

## FREQCON

German Engineering  
to energize the World

Grid & Storage



Wind Energy



Solar Energy



Microgrid



# About FREQCON



Privately held, family-owned company

Founded in 1988 and incorporated since 2005 as FREQCON GmbH, German engineering for over 30 years.

Location: Lower Saxony, Germany

Number of employees: 92



# About FREQCON



Manufacturer of

- Power Converters and control systems
- Battery Energy Storage Systems for renewable energy applications

Combination of different energy sources in one system

Grid-connected or in island mode

Total installed capacity > 45 GW





# Grid and off-grid solutions



## Grid & Storage

- BESS Battery Energy Storage Systems
- Battery-to-Grid Converter
- Fast charging station FCS
- STATCOM-Converter
- UPS
- Ultracapacitor Grid Stabilizer (U-UPS)
- Hydrogen Electrolysis Rectifier



## Wind Energy

- Pitch-Retrofit Solutions
- Pitch Systems
- MSC Converter Wind
- Power Converter NGC Wind
- Controller
- Safety System



## Solar Energy

- MSC Solar
- MSC Solar Battery Storage



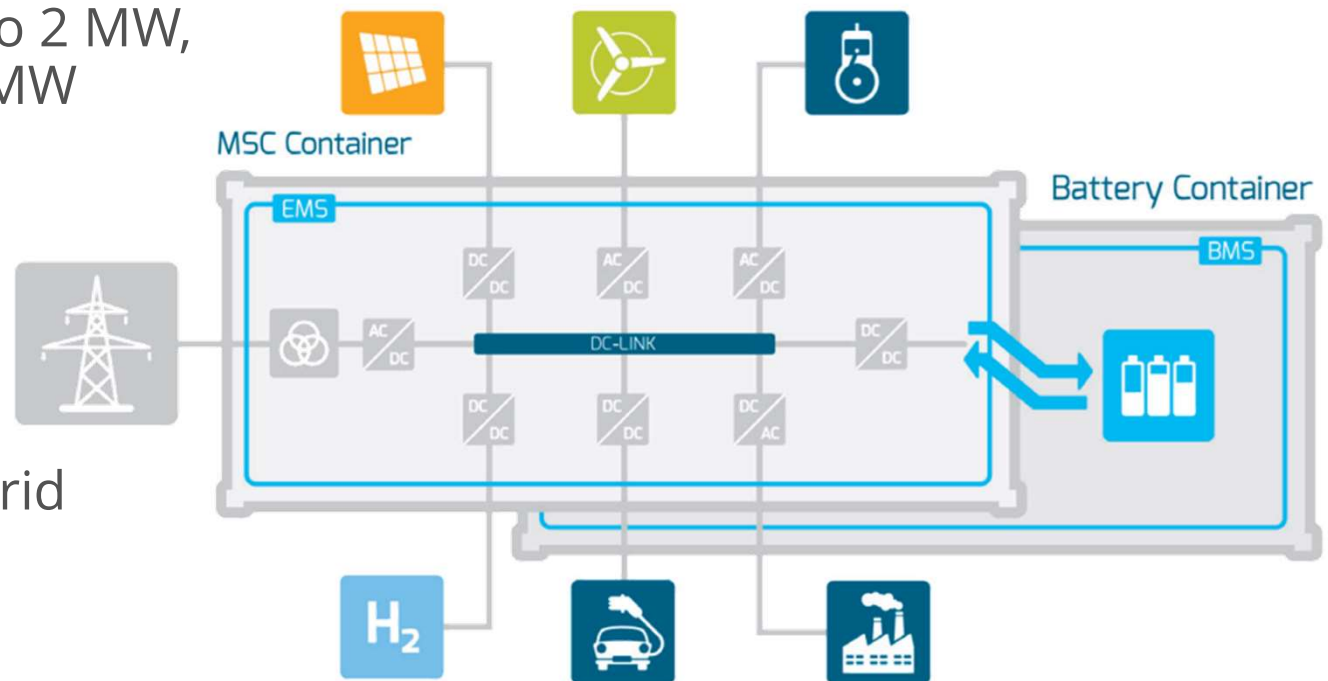
## Microgrid

- MSC Converter
- MSC Systems

# Multi-Source-Converter (MSC)



- IGBT based grid inverter modular 150 kW up to 2 MW, scalable up to > 100 MW
- Adaptable to your application
- Compliance with all grid guidelines (e.g. DIN VDE 4120)
- > 98 % Efficiency



# Applications



Primary Control Reserve  
Secondary Control Reserve



Hybrid applications



Peak shaving



Peak shifting



Energy arbitrage/  
Daytrading



Uninterruptible  
Power Supply



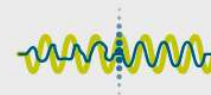
Frequency control



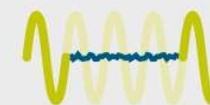
Voltage control



Active harmonic filter



Voltage dip mitigation



Island grid operation



Reactive power  
compensation



Black start capability



Synthetic inertia



Grid forming



# FREQCON Battery Storage



- High-quality LiFePO4 or LTO batteries
- C-rates 0.25 C to 20 C
- Capacity guaranteed 10 years
- Robust Battery Management System (FREQCON BMS)
- State-of-the-art fire safety system
- Compact, modular solution in ISO containers



# Reliable energy supply in Alaska

## FREQCON BESS FQ



Year 2022

Country Alaska, USA

Field Utility

### Scope of delivery

- MSC Converter 500 kW and
- 2 x 500 kWh LiFePO4 Battery Storage delivered in a 20 ft. Container

### Project description

FREQCON Battery Storage System and Grid Forming Inverter technology enables remote villages in Alaska to benefit from **reliable and more sustainable energy supply** in the future.

