UNBRO

About Unbro

Industrial automation solution,
energy solution provider
Unbro Co., Ltd.

i-EMS
GS Certification

Corporate R&D
Center Certification

Venture Enterprise
Certification

ISO 9001:2015
Certification

CF&RE100 Summit Club
Corporate Member

UNBRO
자동화 · 에너지 솔루션

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Automation · Energy Solution

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6. ESG

I

About Us

1. General information

It is a specialized company that performs system design, manufacturing, and test operation in batches so that customers can efficiently and systematically manage and operate facilities by providing monitoring, control, and optimization solutions in the field of industrial facilities.

Industrial automation solution & energy solution provider Unbro Co., Ltd.

Company Name	Unbro Co., Ltd.
CEO	Mia Yoon / Yongkyu Park
Company RN	129-86-52176
Corporate RN	131111-0266261
Founding Date	October 2010
Contact	TEL. +82-31-715-6888 FAX. +82-31-990-6743
Website	http://www.unbro.co.kr
Head office	#1103~1104, Pangyo Innovation Lab, Knowledge Industry Center, 11, Geumto-ro 80beon-gil, Sujeong-gu, Seongnam-si, Gyeonggi-do, Korea
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Honam office	#506, 7 Sangmujungang-ro, Seo-gu, Gwangju, Korea

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2. Business field and organization chart

1) Business field

Energy Solution

- EMS
- BMS
- FEMS
- Microgrid System

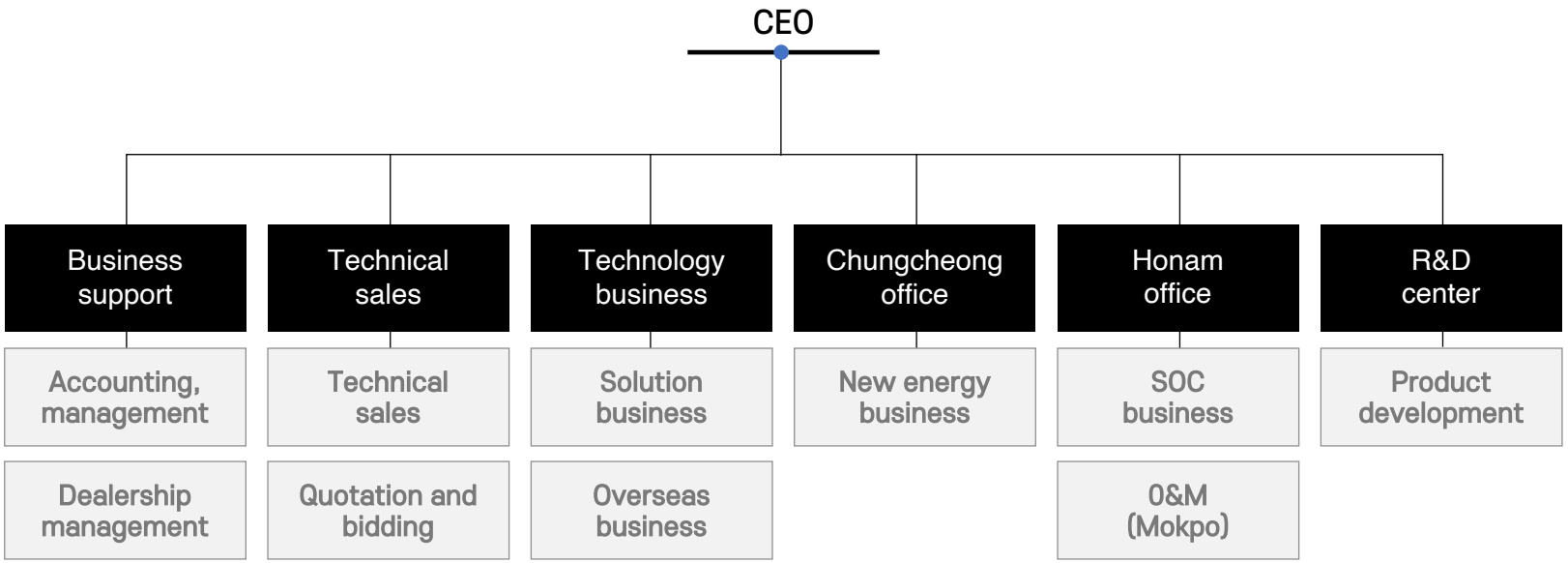
Automation Solution

- SCADA
- Smart Factory
- Controller & I/O

O&M Service

- P·V, ESS O&M
- System O&M

2) Organization chart



3. Company history

Technology that increases value,
realization of the best technology,
constant challenge and R&D,
A company that creates customer satisfaction,

Unbro Co., Ltd.

2023	Jun	CF&RE100 summit club corporate member registration
2022	Jan	Venture Enterprise Certification (R&D type)
	Apr	Business relocation (Pangyo, Gyeonggi-do)
2021	Mar	ISO 9001 quality management system certification
2020	Apr	Corporate R&D center certification
	May	Electrical construction business registration
2019	Jan	Acquisition of information and communication construction business license
	Jun	Intelligent Energy Management System (i-EMS) GS (Good Software) acquired “Level 1”
	Oct	Partnership with COPADATA
2018	Mar	Acquisition of direct production confirmation certificate (software maintenance and support service, package software development and introduction service)
2017	Apr	Acquisition of women's business confirmation New software business report
2016	Aug	Change of current CEO and change of company name to Unbro Co., Ltd.
2010	Oct	Company Establishment

4. Certificate

1) Certifications

ISO 9001:2015
(Quality Management System)

- Design, development and construction of energy management, energy efficiency, and monitoring and control systems
- System operation and maintenance (O&M) service

GS Certificate of
Software Quality

- Intelligent Energy Management System (i-EMS)

2) Registration certificate

Women's Business Certificate

Software Business Registration Confirmation

Direct Production Confirmation Certificate

Credit Rating Confirmation

Electrical Construction Business Registration Certificate

Information and Communication Construction Business Registration Certificate

Corporate R&D Center Certification

COPADATA Bronze Partner

Small Business Confirmation

Copyright Registration Certificate

Venture Enterprise Certificate

CF&RE100 summit club member

5. Projets delivered

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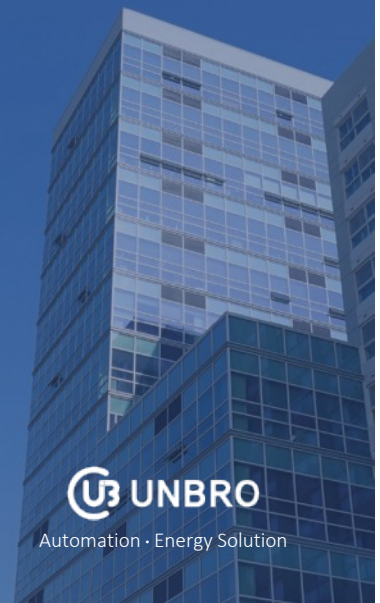
2022	Dec	Sihwa Banwol Industrial Complex convergence charging station operation management system design and construction (Energy self-sufficiency infrastructure)	Hyundai Electric
	Oct	2022 Smart energy platform construction project (Consortium member) - FEMS (Busan Noksan, Ulsan, Gunsan Industrial Complex)	Korea Industrial Complex Corporation
	Oct	Ethiopia - Solar Microgrid Project	Byucksan
	May	Ottogi Daepung Factory Roof Solar Power Generation Facility Construction (Carbon Neutral Support Project - Korea Environment Corporation)	Ottogi
	Jan	Ethiopia – EMS (Energy Management System)	Byucksan
2021	Nov	Columbia – EMS (Energy Management System)	Byucksan
	Jul	Noroo Chemical - Smart Energy Industrial Complex FEMS Supply Support Project (Korea Energy Agency)	Hyundai Electric
	Jul	Daechang - Energy management system (EnMS) infrastructure construction support project (Korea Energy Agency)	Hyundai Electric
2020	Aug	Korea Zinc Company Taebaek wind power ESS stability information system connection construction	Hyundai Electric
	May	[Soul Energy] Baekseok, Anjwa, RT Muan installation service (total 22 locations)	Hyundai Electric
	Apr	Solaseido ESS management and operation service (O&M)	Hyundai Electric
	Mar	Addition of Hyundai Heavy Industries FEMS monitoring system	Hyundai Electric
	Jan	SOUL Energy 6 locations BiMAS Software	COPADATA
2019	Dec	Development of cloud EMS structure and contents for medium and large ESS O&M	Hyundai Electric
	Oct	Solar City Solar linked ESS - PMS installation and engineering service	Hyundai Electric
	Feb	Seosan solar power ESS installation work – BMS installation service	Hyundai Electric



