3ONEDATA

3onedata Co., Ltd

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CORE TECHNOLOGY

TSN

< Time Sensitive Networking >

< Edge Computing >

< Artificial Intelligence >

HARDWARE AS A SERVICE

< Digital Operations and Maintenance Platform >

Network Management	Equipment Monitoring	Visualized Operation and Maintenance	Information Security

HaaS Middleware Platform

IT/OT Interflow	Regular Data/Non-Real-Time Data	Irregular Data/Real-Time Data

< Industrail Digital Infrastructure >

< Edge Computing Device >

Edge Gateway, Edge AI Box, Edge Controller, Egde Server

< Industrail Network Device >

Industrial Switch, Industrial Router, Industrial WiFi, TSN Switch, APL Switch, Industrial Protocol Switch

< Industrial Control Equipment >

PLC, Industrial Computer, IO Server, RTU, Fieldbus Gateway, PAC, Sensing Controller

< IoT Data Collection Devices >

Data Acquisition Protocol Gateway, DTU, Interface Server, UWB/LORA/Zigbee/NB-IOT GATEWAY

NETWORK SECURITY EQUIPMENT

- Industrial Encryption Device - ID Con
- Industrial Firewall
- Database Encryption System
- All-Network Security Distributed Firewall
- Network Isolation Gate

COMPANY PROFILE

Who is 3onedata?

