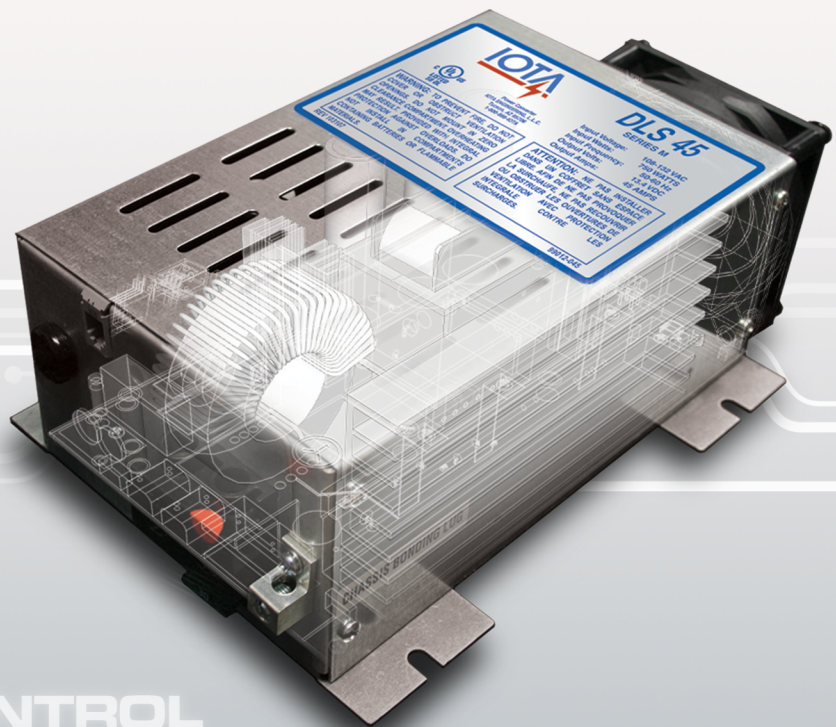


# DLS SERIES

POWER CONVERTERS & BATTERY CHARGERS



**DUAL-STATE  
LINE / LOAD CONTROL  
SWITCH-MODE**

DEPENDABLE AC/DC POWER MANAGEMENT FOR

**120VAC / 240VAC  
INPUT**

**12VDC / 24VDC / 48VDC  
OUTPUT**



## THE AC/DC POWER SOLUTION OF CHOICE

IOTA DLS Series Battery Chargers and Power Converters provide reliable AC/DC power conversion for a variety of application needs. IOTA Power Products are essentially two units combined: a versatile charger for 12-volt to 24-volt battery banks as well as a reliable AC/DC converter for powering low voltage loads.

With a record of proven performance throughout several industries, IOTA Power Products are the AC/DC power solution of choice for a number of professional and recreational users.

### ● DUAL STATE CHARGING

IOTA's Dual-State Charging design allows the unit to function as both a constant voltage or a constant current charger and automatically selects the optimal charging method for your battery's needs, resulting in safer, faster, and more efficient charging.

### ● LINE / LOAD CONTROL

The tight line/load control of the DLS allows for clean conversion of AC voltage into steady and reliable DC power for your battery or load. By preventing erratic DC output, the DLS Series allows confident operation of onboard and sensitive equipment for optimal life and avoiding unexpected overloads.

### ● SWITCH-MODE TECHNOLOGY

IOTA charger/converters use state-of-the-art switch-mode technology, which minimizes wasted power by significantly reducing high dissipation states. The switch-mode design allows for reliable, efficient performance in a compact chassis with lower operating temperature.

## A WIDE SELECTION OF MODELS FOR YOUR APPLICATION...



INPUT VOLTAGE		
OUTPUT VOLTAGE	120VAC (108-132VAC)	240VAC (216-264VAC)
	<b>DLS 15A (15 Amp)</b> <b>DLS 30A (30 Amp)</b> <b>DLS 45A (45 Amp)</b> <b>DLS 55A (55 Amp)</b> <b>DLS 75A (75 Amp)</b> <b>DLS 90A (90 Amp)</b>	<b>DLS 240 55A (55 Amp)</b>
	<b>DLS 27V 15A (15 Amp)</b> <b>DLS 27V 25A (25 Amp)</b> <b>DLS 27V 40A (40 Amp)</b>	<b>DLS 240 27V 25A (25 Amp)</b>
	<b>DLS 54V 13A</b>	

## AND INCLUDING POWERFUL DESIGN FEATURES...



Built-in protection features against low transient AC line voltage, and current limit and thermal overload protection.