5. Projets delivered

Energy | Automation | Control solution

2018	Dec	Hyundai HIMS ESS installation work	Hyundai Electric
	Nov	Road Traffic Research Institute ESS installation work	Hyundai Electric
	Nov	Hyundai Samho Heavy Industries ESS BMS(Battery monitoring system) construction service	Hyundai Electric
	Sep	Hyundai Samho Heavy Industries EMS installation service	Hyundai Electric
	Aug	Cheonil Paper EMS installation service	Hyundai Electric
	Jun	BYC High City Building EMS cnstruction	WOORI ENG
	Apr	HYUNDAI MIPO DOCKYARD/EMS for 154kV ESS	Hyundai Electric
	Mar	KAC/EMS for ESS jeon-ui	Hyundai Electric
	Feb	KCC/EMS for Gimcheon, Yeoju ESS(“ThingWorx” Platform)	Hyundai Electric
2017	Nov	Korea Zinc Company ESS schedule optimization application development	SL Electric
	Nov	Hyundai Heavy Industries FEMS/city gas dashboard development	Hyundai ICT
	Sep	EMS/ESS schedule optimization application development	Hyundai Electric

5. Projets delivered

Energy | **Automation** | Control solution

2022	Sep	Hyundai Heavy Industries - Electric power SCADA construction (engine, shipbuilding, special ship, anbyeok factory)	Hyundai Heavy Industries
	Jun	KOGAS 2021 new extension management office control facility expansion project	M2M
	Feb	KOGAS gangwon regional control office DLP system improvement	KOGAS
2021	Sep	KOGAS 2021 Control facility expansion project (expansion/replacement)	KOGAS
	May	Direct importer supply facility remote monitoring control facility expansion service	KOGAS
2020	Jul	KOGAS gyeonggi regional control center DLP system improvement work	KOGAS
	May	MGP multi-monitor improvement work for KOGAS gyeonggi regional headquarters security control monitor	KOGAS
2019	Dec	KOGAS gwangju jeonnam regional headquarters electronic status board installation construction	KOGAS
	Aug	KOGAS gyeonggi regional control center facility relocation construction	KOGAS
	May	KOGAS gangwon regional control office MGP facility improvement material purchase	KOGAS
	Mar	KOGAS 2019 SCADA MASTER expansion purchase (DLP)	JIS
2018	Oct	Expansion purchase of control facilities in KOGAS 2018	JVG
	Jun	KOGAS 2018 SCADA MASTER expansion	JVG
2017	Sep	KOGAS 2017 SCADA MASTER type 1 expansion (DLP expansion division)	JVG
	Apr	KOGAS 2017 new expansion management office SCADA MASTER expansion	VITZROSYS

5. Projets delivered

Energy	Automation	Control solution

2020	May	Korea aerospace industries, LTD image system construction	PITS
2019	Mar	Daegu metro line 3 charger board protocol inverter software development	Hyundai Electric
2018	May	Purchase and installation of remote monitoring facility for unmanned pressurized water supply in the Goryeong area	K-water
2017	Dec	Air force academy smart water management system construction spare material purchase	K-water

6. ESG

As a company specializing in industrial automation solutions and energy solutions, Unbro declares that it will promote ESG management based on eco-friendliness, coexistence, and trust in order to practice sustainable management.

01,

By reducing GHG emissions and creating environment-friendly working conditions, we will leap forward as an energy solution specialist that leads 2050 carbon neutrality.

02,

We protect the safety of the people and workers by preventing disaster safety accidents and develop into a company that realizes social responsibilities and values through win-win cooperation and shared growth.

03,

Unbro builds a transparent and responsible governance structure and business operation to enhance public trust and grow into a proud company based on fairness and ethics.

Environmental

Social

Governance

April 17, 2023

All employees of Unbro Co., Ltd.

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Energy solution

1. EMS
2. BMS
3. FEMS
4. Microgrid System

1. EMS (Energy Management System)

For optimal operation (charging and discharging) of ESS, various status information is collected, stored and monitored in real time. It maintains optimal condition and functions according to the purpose. In addition, when connecting new renewable energy (solar power), it guarantees stable system output so that power can be provided efficiently.

EMS solution for optimal operation of ESS Intelligent Energy Management System i-EMS

1) i-EMS features

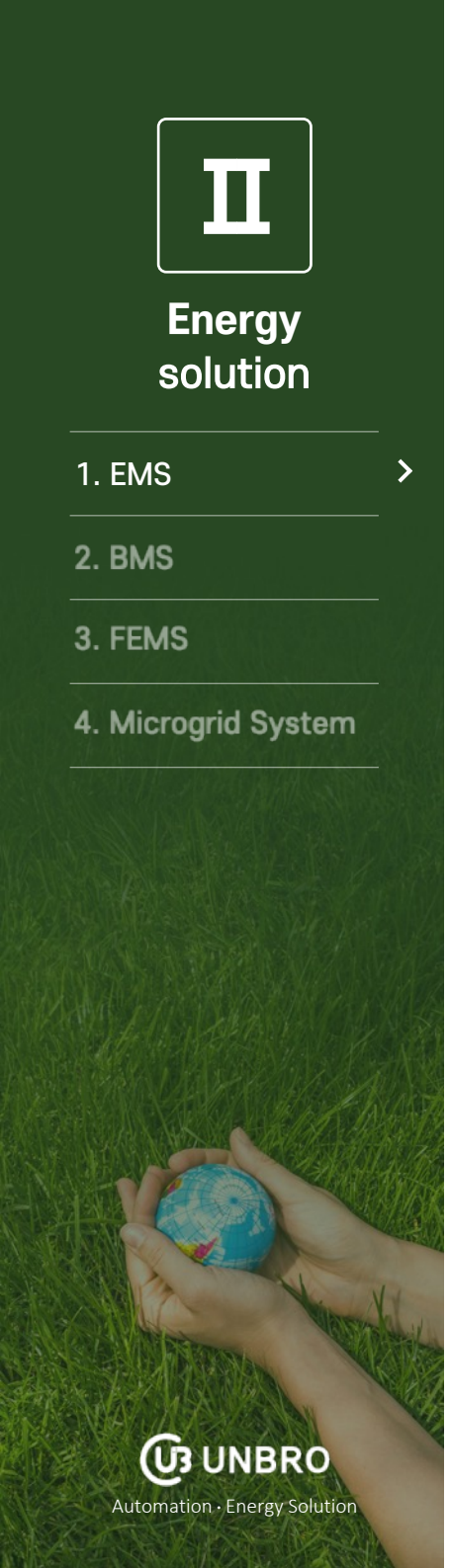
Battery Synchronization / PCS Control
It collects ESS battery information in real time, considers the state of the battery such as SOC, voltage and current and it controls charge and discharge according to PCS characteristics.

Stabilized charge and discharge
By applying an intelligent algorithm, optimal prediction is performed every 15 minutes to perform stable charging and discharging.

Provide ESS Operation Status
Plans and details for ESS charging and discharging are provided in various forms and operational performance is provided based on the details of execution.

PLC Applied
It provides stability of control by adopting PLC(if necessary, redundant configuration) to collect and monitor various real-time data in the field. It is also provided through an OPC-UA, Modbus interface.

Intelligent charge and discharge control
During charge and discharge control, a multi-step algorithm is applied for battery life and efficient use.



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2) i-EMS advantages

Web-based monitoring

- Web-based Dashboard
- Remote monitoring and control
- Independent and multi-monitoring (control and monitoring can be separated)

ESS/PCS N:N control

- BMS control for ESS battery operation
- BMS: PCS N:N manual, automatic control function
- Interface with Battery Monitoring System

Providing communication and data exchange

- Communication with various facilities by applying PLC
- Ethernet communication through L2 Switching
- Monitoring and interface with HVAC, UPS, environmental monitoring equipment, fire fighting equipment, etc.