As a leading brand in industrial connectivity, 3onedata pioneers the HaaS (Hardware as a Service) concept and offers comprehensive R&D capabilities across industrial Ethernet switches, networking, wireless, and automation control systems. Our solutions are widely applied in industrial automation and intelligent manufacturing, with over 70 million products operating worldwide, making us No.1 in the industrial communication field. In 2020, 3onedata became the first IIoT company to be listed on the SSE STAR Market, marking a significant milestone in our sustainable growth and development.

R&D Center in **SHENZHEN**

Research & Innovation

3onedata's total R&D expenditure amounted to USD 8.4 million, equaling 17.18% of the company's total revenue. A total of 182 employees, representing 40% of 3onedata's workforce, worked in R&D.

R&D Center in **SHANGHAI**

Corporate Culture

Vision: Committed to be a leading brand in IIoT.
Mission: Focus on IIoT, continuously provide competitive solution and service, and create ever-increasing values and development opportunities for customers, employees and business partners.
Corporate Philosophy: Innovation • Value • Honor

Factory in **JIANGXI PROVINCE**

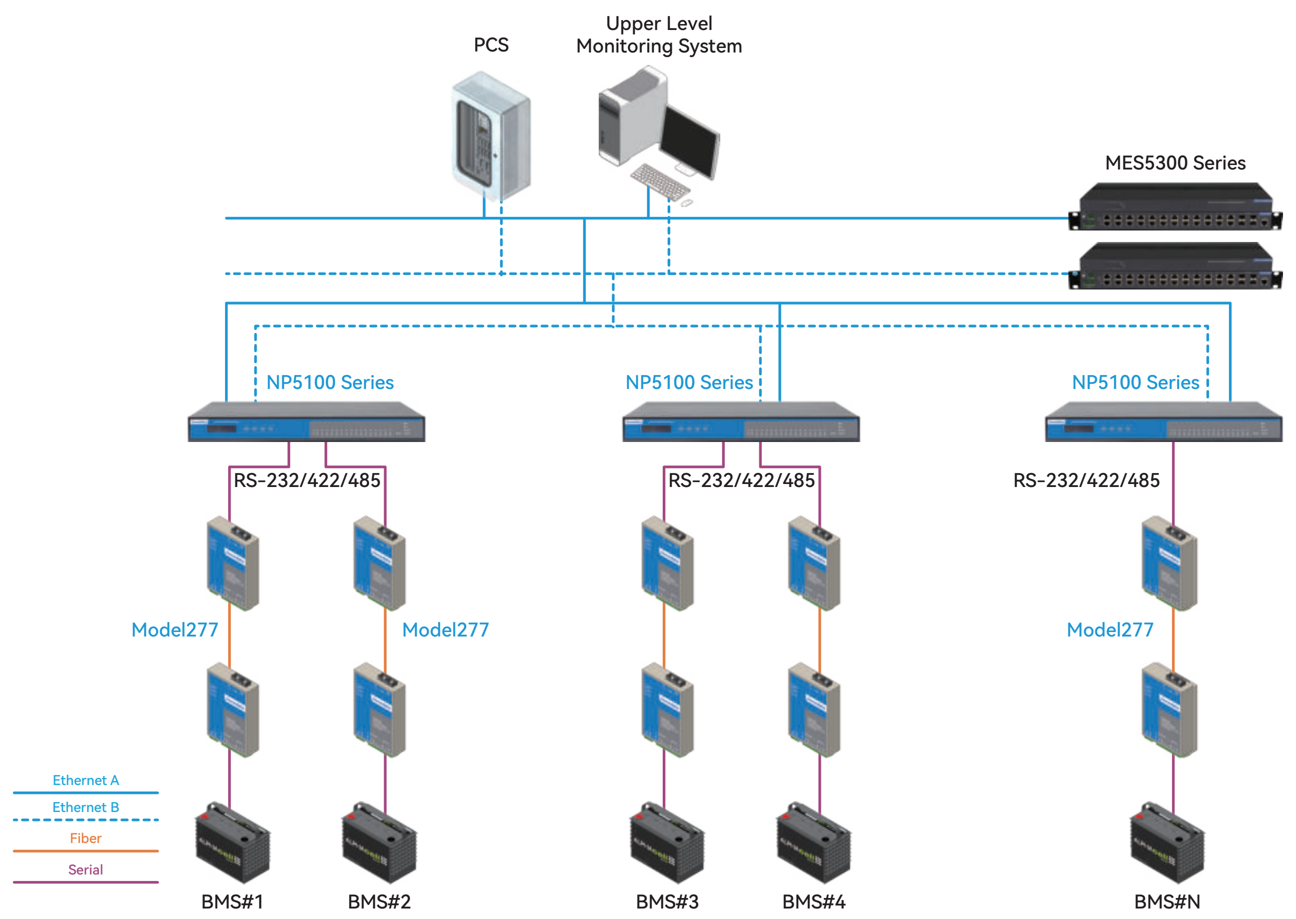
INTELLIGENT INDUSTRIAL INTERCONNECTION SOLUTIONS FOR BATTERY ENERGY STORAGE SYSTEM (BESS)

