

# Design Check List (DCL) for Custom Battery Pack V2.0a

Basic Information	Date	Aug,03,2015	Version	1.0	Configuration	48 V 13 S 12 P 30 AH
	Company	Viper Scooter Inc.			Product	Battery pack
	Application	E-scooter for postman			Project/Model	VS009-01
	Project type	Replace existing Li-battery with hardware BMS			Potential	450 pcs / Quarter Start at 2016
	Design status	Product is in production or in delivery			Enclosure status	Let battery supplier to design
	Background	The existing battery has mechanical issues and heating problem, and can not absorb the regenerative energy; Also need to add new features like RS485 communication				

Test sample	Date	Aug,31,2015	Qty.	2	pcs	Sample requirement	For function test only
Pilot run	Date	Oct,02,2015	Qty.	22	pcs	Mass production date	Nov,05,2015

Cell	Designated chemistry (LiFePO4, NMC, NiMH..)	NMC	Single cell capacity	2.6 AH
	Designated model (if any)	Samsung 26FM (18650 2600mAh)	Other requirements	None

Design Requirements	<b>Battery used inside the enclosure of application</b>				L	W	H
	Pack capacity	30 AH	13 S	12 P	Pack Dimension (Max)	400	x 220 x 86 mm
	Loading input range	34 ~ 60 V			Enclosure	Sheet Metal	Capacity LED Don't care
	Minimum output power of the battery	1800 W			Charge	0 ~ 44 °C	Button trigger LED Need
	Type of charger	Rectifier (no current limiter)			Discharge	-15 ~ 55 °C	
	Charge time (Max allowed)	2	Hours		Cycle life	800 @ 85 %DOD	
	Max charge current	12 A	0.4 C		<b>Communication Port</b>	RS485	
	Max continuous discharge	45 A	1.5 C		Host side grounding reference	Discharge negative	
	Short-circuit current	280 A			Host side already had isolation	Don't know	
	Regenerative (Recharge)	20 A	8 S		Purpose of this port	Monitor SOC and other status	
	Cascade between Packs	Parallel cascade			Protocol & Command	Follow supplier's	

Shut down the battery after 2000 hours of **no operation** (no charge, no discharge & no communication)  
**\*\*\* Once shut down, all communication(s) will be blocked, one must apply charge or use button to wake up the battery**

<b>Transient Discharge Current</b>	<b>BMS Protection (Factory Only)</b>	<b>Cell Protection Requirements</b>
55 A Duration 4 S	58 A delay 5 S	Cell OVP 4.25 V Release 4.15 V
75 A Duration 2 S	85 A delay 1 S	Cell UVP 2.85 V Release 3.05 V
120 A Duration 50 mS	130 A delay 10 mS	

**Safety Regulation**  UN/DOT 38.3  UL2054  IEC62133

**Others**

**Design Material**  Charger data sheet  Cell data sheet  Enclosure drawing  Connector pin-out

**Reference documents**

1 Enclosure-4812-0411.stp	2 LN35-connector.pdf
3 QAF-Motor-spec.pdf	4 QAF-232-Transmission Protocol.pdf
5	6
7	

**Customer :** Name: Jean Pierre Title: System Engineer Signature: \_\_\_\_\_ Date: Aug,03,2015

**Factory Only**

**Comment**

---

Project code **AP09** Sales \_\_\_\_\_ EE \_\_\_\_\_ ME \_\_\_\_\_

Order code **AP09-3S-0-01** Sale Mgr. \_\_\_\_\_ GM \_\_\_\_\_