

Qualtech to Preview Smart Tech at BAUMA as a China Leading Automotive Auto BMS Manufacturer



Hangzhou, Zhejiang Sep 23, 2026 ([Issuewire.com](http://www.Issuewire.com)) - As heavy machinery rolls onto the exhibition floors of the upcoming BAUMA event, the traditional roar of diesel engines is increasingly giving way to the quiet hum of electric drivetrains. Construction sites and mining operations present some of the most unforgiving environments on Earth, where equipment must endure unrelenting vibrations, extreme thermal shifts, and massive power demands. For machinery manufacturers, making the leap to electric

power requires more than just swapping out a fuel tank for a lithium-ion battery. It demands an intelligent control center capable of safeguarding that energy under intense physical stress. At this year's exhibition, Zhejiang Qualtech Co., Ltd. (referred to as Qualtech) will present its answer to these rugged industrial challenges, showcasing how its extensive automotive heritage directly addresses the operational vulnerabilities of heavy electrified equipment.

Established in 2011 and headquartered in Hangzhou, Zhejiang, Qualtech is a national high-tech enterprise recognized as a specialized, refined, and new "little giant" enterprise by the Ministry of Industry and Information Technology. Today, the company stands as a China Leading Automotive Auto BMS Manufacturer and a prominent provider in both the new energy vehicle and energy storage sectors. With an automotive battery management system (BMS) field deployment exceeding 3 million sets, the company is leveraging its high-volume production experience to provide the heavy machinery sector with the component durability it urgently requires. These field-proven systems have been deployed in heavy-duty applications including partner programs with XCMG, where Qualtech supplies BMS solutions for electric heavy truck platforms. Electric heavy trucks operate under fundamentally different stress profiles than passenger vehicles — sustained high-load operation on construction sites and mining haul roads, prolonged vibration from loaded transport over uneven terrain, and exposure to dust, moisture, and temperature extremes in outdoor working environments. These conditions demand BMS hardware and software calibrated for long-duration discharge stability, robust state-of-charge estimation under variable load conditions, and protective thresholds matched to the operational realities of heavy machinery. Qualtech's engagement with XCMG brings its production-validated BMS architecture into this demanding application tier, extending the same field-driven refinement approach from its passenger vehicle programs into the commercial vehicle sector.

Proving Automotive Heritage via Live Stress Testing

Visitors to the exhibition will find a dedicated heavy machinery demonstration area designed to simulate real-world field conditions. Rather than displaying static hardware components, the interactive exhibit features a functional testing setup where battery management units operate under simulated shock profiles. The live setup demonstrates how the [slave battery management unit \(SBMU\)](#) and the central [battery cluster management unit \(BATMU\)](#) maintain precise insulation monitoring and uninterrupted data communication during heavy mechanical agitation. This structural resilience is backed by systematic engineering. During the product design phase, the engineering teams utilize Failure Mode and Effects Analysis (FMEA) simulations to predict and eliminate structural weaknesses before physical prototyping begins. Final hardware validations are performed within self-built Hardware-in-the-Loop (HiL) laboratories, ensuring that every control loop responds accurately to rapid electrical fluctuations.

Quality Infrastructure and Technical Foundations

This level of engineering precision is directly tied to the manufacturing standards maintained at the production facilities of Qualtech. The surface mount technology (SMT) production lines in Hangzhou operate under strict [IATF 16949](#) automotive quality management certifications, utilizing automated optical inspection and rigorous thermal cycling. Every manufactured circuit board is integrated into a Manufacturing Execution System (MES) that provides component-level traceability throughout the product lifecycle. This industrial framework is sustained by a deep commitment to technical research and development. Over 50 percent of the corporate workforce comprises research personnel, driving an intellectual property portfolio that includes more than 130 patents. By establishing joint research institutes with prominent universities, the company maintains a continuous pipeline of hardware optimization and algorithm development, transitioning advanced automotive research directly into heavy industrial applications.

