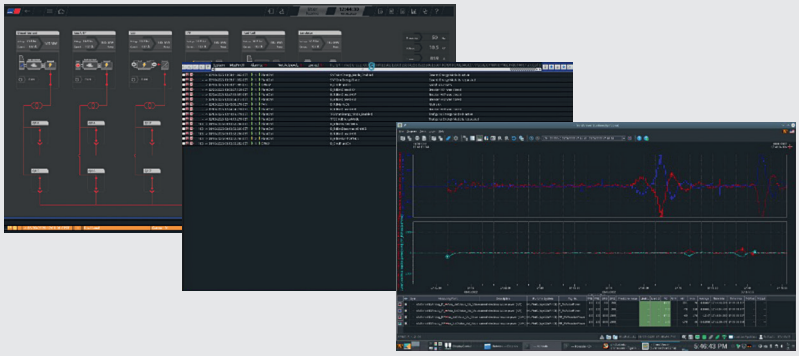
System overview

mtu ENERGETIQ MANAGER

Control solution for safe and efficient operation of battery energy storage systems (BESS)





All-in-one solution for the management of your plant

The ***mtu*** EnergetIQ platform is the brain of your power plant. It optimizes the performance of your power plant through seamless control and integration of its equipment and consists of different levels covering all control stages. The ***mtu*** EnergetIQ Manager controls groups of power generation and storage assets and the power management—including grid compliance functions—and the energy management.

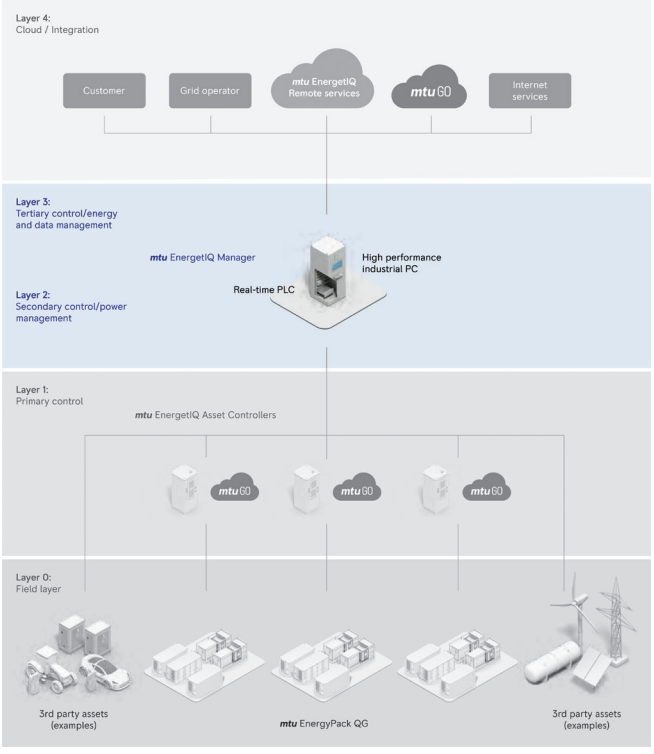
SCADA System
- Data & Alarm management, Trending, On-premise Battery Analytics
- Visualization & Monitoring, Notifications, Reporting, IT-APIs

Switchgear Controller
- Breaker control, Protection functions
- Sequences of operation (Islanding, Back Synch, etc.)

Application Manager
- Group control, Grid services, Trading
- Peak shaving, Self-consumption Increase, etc.

Power Plant Controller
- Grid code compliance
- Grid operator Interfaces: IEC 60870/IEC 61850/custom

Microgrid / Master Controller
- Rule-based power dispatch (fast reactions, stability)
- Mathematical optimization (costs, emissions, etc.)
- Management of electrical & thermal energy



A Rolls-Royce solution

Scalability
- Highly scalable ***mtu*** EnergetIQ automation solutions for projects of any size
- Supports single BESS, industrial microgrids, or GW-scale plants with multiple ***mtu*** EnergetIQ Managers

Full-Stack Solution
- Seamless field-to-cloud data flow from field equipment to cloud for data consistency
- Integrated automation solution reduces system complexity and software management effort
- Aligned interfaces minimize integration effort
- Integrating existing assets (e.g. Windfarm/Solar) as CPPC

Optimization
- AI-powered plant and microgrid optimization on-premise (SPARC)
- Processes load, production, price, and weather data
- Application stacking for maximum economic value

Battery Analytics
- On-premise analytics for battery performance insights and KPI tracking
- Early warning algorithms enable predictive maintenance for improved availability (only in combination with ***mtu*** EnergetIQ BESS Controller)

Availability
- Built on industry standards
- Redundancy options including controller, network and I/O redundancy meet highest availability requirements
- C-HIL[1] test environment ensures smooth integration and operational reliability

Cybersecurity
- Internal Information Security Management System is aligned with ISO 27001 requirements
- Development process is certified according to IEC 62443-4-1 ML 2 to assure product-level cybersecurity
- NATO-origin software

