



Applications

- Industrial
- Test Equipment



Features

- RoHS compliant for all six substances
- Universal AC input range; DC input 120 to 250 V
- Class II isolation
- UL508 compliant
- EMC emissions compliant; Class B conducted & radiated
- EMC immunity to EN61000-4-2 to -6
- Convection, no temperature derating between -20°C and +60 °C
- Adjustable DC output via a front-mounted potentiometer
- DC-out OK LED and signal.
- Hold-up time (115/230VAC) 20/30 ms
- Parallel/redundant capability
- Efficiencies up to 87%
- 150% Overload capability
- DIN screw connectors
- Lacquered PCB assemblies.
- 3-Year Warranty

Description

The Low Power DIN-Rail Series (LPDS) is an efficient series of low-power, low-cost, AC-DC power supplies suited for industrial applications. These compact, highly efficient units are particularly suited to industrial applications, such as machine/process control, instrumentation, test equipment, and many other applications.

LPDS models come in an easy snap-mount lightweight plastic housing allowing quick and easy installation. The 30W and 60W models use identical housing with a width of 45 mm.

Model Selection

Model	Nominal Output Voltage (VDC)	Min-Max Output Current (Amps), Convection	Min-Max Output Current (Amps), Forced Air ¹	Peak Output Current (Amps) ²	Total Regulation (%) ³	Ripple & Noise mV pk-pk ⁴
LPDS30-12G	12	0 - 2.5	0 - 2.92	3	±5	120
LPDS60-12G	12	0 - 5.0	0 - 5.42	6	±5	120
LPDS30-15G ⁵	15	0 - 2.0	0 - 2.33	2.5	±5	120
LPDS60-15G ⁵	15	0 - 4.0	0 - 4.33	5	±5	120
LPDS30-24G	24	0 - 1.25	0 - 1.46	1.5	±5	150
LPDS60-24G	24	0 - 2.5	0 - 2.71	3	±5	150
LPDS100-24G ⁵	24	0 - 4.2		6.2	±5	150
LPDS30-48G ⁵	48	0 - 0.62	0 - 0.73	0.75	±5	300
LPDS60-48G ⁵	48	0 - 1.25	0 - 1.35	1.5	±5	300

¹ 3 CFM or 130 LFM (average measurement of six equally-distributed points through a 3.5" x 1.6" (9 cm x 4 cm cross-sectional area) with power supply mounted on a 0.25" (6.35 mm) standoffs. Recommended airflow direction is from the AC input to the DC output.

² Peak current duration for less than 30 seconds with a maximum duty cycle of 10%. During peak loading, output may exceed total regulation limits.

³ At 25 °C ambient including voltage set point tolerance, line and load regulation

 4 Maximum peak-to-peak noise at 20 MHz bandwidth measured at the end of a twisted pair cable across a bypass capacitor.

⁵ Advance Product Release.



ELECTRICAL SPECIFICATIONS

Input Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
AC Input Voltage Range	Continuous voltage range	90	100-250	264	VAC
DC Input Voltage Range	Continuous voltage range; For input above 250 VDC, consult factory.	120	110/220	250	VDC
Frequency	AC Input	47	50-60	63	Hz
Power Factor			0.65		
Input Current	At 85 VAC input and max LPDS30 Models: convection cooling. LPDS60 Models:			0.8 1.6	Amps rms
Inrush Current	115 VAC, Max power, 25 °C			30	A pk
	230 VAC, Max power, 25 °C			45	A pk
Input Fuse	Non-user serviceable internally located AC input line fuse is provided.				A
Efficiency	At max load, nom line	85			

Output Specifications

Parameter	Conditions/Des	scription	Min.	Nom.	Max.	Units
Output Power	With convection cooling	LPDS30 Models: LPDS60 Models:	1 1		30 60	Watts
Output DC Voltages Including:	Adjustability provided for V ² front-accessible potentiome	1 by eter:	-10		+10	%
Total Output Regulation	Vo1				5	%
Output DC Current					1	А
Minimum Load	Required to meet total regu	lation			None Required	A
Leakage Current	At 264 VAC				0.25	mA
Output Ripple & Noise					40	mV pk-pk
Overshoot	Overshoot at turn-on				5	%
Load Transient	Vo1 deviation due to a 50 to load change at a rate of 1A	o 100% /µs			±5	%
Turn-On Characteristics	Outputs turn ON monotonic output current. Outputs turn ON monotonic	ally at minimum				
Turn-Off Characteristics	Outputs turn ON monotonic output current. Outputs turn ON monotonic	ally at minimum				
Turn-on Delay	Time required for output wit initial application of AC input	thin regulation after ut @ 85 VAC.			1	Sec
Turn-on Rise Time	Time required for output vo to rise from 10% to 90%.	Itage :			100	ms

¹ See Model Selection tables.