Lower operating temperature for longer component life and safer operation in limited compartment spaces.



Proportional Fan Control provides 'whisper-quiet' operation, utilizing the fan only when needed and at minimal speeds, eliminating sudden and obtrusive start-up noise.



External Reverse Polarity automotive blade-type protect the unit in the event of incorrect battery hook-up.



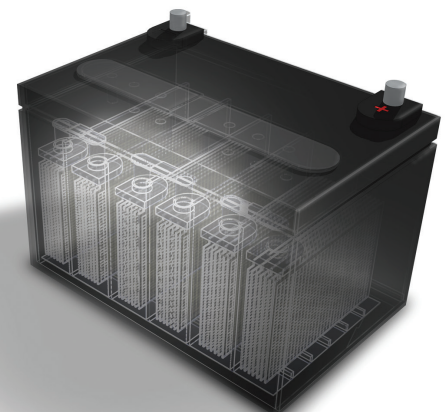
Dual Voltage jack allows for manual selection between Normal and Absorption Phase charging as well as easy installation of the IQ4 Smart Charge Controller.



Can be used with the optional IQ Charge Controller for automatic multi-stage charging to prevent battery sulfation and stratification.



Backed by IOTA's Two-Year Warranty.





# DLS MODELS

CONVERTS **120VAC** TO **12VDC**

These IOTA DLS units provide power conversion and battery charging from **120VAC input to 12VDC** loads. Refer to the Ratings and Specifications on **page 7** for complete characteristics. UL Listing for use in US and Canada on most models.

**DLS 15A**  
15 Amp



**DLS 30A**  
30 Amp



**DLS 45A**  
45 Amp



**DLS 55A**  
55 Amp



**DLS 75A**  
75 Amp



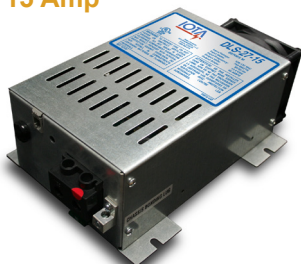
**DLS 90A\***  
90 Amp



CONVERTS **120VAC** TO **24VDC**

These IOTA DLS units provide power conversion and battery charging from **120VAC input to 27VDC** loads. Refer to the Ratings and Specifications on **page 7** for complete characteristics. UL Listing for use in US and Canada on all models.

**DLS 27V 15A**  
15 Amp



**DLS 27V 25A**  
25 Amp



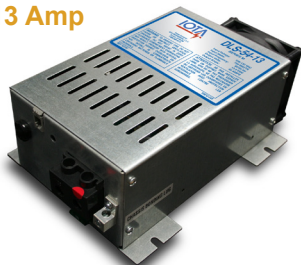
**DLS 27V 40A**  
40 Amp



CONVERTS **120VAC** TO **48VDC**

This IOTA DLS units provide power conversion and battery charging from **120VAC input to 54VDC** for charging 48-volt battery loads. Refer to the Ratings and Specifications on **page 7** for complete characteristics.

**DLS 54V 13A\***  
13 Amp



CONVERTS **240VAC** TO **12VDC** OR **24VDC**

This IOTA DLS units provide power conversion and battery charging from **240VAC input to 12 or 24VDC** depending on model. Refer to the Ratings and Specifications on **page 7** for complete characteristics.