Connectivity
- Connects to ***mtu*** Go for fleet management, service, and cloud storage.
- Secure VPN for remote troubleshooting and updates by Rolls-Royce service
- Customer remote access option to the ***mtu*** EnergetIQ HMI for monitoring and (restricted) control

1 Controller-hardware-in-the-loop simulation



Category

Product information	Product family	***mtu*** EnergetIQ
	Product name	***mtu*** EnergetIQ Manager
	Product scope	Control and management of plants and microgrids, comprising multiple assets of the same or different type. The Manager is available in cabinet sizes small (S), medium (M) and large (L). The functional complexity covers the level Basic (B), Advanced (A) and Unlimited (U)
Main components	Indoor cabinet	Housing
	Programmable logic device	Control and safety of the plant
	Industrial PC	Data handling and analytics
	Connectivity device	Connection to ***mtu*** Go for remote monitoring and analysis and VPN access for Rolls-Royce Service
	Screen S/M/L	13” / 15” / 24” for HMI
	UPS S/M/L	0 / 8 h / 8 h
Options	Redundancy options S/M/L	- / Control cabinet, Ethernet / Control cabinet, Ethernet, IO
	Energy measurement modules (with/without sync) S/M/L	1 / 1 / up to 10
Plant scope & scalability	Supported asset types	Gensets, BESS, PV, Wind, Fuel Cells, shunt reactors, further on request
	Controlled assets B/A/U	up to 8 / up to 32 / unlimited (additional hardware for > 64m)
	Asset types per plant B/A/U	One / multiple / multiple
	Handled media B/A/U	Electricity / electricity, heat / electricity, heat, steam, ...
	Additional systems integration	Switchgear (MV/HV), customer SCADA, auxiliary supplies (LV), loads, etc.

Category - continued

Plant management functions	Data Management functionality B/A/U	Provision of data management, visualization, alarm handling, monitoring views and on-premise analytics
	Switchgear controller B/A/U	Control of electrical plant infrastructure including different switchgear topologies, performance of protection functions, sequence management (e.g. islanding / back synchronization)
	Application manager (B)/A/U	Delivering and stacking applications like backup power, off-grid operation, peak shaving, self-consumption increase, energy time shifting, grid services (e.g. mFFR, aFFR, FCR), energy trading, renewable capacity firming. Customer specific applications available on request
	Power plant controller A/U (optional)	Power plant controller (PPC) compliant with European Grid Code on requirements for grid connection of generators. Interfacing with traders, utilities and grid operators and assuring grid stability functions
	Microgrid controller A/U	Management of multiple asset types and media both on- and off-grid. Delivering the power as required per application while assuring short and long term stability of the microgrid
Plant optimization & analytics	SPARC A/U (optional)	Mathematical model for the optimization of microgrid operation, based on artificial neural network, using AI generated load prediction, weather forecasts and energy prices
	Battery Analytics (optional)	Provision of on-premise battery health analytics, anomaly detection and predictive maintenance algorithms (in combination with ***mtu*** EnergetIQ BESS Controller only)
Administrative functions	Parameter management	All the parameters of the ***mtu*** EnergetIQ BESS Controller can be defined with the parameter management feature
	User management	System-wide user administration facilitates the creation of personalized profiles for accessing additional functions. Analysis and recording of all operator activities related to the installation
Communication	Topologies	Ring type / star type
	Communication protocols	OPC-UA, optional: Modbus TCP, Profibus DP, PROFINET, Ethernet UDP, Modbus RTU, DNP3, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, IEC 61850, REST API
	Communication medium	Optical fiber / Ethernet
	IO	S - Interface to MCB with all required I/O for monitoring and control, 4xDI, 4xDO for monitoring and control of feeder breakers, 1xDI for external Stop; M - Interface to MCB with all required I/O for monitoring and control, 12xDI, 12xDO, 2xAI, 4xAO, 4xAT (temperature), 2x Cnt (counter); L - Fully customizable (list of options)
HMI	Access	Locally via screen and remotely
	Views	Multiple views and functions such as single line, asset dashboards, component details, manual control, status, configuration, events, etc.
Electrical	Type of electrical system	TN-S
	AC input voltage	100 to 240 V, -15%/+10%
	AC input frequency	50 to 60 Hz, ±6%
	AC input current	8.6 A at 120 V, 4.5 A at 230 V
Mechanical	Dimensions (H/W/D) S/M/L	S - 500 mm / 500 mm / 300 mm M - 1100 mm / 600 mm / 400 mm L - 2000 plus plinth height (variable) / 800 mm / 600 mm
	Weigth S/M/L	30 kg / 80 kg / 250 kg
	IP rating	IP 54
Ambient conditions	Operating temperature	0 to + 40° C
	Altitude	<= 2000 m
	Humidity	50 % for 40 °C or 90% for 20 °C, non-condensing
Main standards	Cybersecurity	IEC 62443-4-1 ML 2
	Other	Low Voltage Directive 2014/35, EN ISO 12100:2010, EN 60204-1:2018, EN 61439-1:2021, EN 61439-2:2021

All information is for general guidance only and may change without notice.

Subject to change. | Edition 01/26 | BMC 2026-08.