

Battery Management Solutions for Global Positioning Systems

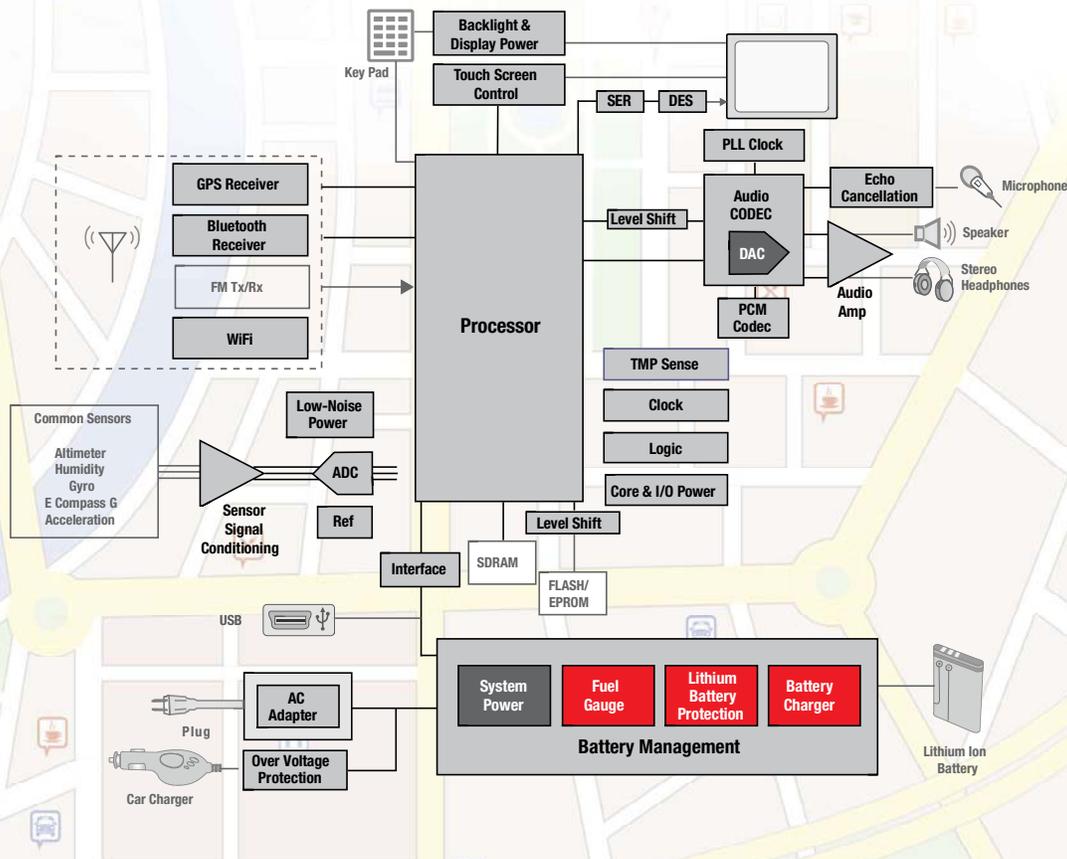


Overview

Global Positioning System (GPS) technology has matured into a resource beyond its original intention of navigation and asset tracking to provide accurate location and integrates many consumer features requiring reliable and accurate battery management systems. TI's portfolio delivers dependable performance to extend and track battery life and state-of-health using Impedance Track™ integrated circuits and a wireless charging portfolio with the industry's broadest selection of standards-compliant ICs and design tools. From efficient charging to high-accuracy gauging, TI products meet the most challenging GPS needs.

