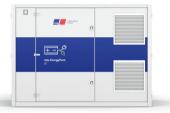


Battery Energy Storage System **mtu** ENERGYPACK QS



Optional equipment shown. Standard equipment may vary.

Product highlights

Benefits

- Factory tested plug-and-play design
- Optimized system integration ability
- Highest power density
- Complete system within vandalism proof outdoor enclosure
- High safety & reliability
- Black start capability
- Grid-supporting & grid-forming mode
- Controlled switching between modes
- Easy integration into Rolls-Royce Microgrid Solutions

Support

- Global product support offered

System configurations

 Power and capacity can be adjusted according to customer and project needs. Please see graph below and consult your local distributor for your individual configuration.

Options

- Corrosion protection
- Customer branding
- Fire suppression system
- Optimization for mobile applications
 - ... and many more

Certifications

- CE declaration of conformity



Battery energy storage systems

mtu - a Rolls-Royce solution - offers a wide portfolio of battery energy storage systems starting from 200 kVA up to 2,000 kVA and capacities up to 2,084 kWh. As integral part of flexible energy systems, energy from various distributed electricity sources can be stored in our battery energy storage systems. The *mtu* EnergyPacks are designed to improve reliability, quality and profitability of your individual energy system.

mtu EnergyPack QS type		QS 400/6	QS 400/4	QS 200/4	QS 200/3
Nominal capacity (DC)	kWh	624	416	416	312
Nominal apparent power	kVA	400	400	200	200
Overload (kVA) acceptance (60s)	%	30	30	50	50
Weight	t	10.5	9.1	9.1	8.4

Technical data - mtu EnergyPack QS^{1,2}

Battery Cell chemistry NMC Nominal capacity kWh up to 624 Cooling Max. ambient temperature Tmax °C 45 (50 °) Min. ambient temperature Tmin °C 45 (50 °) Max. ambient temperature Tmin °C -20 Mominal apparent power South kVA up to 400 AC short circuit capability KA 17 Grid frequency f Hz 50 (60) Max apparent power South % up to 150 of South Nominal voltage U _{oom} V 400 3 Nominal voltage U _{oom} V 400 3 Nominal voltage U _{oom} V 400 3 Corrosion protection C Supported company Yes Corrosion protection C CX / C5 Supported communication protection Height H mm 3,300 Supported communication protection Protection class battery room Supported communication channels Supported communication channels	Sections	Value	Sign	Unit	mtu EnergyPack QS
Nominal capacity KWh up to 624 Cooling Max. ambient temperature T _{max} °C 45 (50 °) Min. ambient temperature T _{max} °C -20 Min. ambient temperature T _{max} °C -20 Mominal apparent power S _{mom} KVA up to 400 AC short circuit capability KA 17 Grid frequency f Hz 50 (60) Max apparent power S _{mak} % up to 150 of S _{mom} Nominal voltage U _{max} V 400 ° Nominal voltage U _{max} % up to 150 of S _{mom} Power factor range cos φ Corrosion Corrosion protection Black start capability T mm 2,530 Housing Length L mm 3,300 Width W mm 2,220 Modus / TCP (IEC 60870-5-104, IEC 61850, DNP3) Interface Supported communication protection Sig / 4G 1000MB/s CAT5 Suported communication protection %	Battery	Cell chemistry			NMC
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Liectrical(1 min) S_{peak} γ_0 up to 150 of S_{nom} Nominal voltage U_{nom} V4003Power factor range $\cos \phi$ 0 ind10 cap.Black start capability		Grid frequency	f	Hz	50 (60)
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Power factor range $cos \phi$ 0 ind1 0 cap.Black start capability		Nominal voltage	U _{nom}	V	400 ³
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Interface protocol Modbus / TCP (IEC 608/0-5-104, IEC 61850, DNP3) Supported communication channels 3G / 4G Humidity ϕ_{rel} % Max. operation elevation H_{max} m Nominal round trip p_{rel} %					IP55
Supported communication channels 3G / 4G 100MB/s CAT5 Humidity ϕ_{rel} % 100 condensing Max. operation elevation H_{max} m 2,000 Nominal round trip p_{max} % > 85	Interface				Modbus / TCP (IEC 60870-5-104, IEC 61850, DNP3)
System Max. operation elevation H _{max} m 2,000 Nominal round trip n % > 85					
System Nominal round trip	System	Humidity	ϕ_{rel}	%	100 condensing
n % >85		Max. operation elevation	H _{max}	m	2,000
		-	η_{nom}	%	> 85
Weight m kg up to 10,500		Weight	m	kg	up to 10,500

1) Weights and dimensions are estimates only. Please consult the factory for accurate weights and dimensions for your specific battery storage container.

2) Product options in brackets

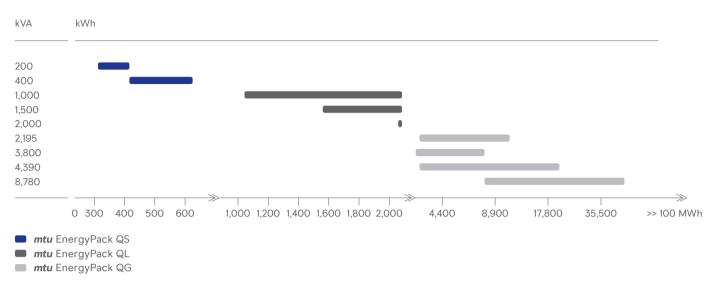
3) Other voltage levels available on request

4) At nominal power, excluding losses of external cabling. Depending on configuration and C-Rate

5) With derating

Battery energy storage systems

Our BESS products cover a wide range of power nodes – QS up to 624 kWh, QL from 1,042 to 2,084 kWh and QG scalable up to 100 MWh and more.



Sound data

- Consult your local distributor for sound data.

Warranty and performance guarantee

 Consult your local distributor for information about warranty and performance guarantee.

Materials and specifications are subject to change without notice. Please consult your local distributor for further product information.