DBR SERIES

AC/DC Industrial Battery Chargers 12V 24V 30W 60W

FEATURES

- UNIVERSAL INPUT 90~264VAC
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- CHARGER FOR LEAD-ACID BATTERIES
- BATTERY POLARITY PROTECTION

UL 60950-1

SELECTION CHART

DBR 60 - 24

Wattage

12 : 13.6V OUT / 24 : 27.2V OUT

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
DBR30-12	90~264 VAC	34 WATTS	+ 13.6 VDC	2.5 A	84%	86%
DBR30-24	90~264 VAC	34 WATTS	+ 27.2 VDC	1.25 A	86%	88%
DBR60-12	90~264 VAC	61 WATTS	+ 13.6 VDC	4.5 A	84%	86%
DBR60-24	90~264 VAC	68 WATTS	+ 27.2 VDC	2.5 A	86%	88%

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		50		100	KHz
Isolation voltage	Input-Output		3,000 / 4,242			VAC / VDC
Isolation resistance	Input-Output, @ 500VDC		100			MΩ
Ambient temperature	Operating at Vi nom		-40		+ 51	°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	30W 12V		668,000		Hours
		24V		688,000		Hours
		60W 12V		568,000		Hours
		24V		588,000		Hours
Altitude during operation	IEC 60068-2-13				4,850	m
Dimension			L91 x W90 x D57			mm
Cooling	Free air convection					
Installation position	Vertical (other direction may derating using)					

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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, Io nom	AC in	90		264	VAC
		DC in	120		375	VDC
Input current	Vi : 115 /230 VAC, Io nom	30W		680 / 430		mA
		60W		1,230 / 780		mA
Rated input current	Vi : 90 VAC, Io nom	30W			800	mA
		60W			1,500	mA
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	30W		5.5		W
		60W		10.9		W
Leakage current	Input-Output				0.25	mA

OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io max				± 1	%
Minimum load	Vi nom		0			%
Line regulation	Io nom, Vi min ...Vi max				± 1	%
Load regulation	Vi nom, Io min ...Io nom				± 1	%
Hold up time	Vi : 115 / 230 VAC , Io nom		10 / 30			ms
Turn on time	Vi nom, Io nom				1,800	ms
Rise time	Vi nom, Io nom				150	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	12V	18			VDC
		24V	35			VDC
DC ON indicator threshold	Vi nom, Io nom	12V	7		9	VDC
at start up (Green LED)		24V	13		18	VDC

CONTROL AND PROTECTION

Characteristics	Conditions		min.	typ.	max.	unit
Input fuse			T2A / 250 VAC internal			
Internal surge voltage protection	IEC 61000-4-5		Varistor			
Rated over load protection	Vi nom		105		110	%
Power Rdy	Rdy on: Threshold at start up	12V	10		11	VDC
		24V	17		19	VDC
	Rdy off: Threshold after start up	12V	7		8	VDC
		24V	13		15	VDC
Over voltage protection	Vi nom, 0.8 Io nom (Shut down protection)	12V	15		18	VDC
		24V	30		33	VDC
Output short circuit			Hiccup mode			
Degree of protection			IP20			
Battery polarity protection			Yes			

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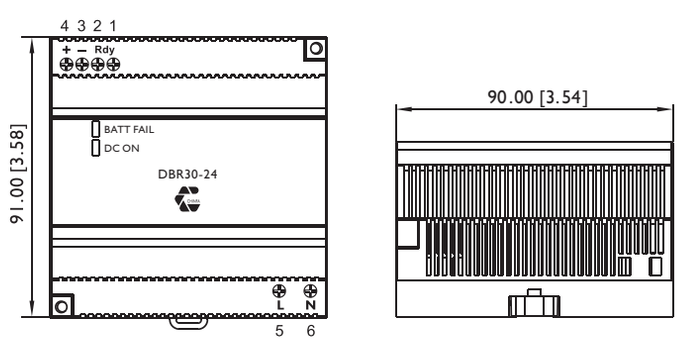
APPROVALS AND STANDARDS	
UL / cUL	UL 60950-1 Recognized
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3
	EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3
	EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3
	EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11
	ENV 50204 Level 2, EN 61204-3
LVD	EN 60950-1
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)

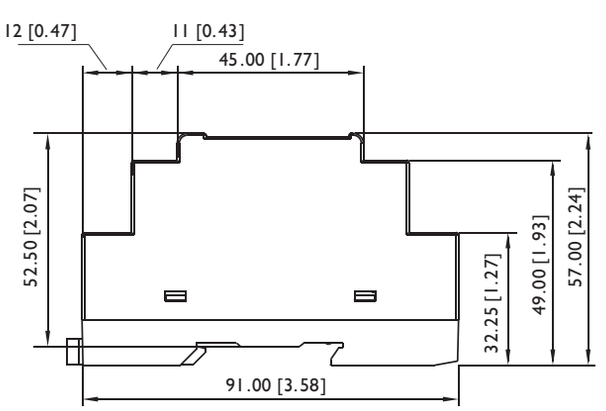
PHYSICAL CHARACTERISTICS

Case size	91 x 90 x 57 mm (3.58 x 3.54 x 2.24 inches)
Case material	Plastic
Weight	270g
Packing	0.33kg ; 40pcs / 14kg / 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 25m/m free space
For cooling recommended
Connector size range
AWG24-12 (0.2~2.5mm^2) flexible / solid cable
-Connector can withstand torque at maximum 6 pound-inches.
7m/m stripping at cable end recommends.
Use copper conductors only, 60/70 °C

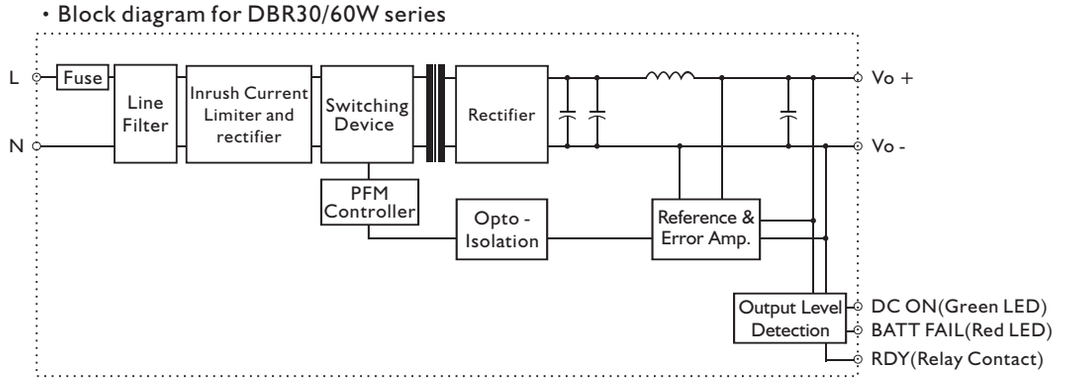
GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

PIN ASSIGNMENT

PIN NO.	Designation		Description
1, 2	OUT	RDY	A normal open relay contact for DC ON level control
3		-	Negative output terminal
4		+	Positive output terminal
5	IN	L	Input terminals (phase conductor, no polarity at DC input)
6		N	Input terminals (neutral conductor, no polarity at DC input)
	OTHER	DC ON	Operation indicator LED
		BATT FAIL	Battery reverse indicator LED

CIRCUIT SCHEMATIC

• Block diagram for DBR30/60W series



TYP. CURRENT LIMITED CURVE