

Veiligheidssensor multi-sensor

Multi-Dimensional Thermal Runaway
Monitoring and Early Warning System

FD311-B



The Toteco SMS system leverages multiple types of sensors to collect real-time data on ambient pressure, acoustic signals, temperature, and flammable gases around lithium battery cells. By integrating an advanced AI-driven inference algorithm and multi-sensor data fusion at the feature level, the system enables ultra-early-stage thermal runaway warnings for lithium battery cells.

Ideal for deployment in electrochemical energy storage stations, battery systems of new energy vehicles, and hybrid renewable energy storage plants (e.g., solar-plus-storage, wind-plus-storage).

Key Features

Ultra-Early Warning	High Detection Accuracy	Extended Operational Lifespan	Streamlined Deployment
Featuring superior acoustic pattern recognition sensitivity compared to conventional monitoring solutions, the system enables thermal runaway warnings up to 20 times earlier than traditional methods.	Utilizes a comprehensive, multi-parameter data fusion algorithm to achieve highly accurate risk identification, delivering a thermal event detection accuracy rate exceeding 99.5% .	Engineered for over 15 years of service life, significantly reducing operation and maintenance (O&M) and total cost of ownership (TCO) by up to 75%.	Supports cascading installation of multiple detectors with auto-addressing, auto-encoding, and plug-and-play networking , greatly simplifying field deployment and commissioning.



Toteco Energy Storage, a pioneer in integrating investment, operation of energy storage stations, and the R&D, manufacturing, and sales of energy storage systems, has its global headquarters in Shanghai. With its R&D center in Jiangsu and joint laboratories established with top universities and international institutions, Toteco advances the development and application of energy storage technology. The company operates 14GWh intelligent energy storage factories in Jiangxi and Sichuan and has established the Toteco Digital Center in Shanghai. Leveraging outstanding R&D capabilities and innovative approaches, Toteco delivers both standardized and tailored energy storage solutions, bridging grids and scenarios for organized electricity use and balanced loads.

As a subsidiary of the Toteco Energy Group, Toteco Energy Storage contributes to the group's overarching mission. Founded in 2013, Toteco Energy Group is a high-tech enterprise dedicated to the development, investment, and management of new energy projects. Targeting carbon neutrality, the Group has developed 23 utility-scale solar projects with a combined capacity of 3.53GW and is progressing with wind, photovoltaic projects of 1.23GW. With a cumulative investment exceeding \$4.4 billion, the Group has realized an annual compound growth rate of 183%, underscoring its commitment to sustainable energy development.

PRODUCT PARAMETER

FD311-B	
Operating Voltage	DC 9~36V
Operating Current	50mA
Fire Suppression System Activation Power	≥7W
Operating Ambient Temperature	-40°C ~ +85°C
Operating Ambient Humidity	<95% RH (Non-condensing)
Ambient Sound Alarm Threshold	Safety Valve Burst Sound Alarm
CO Gas Alarm Threshold	Preset 200ppm (Configurable)
Cell Operating Pressure Alarm Threshold	Preset 1200hPa (Configurable)
Dimensions	75mm*55mm*20mm
Communication Protocol	CAN
Lifetime	≥ 15 years

Dimensions

Dimensions control:

the size measurement unit is mm (millimeter), and the full-size tolerance ± 0.1mm

Process control requirements:

The shell is made of ABS/V-0 flame retardant material, with a high temperature resistance of 125°C and a locking torque of 3±1N. M