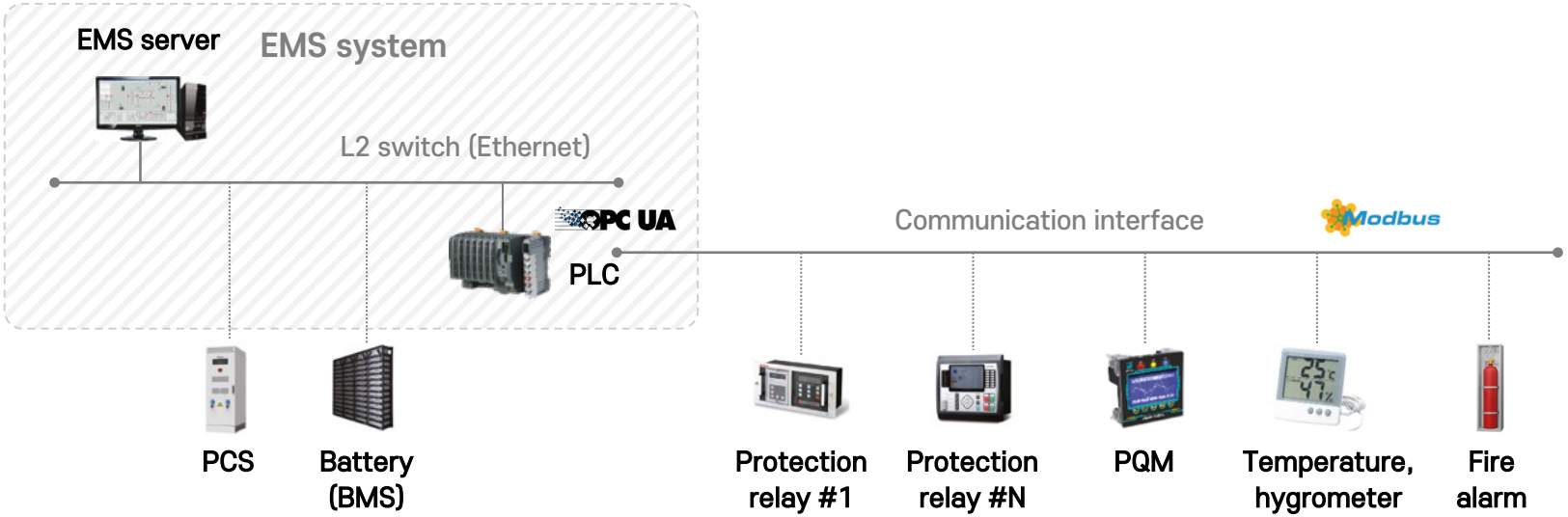
Interface and monitoring of major facilities

- Monitoring and control PCS, battery
- Monitoring and storage protection relays
- Monitoring and interface with HVAC, UPS, environmental monitoring equipment, fire fighting equipment, etc. (control, if necessary)

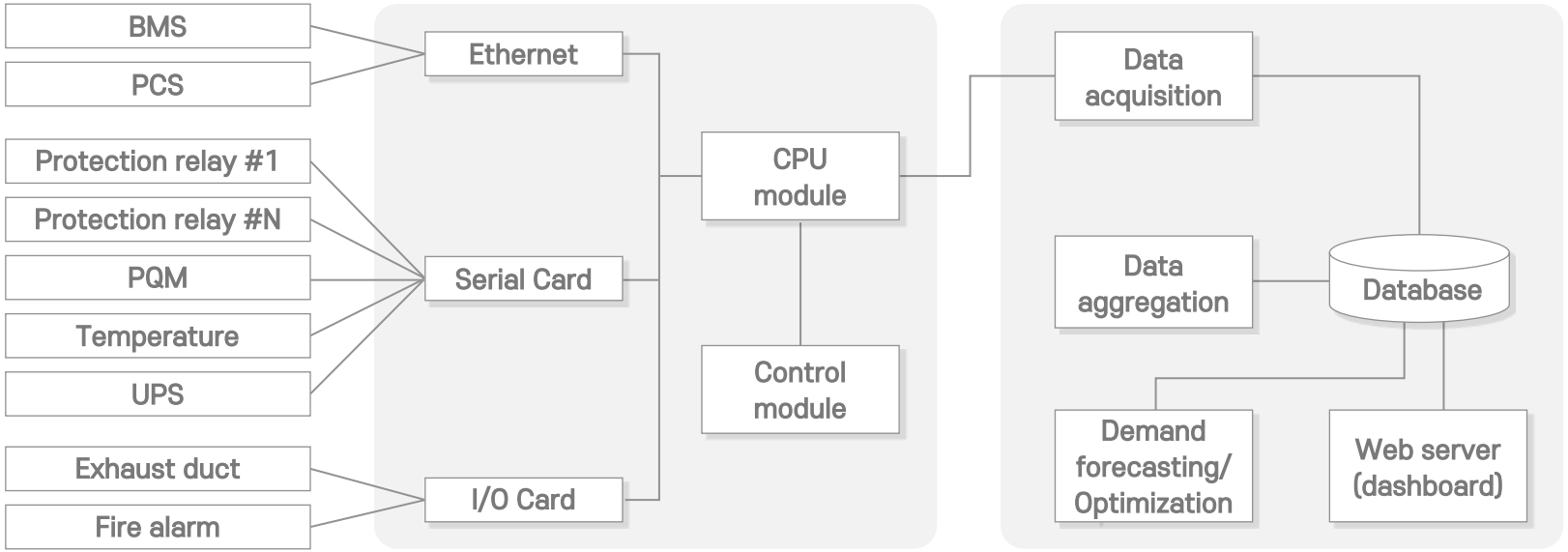
Enhanced security and stable operation (Option)

- USB memory cerified type with administrator mode with enhanced security
- Push button for emergency control in case of emergency (charging, discharging, standby, operation, stop)
- Alarm warning and warning light in case of charging/discharging failure

3) H/W configuration



4) Data flow



2. BMS (Battery Monitoring System)

BiMAS (Battery information monitoring & archiving system) performs communication, monitoring, alarm and storage functions with System BMS, Rack BMS and Module BMS to monitor and store operation information of ESS battery.

BiMAS monitors battery for ESS in real time, searches accumulated database, downloads historical database and converts database to Excel format.

By collecting and monitoring status information in real time, it improves battery efficiency and provides systematic operation information.

ESS battery real-time monitoring system BiMAS

(Battery information Monitoring & Archiving System)

1) Main function

Provide status monitoring

Collecting battery database and monitoring status by system and Rack BMS unit

Real-time historical database search and storage

Real-time BMS database search

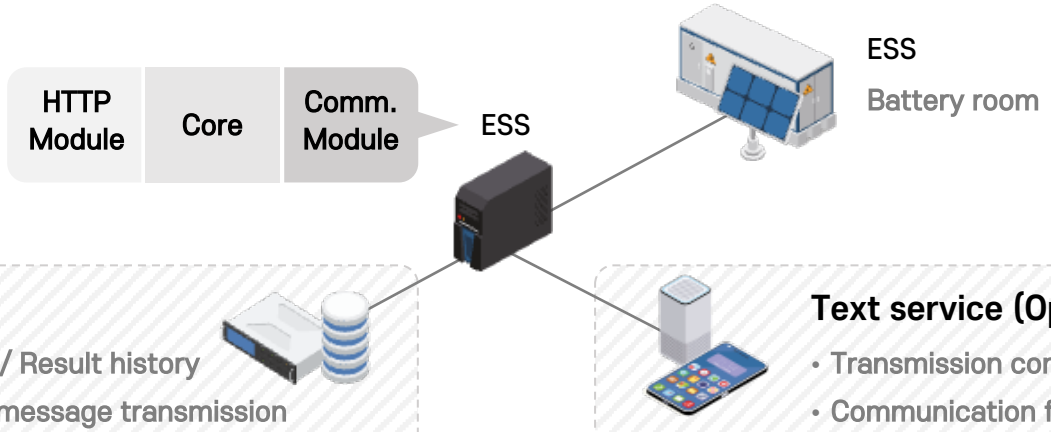
Searching historical database by system and Rack BMS unit and export to Excel format

Management and searching accumulated database and automatic report output

Detecting battery alarms & events, and sending via SMS

Real-time detection and protection by setting charging rate, SOH, voltage, current of battery alert notifications and sending events via SMS

2) BiMAS block diagram



Log Storage
- Transmission data/ Result history
- Linkage with text message transmission service via SMS
- Checking the gathering database in real time
- Recording events database with a program

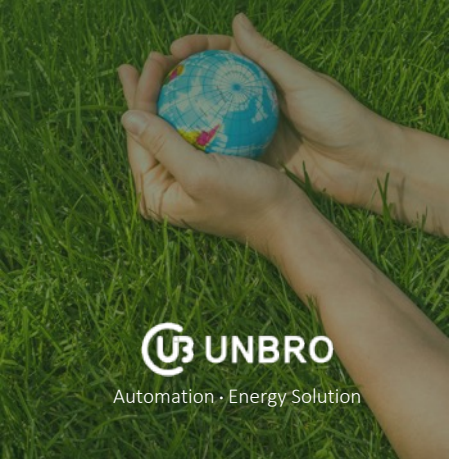
Text service (Option)
- Transmission complete
- Communication failure
- Program failure
- Program alarm & event

We efficiently provide monitoring and control and optimal solutions in the field of industrial facilities.