Connecting Mobile Platforms with Energy Infrastructure

On the other side of the exhibition area, a live demonstration highlights the interconnected capabilities of modern power architectures. In heavy industrial operations, an electric vehicle rarely works in isolation; it functions within a broader infrastructure of temporary power banks and charging stations. The exhibit demonstrates how real-time state of charge (SOC) and state of health (SOH) data flow from the automotive BMS directly into a centralized energy management system (EMS). This data loop is driven by a proprietary 4S+C full-stack control architecture, which seamlessly integrates the battery management system, power conversion system, energy management system, thermal management system, and cloud diagnostics.

Cross-Scenario Technology Integration

By utilizing a unified technology platform, the software architecture allows machinery operators to implement green energy and renewable energy storage solutions that bridge the gap between mobile equipment and stationary infrastructure. For example, a heavy industrial battery pack can be monitored via the cloud during field operation and seamlessly transitioned into a secondary life within a stationary microgrid container once its vehicle service lifecycle concludes. System-level validation for these large-scale deployments is managed at the specialized integration facility in Huzhou Deqing. Operating alongside the Hangzhou plant, this multi-base production structure allows Qualtech to balance manufacturing schedules efficiently, ensuring a stable delivery cycle even during periods of high seasonal market demand.

Empirical Data as a Foundation for Reliability

The foundation of this technology is showcased on an interactive data display wall, which compiles long-term operational insights gathered from more than 3 million on-road vehicle installations. This extensive database serves as an empirical ledger of operational anomalies, ranging from subtle sensor calibration drifts to complex relay contact behaviors. For engineering buyers, this historical data represents mature product development. Instead of deploying an unproven control platform, heavy equipment developers receive software algorithms that have been continuously refined against real-world field feedback.

Predictive Logic and Calibrated Engineering

A practical example of this data application is seen in the adaptive SOC drift correction algorithms, which prevent unexpected loss of power during prolonged, high-current discharge cycles. Additionally, the integrated software incorporates predictive warning logics that analyze subtle changes in contact resistance to forecast relay degradation before a mechanical fault occurs. This practical field expertise, developed through technical partnerships with major state-owned energy enterprises and publicly traded corporations, has been distilled into comprehensive application notes available for review at the exhibition space.

Establishing Measurable Standards for Industry

The presentation at the upcoming event illustrates how rigorous automotive standards can be effectively adapted to meet the demands of industrial electrification. By combining active vibration demonstrations, full-stack multi-scenario communication, and empirical field data from millions of operational units, the company demonstrates the practical substance behind its position as an auto BMS manufacturer. As heavy industry continues to seek durable, efficient components to power its next generation of machinery, the integration of automotive-grade reliability with flexible energy storage software provides

a clear path forward for equipment manufacturers and grid operators alike.

For those interested in reviewing technical specifications for the automotive BMS line or scheduling a dedicated technical consultation, contact Qualtech's engineering team to request a product brochure or schedule a technical consultation. Visit <https://www.qualtechenergy.com/> for more information.



SBMU Series — Model Comparison

Parameter	QT-SBMU-112T112M5	QT-SBMU-70T40M5	QT-SBMU-56T32M5	QT-SBMU-36T20M5	QT-SBMU-32T16M5
Voltage Channels	112	70	56	36	32
Temp. Channels	112	40	32	0	16
Balancing Current	100mA @ 3.3V (Passive)				
Max System Voltage	1500V DC				
Voltage Accuracy	± 5mV				
Temp. Accuracy	±1°C @ -20~65°C / ±2°C @ Others				
Power Supply	DC 24V (9~32V) / ≤ 1W				
Dimensions (L*W*H)	285*105*40mm	284*105*29mm	232*105*28mm	162*105*26mm	168*105*26mm
Insulation Withstand	5000VAC / 6000VDC				
Typical Application	Ultra-large BESS	Large C&I Storage	Medium-Large Storage	Modular Storage	Medium C&I Storage

Media Contact

ZheJiang Qualtech Co.,Ltd.

*****@qualtech.com.cn

15013692485

Building 2, Electromechanical Function Zone, No. 1418-50, Moganshan Road, Yuhang District, Hangzhou

<https://www.qualtechenergy.com/>

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