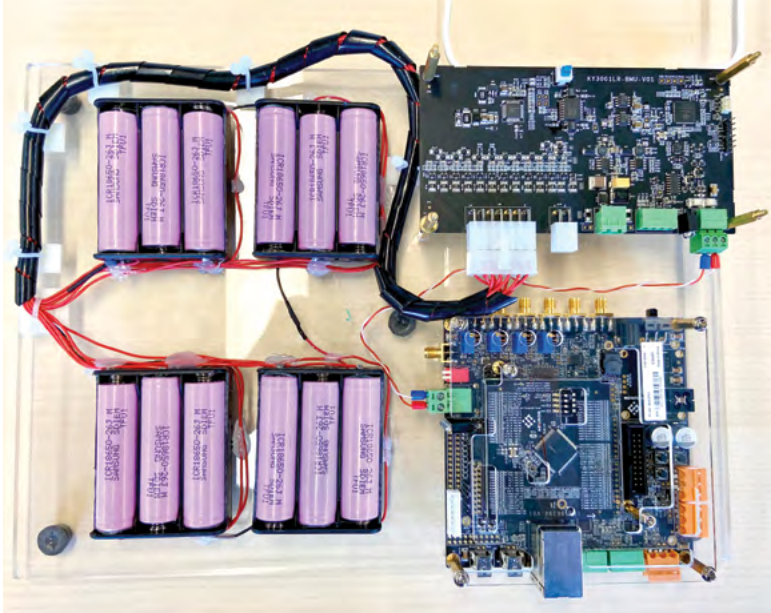


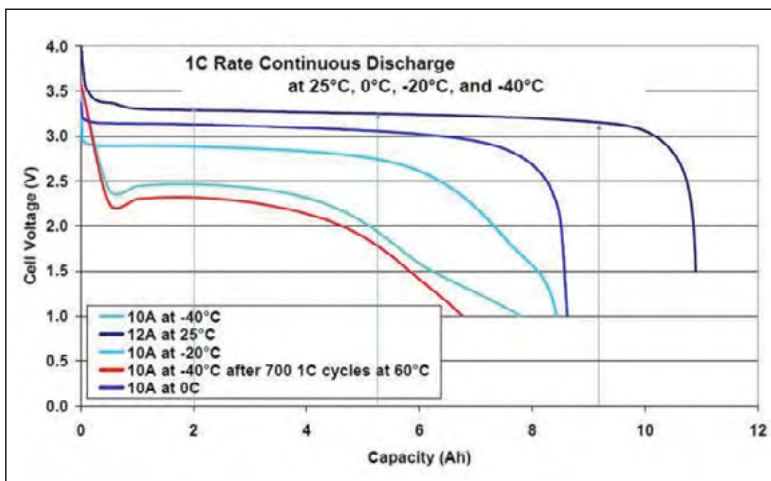
AUTBUS

Battery Management System



Customers' Value

Make the battery high efficiency, long life cycle, more safety;



Battery life cycle

The parameter dispersion characteristics of battery will affect the capacity and life of a battery, it is important to balance each battery cell during the battery operation.

Safety

Avoiding being overcharged or over-discharged can prevent battery from thermal runaway.

Why AUTBUS

High bandwidth: 100Mbps

- To collect the voltage, temperature, and current of the battery cell in real time
- Balancing control in real time
- Prevent from thermal runaway in real time

Deterministic: No data collision

- Time sync. based data collection and control enable the accurate data analysis and control
- Make the SOC/SOH method perfect

Flexible topology, make the installation easy

- Twisted pair, polarity insensitive, multidrop

Scalable

- Electric Vehicles, Battery Stations to Power Plants

Competing technologies

- Daisy chain + CAN bus
- Low bitrate
- Single point failure of Daisy chain

KY3001 SoC series is fully compatible with AUTBUS protocol and optimized for networking sensors, actuators, and controller as well.