Output Specifications (Continued)

Parameter	Conditions/Description	on	Min.	Nom.	Max.	Units
Hold-up Time	Time Vo1 is required to stay within 95% regulation after	@115 VAC	20			ms
	removal of AC measure from the last peak of the AC line.	@230 VAC	30			
Remote Sense	N/A					
Control Loop Stability	Phase margin.		45			Degrees
	Gain margin.		10			dB

Fault Protection

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Current Limit Protection	Protection is provided through constant current.	150		190	%
Short-Circuit Protection	Provided with auto-recovery.				ADC
Thermal Protection	Required.				
OVP Trip	Output voltage of 12 V.	13.6		16.2	VDC
	Output voltage of 15 V.	16.2		20.25	VDC
	Output voltage of 24 V.	27.2		32.4	VDC
	Output voltage of 48 V.	54.2		64.8	VDC

Isolation Requirements

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input-to-Output		4242			VDC

Signals, Features, & Indicators

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
DC Out - OK	Green LED on front illuminates when OK.				

EMC Immunity

Parameter	Conditions/Description
ESD	EN 61000-4-2 Level 2.
RF Susceptibility	EN 61000-4-3 Level 2.
Fast Transient/Burst	EN 61000-4-4 Level 4.
Surge	EN 61000-4-5 Level 4.
RF Immunity	EN 61000-4-6 Level 2.
Magnetic Fields	EN 61000-4-8.
Voltage Interruptions	EN 61000-4-11.



EMC Emmisions

Parameter	Conditions/Description
FCC Part 15	Conducted Class B, Radiated Class B.
CISPR 22 or CISPR 11	Conducted Class B, Radiated Class B.
EN5011/22	Conducted Class B, Radiated Class B.

Environmental Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Cooling	Rated for convection cooling.				
Audible Noise				0	dBA
Operating Temp	-20 °C to +60 °C with linear derating down to 71 °C. Unit will start-up at -20 °C, but may not meet all published specifications.	-20	50	71	°C
Altitude	Operating. Non-Operating.			10K 50K	ASL ft ASL ft
Storage Temp		-40		85	°C
Humidity	95% Max. relative humidity @ 40 °C, non-condensing				
Vibration	(Operating) - Per EN60068-2-6.				
Vibration	(Non-Operating) - Per EN60068-2-6.				
Shock	(Operating) - Per EN60068-2-27.				
Shock	(Non-Operating) - Per EN60068-2-27				
Temperature Coefficient				0.03	%/ °C
Conformal coating of all PCBs.	Required.				

Regulatory & Safety Approvals

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
UL60950-1, Class II	All models are pending approval.				
UL508	All models are pending approval.				
CSA-C22.2, No. 60950-01-03	All models are pending approval.				
EN 60950-1 /IEC 60950-1	All models are pending approval.				
CE Mark for LVD	All models are pending approval.				
CB Approval	All models are pending approval.				
RoHS	Compliant for all six substances.				



Mechanical Specifications

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Dimensions	Depth.			90	mm
	Width.			45	mm
	Height.			80	mm
Power Density	LPDS30 Models: LPDS60 Models:			1.8 3.6	W/in ³
Housing Material	UL approved plastic.				
Mounting	(Location/Hardware) Snap-on vertical mounting - TS35/7.5 or TS35/15 rail system (See outline drawing).				
Input	(Location/Connector); DIN Screw Connector (3 pins) or Phoenix Push-in Connector.				
Output	(Location/Connector); DIN Screw Connector (5 pins) or Phoenix Push-in Connector.				
Outline Drawing Pins/Functions	See Mechanical Drawing (Outline Only).				
Weight			0.31		kg
Connector Kit	Required.				
Marking Labels	Required.				

Reliability

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Calculated MTBF		270,000			Hours
Demonstrated MTBF		>525,000			Hours

Packaging

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Drop Test	Compliant to FedEx drop test requirements.				



LPDS AC-DC Series Preliminary Data Sheet 30 to 100 Watt, DIN-Rail Converters

LPDS Mechanical Drawing



100-Watt Model Overall Dimensions: 3.54 x 3.94 x 2.36 inch (90 x 100 x 60mm)

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.