**DLS 240 55A**  
55 Amp



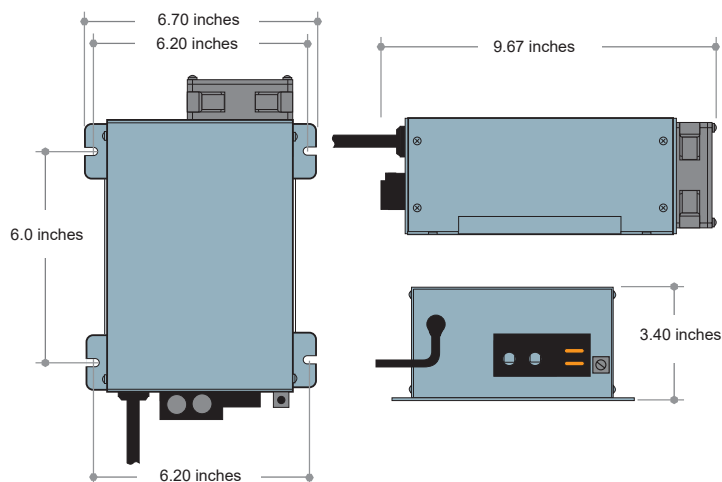
**DLS 240 27V 25A\***  
25 Amp



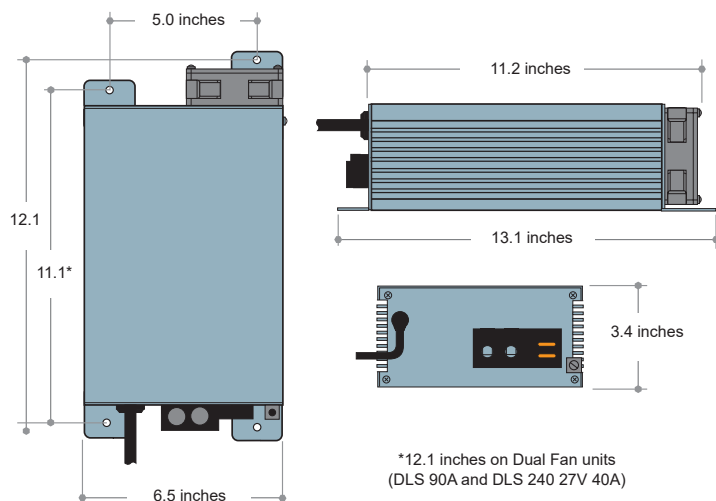
\*Unit is not UL Listed



## Dimensions and Weights (DLS)

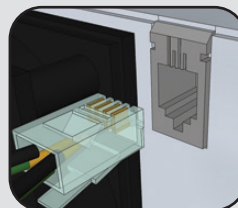


DLS 15A	4.5 lbs
DLS 30A	4.5 lbs
DLS 45A	5.0 lbs
DLS 55A	5.0 lbs
DLS 27V 15A	4.5 lbs
DLS 27V 25A	5.0 lbs
DLS 54V 13A	5.0 lbs
DLS 240 55A	5.0 lbs
DLS 240 27V 25A	5.0 lbs



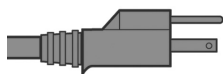
DLS 75A	7.8 lbs
DLS 90A	7.8 lbs
DLS 27V 40A	7.8 lbs

### DUAL VOLTAGE JACK AND PLUG



All DLS units feature a Dual Voltage Jack and include a Dual Voltage plug. Inserting the plug into the Dual Voltage Jack manually increases the output voltage of the DLS to deliver a BULK charge to the batteries. BULK voltage will vary based on DLS model.

### Cord Configuration



DLS Units are equipped with a NEMA-rated power cord (approx. 30-inch length.) Plug configuration will vary depending on the voltage and amperage rating of the unit. Use the reference below to verify the plug-type for your IOTA charger.



**NEMA 5-15**  
for 15A Receptacle

- DLS 15A
- DLS 30A
- DLS 45A
- DLS 55A
- DLS 27V 15A
- DLS 27V 25A
- DLS 54V 13A
- DLS 90A



**NEMA 5-20**  
for 20A Receptacle

- DLS 75A
- DLS 27V 40A



**NEMA 6-15**  
for 240VAC  
15A Receptacle

- DLS 240 55A
- DLS 240 27V 25A



### 4-GAUGE TERMINAL

DLS terminal block connections accept wire gauges up to **4AWG**. Wire gauge and distance can affect voltage drop. Refer to our online technical resources at [www.iotaengineering.com](http://www.iotaengineering.com) to find recommended wire gauge and lengths for the DLS model in your application.



