



G-TH

BATTERY MANAGEMENT SYSTEM

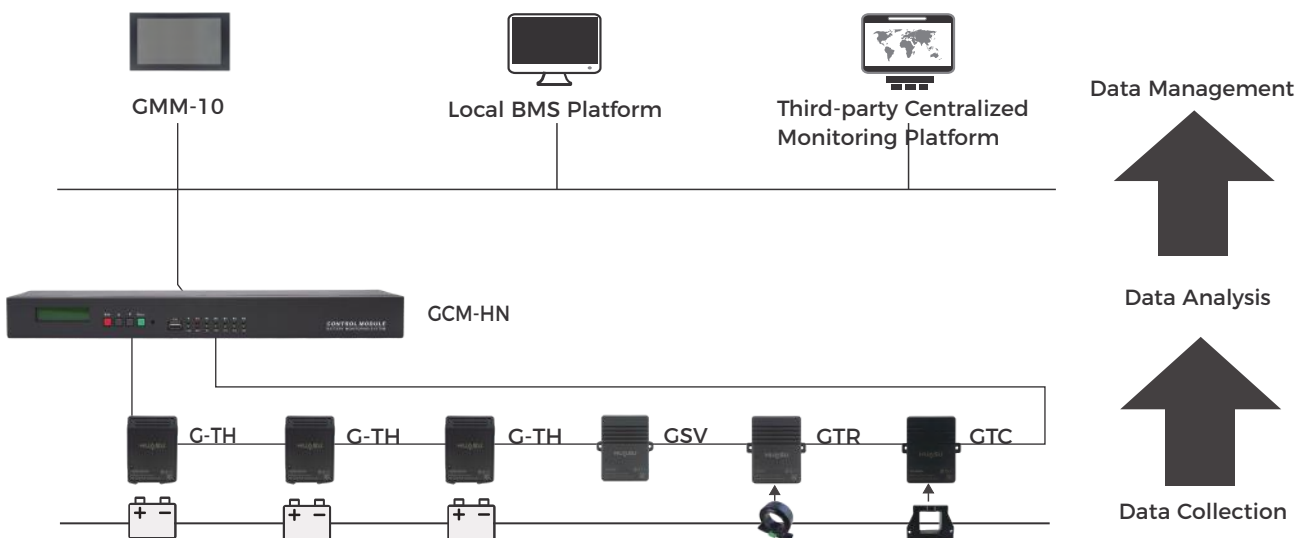
REAL-TIME & ONLINE MANAGEMENT

OVERALL FUNCTION

DISTRIBUTED ARCHITECTURE

AI DATA ANALYSIS

TOPOLOGY



FEATURES & BENEFITS

Thermal runaway Intelligent Analysis and Early Warning

Adopt intelligent analyses on the thermal runaway trend of the battery and issue early warning in time to prevent the battery from thermal runaway and to protect the battery strings. The thermal runaway phenomenon can be predicted in advance by tracking the float charging current curve, and intelligent calculation of battery internal temperature and ambient temperature.

High-accuracy SOC/SOH

Own online parameter identification, self-correction of charging, no jump, which renders SOC error of all working conditions no more than 5%, and hence improves battery utilization ratio and operational safety. Refer to the advantages of various algorithms such as Kalman filter, multi-dimensional, fuzzy network neural, and open circuit voltage method. Provide high accuracy SOC estimation, improving the SOC accuracy of traditional BMS from $\pm 20\%$ to $\pm 5\%$.

Advanced low power consumption design

Adopt advanced power consumption management method and improved circuit to render the G-TH module working current no more than 3 mA, which is far below the industry average.

AI data analysis

Apply AI intelligent data analyses to detect low effective battery, monitor the safe operating environment, help cell selection, and export analysis report clear and easy to understand. Adopt new collection mechanism to realize the fast data updates, ensure the data accuracy and reduce delay, which makes the data collection more precise and reliable.

MONITORED PARAMETERS

01 Fast Data Update

02 Ambient Temperature

03 Intelligent Balance

04 Charge/discharge Current

05 Float Current

06 String Voltage

07 Cell Internal Resistance

08 Cell Voltage

09 Cell Temperature

SPECIFICATIONS

Item	Name	Parameter
Environment	Operating temperature	-20~+60°C (0~2000mASL)
	Relative humidity	5~95%
	Atmospheric pressure	80~110kPa
Reliability	Automatic restarttrigger	Built-in WDT
	MTBF	100,000 hours
Certification	EMC	EN 55032:2015+A11:2020 EN55035:2017+A11:2020 EN 61000-3-3:2013+A1:2019 ENIEC 61000-3-2:2019
	Safety	EN61010-1:2010
	CE, REACH and TTL certification	
Performance	Up to manage6 strings, a total of 600 cells	
Communications Interfaces	RS485, LAN, dry contact SupportMODBUS/RTU, TCP and SNMP protocols	
Index	Status (● Normal ● Early Alarm ● Alarm)	
Thermal Runaway	●	● ●
SOC	●	● ●
SOH	●	● ●

Item	Name	Parameter		
Power Requirements & Consumption	Model	Powered By Current Consumption		
	G-TH-1V2 G-TH-02	Battery	7mA ($\leq 13\text{mA}$)	<30mW
	G-TH-06 G-TH-12		3mA ($\leq 7\text{mA}$)	<50mW <80mW
	GTC	CM module or external power 10.8~13.8VDC	$\leq 210\text{mA}$	<2W
	GTR	CM module or external power 10.8~13.8VDC	$\leq 210\text{mA}$	<2W
	GCM-HN	100~240VAC(rated) 90~264VAC(max)	$\leq 0.4\text{A}$	<15W
Measuring Range & Accuracy	Measuring Content	Range Accuracy Resolution		
	String Voltage	20~800V	$\pm 0.5\%$	0.1V
	Cell Voltage	1.2V, 2V, 6V, 12V	$\pm 0.1\%$	0.001V
	Cell Internal Resistance	50~65535 $\mu\Omega$	$\pm 2\%$ (repetitive accuracy)	1 $\mu\Omega$
	Temperature	-5~+99.9°C	$\pm 1^\circ\text{C}$	0.1°C
	Charge/Discharge Current	$\pm 1500\text{A}$	$\pm 1\%$	0.1A
SOC/SOH	—	$\pm 5\%$	1%	