Battery safety check
We provide a safety solution that checks for abnormalities in industrial equipment

System security
It protects the database of the devices and allows authorized user to manage it

Maintenance service
We provide continuous inspection and safety check services to improve work capacity



3. FEMS (Factory Energy Management System)

FEMS is energy management information that performs energy-related monitoring, data collection and analysis, and optimal control to improve energy efficiency in manufacturing, process control, facility management, and other operations in factories. It is an integrated energy management system linked with the system (EMIS) and the production management system (MES).

1) Main function

Condition Monitoring
Monitoring power quality and usage of production facilities and utilities, and usage status of steam, gas, water, etc

Accumulated Data Search
Inquiry about energy cost status, power usage, peak management, and reduction performance compared to factory production status

Report Output and EXCEL Linkage
Provides report management and various report forms, and automatic report output function

Power Peak Management
Power rate management function through power peak management in conjunction with I Smart

Real Time ALARM & EVENT
Line/equipment power usage, production performance inquiry, facility real-time detection through threshold setting, and abnormal diagnosis through upper and lower limit alarm notifications for all measured items

Facility Control
Maintenance management for each facility in the monitoring/response line and control operation of utility facilities Energy saving

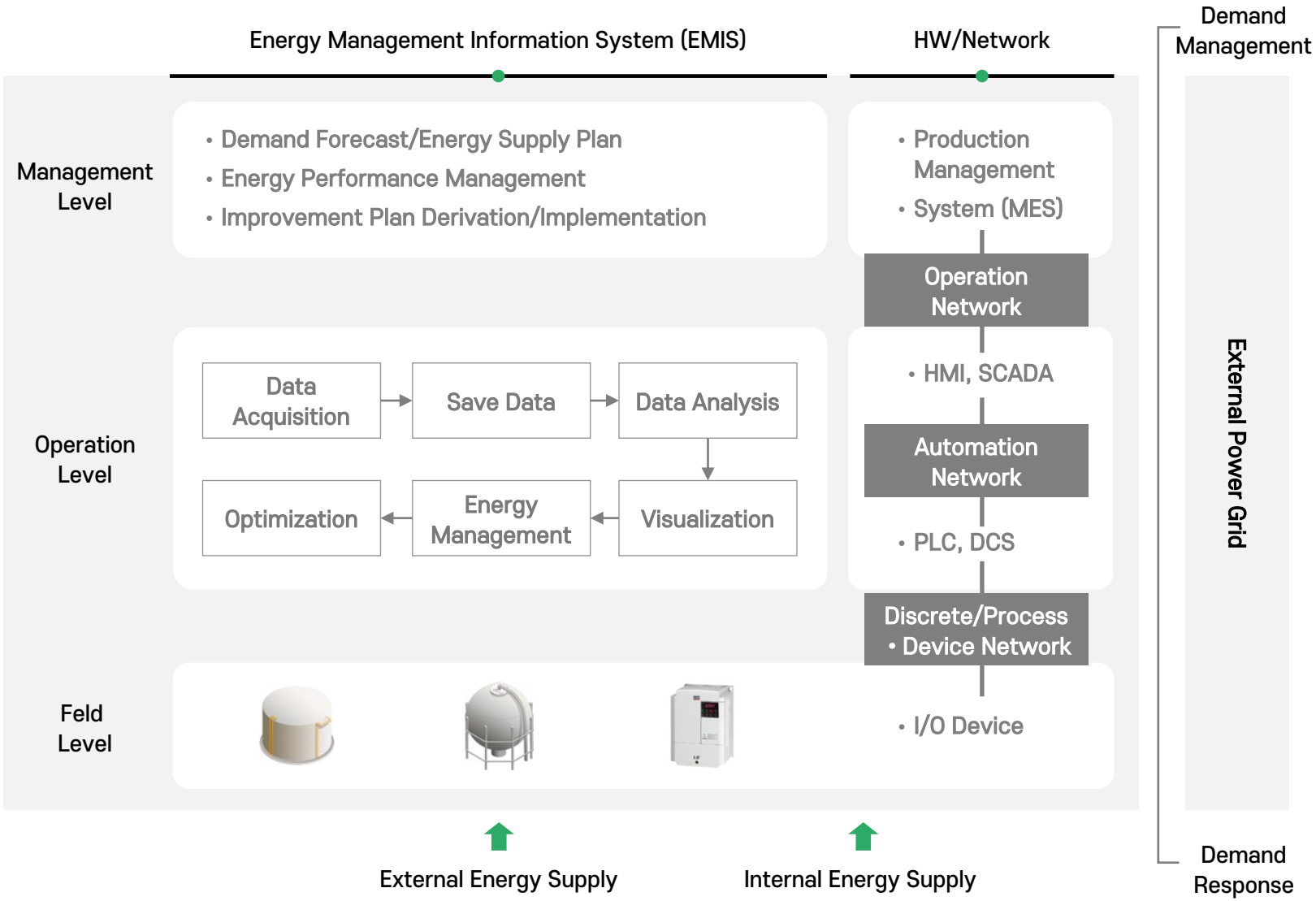
Analysis of energy consumption status
Energy consumption status and change analysis

Energy cost analysis
Cost inquiry by energy source item and unit price information management

Energy Consumption Forecast
Target value setting and consumption forecast

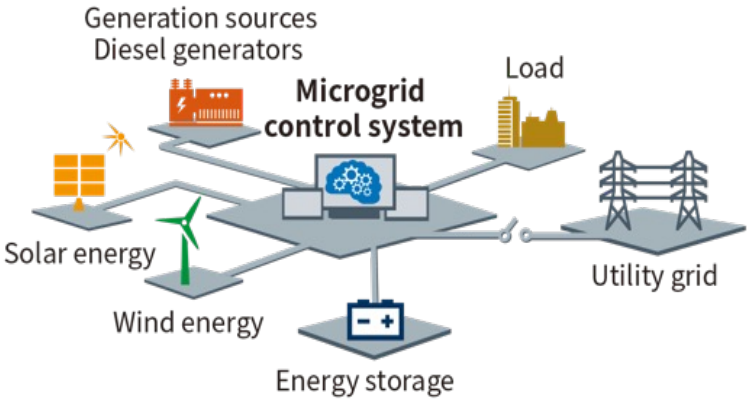
2) FEMS block diagram

FEMS optimizes the energy supplied and consumed in the plant by monitoring, analyzing, planning and controlling the energy measurement of the equipment in the plant. FEMS controls and analyzes production information and various energy information to apply optimal energy usage patterns.



4. Microgrid System

Today's facilities and communities are under extreme pressure to improve performance, operational efficiencies and reduce costs. Continuous availability of electricity is critical to meet these goals.



A microgrid is a stand-alone power grid that can be self-sufficient stand alone power system in a small area.

It is a power system that combines various energy production devices such as diesel generators, solar and wind power and energy storage devices. Unlike large-scale power generation facilities, it does not require a separate power transmission facility due to its proximity to supply area.

1) Main function

Separate electricity transmission line free

- Unlike large-scale power production facilities, there is no need to have power transmission facility because the production facility and the supply area are close to each other

Frequency & voltage regulation

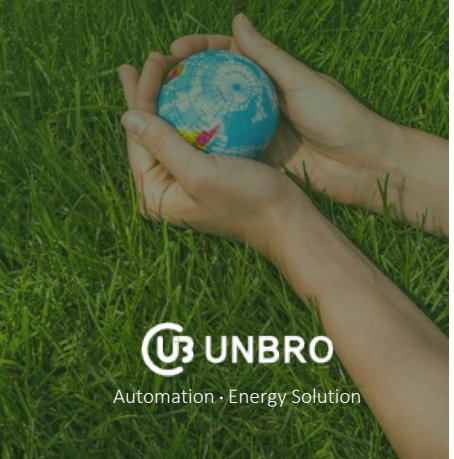
- Stable frequency and voltage Grid forming control for load variation
- Automated generation source control to match demand

Islanding

- Independent operation of power source without grid connection
- Self-sufficient stand alone power generation and supply

Renewable farming

- Reduces generation cost by renewable energy
- Maximization of utilization of renewable energy



