

AMR4 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						
AMR4-05	90~264 VAC	35 WATTS	+ 5 VDC	7000 mA	78%	80%
AMR4-12	90~264 VAC	54 WATTS	+ 12 VDC	4500 mA	82%	84%
AMR4-15	90~264 VAC	60 WATTS	+ 15 VDC	4000 mA	83%	85%
AMR4-24	90~264 VAC	60 WATTS	+ 24 VDC	2500 mA	84%	86%

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		55	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		595000	Hours	
		12V model		582000	Hours	
		15V model		582000	Hours	
		24V model		608000	Hours	
Altitude during operation	IEC 60068-2-13			4850	m	
Dimension		L91 x W71 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	0.7 / 0.43		A
		12V, 15V, 24V models	1.1 / 0.6		A
Rated input current	Vi : 90 VAC, Io nom	5V model		1.0	A
		12V, 15V, 24V models		1.5	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	5V model	8.8		W
		12V model	10.2		W

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INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Power dissipation	Vi : 230 VAC, Io nom		10		W
	15V model				
			9.9		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		7A @ 5VDC / 6.3A @ 5.5VDC		
	12V model		4.5A @ 12VDC / 3.8A @ 14VDC		
	15V model		4A @ 15VDC / 3.6A @ 16.5VDC		
	24V model		2.5A @ 24VDC / 2.1A @ 28VDC		
Hold up time	Vi : 115 / 230 VAC, Io nom				
	5V, 12V models	16 / 60			ms
	15V, 24V models	12 / 60			ms
Turn on time	Vi nom, Io nom			1000	ms
Rise time	Vi nom, Io nom			1500	ms
	→ with 3500 μF CAP			150	ms
Fall time	Vi nom, Io nom			500	ms
	→ with 3500 μF CAP			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 86%, 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

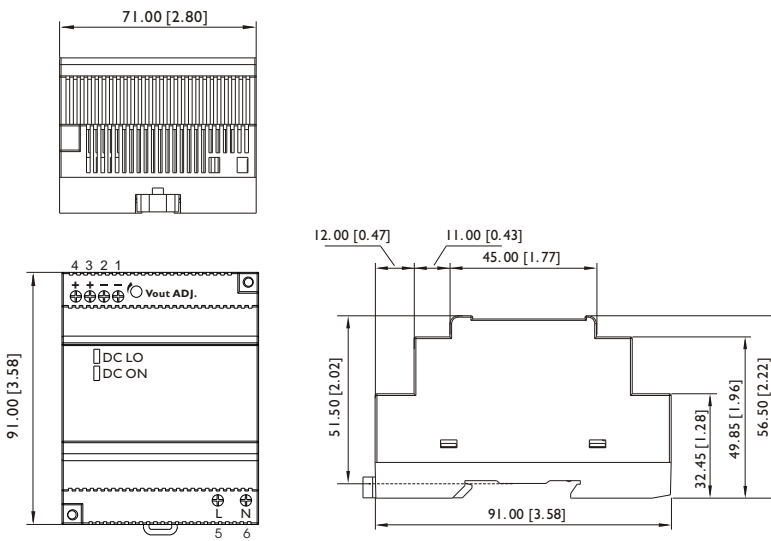
UL / cUL	UL 508 Listed UL 60950-1, UL 1310 Class 2 Power (only 5V w/o Class 2) Recognized ISA 12.12.01(Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 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 71 x 56.5 mm (3.58 x 2.8 x 2.22 inches)
Case material	Plastic
Weight	250g
Packing	0.31kg ; 48pcs / 16kg / 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