BESS (Battery Energy Storage System)

Connecting For A Better Future

3ONEDATA

BATTERY MANAGEMENT SYSTEM



Industrial-Grade Design

- Industry-standard design ensures stable and reliable performance
- Operating temperature range of -40°C to 75°C to withstand harsh environments

Level 4 EMC Design

- Comply with IEC61850, IEC61000, etc.
- High EMC resistance to withstand harsh environment

Parallel Ethernet Design

- Avoid system communication interruption caused by a single network failure
- Redundant virtual com and redundant socket communication mode to meet the requirement of differentiated serial to Ethernet

Industrial-Grade Design

- Adopt "serial port-optical fiber" mode to avoid electromagnetic interference and improve the communication distance
- Serial-to-Ethernet functionality, compatible with the serial communication mode of traditional BMS, to achieve the digitization of serial data

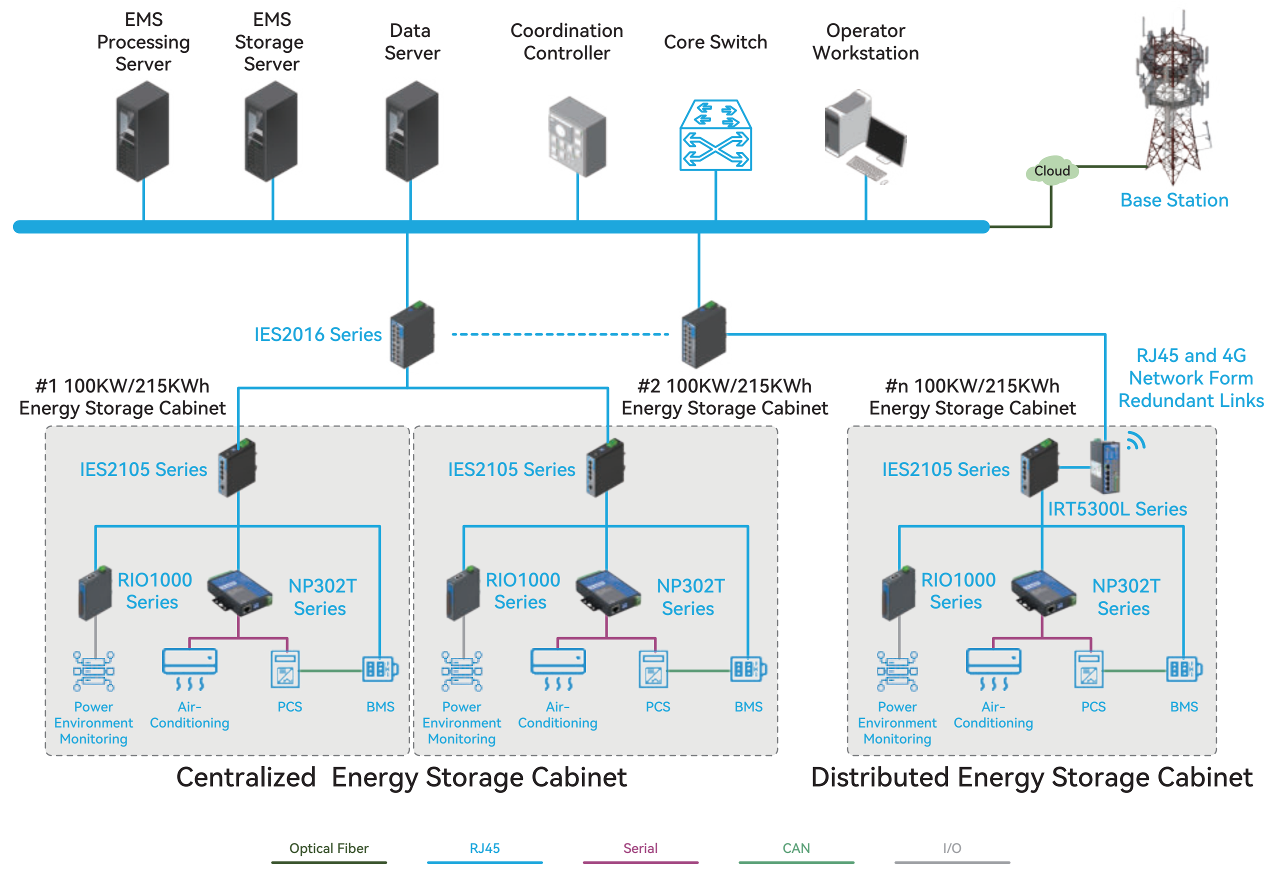
Internal Collection & Exchange Capability

- The BMS has internal information collection and exchange functions, allowing it to upload battery cell and overall battery information to the monitoring system and PCS

Detect Battery Operating Status

- BMS can detect the operating status of the battery, diagnose the abnormal operating status of the battery or BMS body, and upload alarm signals to the PCS

INTEGRATED SMART ENERGY STORAGE INDUSTRIAL IOT SOLUTION



Solution Features

- Distributed deployment enables a "cloud-edge-end" collaborative processing mechanism.
- Compliant with IEC61850-3 and IEEE1613 certification standards, ensuring reliable network performance even in the harsh environment of energy storage cabinets.
- Wide temperature range of -40°C to 75°C and EMC level 4, providing strong electromagnetic compatibility, along with exceptional environmental adaptability and protection.
- Versatile interface options, tailored for edge computing in energy storage systems, with support for secondary development.
- Features data collection, edge computing, and cloud data uploading, enabling faster network response times and meeting the industry's demands for real-time services, application intelligence, security, and privacy protection.
- Ensures secure, high-speed wireless connectivity between energy storage cabinets and remote monitoring centers, facilitating rapid data transfer to the internet.