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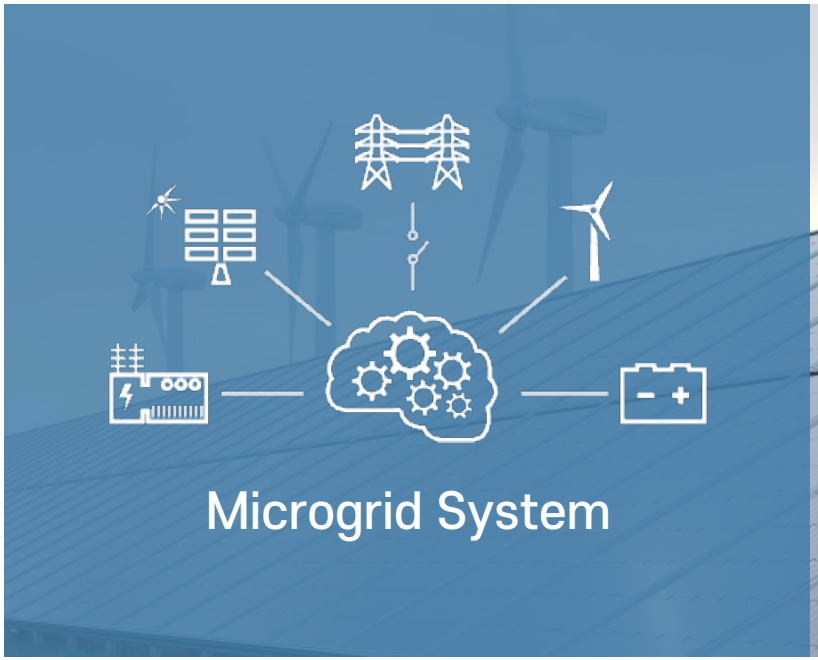
2) Advantages



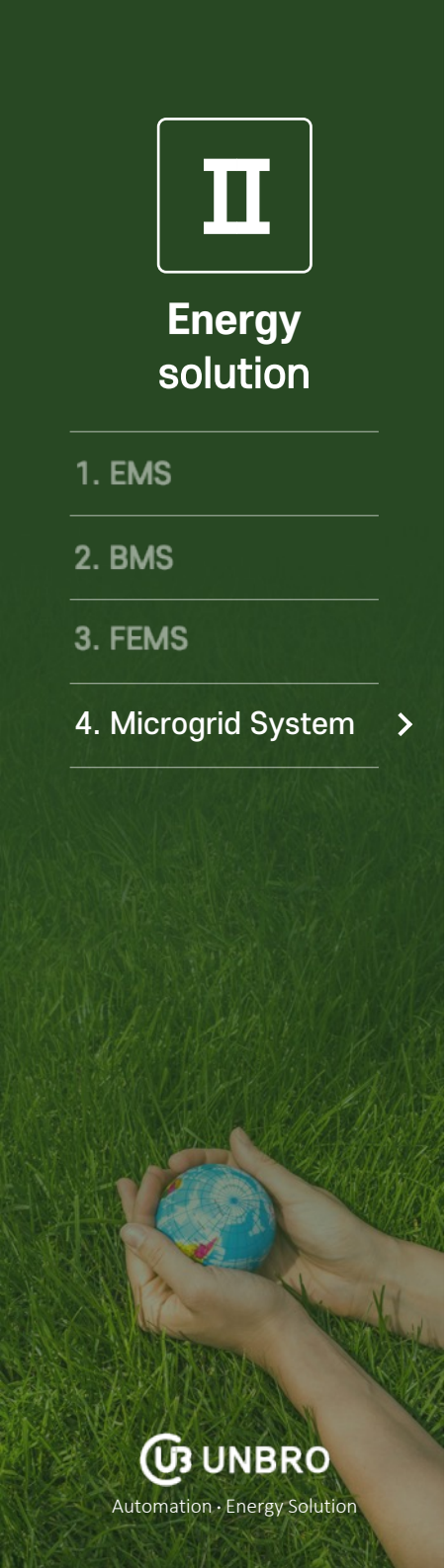
1	Modularized and containerized system
2	Shorter project cycles
3	Improved overall cost effectiveness
4	Easier to troubleshoot
5	Easy reconfiguration of equipments
6	Turnkey and full lifecycle support
7	Single point of responsibility

Consistent power supply
Consistent supply of reliable, efficient and high-quality power

Adaptable infrastructure
An adaptable, secure and responsive infrastructure

Enhanced safety
Enhanced safety to protect people, property and the environment

Expandable architecture
An architecture that can grow and modified without major reengineering