## Four-Stage Charge Control for Optimal Battery Performance

IOTA IQ4 Charge Control Modules are the easiest, safest way to keep your batteries fully charged and in peak operating condition while maximizing useful life. By utilizing the IQ programming, IOTA chargers automatically deliver a four-stage charge cycle to your battery system. Whether you need frequently-cycled batteries charged quickly and efficiently or are maintaining stored batteries in top condition, IQ charge control provides the assurance that your batteries will perform when you need them to.

### 1 BULK

Batteries are charged up to the full-rated output of the battery charger, reducing the time needed to charge the battery.

### 2 ABSORPTION

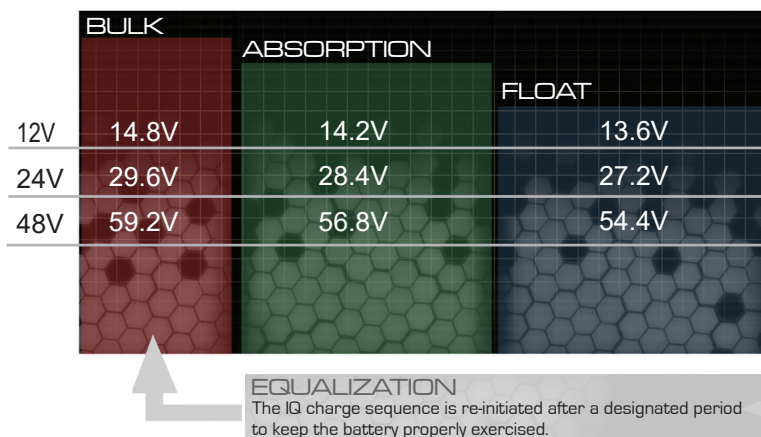
The voltage drops and the batteries are then held for a controlled period at the absorption phase to insure a full and complete charge.

### 3 FLOAT

The battery charger delivers a 'trickle' charge, maintaining the battery's full charge and avoiding "gassing" caused by over-charging.

### 4 EQUALIZATION

If the battery remains in the 'Float' state for seven days, the IQ4 delivers a Smart Charge cycle to dissolve sulfate layers and to avoid stratification.



IQ4 Charge Controllers feature a three-color LED (Green, Amber, Red) to help indicate charge voltage and charging phase of the DLS charge controller.

#### LED CODE TABLE

##### CELL INDICATION

6 Flashes (GREEN)	12-Volt Battery (6 cells)
12 Flashes (GREEN)	24-Volt Battery (12 cells)
24 Flashes (GREEN)	48-Volt Battery (24 cells)

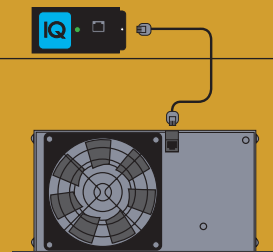
CHARGE PHASE	LED STATUS	VOLTAGE RATE
FLOAT	ON (GREEN)	2.266 per Cell
ABSORPTION	FLASHING (AMBER)	2.366 per Cell
BULK	FLASHING (RED)	2.466 per Cell

## THE IQ4

For use with IOTA DLS Series Chargers



IOTA IQ4 Charge Controllers provide automatic 4-stage charging for DLS Series Chargers. The IQ4 easily installs as a peripheral device by plugging the 10-inch IQ4 connection cord into the Dual Voltage Jack of the DLS. Select DLS chargers can also be ordered with the IQ4 charge control circuitry installed within the unit.



### IQ4

**Great for Stored Flooded Lead-Acid Batteries**

Our traditional IQ4 Smart Charge Controller delivers 4 basic charging functions: BULK, ABSORPTION, FLOAT, and a seven-day MAINTENANCE cycle. The IQ4 is an excellent way to maintain your stored flooded lead acid batteries, such as in an RV that is parked for extended periods of time.



### IQ4 TURBO

**Rapid Charging for Continually-Cycled Batteries**

The IQ Turbo delivers a powerful yet controlled BULK charge to help charge batteries in minimal time. Perfect for batteries that are used frequently but have limited time for re-charging from a generator, solar panel system, or other auxiliary supply.



