



## DESCRIPTION

The **DLS-90** battery charger/power converter from IOTA Engineering converts nominal 120V A.C. voltage to 13.4V D.C. As a power supply, its tightly controlled regulation allows the user to operate any appropriate nominal D.C. load up to the converter's rated output current. As a battery charger, the **DLS-90** will maintain the battery, delivering its full-rated current when the battery capacity falls sufficiently low. The voltage is set to deliver its maximum current for the necessary period of time that minimizes undue stress to the battery caused by heating of its cells. This helps to ensure the longest possible life of the battery. Over time, as the battery nears its full capacity, the converter will float-charge the battery to prevent self-discharge of its cells.

## TECHNICAL SPECIFICATIONS

DC Output Voltage (No Load) approx.	13.6V (DC)
Output Voltage Tolerance (No Load)	+ or - .7%
Output Amperage, Max Continuous	90 Amps
Output Voltage (Full Load) approx.	>13.4V (DC)
Maximum Power Output, Continuous	1200 Watts
Ripple and Noise	<150 mV rms
Input Voltage Range	108 - 132 AC
Input Voltage Frequency	47-63
Maximum AC Current (@108VAC)	21.8 Amps*
Typical Efficiency	>80%
Max Inrush Current, Single Cycle	40 Amps
Short Circuit Protection	Yes
Overload Protection	>100%
Line Regulation	100 mV rms
Load Regulation	<1.5%
Fan Control**	Proportional
Thermal Protection	YES
Working Temperature Range	0° - 40° C
Storage Temperature	-20° to 80° C
Withstand Voltage (VDC)†	1700/1700/500
Dimensions††	13" x 6.5" x 3.4"
Weight	7.8 lbs

\*Requires a 30A breaker

\*\*Proportional = Fan speed proportional to case temperature.

†Primary to Chassis/Primary to Secondary/Secondary to Chassis

††See reverse side for detailed mounting specifications.

THIS UNIT IS NOT UL LISTED

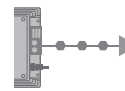
## PRODUCT OVERVIEW

DC Output Voltage	13.4V (DC) @ Full Load
Output Amperage	90 Amps
Input Voltage Range	108-132 VAC
Input Voltage Frequency	47-63 Hz

## APPLICATION

Charging for 12V Battery Systems and Operation of 12VDC systems and accessories.

## FEATURES



Clean and steady DC Output operates your loads the way they were intended, avoiding potential damage to systems from errant DC voltage.



Built-in protection features guard the unit against erratic line voltage that can occur from shore power or generator supplies.



Reverse Polarity Protection to protect against damage from incorrect battery hook-up, using readily available fuse types that are easy to replace.



Proportional fan control for whisper-quiet operation.



Charging Jack option for normal and high-stage battery charging applications.



Compatible with IOTA IQ Smart Charger for automatic four-stage charging.



Covered by IOTA with a full two-year warranty.

## ADDITIONAL FEATURES INCLUDE...

- Switch-mode technology
- Current limit, thermal and overload protection
- Lower operating temperature



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# DLS-90

BATTERY CHARGER/POWER CONVERTER

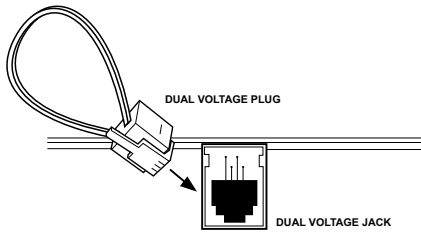
## MODELS

- DLS-90
- DLS-90/IQ4 (with integrated IQ Smart Charger)

## DUAL VOLTAGE JACK

The **DLS-90** is equipped with a Dual Voltage Jack and Dual Voltage Plug that allows manual switching from a long-term float voltage of 13.6vdc to 14.2vdc. When the Dual Voltage Plug is inserted in the jack, the voltage increases to 14.2vdc for occasional fast charging. When the plug is removed, the voltage drops to 13.6vdc to reduce battery water loss.

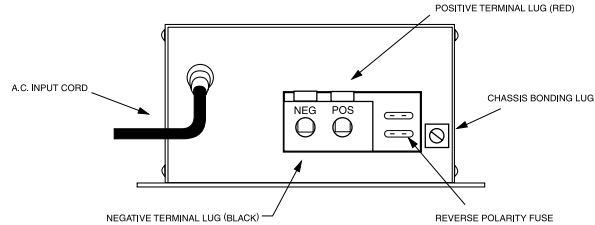
The Dual Voltage Jack also allows for easy installation of an external IQ4 Smart Charger for automatic 3-stage charging (optional). If the unit is equipped with an internal IQ4 smart charger, two-step charging is not needed and the Dual Voltage Jack is disabled. For details on 3-stage charging voltages, refer to the IQ4 instruction manual.



## INSTALLATION OVERVIEW

Disconnect the positive side of the battery before installation. Connect the positive (red) and negative (black) terminal lugs to battery or load. Always use the proper size wire based on the amperage of the converter and the battery. When connecting to a battery, a breaker should be installed within 18" of the battery, connecting the battery positive to the line side of the breaker, and the DLS to the load side. Connect "Chassis Bonding Lug" on the DLS to vehicle chassis or other grounding source.

Plug the DLS A.C. input cord into a 120 volt 3-wire grounded source. See chart for maximum current draw and required input voltages. For complete installation guidelines, refer to the installation manual.



### Recommended Lengths per Wire Gauge for 2% Maximum Drop In Voltage

#14	#12	#10	#8	#6	#4	#2	#0	#000
--	--	1.5 ft	2 ft	3.5 ft	6 ft	9.5 ft	15 ft	24 ft
--	--	0.46 m	0.61 m	1.07 m	1.83 m	2.9 m	4.57 m	7.32 m

- Length values are for copper wire. For aluminum or copper-clad aluminum wire, lengths must be reduced.
- Values listed here are for normal room temperature (77°F or 25°C). For increased temperatures, lengths must be reduced accordingly. (For reference, at 140°F or 60°C, lengths need to be reduced by 15%.)

## WARRANTY

The DLS Series Battery Charger/Power Converter is warranted from defects in materials or workmanship for two years from date of retail purchase, and limits the remedies to repair or replacement. This warranty is valid only in the continental United States and Canada. For complete warranty details, contact Customer Service or visit [www.iotaengineering.com](http://www.iotaengineering.com).

## MOUNTING FOOTPRINT

