



GENERAL SPECIFICATIONS

Nominal Voltage	51.2V
Max Charge Voltage	58.4V
Nominal Capacity	40Ah
Energy	2,048Wh
Cell Chemistry	LiFePO ₄
Cycle Life at 100% DOD	>2,000
Parallel Cascading	Up to 15 units
Serial Cascading	Not Supported
Button Indicator	SOC, Status
Vent Valve	YES
CAN bus	YES

DISCHARGE

Max Cont. Discharge	80A
Peak Discharge	150A @30S
1 st Level Cut-off	160A @2S
2 nd Level Cut-off	200A @500mS
Discharge Cut-off	40V (2.5V/cell)

CHARGE

Max Charge	40A
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OTHERS

Charge Temperature	-30~65°C
Discharge Temperature	-20~65°C
Standby Current	<30mA
Sleep Current	<100µA
Standby to Sleep Delay	48 hours
Self-Discharge	3.5% per month

Dimension (L*W*H)	260*180*275mm
Enclosure	ABS+PC
Enclosure Flame Class	UL94 V-0
IP Rating	IP67
Built-in Battery Heating	YES
Design Compliance	UN38.3, IEC 62133, UL2271, UL2580
Shipping	UN3480, Class 9

Engineered to be compatible with a variety of ESS & deep cycle motive applications, such as utility vehicles, golf carts, AGV/AMR, GSE, AWP. Additionally, it has been designed to replace lead-acid batteries in various applications for

Highlights

- ✦ Highest energy density (2,048Wh) in BCI GC2 size
- ✦ State-of-the-art fuel gauge controller
- ✦ SOC estimation by current integration with Coulomb Counting
- ✦ High charging rate that supports opportunity charging
- ✦ Pre-charge function allows safe charging in low voltage levels
- ✦ Compatible to lead-acid chargers that require voltage detection
- ✦ Mutual charge current limiter that safeguards parallel cascading
- ✦ Benefits of capacity expansion due to the parallel cascading
- ✦ CAN bus / CAN bus wake-up
- ✦ Bluetooth
- ✦ Power-Link enables easy installation
- ✦ Inherent low temperature charge/discharge support from cells
- ✦ Built-in battery pack heating function
- ✦ High performance cell balancing
- ✦ High performance inter-battery balancing for parallel cascading
- ✦ Event logging with RTC time stamp
- ✦ Configurable protection parameters
- ✦ Firmware upgradable
- ✦ IP67

Connectivity

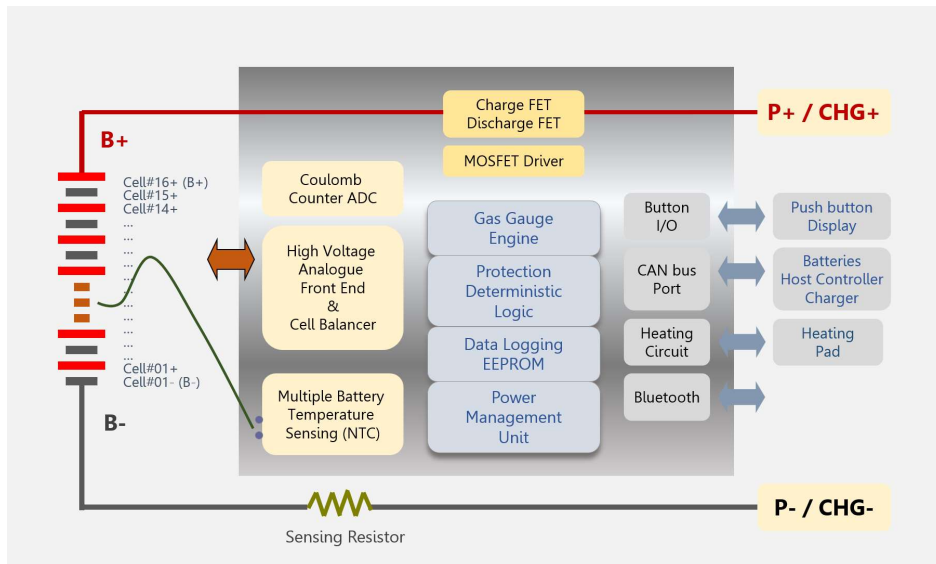
- ✦ CAN bus based fuel gauge
- ✦ CAN bus based handheld reader
- ✦ Remote switch

BATTERY PROTECTIONS
Cell Over Voltage
Cell Under Voltage
Over Charge Current
Over Discharge Current
High Temperature in Charging
High Temperature in Discharging
Low Temperature in Charging
Low Temperature in Discharging
Short Circuit
Others (bad cell, imbalance, charger fail, ...)