### IQ4 EQUALIZER

**On-Demand Bulk Charging**

Initiates a constant current BULK charge to flooded lead acid battery to ensure all cells receive an adequate, complete charge in a brief timespan. After a predetermined period, the IQ-Equalizer drops to a trickle charge until re-inserted.



### IQ4 LIFEPO

**for Lithium-Iron Batteries with BMS**

For use with state-of-the-art LiFePO4 batteries with a Battery Management System. Allows the DLS to deliver proper voltage to charge the larger 4-cell design of the battery and remains in a stand-by trickle mode until a BULK charge is needed.



### IQ4 AGM

**Tailored Absorption for AGM batteries**

The IQ AGM provides preferred charging for AGM (Absorbed Glass Matt) batteries by skipping the Bulk cycle and holding the battery at an optimized ABSORPTION stage before reverting to the FLOAT stage.

# DLS SPECIFICATION REFERENCE

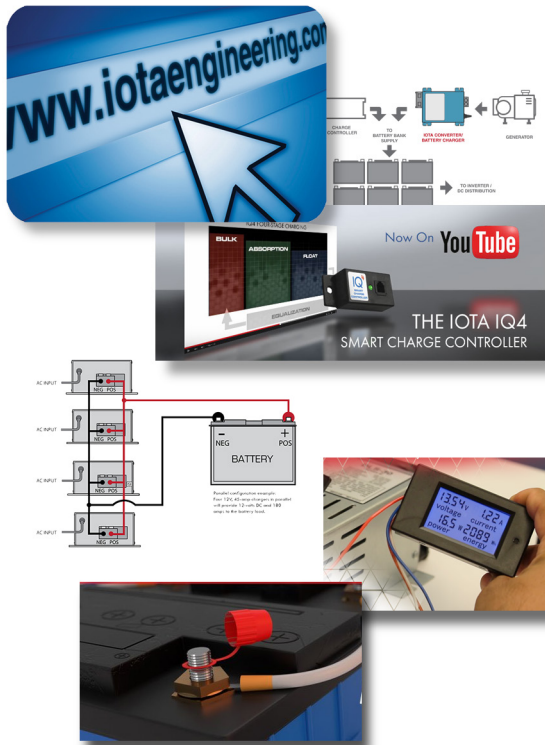
RATINGS AND SPECIFICATIONS	DLS 15A	DLS 30A	DLS 45A	DLS 55A	DLS 75A	DLS 90A
DC Output Voltage (No Load) approx.	13.6V (DC)	13.6V (DC)	13.6V (DC)	13.6V (DC)	13.6V (DC)	13.6V (DC)
Output Voltage Tolerance (No Load)	+ or - .7%	+ or - .7%	+ or - .7%	+ or - .7%	+ or - .7%	+ or - .7%
Output Amperage, Max Continuous	15 Amps	30 Amps	45 Amps	55 Amps	75 Amps	90 Amps
Output Voltage (Full Load) approx.	>13.4V (DC)	>13.4V (DC)	>13.4V (DC)	>13.4V (DC)	>13.4V (DC)	>13.4V (DC)
Max. Power Output, Continuous	200W	400W	600W	750W	1000W	1200W
Ripple and Noise	<50 mV rms	<50 mV rms	<50 mV rms	<50 mV rms	<100 mV rms	<150 / <50 mV rms
Input Voltage Range	108 - 132 VAC	108 - 132 VAC	108 - 132 VAC	108 - 132 VAC	108 - 132 VAC	108 - 132 VAC
Input Voltage Frequency	47-63	47-63	47-63	47-63	47-63	47-63
Maximum AC Current (@108Vac)	3.7 Amps	7.3 Amps	11 Amps	13.4 Amps	18.2 Amps	21.8 Amps
Typical Efficiency	>80%	>80%	>80%	>80%	>80%	>80%
Max Inrush Current, Single Cycle	30 Amps	30 Amps	30 Amps	30 Amps	40 Amps	40 Amps
Short Circuit Protection	Yes	Yes	Yes	Yes	Yes	Yes
Overload Protection	>100%	>100%	>100%	>100%	>100%	>100%
Line Regulation	100 mV rms	100 mV rms	100 mV rms	100 mV rms	100 mV rms	100 mV rms
Load Regulation	<1%	<1%	<1.5%	<1.5%	<1.5%	<1.5%
Fan Control	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL
Thermal Protection	YES	YES	YES	YES	YES	YES
Working Temperature Range	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C
Storage Temperature	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C
Withstand Voltage (VDC) <sup>†</sup>	1700/1700/500	1700/1700/500	1700/1700/500	1700/1700/500	1700/1700/500	1700/1700/500
Weight	4.5 lbs	4.5 lbs	5.0 lbs	5.0 lbs	7.8 lbs	7.8 lbs

