Certificate of Compliance

Certificate: 80055931 **Master Contract:** 601776

Project: 80055931 **Date Issued:** 2020-09-10

Issued to: Exide Australia PTY Ltd.
135 Nancy Ellis Leebold Drive,
Bankstown, New South Wales 2200,
Australia

Attention: Mr. RUSSELL ZAMMIT

The products listed below are eligible to bear the CSA Mark shown with adjacent indicator 'US'

US

Issued by: *Peng (Cheney) Chen*
Peng (Cheney) Chen

PRODUCTS

CLASS 3701-82 - Battery System for use in Stationary Applications. - Certified to US standard.

Secondary lithium ion battery system for use in stationary application, Models LIBS048200-G04, LIBS048150-G03.

Electrical Ratings:

Battery System Model	Battery Pack Ratings				Battery Module	BMS Model
	Normal Voltage, Vdc	Normal Capacity, Ah/Wh	Battery Pack Configuration*	Enclosure IP Rating		
LIBS048200-G04	48	200Ah/9600Wh	1s4p	IP55	LIBM048050-G01	N/A
LIBS048150-G03	48	150Ah/7200Wh	1s3p	IP55	LIBM048050-G01	N/A

Note*: Battery System consists of 3 or 4 Battery Packs model LIBM048050-G01, which are in parallel connection. The Battery Pack contains BMS inside it, is approved by CSA with the certified Battery Pack LIBM048050-G01 (Refer to CSA report 80002586). There is no additional BMS for battery system, except for the BMS from battery pack, and each of the BMS can run independently.

Model difference:

LIBS048150-G03 is similar to LIBS048200-G04, except that LIBS048150-G03 contains 3 battery packs in parallel connection, while LIBS048200-G04 contains 4 battery packs in parallel connection. Others refer to Electrical Rating Table and Charging/Discharging Parameters Table.

Manufacturer's Specified Charging Parameters for Battery Pack

Battery Pack Model	Temperature Range, °C	Normal Charging Voltage, Vdc	Normal Charging Current, A	Maximum Charging Voltage, Vdc	Maximum Charging Current, A
LIBS048200-G04	-10~45	51.5	40	51.5	100
LIBS048150-G03	-10~45	51.5	30	51.5	100

Manufacturer's Specified Discharging Parameters for Battery Pack:

Battery Pack Model	Temperature Range, °C	Normal Discharging Current, A	End-of-discharge voltage, Vdc	Maximum Discharging Power, W	Maximum Discharging Current, A
LIBS048200-G04	-10~45	90	42	--	120
LIBS048150-G03	-10~45	67.5	42	--	120

Conditions of Acceptability:

1. There is no additional BMS for battery system, except for the BMS inside the battery pack, which can run independently. The battery pack including its battery management system has been tested according to the functional-safety requirements of ANSI/CAN/UL-1973:2018, Second Edition. Solid state circuits and software controls relied upon as the primary safety protection, have been evaluated to the Standard for Safety: Automatic Electrical Controls – Part 1, UL 60730-1. Refer to CSA report 80002586.
2. The enclosure was evaluated to establish an IP rating of IP55 with the Standard for Degrees of Protection Provided by Enclosure (IP Code) IEC 60529.
3. Product is evaluated for being used near marine environments, with a severity level of 2 salt fog condition according to IEC 60068-2-52.
4. Further evaluation for Resistance of Moisture and/or Salt Fog may be required for the battery system intended to be used in the end product where higher level of moisture and/or salt fog condition were applied.
5. The cable entry holes at the top and bottom of enclosure were sealed and the Machine feet at the bottom of enclosure were mounted, while conducting the IP test and salt fog test. Additional evaluation may be required after the holes opened for the cable connecting or after the machine feet uninstalled, during the installation or using in the end product.
6. Corrosion due to electrochemical action is to be determined for conductive parts in contact with terminals when subjecting to the installation of the end products.
7. Equipment Application Location: Stationary

8. Access Location: Operator Accessible.
9. The installation was not evaluated. The battery system shall be installed in accordance with NFPA 70 or other applicable installation code.
10. Dielectric Voltage Withstand Test was performed with the test potential of 2000Vac/2828Vdc, a higher test potential shall be considered in the end product if higher overvoltage category specified.
11. Overvoltage Category(OVC): 2
12. Pollution Degree(PD): 2
13. Altitude for Operation: Up to 2000 m

APPLICABLE REQUIREMENTS

ANSI/CAN/UL-1973:2018, Second Edition - Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications.

MARKINGS

See CSA report.

Supplement to Certificate of Compliance

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The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80055931	2020-09-10	Multiple Listing Certification for battery system for use in stationary application, Models LIBS048200-G04, LIBS048150-G03. (Listee: Exide Australia PTY Ltd.)