5		VDC
		12V model	18		VDC
		15V model	22		VDC
		24V model	35		VDC
Capacitor load	Vi nom, Io nom			3500	μF
DC ON indicator threshold at start up (Green LED)	Vi nom, Io nom	5V model	3.5	4.5	VDC
		12V model	9	10.8	VDC
		15V model	11	13.5	VDC
		24V model	19.2	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	10.8	VDC
		15V model	11	13.5	VDC
		24V model	19.2	21.6	VDC
Efficiency	Vi nom, Io nom, Po / Pi	Up to 84%, See model list and typ efficiency curve			

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		150	%
Over voltage protection	Vi nom, Io nom (Auto Recovery)	5V model	5.75	6.5	VDC
		12V model	15	16.5	VDC
		15V model	18	20	VDC
		24V model	30	33	VDC
Output short circuit		Fold forward			
Degree of protection		IP20			

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APPROVALS AND STANDARDS

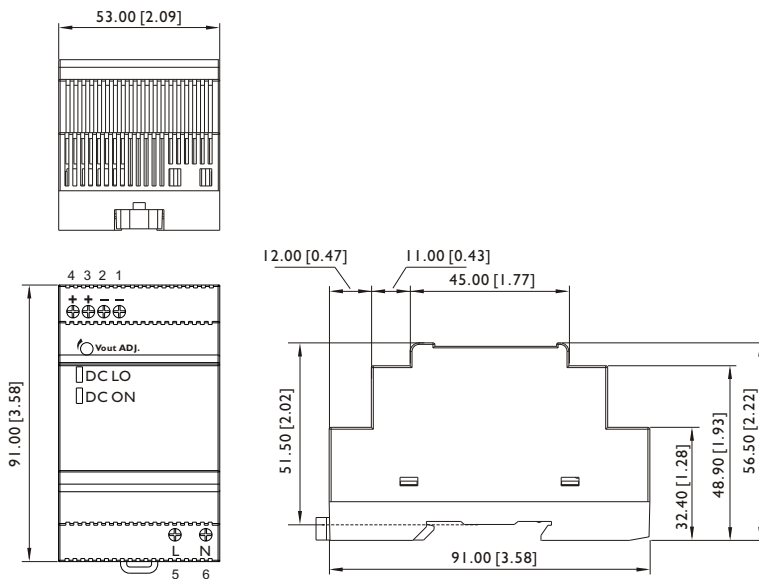
UL / cUL	UL 508 Listed UL 60950-1, UL 1310 Class 2 Power Recognized ISA 12.12.01(Class I, Division 2, Groups A, B, C and D) (in-process)
TUV	EN 60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3 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	91 x 53 x 56.5 mm (3.58 x 2.09 x 2.22 inches)
Case material	Plastic
Weight	190g
Packing	0.25kg ; 64 pcs / 17kg / 2.28CUFT

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; no tools required even to remove

INSTALLATION

Ventilation / Cooling
Normal convection
All sides 25mm free space
For cooling recommended
Connector size range
AWG24-12 (0.2~2.5mm²) flexible / solid cable
-Connector can withstand torque at maximum 6 pound-inches.
7mm stripping at cable end recommends.
Use copper conductors only, 60/75 °C

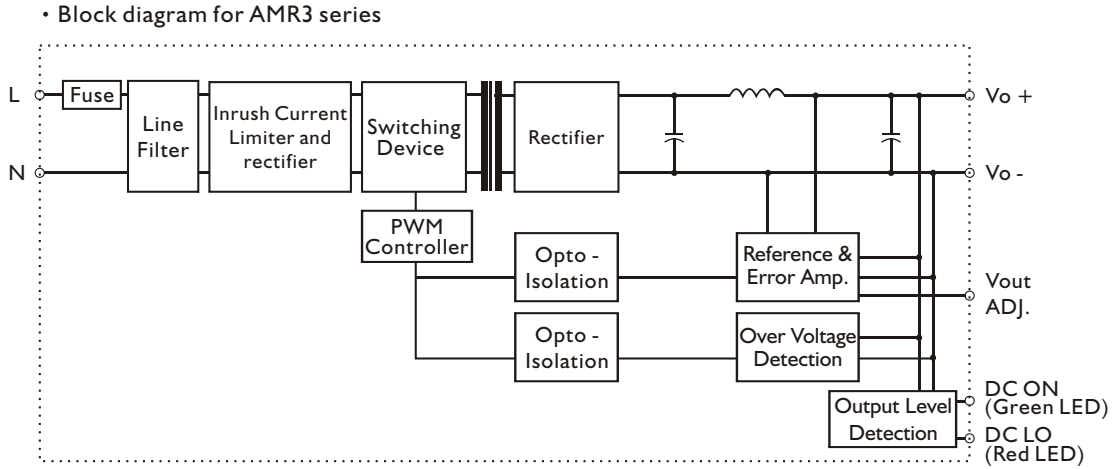
GENERAL TOLERANCE

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

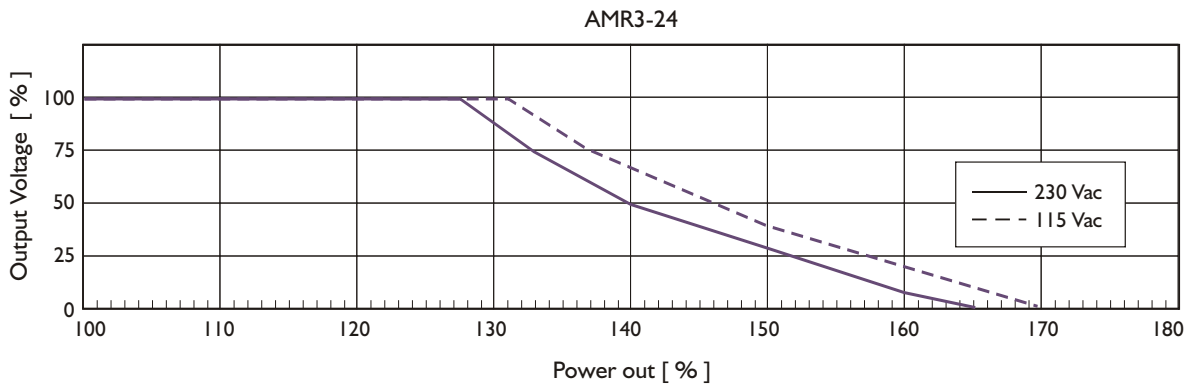
PIN ASSIGNMENT

PIN NO.	Designation	Description
1	-	Negative output terminal
2	-	Negative output terminal
3	+	Positive output terminal
4	+	Positive output terminal
5	L	Input terminals (phase conductor, no polarity at DC input)
6	N	Input terminals (neutral conductor, no polarity at DC input)
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment
	DC ON	Operation indicator LED
	DC LO	DC Low indicator LED

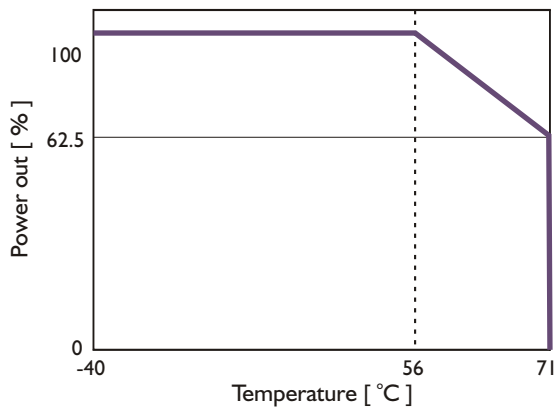
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

