



PowerFirst Technology Company Limited

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Technical Specification for UniQ3600 (Confidential)

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1 INTRODUCTION

This document specifies the requirements for UniQ3600, it is a 3600W charger, used for wall-mount, charging station or on-board application. The charger is able to be controlled either autonomously with preset charging algorithm or by machine controller via CAN, I2C or other serial communication. The default preset charging algorithm is Pre charge + CC + CV for NMC battery.

Below product picture is for reference only, it is based on the standard specification sheet, customization is available subject to customer’s specific request. This series of chargers are widely used for big AGV, lithium AGV, lithium golf carts, pallet stackers, lithium pallet movers, big AWP or lithium AWP, etc.



2 DOCUMENT HISTORY

Table 2-1 Document History

Version	Date	Change record	Creator
V.01	20.06.18	Initial version	PowerFirst

3 SPECIFICATION

Table 3-1 Specification

No	Item	Technical specification	Remark
1	Rated input voltage	100 -240 VAC +/-10%, stepless change	Universal wide range
2	AC frequency	50-60Hz	Universal
3	Ultra low AC mains voltage protection	Protected in case of ultra low voltage. No need shut-off during protection.	Especially good for low AC voltage countries.
4	Peak efficiency	92% @240VAC/24VDC, 89% @120VAC/24VDC	CEC compliant
5	Power factor	>0.98 @ 230VAC, >0.99 @ 120VAC	Advanced Active PFC
6	Nominal output voltage	51V (3.65vpc, 14S NMC)	36V / 24V models optional
7	Bulk charge (CC)	Max. 60A (1C for capacity of around 60ah), until voltage reaches 58V (4.15vpc, 14S NMC), then switch to Absorption charge (CV)	Constant Current

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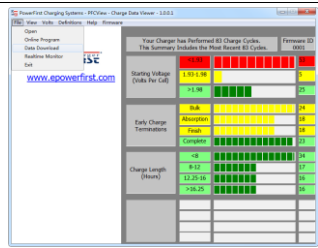


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No	Item	Technical specification	Remark
8	Absorption charge (CV)	Hold at 58V (4.15Vpc), and terminate at 6A (10% fast charge current)	Constant Voltage
9	Finish charge (CC)	-	No need for lithium-ion
10	Float charge	-	No need for lithium-ion
11	Line loss compensation	Based on 2 meters output cable's length	
12	Temperature compensation	-0.005Vpc / °C, T nominal = 26.7 °C	Optional
13	Temperature sensor (optional)	Temp compensation programmed based on NTC 10K, 5%, B25/85=3977K. Wires: 1.9m	
14	DC output wires	B+: Red, wireφ :20mm ² , length: 2000mm B- : BLK, wireφ :20mm ² , length:2000mm	
15	DC output terminals	Optional	
16	AC cable & plug	3*4 mm ² , length 1800mm, European plug	Customizable
17	Interlock signal lines (optional)	Normally-closed (NC), max. 15A Double wires: 2 * 1mm ² * 1000mm	With black thermal casing
18	Interlock connector (optional)	TBD	TBD
19	LED extention cable (optional)	TBD	TBD
20	External LED (optional)	TBD	TBD
21	iCharge functions (data upload, download for analysis, charge algorithms configuration) (Optional)	For advance model, charging algorithms configuration, charge history data download, charged capacity indication, real time monitoring of charging status, deep discharge record, selection of max output current, etc. This function is achieved via USB 2.0 port and a professional Windows application.	
22	USB port (Optional)	Type A female, used for iCharge software or communication	
23	Automotive COMM port (14-pin, optional)	Can bus (interfaced with machine controller or BMS), interlock, battery temp sensor, etc.	
24	Communication protocol	CANopen or Serial protocol	(Optional)
25	LCD operating panel	Monitoring, setting / selecting, events review	(Optional)
26	Other possible function	TBD	
27	Short circuit protection	Short circuit protection with auto-reset	
28	Reverse polarity protection	Reverse polarity protection with auto-reset	
29	Additional protection	Sparks protection AC surge protection with auto-reset Over temperature protection with auto-reset	
30	Regulatory compliant	TBD	Pending



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No	Item	Technical specification	Remark
31	Enclosure	IP21	
32	Cooling method	Forced cooling by fans	
33	Operating temperature	-35°C to +40°C at full load, Max.55°C	Output current derates when internal temperature higher than pre-alert point, and back to normal charging when cooled down
34	Storage temperature	-45°C to +65°C	
35	Mechanical fixing	On-board or wall-mount	Customizable
36	Dimensions	L 393 x W 230 x H 116mm	TBD
37	Weight	12Kg	Maybe some tolerance
38	Color	Silver + yellow	Customizable

4 CHARGING ALGORITHMS

Precharge + CC + CV for NMC battery

