



## PRODUCT OVERVIEW

<b>BULK STAGE</b>	Increased charge reduces charge times
<b>ABSORPTION STAGE</b>	Ensures a full and complete charge
<b>FLOAT STAGE</b>	Maintains the charge while avoiding battery 'gassing'
<b>EQUALIZATION STAGE</b>	Periodic charging to prevent sulfating while not in use.

## DESCRIPTION

The **IQ4 Smart Charge Controller** provides intelligent automatic **4-stage charging control** for your IOTA DLS Series Battery Charger, keeping batteries fully charged and operating for long life. **IQ4** Smart Charge Controllers are available for any DLS Series Battery Charger model and are backed by IOTA's Two-Year Warranty. For 4-Stage Charging, either the **external IQ4** pendant or a DLS Series charger with **built-in IQ4** technology can be used.

## CHARGING STAGE DESCRIPTIONS

The IQ4 Smart Charge Controller allows the DLS Series Battery Charger to operate as an automatic "smart charger," delivering the charge the battery needs at the time it needs it. The IQ4 uses four different charging modes to keep your battery in peak condition:

### BULK STAGE

The Bulk Stage of the IQ4 allows the batteries to be charged from the full rated output of the charger (for example: a 12V charger will charge at a maximum of 14.8V\*). This increased charging period reduces the overall charge time of the battery.

### ABSORPTION STAGE

After the Bulk Stage, the IQ4 then moves to the Absorption Stage (14.2V for a 12V battery\*). This mode will continue for up to 480 minutes (8 hours) to ensure that the battery receives a complete charge.

### FLOAT STAGE

During the Float Stage, the IQ4 reduces the DLS charge voltage. This reduced voltage maintains the full charge while minimizing 'gassing' of the battery. The IQ4's Float Stage prevents boiling and bulging of the battery caused when the battery is exposed to higher charging voltages for too long.

### EQUALIZATION STAGE

If the batteries remain in a "float stage" for a seven-day period, the IQ4 will switch the DLS charger into a pre-programmed Equalization Stage. This protects the battery by dissolving any sulfate layer on the battery's internal plates and avoids stratification that can occur when a battery has not been used for extended periods.

## FEATURES

Provides automatic charge control for IOTA DLS Series Battery Chargers

Reduces charge times

Helps prevent gassing, boiling, and bulging of batteries

Protects batteries from stratification and from sulfating of battery plates

Installs easily by plugging into the Dual Voltage Jack of the DLS charger

Flashing LED to indicate current charging stage

External and internal models available

Models available for any DLS Series Battery Charger

Two-Year Warranty

\*Refer to the Charging Voltages table for the different charging voltage levels.



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# IQ4

FOUR-STAGE SMART CHARGE CONTROLLER

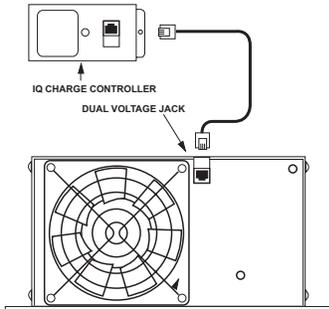
## OPTIONS

### MODELS

- EXTERNAL IQ4 PENDANT FOR 12V AND 24V DLS
- 54V-IQ4 (MODIFIED FOR USE WITH 54V DLS)
- PARALLEL IQ4  
(FOR TWO DLS UNITS OPERATING IN PARALLEL)

## INSTALLATION

The IQ4 installs by plugging the provided IQ4 cord into the Dual Voltage Jack of the DLS Series battery charger\*. The IQ4 circuitry is then automatically activated. NOTE: The cord provided with the IQ4 is only designed for use with the charge controller. Do not use the IQ4 with any cord other than one that is supplied with the unit.



\*Location of the Dual Voltage Jack may vary depending on the DLS model.

## CHARGING VOLTAGES

The charging voltage for the different stages varies depending on the voltage of the battery.

BATTERY VOLTAGE	BULK STAGE	ABSORPTION STAGE	FLOAT STAGE
12V	14.8V	14.2V	13.6
24V	29.6V	28.4V	27.2V
48V*	59.2V	56.8V	54.4V

The Equalization Stage will cycle the battery through the Bulk and Absorption Stages before returning the battery to the Float Stage.

Overall charging times will vary depending on several factors, such as the capacity of the battery, discharged state of the battery, the amperage of the DLS battery charger, and gauge of wire connections.

\*The DLS-54-13 battery charger for 48V applications requires an IQ4 charge controller modified for 54V.

## WARRANTY

The IOTA IQ4 Smart Controller 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).

## DIMENSIONS

