



QINOUS Lithium-Ion Energy Storage Solutions

QINOUS ESS QCompact, QMedium & QLarge

DATASHEET

HOUSING

The QINOUS Energy Storage Solutions are available as compact housings or as 20 ft / 40 ft ISO HC shipping containers based on the QINOUS standard integration and insulation concept. **The housings include the following features:**

- > Completely enclosed, no forced ventilation
- > Integrated thermal management including A/C unit and water/air heat exchanger
- > Standard coating: for industrial environment
- > Optional coating: for marine environments

The QINOUS compact platform is ideal for projects with logistical restrictions and space limitations, while the QINOUS medium and large platform provides a maximum of power and capacity. All QINOUS ESS housings are vandalism proof robust structures with state-of-the-art thermal insulation materials.

The QINOUS “closed housing concept” provides optimum protection against dust, insects, salt mist, and humidity. The interior is separated into two sections. A fully enclosed section that prevents an air exchange with the outside houses the batteries, battery inverters and control system. The second, open section contains the heat exchanger, AC system and transformer.

- > Critical components integrated in fully enclosed compartment
- > Effective protection against dust, insects, humidity and salt-mist
- > Optional: Touchscreen access from outside

BATTERY

The QINOUS battery system consists of multiple battery trays, each containing lithium-ion cells. The trays are combined in racks and include the Battery Management System (BMS) and switchgear. It has the following features:

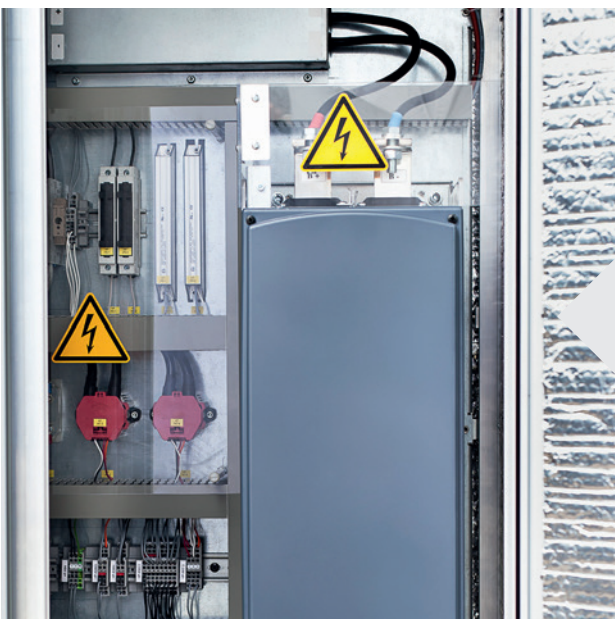
- > High-quality cells from leading manufacturer with fully automated production facility
- > Very high cycle durability and micro-cycling capability
- > High energy and power density
- > More than 4,000 cycles at 80%DoD and 80% remaining capacity at EoL and within the first 10 years
- > Depth of discharge of up to 100%
- > Comprehensive passive and active safety features

The rack level BMS provides the following active safety mechanisms:

- > Over and under voltage protection
- > Over current protection
- > Voltage and temperature management

The cell level passive safety mechanisms include:

- > Thermal runaway prevention
- > 3-phase separator
- > Over-charge safety device