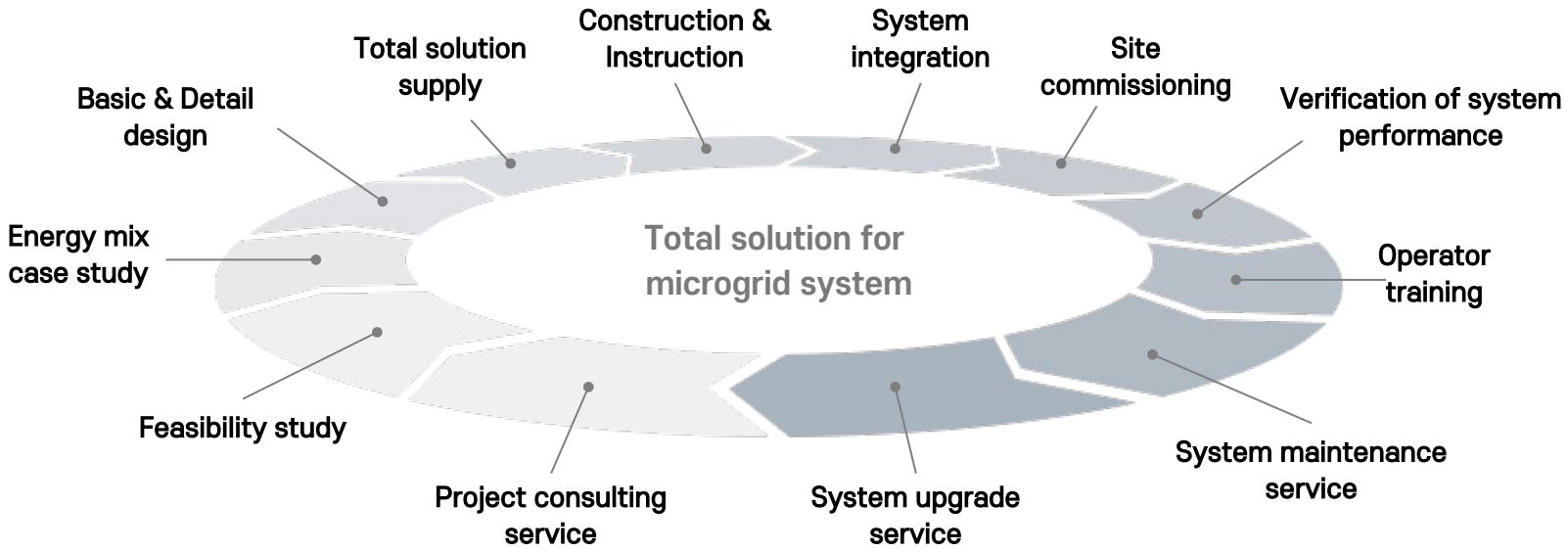


3) Total solution

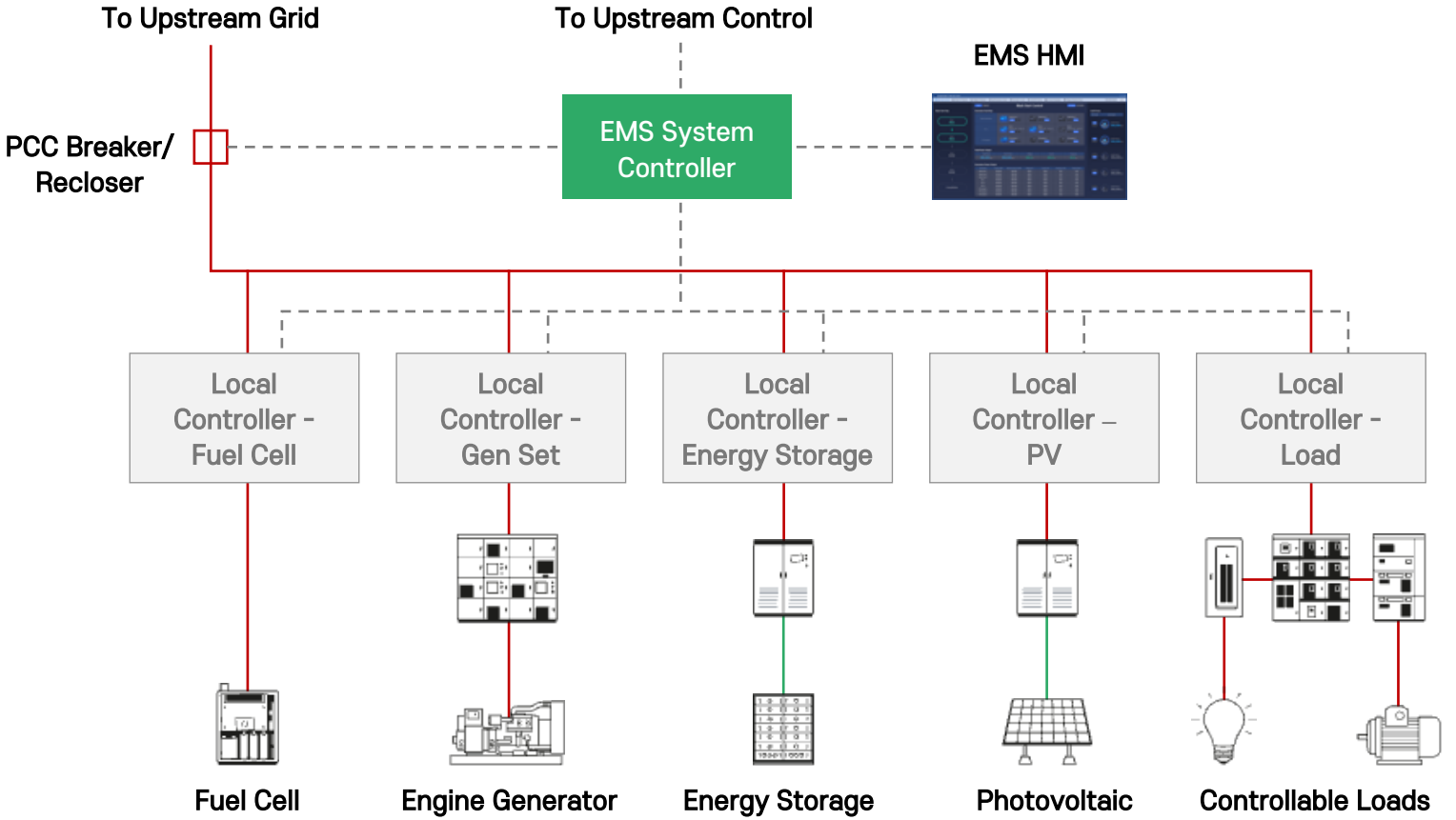
We are devoting ourselves to improving people's lives and environment with power management technologies that are more reliable, efficient, safe and sustainable. Because that is what really matters. And we are here to make sure it works.

Unbro has been incorporating our all existing and on going technologies of development into our microgrid energy system.

Total solution provider for microgrid energy system

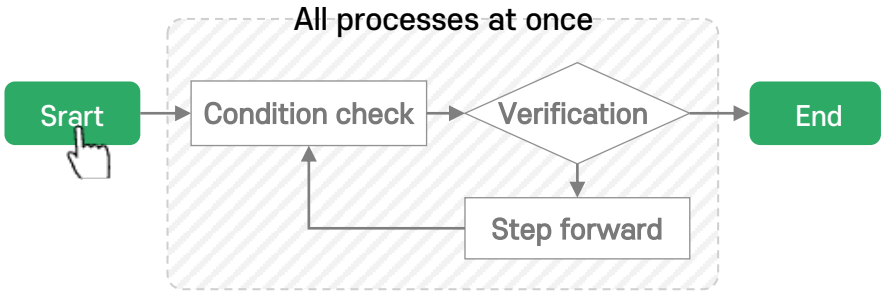


4) System architecture



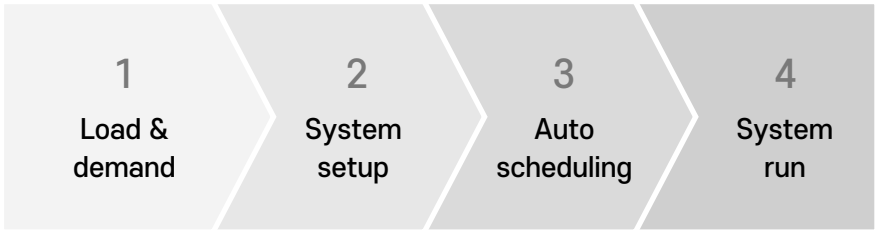
- Utilizes modular systems design
- Standard set of displays/reports
- Repeatable gen modules (templates)
- Scale templates to match application
- Pre-format load options
- Build on open standards
- Suit of pre-engineered optimization strategies

5) EMS software for microgrid system



Automated microgrid system startup

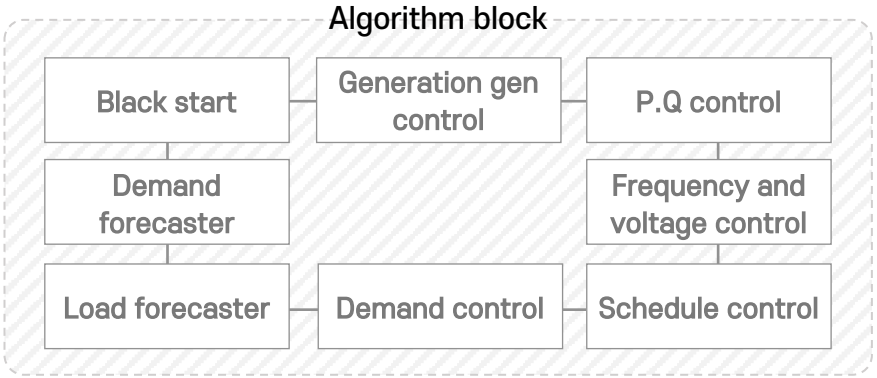
This function greatly simplifies the execution of complex black start process. It verifies the status of each step and automatically performs all processes moving to the next step. With just one button operation, the user can perform all processes at once.



Automatic scheduling and system operation

This function uses intelligent load & generation forecasting algorithm.

This function creates operation schedule automatically. With this automated scheduling function operator can run entire plant without burden of creating complex schedule.



Modularized control block

Our control system adopted modularized algorithm block architec- ture. Each algorithm block is built with the function of most frequently used. In most cases we do not need extra customization work.

We just need to combine each block for operation.

6) Type of microgrid EMS software & function

Function	Basic version	Standard version	Enhanced version
Grid forming & control (Microgrid function)	-	✓	✓
Black start (Automatic start and shutdown of microgrid system)	-	-	✓
Demand forecasting (Demand forecasting function based on history data)	-	-	✓
P.Q control (Active & Reactive power control)	✓	✓	✓
Frequency & Voltage control	-	✓	✓
P.F control (Power factor control)	-	✓	✓

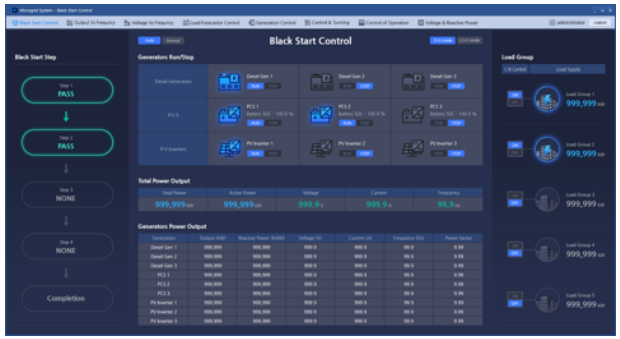
7) Microgrid EMS software GUI

Black Start Control

The automated black start function of microgrid enables operators to recover microgrid system with minimum human intervention.

The automated black start function involves starting up the microgrid's generation sources such as diesel generators, renewable energy and energy storage systems. Microgrid control system monitors each generation source's status and system capacity.

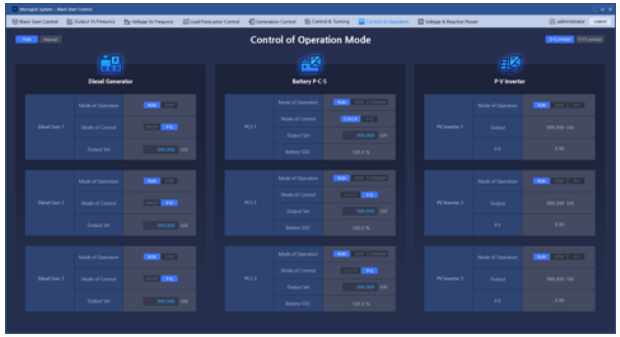
An automated black start function is a crucial component of microgrid resiliency, ensuring that the microgrid can quickly recover from a power outage and continue to provide power to critical loads.