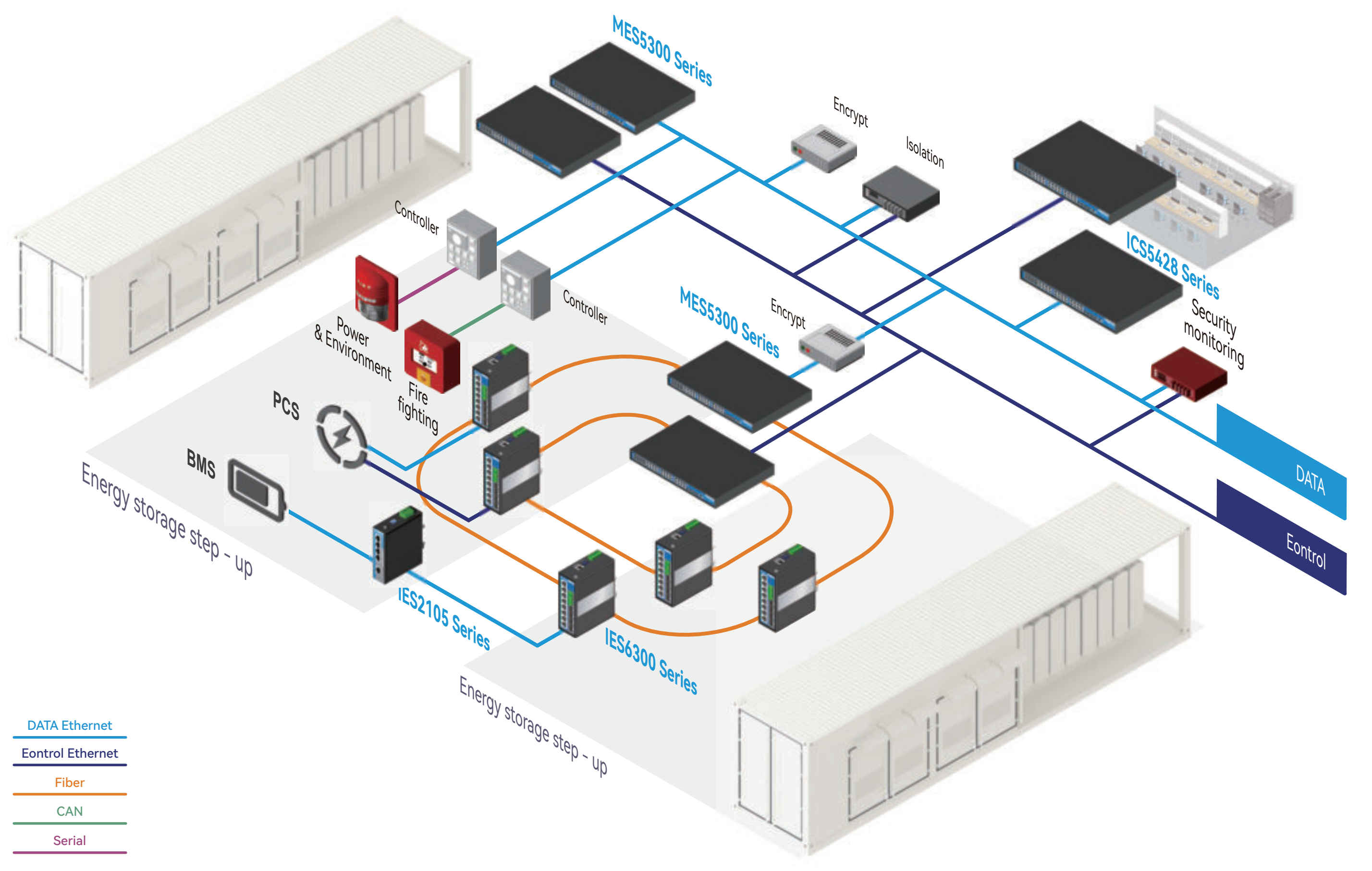
SUCCESSFUL PROJECTS


Unattended Energy System at the Southeast University-Antarctic Research Station


2MW/5.4MWh Industrial and Commercial Energy Storage Project of Dynanonic in Foshan, Guangdong


Intelligent Energy Storage System for Electric Vehicles in Changsha High-Tech Zone

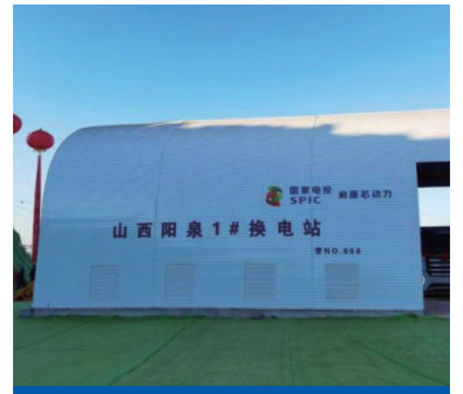
ENERGY STORAGE POWER STATION NETWORKING SOLUTION



Solution Features

- Compliant with IEC61850-3 and IEEE1613 certification standards, ensuring reliable network performance even in the harsh environment of energy storage cabinets
- Devices comply with the IEC 62443 security standard for industrial control products, enhancing industrial network security
- The system integrates devices such as industrial firewalls, forward and reverse isolation devices, vertical encryption devices, and network security monitoring devices, enabling real-time monitoring and effective management of the spatial security of the network power system, thereby strengthening the security level of power monitoring systems
- Compliant with the standards of the "Technical Specifications for Network Security Monitoring Devices of Power Monitoring Systems (December 2017)" issued by the State Grid
- The solution adopts a dual-network redundancy mode consisting of a control ring network and an information ring network, improving the real-time performance and reliability of communication links
- Edge gateway devices feature a variety of interfaces to collect data from BMS, PCS, fire protection, and environmental monitoring systems within the energy storage system, supporting secondary development

SUCCESSFUL PROJECTS


200MW/400MWh Energy Management System (EMS) for Energy Storage Project in Yangquan High-Tech Zone, Shanxi