Broadest portfolio of Battery Management ICs

- Charger ICs, Impedance Track™ Fuel Gauges, Protection & Authentication, Wireless Charging, Energy Harvesting
- Smallest footprint, space-saving solutions for small form factors
- Very high-efficiencies allow lower heat dissipation and longer battery run-time
- Reference designs, evaluation boards, and design tools available for rapid prototyping



GPS Battery Management

Featured Chargers

Device	Features, Benefits	Evaluation Modules
bq24190/96	Li-Ion/Li-Pol 1S chargers, support up to 17 V _N max, OTG capabilities, adjustable charge voltage	bq2419XEVM
bq24250/51	Li-Ion/Li-Pol 1S chargers, support up to 2A charge current, PowerPath, charge time optimizer	bq24250EVM
bq24260	Li-Ion/Li-Pol 1S charger, supports up to 3A charge current, PowerPath, USB compatible, integrated FET	bq24260EVM-611
bq24133	Synchronous switch-mode Li-Ion/Li-Pol standalone charger with 2.5A integrated MOSFETs	bq24133EVM-715, 5V and 15V versions
bq24160	Li-Ion/Li-Pol 1S charger, supports up to 2.5A charge current, switchmode, I ² C control interface, PowerPath	bq24160EVM-721
bq24170/72bq24133	Synchronous switch-mode Li-Ion/Li-Pol chargers, supports up to 4A charge current, PowerPath	bq24170EVM, 5V and 15V versions
bq24295/96	3A Li-Ion/LiPol 1S charger, adjustable voltage, I ² C Interface, OTG capabilities	bq24295EVM-549, bq24296EVM-021
bq24040	1A single-input, single cell Li-Ion battery charger with Auto Start Vovp	bq24040EVM
bq24072/75	USB-friendly Li-Ion charger, PowerPath management IC	bq24072EVM, bq24075EVM
bq500212A	Qi-compliant 5V wireless power transmitter manager with Dynamic Power Limit™	bq500212EVM-550
bq500410A	Qi-compliant, free positioning wireless power transmitter manager, WPC	bq500410AEVM-520
bq51020	Qi-compliant 5W single chip wireless power receiver	bq51020EVM-520
bq51050B/51B	1A Qi-compliant highly integrated direct Li-Ion wireless receiver and charger	bq51050BECM-764

Featured Gauges, Protection, Monitors

Device	Features, Benefits	Evaluation Modules
bq27621-G1	Li-Ion/Li-Pol single-cell fuel gauge, system-side with dynamic voltage correlation, I ² C Interface	bq27621EVM-61
bq27421-G1	Li-Ion/Li-Pol, single-cell, fuel gauge with integrated sense resistor, system-side, I ² C interface	bq27421EVM-61A or B
bq27411-G1	Li-Ion/Li-Pol, single-cell Impedance Track™ fuel gauge, pack-side implementation, I ² C interface	bq27411EVM-61A or B
bq27441-G1	Li-Ion single-cell Impedance Track™ fuel gauge, system-side, I ² C interface	bq27441EVM-61A or B
bq29700	Li-Ion/Li-Pol, single-cell, battery protector IC, primary protector, OVP, UVP	bq29700EVM-610

Design Resources

Tool	Description
Design Tools	Battery Management Studio software universal development platform, includes gauging in five clicks. See the complete library at ti.com/batterytools
Reference Designs	TI Designs reference design library for battery-powered devices feature gauges, chargers, protection and AFE designs. Search battery management designs at ti.com/tidesigns
Development Kits	See the complete listing at ti.com/batterytools
Technical Training	Available on-demand at ti.com/battery . Battery Management University courses and Getting Started content in multiple languages
System Block Diagrams	GPS applications, available at ti.com/gps

Chargers

- Faster, cooler charging
- 196 devices
- Energy Harvesting and Wireless Power options

Gauges

- Reports state of charge & state of health
 - 99% accuracy with Impedance Track™
- 76 devices – single-cell, multi-cell, multi-chemistry

Cell Monitor and Balancer

- Helps bring cells back to balance
- Overcharge, over-discharge, over-temperature protection
- Increase pack lifetime, ensure maximum energy delivery

Protection

- Independent cell, voltage, and temperature protection
- Secondary protector integrates comparators for over-voltage, under-voltage, and over-temperature conditions for batteries and chargers

Authentication

- Performance and safety benefits for demanding systems
- For batteries and peripherals
- Three levels of security

Visit ti.com/battery to sample products and download datasheets and design resources.

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