Control of Operation Mode

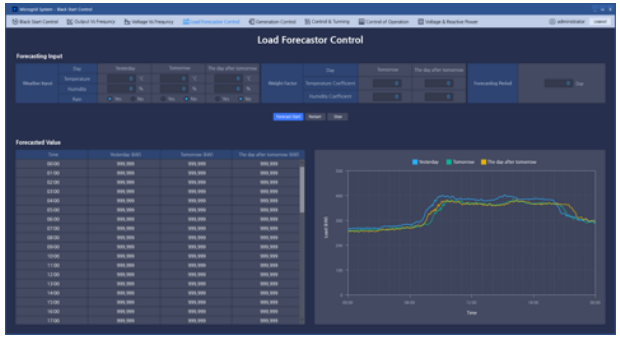
The control of the mode of operation of equipment in a microgrid, such as a generator, PV inverter, and battery PCS, involves managing the mode of output of each device to meet the electricity demand (frequency and voltage). The mode of operation consist of different operating modes to ensure to achieve this target.

Mode of operation of each equipment will be defined automatically or manually by microgrid control software.



Load Forecastor Control

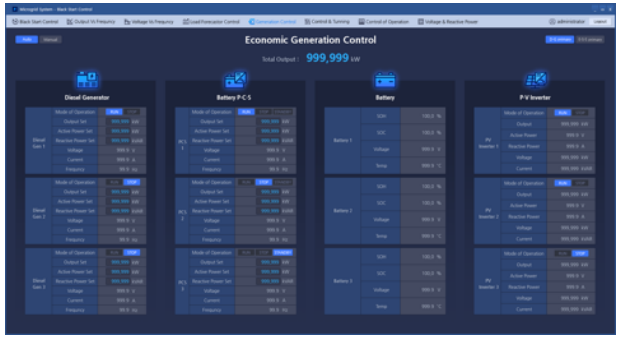
Load forecasting is done using the “similar day forecasting” prediction technique. The “similar day forecasting technique” is based on the theory that power consumption (load) shows a certain pattern under the influence of days of the week, seasons, time zones, and weather condition such as temperature, wind strength, and humidity. For forecasting, historic load data with weather informa- tion of past years are required, but if they are not available, the forecast is performed based on the data of the previous week or the previous day.

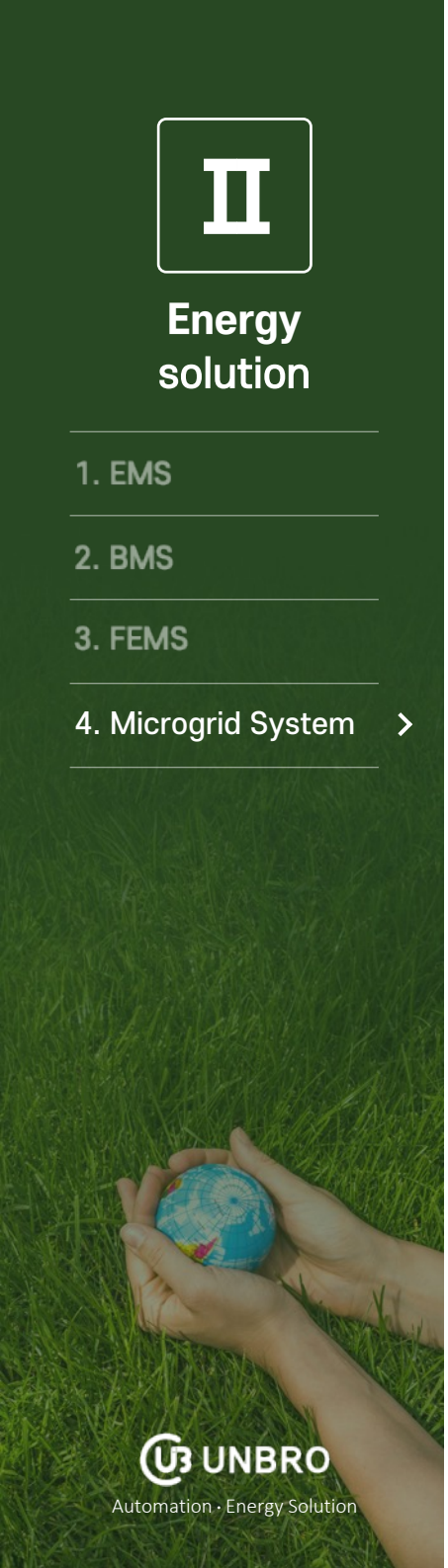


Economic Generation Control

Microgrid system typically includes multiple distributed energy resources such as solar photovoltaic (PV) panels, battery system, and generators. The economic generation and dispatch of electricity in a microgrid involves optimizing the use of diesel generators.

The economic dispatch of electricity of microgrid is focused on “How we can minimize running fuel engine based generators” and “How we can maximize the use of renewable energy”.





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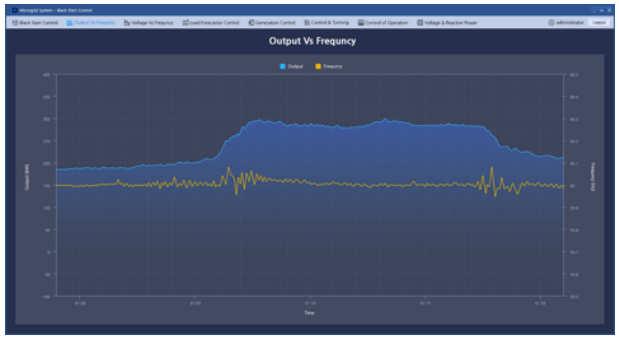
Output Vs Frequncy

Frequency control function is needed to provide adequate amount of electricity and maintain reference frequency to microgrid system. The frequency of the electrical power system is measure of how enough or deficient the supplying amount of electricity to demand side. So frequency needs to be maintained at a constant level to ensure that the power supply is stable and reliable.

In a microgrid, the frequency control function of microgrid system continuously monitors the frequency of the electrical power system, amount of Active power and size of demand variation to adjusts the output of the generation sources to maintain a stable frequency. If the frequency deviates from the set point, the frequency control system triggers the necessary adjustments in generation sources to restore the frequency to the desired level.

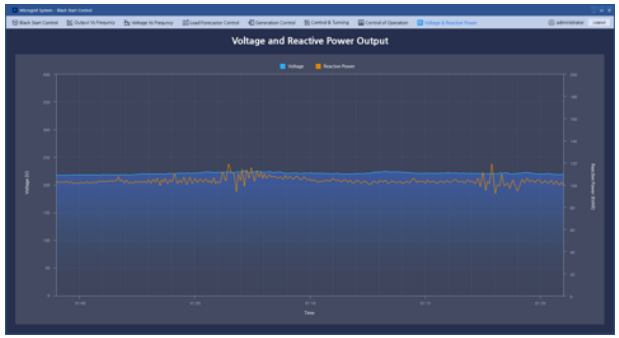


Voltage and Reactive Power Output

Voltage control function in microgrids is basically adding or subtracting reactive power to microgrid system.

If there is too much reactive power flow, then voltage may increase. Especially in microgrid system, if there is surplus power flow is made from renewable energy sources to microgird, this voltage rise phenomenon may occur.

In a microgrid, the voltage control system continuously monitors the voltage of the electrical power system and controls the output of the reactive power genera- tion to maintain target voltage.



UNBRO
Automation · Energy Solution

Automation Solution

1. SCADA
2. Smart Factory
3. Controller & I/O

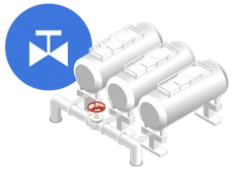
1. SCADA (Supervisory Control And Data Acquisition)

The SCADA system monitors and controls remote processes such as gas, electric power, and water treatment from a central control center. SCADA system combines high-performance, high-reliability communication, computer-based control technologies and software that provides solution to your needs.

The SCADA system controls the process through a remote control device, and monitors and collects data in real time. It controls and monitors devices such as sensors, valves, pumps, motors, etc. Various events occurring in the field are recorded in the log file.

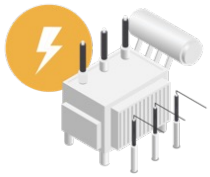
Unbro provides high reliable solutions in the fields of electricity, gas, and water treatment.

