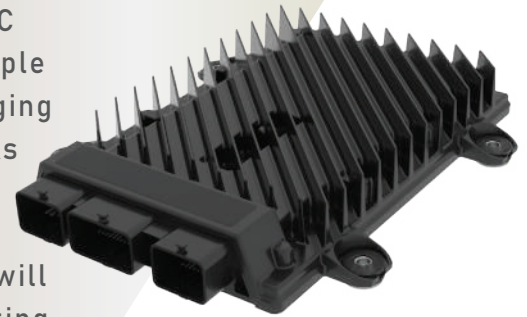


MULTI STRING CONTROLLER (MSC)

nexcharge
Exide Leclanche Energy
Private Limited

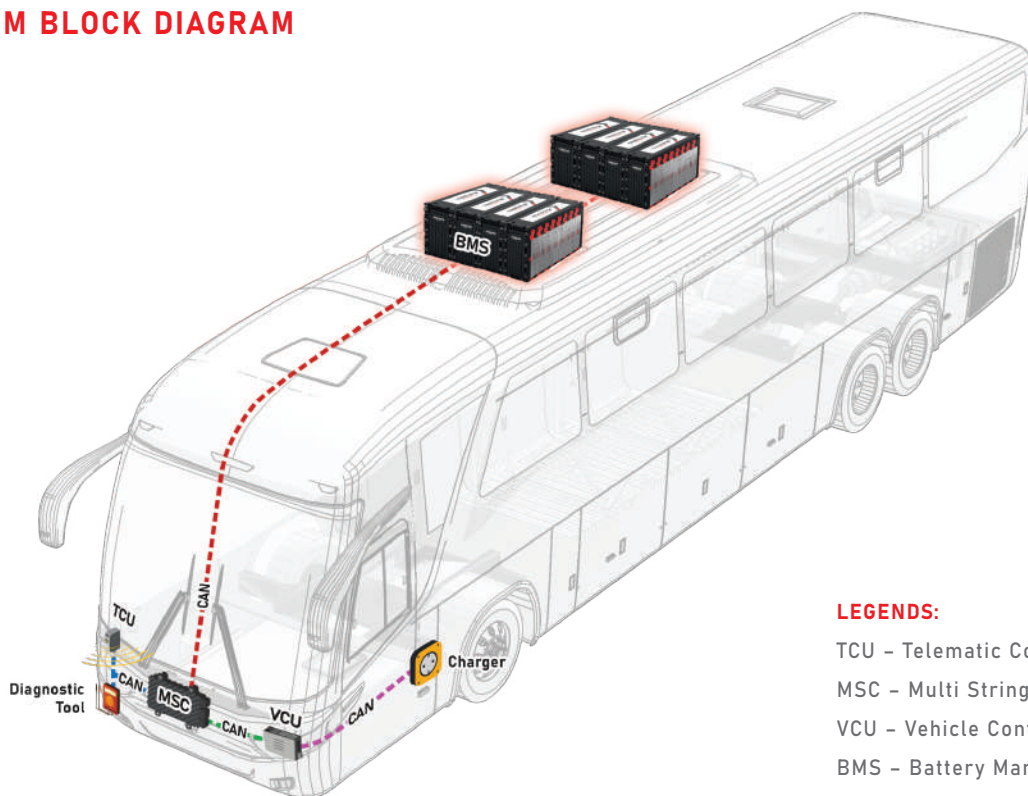


The **Multi String Controller (MSC)** manages and controls multiple battery packs connected in parallel. The MSC is an electronic control unit, which 'virtualizes' multiple battery packs as a 'single battery system'. It has logging capabilities to store specific data of the battery packs and acts as a communication gateway between Battery Management System (BMS) and Vehicle Control Units of an electric/hybrid vehicle. The MSC will help save months of design time for OEMs in integrating battery packs with their vehicles.



MSC is a single rigid printed circuit board attached to an aluminium housing using thermal adhesive, which is then closed and sealed with an aluminium cover. Connections to the control are made via three automotive-style sealed connectors. The MSC can be mounted directly to the frame using the vibration isolators pre-installed on the controller.

SYSTEM BLOCK DIAGRAM



LEGENDS:

- TCU - Telematic Control Unit
- MSC - Multi String Controller
- VCU - Vehicle Control Unit
- BMS - Battery Management System
- CAN - Controller Area Network

Picture represented is only for illustration purpose, position of the respective controller units in a given vehicle may change.

FUNCTIONAL FEATURES

- › MSC virtualizes multiple batteries as a single battery system
- › Validate and aggregate the received battery string data to represent as single battery data
- › Sends virtualized battery data to the different control units such as VCU/Charger/Tester, Telematics
- › Provides protection to individual battery strings
- › Manages different operating modes of battery pack
- › Snapshot data record for an error event
- › Acting as a gateway between BMS and Diagnostic tool
- › Handles fault management of the battery strings
- › Communicates on CAN via extended CAN IDs
- › Diagnosing up to individual cell level
- › Charge/Discharge control of strings
- › Capable of battery pack balancing
- › Supported by KL15 wakeup mode

SALIENT FEATURES

- › Easy to configure number of battery strings
- › Integration up to 8 battery strings and extendable up to 16
- › Easy integration with any BMS or VCU by simple adaptation of driver level interface
- › Matlab & Simulink model based development
- › Automotive grade compliance: AIS-004 Part 3
- › 4-kilobyte serial EEPROM for calibration parameter storage
- › Flashing over either XCP over CAN or UDS on CAN
- › 3 CAN (Controller Area Network) communications ports

TECHNICAL DATA

Product Dimension	281 X 204 X 40 (L X B X H)
Weight	1.6 Kg
Interface	IP67, CMC and CMX Sealed, Hybrid, Modular Connectors
Operating Voltage	8-32 V (DC)
Operating Temperature	- 40 to +105 °C
Storage Temperature	- 40 to +105 °C
Current Consumption	1mA (Nominal)
Power Dissipation	< 32W
CAN	3 CAN Interface, CAN2.0a, CAN2.0b
Storage	2MB Flash, 128K RAM
Mechanical Vibration	RV3 (22.1 Grms)
Mechanical Shock	50g, 11ms, half-sine wave, 4 shocks in each direction (24 total shocks)
Ingress Protection	IP67 & IP69K
EMI/RFI Specification	<ul style="list-style-type: none">- SAE J1113-41 (Radiated & Conducted Emissions)- SAE J1113-13 (ESD)- SAE J1113-21 (Radiated RF Immunity)- SAE J1113-11 (Transient Testing)