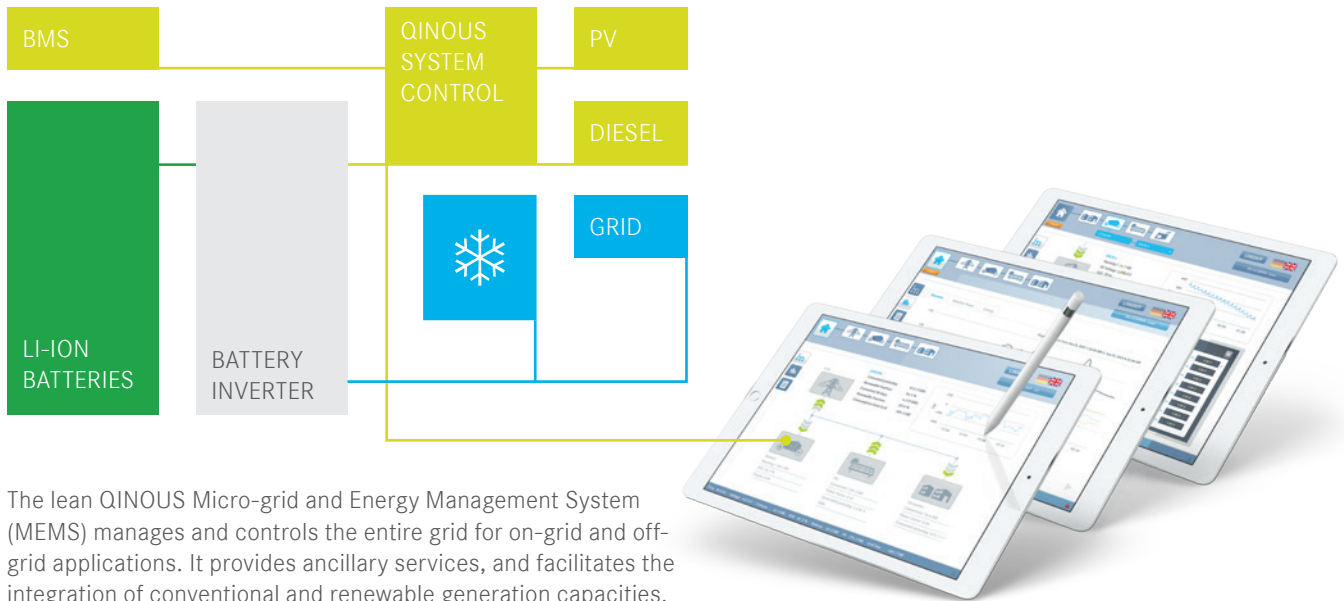


INVERTER

The battery inverter is developed and engineered by QINOUS. It is based on a power unit provided by a large-scale European manufacturer. The inverter features include:

- > Grid-forming and bi-directional
- > Provision of reactive and short-circuit power
- > Overload capacity
- > Compensation of asymmetric loads
- > Black start capability
- > Cooling: air flow and water cooling, depending on system size

SMART CONTROL: MICRO-GRID AND ENERGY MANAGEMENT SYSTEM



The lean QINOUS Micro-grid and Energy Management System (MEMS) manages and controls the entire grid for on-grid and off-grid applications. It provides ancillary services, and facilitates the integration of conventional and renewable generation capacities.

SMART PLUG-AND-PLAY ENERGY STORAGE

ON-GRID:

- > Ancillary services and frequency regulation (Response to frequency deviations in milliseconds)
- > Power support for fast charging stations
- > Provision of active and reactive power
- > Black-start
- > Load shaving, time-of-use and demand side management
- > Peak load supply management
- > Self-consumption optimization
- > Grid import and production profile management
- > Grid investment deferral
- > Integration of intermittent energy

OFF-GRID:

- > High renewable energy penetration up to 100%
- > Full grid control and direct communication with generators and photovoltaic systems
- > Ability to switch diesel generators off for prolonged duration to save significant fuel and O&M costs
- > Stable grid and improved power quality
- > Optional: integration of wind turbines

WEAK-GRID:

- > Provision of grid back-up
- > Automated switching between on-grid and island mode
- > Voltage support



PLUG. PLAY. CONFIGURE YOURS.

		INVERTER POWER											NOMINAL BATTERY CAPACITY IN KWH
		30kVA	60kVA	90kVA	120kVA	150kVA	200kVA	300kVA	400kVA	500kVA	1000kVA	1500kVA	
QCompact	<												54
	<												69
	<												84
	<												107
	<												122
	<												137
	<												153
	<												168
	<												184
	<												206
QMedium	<												230
	<												251
	<												274
	<												306
	<												335
QLarge	<												419
	<												502
	<												586
	<												670
	<												837
	<												1004
	<												1256
	<												1507
	<												2009
	<												2344

Further power and capacity combinations available upon request.