RATINGS AND SPECIFICATIONS	DLS 27V 15A	DLS 27V 25A	DLS 27V 40A	DLS 54V 13A	DLS 240 55A	DLS 240 27V 25A
DC Output Voltage (No Load) approx.	27.2V (DC)	27.2V (DC)	27.2V (DC)	54.4V (DC)	13.6V (DC)	27.2V (DC)
Output Voltage Tolerance (No Load)	+ or - .5%	+ or - .5%	+ or - .5%	+ or - .5%	+ or - .7%	+ or - .7%
Output Amperage, Max Continuous	15 Amps	25 Amps	40 Amps	13 Amps	55 Amps	25 Amps
Output Voltage (Full Load) approx.	>27.0V (DC)	>27.0V (DC)	>27.0V (DC)	>54V (DC)	>13.4V (DC)	>27.0V (DC)
Max. Power Output, Continuous	400W	675W	1100W	700 Watts	750 Watts	675 Watts
Ripple and Noise	<100 mV rms	<100 mV rms	<100 mV rms	<100 mV rms	<50 mV rms	<100 mV rms
Input Voltage Range	108 - 132 VAC	108 - 132 VAC	108 - 132 VAC	108 - 132 AC	216 - 264 AC	216-264 VAC
Input Voltage Frequency	47-63	47-63	47-63	47-63	47-63	47-63
Maximum AC Current (@108Vac)	7.3 Amps	12.2 Amps	19.5 Amps	12.6 Amps	6.7 Amps	6.0 Amps
Typical Efficiency	>80%	>80%	>80%	>80%	>80%	>80%
Max Inrush Current, Single Cycle	30 Amps	30 Amps	40 Amps	30 Amps	30 Amps	30 Amps
Short Circuit Protection	Yes	Yes	Yes	Yes	Yes	Yes
Overload Protection	>100%	>100%	>100%	>100%	>100%	>100%
Line Regulation	100 mV rms	100 mV rms	100 mV rms	100 mV rms	100 mV rms	100 mV rms
Load Regulation	<1%	<1%	<1%	<1%	<1%	<1%
Fan Control	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL	PROPORTIONAL
Thermal Protection	YES	YES	YES	YES	YES	YES
Working Temperature Range	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C	0° - 40° C
Storage Temperature	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C	-20° to 80° C
Withstand Voltage (VDC) <sup>†</sup>	1700/1700/500	1700/1700/500	1700/1700/500	1700/1700/500	1700/1700/500	1240V @ leads
Weight	4.5 lbs	5.0 lbs	7.8 lbs	5.0 lbs	5.0 lbs	5.0 lbs

<sup>†</sup>Primary to Chassis/Primary to Secondary/Secondary to Chassis



# IOTA is dedicated to providing the products and service our customers demand and deserve...



Visit **[www.iotaengineering.com](http://www.iotaengineering.com)** for more information about our wide range of AC/DC power products. Get the latest details on new products, consult our on-line technical library for installation guidelines and product specifications, or browse our FAQ section for helpful hints concerning power product applications. Need technical support? Our Customer Service team is only a click away.

You can find IOTA on social media...access our YouTube library full of useful video guides and tutorials, or find out about industry events and upcoming shows on LinkedIn and Facebook! Follow us, become part of the IOTA community, and share your project and application insight!

DISTRIBUTED BY:



P.O. Box 11846 Tucson, AZ 85734  
1361 E. Wieding Road Tucson, AZ 85706  
T. 1-800-866-4682  
[www.iotaengineering.com](http://www.iotaengineering.com)

Find us on-line...