**KY3001
(LQFP128)**

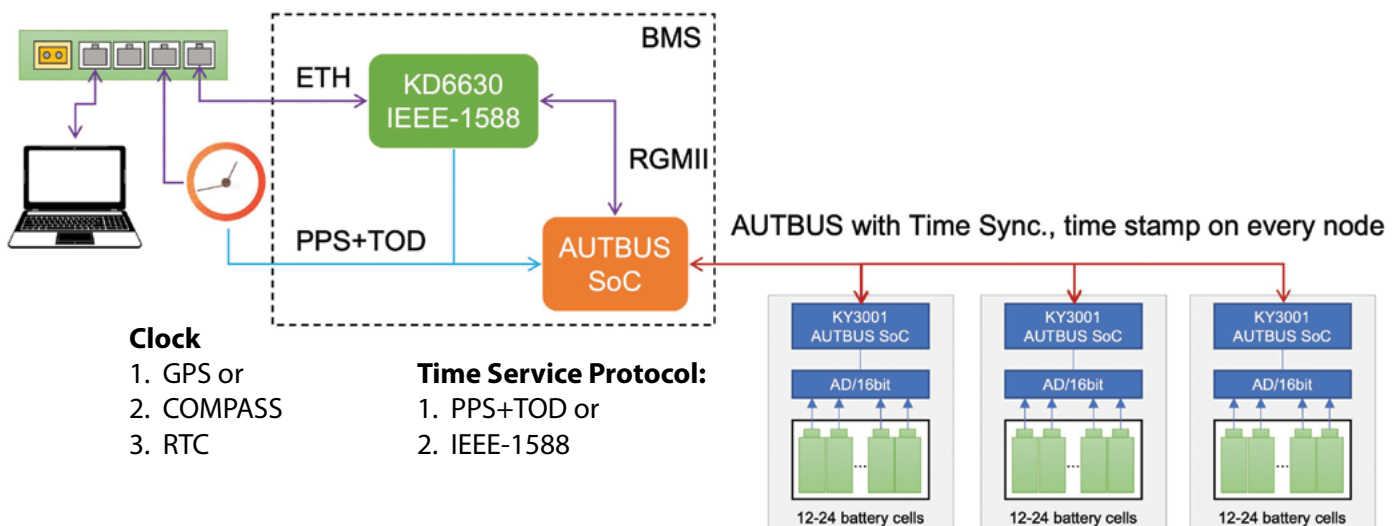


**KY3001LR
(QFN88)**

Chip Feature

- High performance: 32-bit ARM Cortex-A5 Core, 400MHz, 512Kb-SRAM
- Support NOR or NAND FLASH memory with SPI interface
- Bandwidth of AUTBUS is up to 100Mbps
- Support CAN/RS485/Modbus
- 1 x channel 10/100/1000Mbps RGMII
- 1 x channel 10/100Mbps RGMII
- 2 x SPI master +1 x SPI slave
- 3 x SUART
- 1 x UART
- 2 x I²C
- 2 x 4 Timers/Captures input
- 2 x 4 PWM output
- 8 channel x 12/16-bit ADC input
- 2 channel x 12-bit DAC output

» BMS Time Sync. thru AUTBUS (Multidrop)



» AUTBUS vs. CAN for BMS in Multidrop

High Bandwidth, Real-time, Time Sync.

- Improved SoC/SoH calculation & precision
 - Prolong battery life
 - Improve battery safety
- Reduced total cost

Simple and Flexible Connection

- Polarity-insensitive 2 wired connection
- Bus and ring topology in multidrop
- No switch and hub needed

	AD Precision mV	Bus Speed (Mbps)	Bus Node Capacity	Transmission Distance (meters)	Payload/ Frame (BYTE)	BER	BMS Message Response Time	BMS Refresh Time	Time Sync. & Time Stamp	SOC/SOH Precision
CAN BMS	5	1	110	40m @1Mbps	8	1e-9	200ms	10~20s	NA	5~20%
AUTBUS BMS	5	100	254	500m @100Mbps	89	1e-11	512μs	1ms	(1588, PPS+TOD) =100ns	<5%