

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.)
<b>Single Output Models</b>						
AMR4-12	90~264 VAC	54 WATTS	+ 12 VDC	4500 mA	82%	84%
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 W71x D56.5			mm
Cooling	Free air convection					
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

# SPECIFICATION

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

## INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Power dissipation	Vi : 230 VAC, Io nom	15V model		10		W
		24V 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
	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 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				

## APPROVALS AND STANDARDS

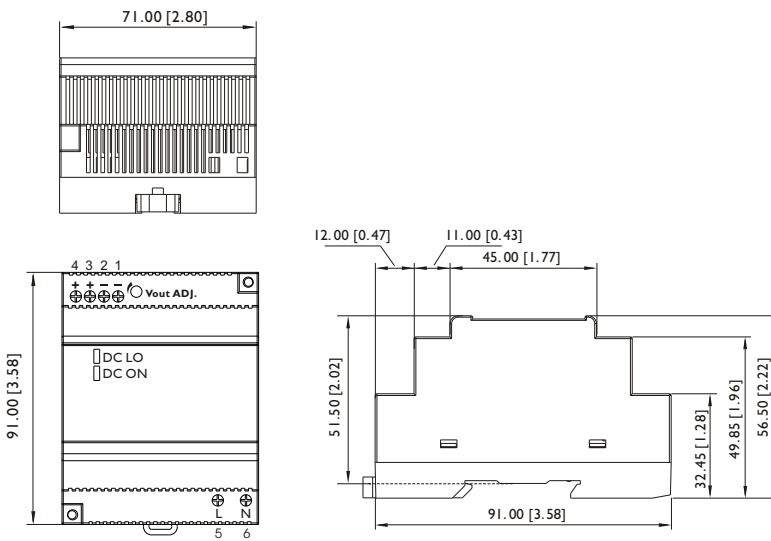
UL / cUL	UL 508 Listed UL 60950-1, UL 1310 Class 2 Power (only 5V w/o Class 2) Recognized ISA 12.12.01(Class I, Division 2, Groups A, B, C and D)
TUV	EN 60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 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 (0.2~2.5mm<sup>2</sup>) 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

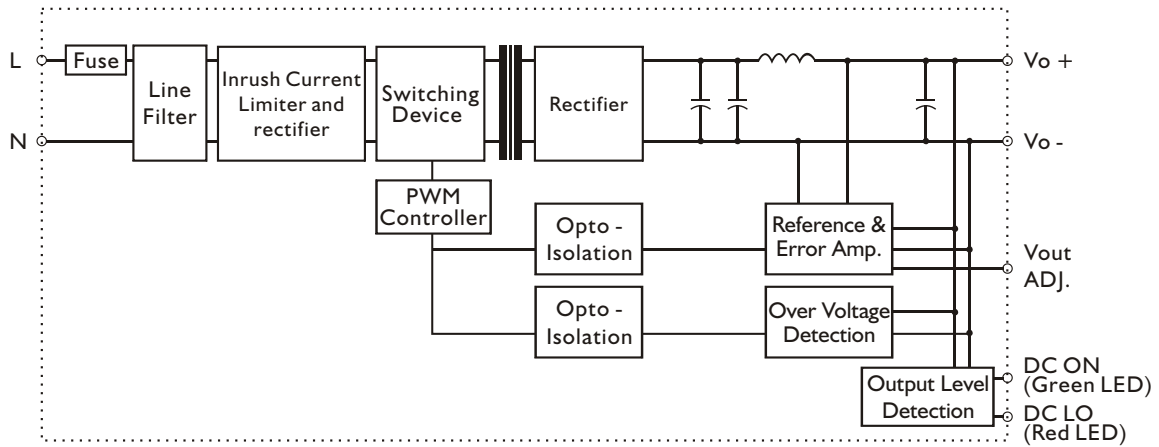
#### GENERAL TOLERANCE

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

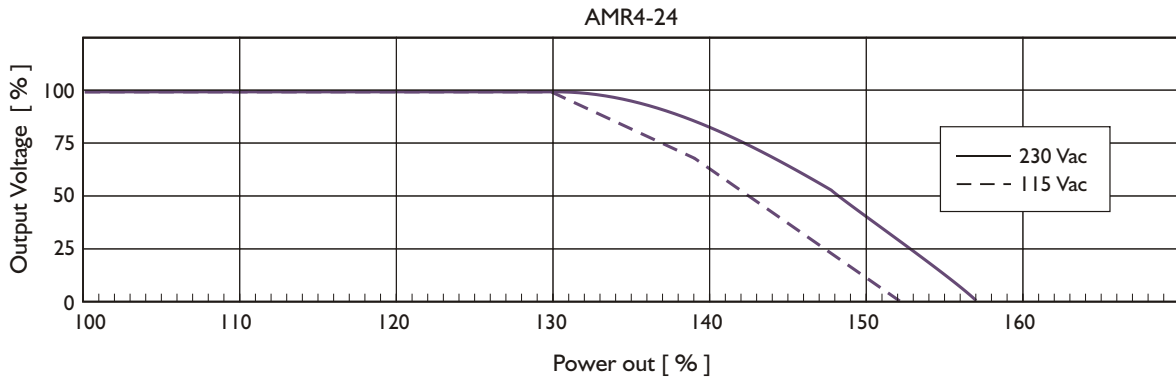
## PIN ASSIGNMENT

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

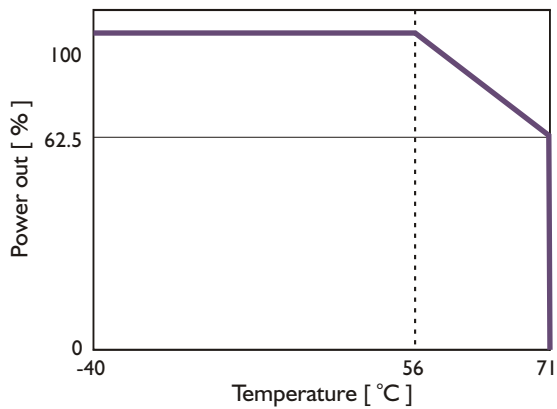
## CIRCUIT SCHEMATIC



## TYP. CURRENT LIMITED CURVE



## DERATING CURVE



## TYP. EFFICIENCY CURVE