The goal is to improve quality, to increase wind energy penetration, reduce diesel genset consumption and provide emergency power.





# Large-scale storage system FREQCON BESS EV



Year 2020

Country Germany

Field Industry

## Scope of delivery

- MSC Hybrid Converter 1.5 MW and 1.5 MVA MV transformer and switch gear delivered in 30 ft. Container
- MBE Stationary Battery Storage 1.4 MWh delivered in 40 ft. Container

## Project description

System for **reliable power supply** to compensate grid failures and interruptions in the production of sawn timber and wood pallets. Additional application **primary control reserve** and **peak shaving**. Integration of existing **PV** and **biomass cogeneration plant**. Integration of wind turbine is being planned.

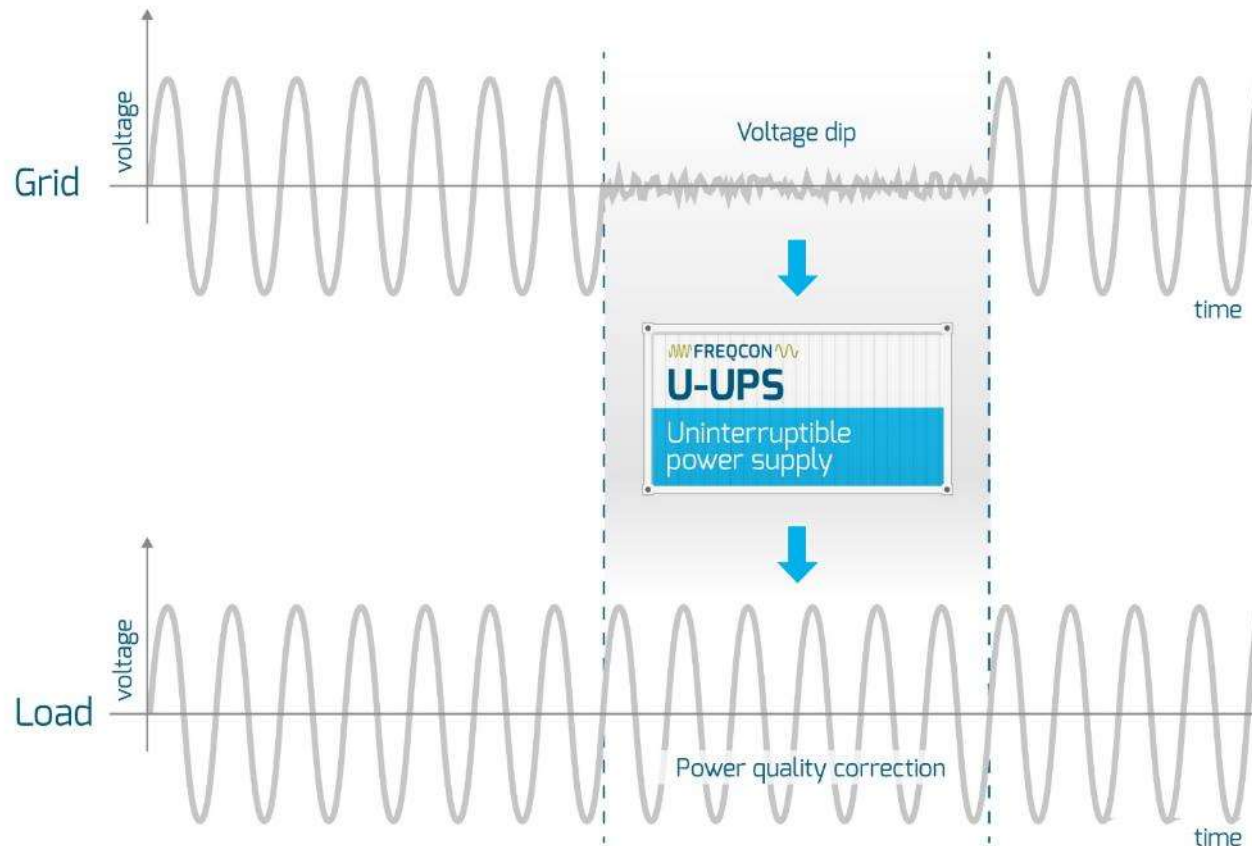




# Uninterruptible Power Supply U-UPS



Avoidance of production losses resulting from grid interruptions



- Ultracapacitor-Storage for 1 - 10 sec
- 500 kW – 5 MW,  
\* higher powers upon request
- Turnkey Solution available in a container

# Solution automotive industry

## FREQCON U-UPS



Year 2018

Country Czech Rep.

Field Industry

### Scope of delivery

- 1.0 MW Ultracapacitor Uninterruptible Power Supply (U-UPS) for voltage dips up to 1.5 seconds delivered in 20 ft. Container

### Project description

Design and commission of a **turnkey container solution** consisting of MSC Converter **ultracapacitor storage** for a Czech car manufacturer's production site. Ultracapacitors are charged by the public grid during normal operation. **U-UPS** automatically responds to voltage dip and micro-interruptions. It takes over load supply in < 10 ms. ROI 2.5 mths.



# Airport project FREQCON BESS EV



Year 2021

Country Germany

Field Infrastructure

## Scope of delivery

- MSC Converter 1.0 MW
- MBE Battery Storage 1.4 MWh

## Project description

We deliver an inhouse solution consisting of a Battery Storage System and **EV batteries from Mercedes-Benz Energy**.

This storage system is primarily used as an **emergency power system** to ensure the power supply at Düsseldorf airport. Additionally the system is used for **primary control reserve**.





## IV. FREQCON FCS



# FREQCON

Sustainable and economical turnkey Fast Charging Station



# Worldwide references





# Contact US!



# Thank you!

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<https://www.freqcon.com/>

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