1) Applications



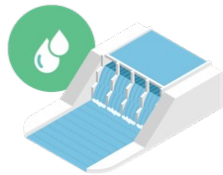
Oil & Gas

- SCADA system hardware
- SCADA system software
- Pipeline network monitoring and control system



Electricity

- SCADA system hardware
- SCADA system software
- EMS system



Water

- SCADA system hardware
- SCADA system software
- Leak detection, pipeline network analysis system

2. Smart Factory

A smart factory refers to an evolved factory that integrates the entire production process, including planning, design, production, distribution, and sales, with information and communication technology (ICT) to produce customized products with minimal cost and time. The difference between existing factory automation is that it integrates the Internet of Things (IoT), artificial intelligence (AI), and big data into the entire process to realize automation and digitalization.

Smart factory technology builds more open, connected, and flexible systems than traditional factory automation. By integrating the physical infrastructure, operations and human resources across the system, the management of the entire plant-wide production environment can be further improved through interconnected equipment, operations and facilities, and changes can be predicted and adjusted in real time. As a result, production efficiency is improved and downtime is reduced.

Unbro provides engineering and solution that enables processes more efficient and clear.

1) Smart factory service items

Process analysis and system design

- Process analysis and improvement plan
- Applicable technology study
- System operation study

System building

- Hardware
- Software
- Network

Operation Training

- System driving
- System maintenance
- System analysis

3. Controller & I/O

The SMP series controller is one of the most advanced automation platforms in the industry and provides all the functions required by the modern automation system in a single highly reliable and powerful package.

In addition to data concentration, protocol translation and logic processing, it provides a built-in HMI and secure remote maintenance access to substation and field devices, reducing operating costs and increasing productivity for a large variety of applications.

1) SMP 4/DP

- Compact format (wall-mount)
- Substation grade (-40°C to +65°C)
- 3 RS 232 serial ports
- 1 RS 232/422/485 serial port
- 33.6 Kbps V.34 modem Options
- 2 10/100 Mbps Ethernet Port
- AC/DC universal power supply
- 5W power consumption
- USB Console Port

2) SMP SG-4260

- Intel CPU module
- Standard Power supply
- Two (2) Ethernet ports (fixed or SFP-based)
- One (1) serial port (RS-232)
- Three (3) USB ports
- One (1) DVI-I video port
- IRIG-B input/output
- Satellite-synchronized (GNSS) receiver module for clock synchronization with GPS and/or GLONASS Options
- Dual, hot-swappable power supplies Options

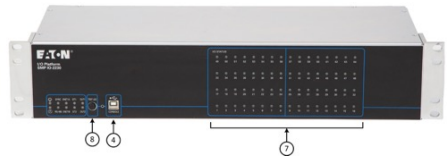
3) SMP DA-3050

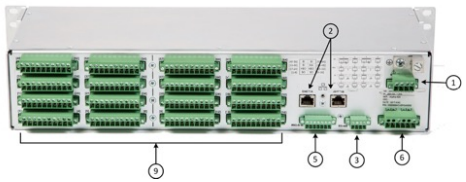
Additional module

Digital I/O module, Analog I/O module, Local HMI display

- Compact shape allows rack, DIN rail, and wall mounting
- Operates over a wide temperature range (-40°F to +167°F, -40°C to 75°C)
- Power Supply: Nominal Voltage: 24, 48 Vdc
- Three (3) Ethernet ports (1 SFP-based metal or optical, 2 metal behind switch)
- Two (2) RS 232/485 serial ports
- One (1) built-in 24~48 Vdc digital input (on controller)
- One (1) built-in ± 48 Vdc analog input (on controller)
- USB 2.0 console port (Type B port)
- Two (2) built-in Form C relays for system alarm (on controller, configurable)
- Individual LEDs for each I/O
- Test LED and local/remote buttons
- Integrated LTE cellular modem* CAT-M1/NB IoT and 3FF Micro-SIM card (interchangeable) Options
- Satellite synchronization (GNSS) for time synchronization with GPS, GLONASS, Galileo, BeiDou and QZSS Options

4) SMP IO-2230





- Universal power supply (100-240 Vac / 24-250 Vdc) ①
- Two built-in Ethernet port switches metallic, RJ-45 connectors (rear panel) ②
- One serial port (RS-485); COM1 ③
- One USB port, type B (CONSOLE port) ④
- IRIG-B demodulated input (rear panel) ⑤
- Two Form C output relays, Normally Open/Normally Closed contacts ⑥
- Individual LED for each I/O ⑦
- Test LED and Local/Remote button ⑧
- Two (2) built-in Ethernet port switches, optical with LC connectors (2, metallic shown on picture) Options
- Up to 64 inputs and outputs configured according to the following table ⑨ Options

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O&M service

1. P·V, ESS O&M
2. System O&M

1. P·V, ESS O&M

Unbro provides total services ranging from diagnosis, operation, control, and restoration of PCS, battery, and monitoring and control systems to maintenance services for P·V and ESS systems through the best professionals in Korea. It enables uninterrupted operation of comprehensive and systematic integrated operation of customer control and monitoring assets, and performs optimized asset management based on various experiences.

We provide the service required by our customers by promptly responding to all situations with systematic integrated maintenance service through our own experts trained in various monitoring and control equipment, batteries, PCS, and system environments.

We support stable operation of customer power plants by detecting factors impeding power generation efficiency in advance and responding promptly.

1) O&M service items

Monitoring	Periodic Inspection	Maintenance
• Remote monitoring • Anomaly monitoring service • Power generation forecasting service	• Inspection of major facilities in the power plant • Grounding check • Relay and Breaker Check	• S/W and H/W warranty management • Inspection of the environment around the power plant

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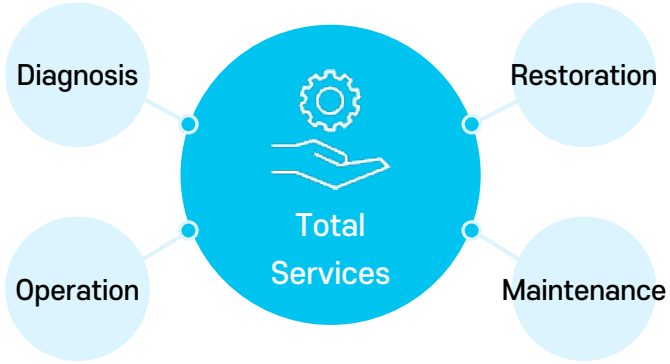
2. System O&M

Unbro provides total services ranging from diagnosis, maintenance, system upgrade and restoration of servers, networks, and control equipment to maintenance services of SCADA, DCS, and PLC systems through the best professional manpower in Korea.

Unbro's service enables uninterrupted operation of comprehensive and systematic integrated operation of customer control and monitoring assets, and performs optimized asset management based on various experiences.



We provide non-stop operation of SCADA, DCS, and PLC systems and optimized asset management services.

1) O&M service items

Remote System Monitoring

- Hardware running state
- Software running status
- Network operation status
- Application software running status
- Database state

Periodic System Inspection

- Hardware running state
- Software running status
- Network operation status
- Application software running status
- Database state

Maintenance

- Hardware
- Software
- Software update
- Network equipment

UNBRO
Automation · Energy Solution

V

R&D

1. R&D

V

R&D

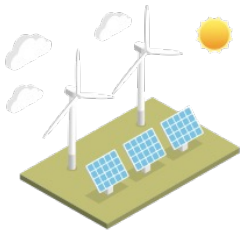
1. R&D

1. R&D (Research And Development)

In addition to the company's existing technology, we are continuously expanding our R&D activities for technology development to make a better world. We are making ceaseless efforts to improve the company's technological competitiveness.

We create values that will change lives through constant R&D and challenges.

First,



Renewable Energy Management System

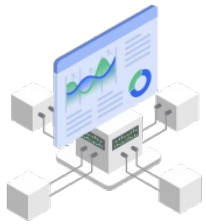
We are working on “Energy Management System (EMS), integrated monitoring and control system development” for solar power, wind power, and fuel cells.

Second,

Battery Monitoring and Control System

We are developing “battery monitoring system and control system software” that monitors the voltage, current and temperature of the battery pack and maintains it in an optimal state, predicts when to replace the battery, and detects battery problems and factors impeding power generation efficiency in advance.

Third,



Central Remote Monitoring and Control System

We are developing technology and endeavoring to increase competitiveness to incorporate the rapid development of SCADA system and IT technology innovation.

We are putting a lot of effort into developing HMI and diversifying network interface protocols.

We are investing heavily in modularization and standardization of software functions.

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Thank you

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