CHARGER REQUIREMENTS	
Charge Voltage	57.6V (3.60vpc)
Float Charge Voltage	54.4V
Over Charge Voltage Cut-Off	59.2V (3.7vpc) for 4S
Bulk Charge Current	≤40A
Over Charge Current Cut-Off	45A for 4S
Temperature Compensation	None

Protections, as well as their recovery thresholds and delays, can be modified through the CAN bus (or Bluetooth), contact supplier to inquire the methods and permissions for making modifications

ATP-GC2-4840 Block Diagram



Operating modes

MODE	DESCRIPTIONS	ACTION	CONSUMPTION
Active	Battery in charging, discharging or there is communication	Accept Chg/Dischg	-
Standby	Not in charging, discharging or communication	Accept Chg/Dischg	<30mA
Sleep	48 hours after battery in standby mode, or UVP is triggered	Dischg not accepted	<100µA
Power Down	Further voltage drop in UVP mode or button/command input	Dischg not accepted	0

Connections and display

No.	FUNCTION	No.	FUNCTION
1	CAN bus OUT	8	CAN bus IN
2/9	Lift up handle	10	Status indicator
3	Heat sink	11	Alarm indicator
* 4/5/6	Negative terminal	* 12/13/14	Positive terminal
7	Vent valve	15	Button/SOC indicator

* 4,5 & 6 (12,13 & 14) are connected internally



Event count logging

ITEM	DESCRIPTION	ITEM	DESCRIPTION
Reset	Reserved	Taper Fully	Fully due to taper
Cell OVP	Cell over voltage protection	CellIOV Fully	Fully due to CellIOV
Pack OVP	Pack over voltage protection	PackOV Fully	Fully due to PackOV
Cell UVP	Cell under voltage protection	OverChg Temp	Over temperature in charging
Pack UVP	Pack under voltage protection	UnderChg Temp	Under temperature in charging
Over CC	Over charge current protection	OverDis Temp	Over temperature in discharging
Over DC	Over discharge current protection	UnderDis Temp	Under temperature in discharging
Precharge	Precharge	NTC#1 OT	Over temperature of NTC#1
UVP PowerOff	Power down due to UVP	NTC#2 OT	Over temperature of NTC#2
Firmware	Firmware update count	NTC#3 OT	Over temperature of NTC#3

Other logging data

ITEM	DESCRIPTION
Operation Time	Battery operating time
Last Chg Time	Elapse time since last charge
Chg Interval1	Maximum interval between two effective charging
Chg Interval2	2 nd long interval between two effective charging
Chg Interval3	3 rd long interval between two effective charging
BadCellVol	Bad cell voltage and cell number
PoweroffVol	Cell number with lowest voltage during UVP power down
UnbalanceVol	Highest voltage experienced in Unbalance protection
UnbalanceLow	Lowest voltage experienced in Unbalance protection
UnbalanceNo	Highest and lowest cell number in Unbalance protection
OpenLineNo	Cell number during battery cell disconnect

ORDERING CODE	DESCRIPTIONS
ATP-GC2-4840	Rechargeable battery, LFP, 51.2V40Ah, 40A/80A, CAN, BT, LT

Other family members

	ATP-GC2-4840	ATP-GC2-2480	ATP-GC2-12160	ATP-G31-12160
Nominal voltage	51.2V	25.6V	12.8V	12.8V
Nominal capacity	40Ah	80Ah	160Ah	160Ah
Energy	2,048Wh	2,048Wh	2,048Wh	2,048Wh
Typical applications	Mobility, e.g. Golf cart, GSE, AGV/AMR	AWP, AGV/AMR, Floor cleaning machine, Marine, Pallet Jack, RV, Solar, Trolling Motors	House battery, Marine, Off-Grid, RV energy storage, Solar, Trolling Motors	
Max continuous discharge	80A	100A	250A	250A
Pulse discharge @30S	150A	150A	600A	600A
Coulomb counter ADC	YES	YES	YES	YES
Precharge function	YES	YES	YES	YES
Mutual current limiter	YES	YES	YES	N/A
CAN bus	YES	YES	YES	N/A
Bluetooth	YES	YES	YES	YES
Built-in heating function	YES	YES	YES	YES
Parallel cascading	up to 15 units	up to 15 units	up to 15 units	up to 4 units
Serial cascading	Not Supported	Not Supported	Unlimit ¹	Unlimit ¹
IP rating	IP67	IP67	IP67	IP67
Design compliance	IEC 62133 UL2271, UL2580	IEC 62133 UL2271, UL2580	IEC 62133 UL1973	IEC 62133
Dimension		BCI GC2 260*180*275 mm 10.2*7.1*10.8 inch		BCI G31 325*170*235 mm 12.8*6.7*9.2 inch
Shipping	UN 38.3 UN3480, Class 9			
Status	Sample Now	Sample Q3 2023	Sample Q2 2023	Sample Q2 2023

¹ under development

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This specification is subject to change without prior notice.

The mentioned products are not suitable for use in automotive or military applications.

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1. **Life support devices** are medical devices or systems that are designed to support or sustain human life, either temporarily or permanently.
2. **Critical components** in a life support device are components that are essential for the proper functioning of that device and whose failure to perform can reasonably be expected to cause the failure of that life support device, or to affect its safety or effectiveness.

CORPORATE INTRODUCTION

Shenzhen ATPower Electronics Co., Ltd. is a leading company in the design and manufacturing of lithium batteries for a wide range of industrial and commercial applications. Our in-house team is capable of developing both hardware and firmware of the BMS, turnkey service is offered which includes cell selection and validation, battery pack design, enclosure ID design, battery pack manufacturing and assistance to customers in obtaining the necessary safety standard certifications.

Dedication to innovation and commitment to quality has made ATPower a reliable battery supplier in the industry.

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