Electrical Ground Support Equipment (EGSE)

SUMMARY

C3S' EGSE, designed for cubesats and standalone batteries, is capable of charging and discharging 1 to 4 series connected battery cells. The charging current, discharging current, target charging voltage and target discharging voltage can be set with mA (at current) and mV (at voltage) accuracy. Beside these functionalities it can also perform automated test programs for characterizing the battery cells.

MAIN FEATURES

- Robust design & failure handling
- Equipped with a coulomb counter and battery balancer circuit
- 4 thermistors and an overtemperature input line to measure the temperature of the battery pack
- Easy-to-handle user interface is provided by a 3.5″ touchscreen
- Security turn off in case of overvoltage, undervoltage, overcurrent or overtemperature
- Equipped with an emergency switch for manual shut down
- Measured data is stored on the equipment
- Data download is made possible through a USB port, supporting micro-SD cards as well

SPECIFICATION

Property	Value/Options
Interfaces	1 x USB 4 x open collector GPIO lines 2 x GPI lines
Charge voltage range	3.2V - 16.8V
Charging current	200mA - 5A
Balancer current	200mA
Discharge current	50mA - 5A
Discharge voltage range	16.7V - 3.1V
Maximal discharge power	63W

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EGSE Specification

Discharge current slew rate	0.2 A/us
Cell voltage sensing accuracy	1%
Cell voltage sensing bandwidth	30kHz
Current measurement accuracy	Under 1% if the current is higher than 50mA (both discharge and charge current)
Current measurement bandwidth	30kHz
Coulomb counter accuracy	1%
Temperature sensing accuracy	1°C
Supply voltage	100/240VAC (50 or 60Hz), or 20-26VDC