For further information and a digital version of this document, please visit us online at www.qinouis.de/en/downloads



1. QINOUS ESS QCOMPACT M/L

> Nominal power range:	30 to 200 kVA
> Nominal capacity range:	54 to 335 kWh
> Connection voltage:	LV
> Rated current:	up to 280 A
> Max current:	110% standard; 150% for island applications
> Rate voltage/voltage range:	custom specific V
> Rated frequency:	50 / 60 Hz
> Total harmonic distortion:	< 5%
> Power factor:	-1 to +1
> System efficiency (round-trip):	> 88%
> Battery efficiency (round-trip):	> 96%
> Cell chemistry:	NCM/LMO
> DC voltage range:	493 to 1,004 V
> Specified cycles at nominal C-rate at 80% DoD at rack level	More than 80% remaining capacity after 4,000 cycles
> Supported communication interfaces:	BacNet/IP; CANopen 2.0B; IEC 60870-5-103/104 (if required, further communication standards are applicable)
> Control and monitoring via external interface:	GSM/Internet
> Touch screen:	as standard, outdoor and sunlight readable optional
> Remote monitoring:	1 & 15 min data resolution available; real-time & historical data at cellular level; 25 year data storage
> Dimensions (LxWxH):	1.73 x 1.73 x 2.35 m 2.63 x 1.73 x 2.35 m
> Weight:	2.0 to 4.5 tons



2. QINOUS ESS QMEDIUM

> Nominal power range:	up to 500 kVA
> Nominal capacity range:	up to 837 kWh
> Connection voltage:	LV & MV
> Rated current:	up to 766 A @40°C
> Max current:	110% standard; 150% for island applications

> Rate voltage/voltage range:	custom specific V
> Rated frequency:	50 / 60 Hz
> Total harmonic distortion:	< 5%
> Power factor:	-1 to +1
> System efficiency (round-trip):	> 88%
> Battery efficiency (round-trip):	> 96%
> Cell chemistry:	NCM/LMO
> DC voltage range:	774 to 1,004 V
> Specified cycles at nominal C-rate at 80% DoD at rack level	More than 80% remaining capacity after 4,000 cycles

> Supported communication interfaces:	BacNet/IP; CANopen 2.0B; IEC 60870-5-103/104 (if required, further communication standards are applicable)
> Control and monitoring via external interface:	GSM/Internet
> Touch screen:	as standard, outdoor and sunlight readable optional
> Remote monitoring:	1 & 15 min data resolution available; real-time & historical data at cellular level; 25 year data storage

> **Dimensions (LxWxH):** 6.1 x 2.5 x 2.9 m

> **Weight:** 6.0 to 12.0 tons



3. QINOUS ESS QLARGE

> Nominal power range:	up to 1,500 kVA
> Nominal capacity range:	up to 2,344 kWh
> Connection voltage:	MV
> Rated current:	up to 1,532 A @40°C
> Max current:	110% standard; 150% for island applications

> Rate voltage/voltage range:	custom specific V
> Rated frequency:	50 / 60 Hz
> Total harmonic distortion:	< 5%
> Power factor:	-1 to +1
> System efficiency (round-trip):	> 88%
> Battery efficiency (round-trip):	> 96%
> Cell chemistry:	NCM/LMO
> DC voltage range:	774 to 1,004 V
> Specified cycles at nominal C-rate at 80% DoD at rack level	More than 80% remaining capacity after 4,000 cycles

> Supported communication interfaces:	BacNet/IP; CANopen 2.0B; IEC 60870-5-103/104 (if required, further communication standards are applicable)
> Control and monitoring via external interface:	GSM/Internet
> Touch screen:	as standard, outdoor and sunlight readable optional
> Remote monitoring:	1 & 15 min data resolution available; real-time & historical data at cellular level; 25 year data storage

> **Dimensions (LxWxH):** 12.2 x 2.5 x 2.9 m

> **Weight:** 12.0 to 25.0 tons



› CONTACT US!

**THE SPECIALIST IN
SMART PLUG-AND-PLAY
ENERGY STORAGE SOLUTIONS**

QINOUS GmbH

Wilhelminenhofstraße 75
12459 Berlin | Germany

Phone: +49 30 530 23 31-00

Fax: +49 30 530 23 31-01

Mail: mail@qinous.com

www.qinous.com

www.qinous.com