200MW/400MWh Shared Energy Storage Project in Yingli, Leizhou, Zhanjiang, Guangdong


New-Gen Grid-Friendly Green Power Station Demonstration Project in Wulanchabu, Inner Mongolia Three Gorges

PRODUCT INTRODUCTION

ICS5428 Series
Industrial L3 Ethernet switch

- 4*10G SFP+,8*1G Combo, 16*1G RJ45(PoE optional)
- RIP, OSPF, VRRP routing feature and PIM-DM/SM multicast routing feature
- STP/RSTP/MSTP/ERPS Ring protocol
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

ICS5530 Series
Industrial L3 Ethernet switch

- 6*10G SFP+,8*1G Combo, 16*1G SFP
- RIP, OSPF, BGP, VRRP routing feature and PIM-DM/SM multicast routing feature
- STP/RSTP/MSTP/ERPS Ring protocol
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

MES5300 Series
Industrial Substation L2 Ethernet Switch

- Industrial Substation L2 Ethernet Switch
- 4*100M/1G SFP, 24*10/100/1000M RJ45
- Compliant with IEC 61850-3 and IEEE 1613 standard
- STP/RSTP/MSTP, ERPS and MRP ring protocol
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

IES6300 Series
Industrial L2+ Ethernet PoE Switch

- 2*2.5G SFP, 2*1G SFP, 8*1G RJ45 (PoEoptioal)2*DI,2*DO
- IEEE 802.3AF/AT, single port PoE budget up to 30W
- STP/RSTP/MSTP/ERPS Ring protocol
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

IES618 Series
Industrial L2 Ethernet Switch

- 2/4*100M ST/SC/FC fber port, 4/6/8*100M RJ45
- STP/RSTP Ring protocol
- IEEE 802.10 VLAN
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

IES2105 Series
Industrial Unmanaged Ethernet Switch

- 4*100M RJ45 (PoE optional),1*100M SC/ST/FC optional
- Single 12~48VDC, 48VDC,or 100~240VAC power input
- DiP buttons realizejambo-frame, flow-control,one-key VLAN and 100M forced functions

RIO1000 Series
Industrial IO Server

- 2*10/100M RJ45, dual IP or single IP (redundant,switch mode)
- 6/8*DI, Dry contact or Wet contact (NPN/ PNP)
- 6/8*DO, Sink (PNP) or relay
- Modbus TCP and EtherNet/IP(developing) protocol supported

ICP222 Series
Industrial CAN Server

- 2*100M SC/ST/FC,1*100M RJ45,2*CAN
- 5K ~ 1000Kbps Baud Rate
- 3onedata private SW-Ring protocol, self-recoverytime ≤ 20ms

IRT5300LSeries
Industrial 4G Router

- 1*100M WAN,4*100M LAN,1* RS-232/485/422,2*2.4G WIFI antennas,2 LTE antennas
- FDD/TDD/WCDMA/TD-SCDMA/HSPA/CDMA/EVDO.
- RealCom, TCP Server, TCP Client, UDP Server, UDP Client.
- dual-SIM card redundant backup OpenVPN client, IPsec, PPTP and L2TP

NP5100 Series
Industrial Serial Device Server

- 16/32*RS-232/422/485 serial ports, RJ45 connector, OLED display optional
- Baud rate:110bps-921600bps
- 2*10/100M RJ45, dual IP or single IP (redundant, switch mode)
- RealCom, Reverse RealCom, TCP Server, TCP Client, UDP Server, UDP Client, Pair Master, Pair Slave, UDP Rang, UDP Multicast,Telnet, Reverse Telnet, RFC2217, Redundant COM, DRDAS RealCom and DRDAS TCP Server

TCU1200 Series
ARM architecture - based edge computing gateway

- 4*1G RJ45,1*RS-232,4*RS485,2*CAN,8*I/O,2*USB,2*HDMI,1*TF Card,2*SIM Card,2*4G Antennas
- ARM 64bit quad-core CPU 1.8GHz,4GB+64GB
- Support secondary development
- Certification: CE/FCC/RoHS/UL62368

MODEL277 Series
Serial port fiber optic modem

- Support 1 RS-232, RS-485/422 or 3IN1 serial port to 1 fiber port
- Support advanced communication coding and clock recovery technology to ensure accurate transmission of distant data
- Support unique "Zero time delay and automatic forwarding" technology
- Support autotunning technology of serial baud rate
- Support 5VDC, 12-48VDC, -48VDC and 220VAC four power supply solutions