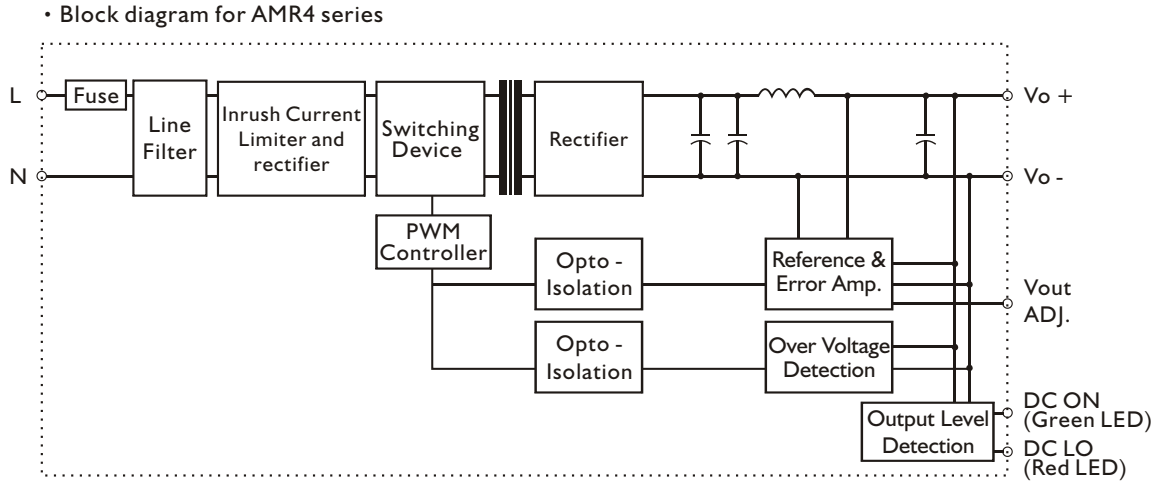
GENERAL TOLERANCE

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

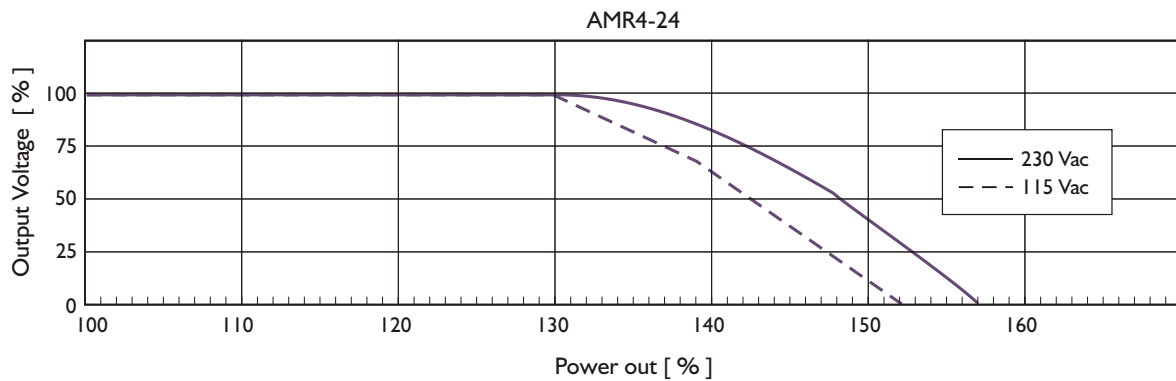
PIN ASSIGNMENT

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

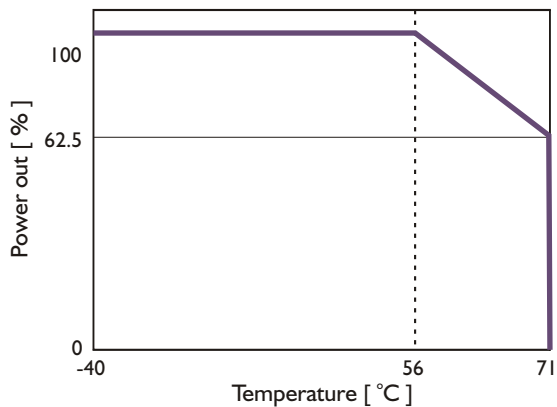
CIRCUIT SCHEMATIC



TYP. CURRENT LIMITED CURVE



DERATING CURVE



TYP. EFFICIENCY CURVE

