

# INDRIVETEC AG

"bricks up" flexible energy storage systems

"BRICK" FlexConvert-BESS-High-Energy

## FlexConvert-BESS-High-energy

the flexible, compact and versatile container energy storage system solution including: Enclosure, Inverter, NAS<sup>®</sup> Battery, EMS, Aux-transformer and Control

### FlexConvert-BESS-High-energy-1MVA

FlexConvert-PCSU

For 1 - 4 x NAS<sup>®</sup> Batteries and up to 5800 kWh

### FlexConvert-BESS-High-energy-2MVA

FlexConvert-FC2000-Outdoor

Up to 8 x NAS<sup>®</sup> Batteries and 11600 kWh



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## FlexConvert-BESS-High-energy-1MVA

### FlexConvert-PCSU for 1 – 4 NAS<sup>®</sup> Batteries

AC-Connection	FC-PCSU-250	FC-PCSU-500	FC-PCSU-750	FC-PCSU-1000
Nominal AC Power	240 kW	490 kW	735 kW	980 kW
Rated apparent power	275 kVA	550 kVA	825 kVA	1100 kVA
Fault Ride Through	ARN 4110/4120/4130, other upon request			
Power factor cos ( $\varphi$ )	$\pm 0 - 1.0$ (four-quadrant operation)			
AC nominal voltage	480 V	165 V	250 V	330 V
Grid voltage (LV-option)	380 - 690 V (with optional transformer)			
Grid voltage (MV-option)	6 – 33 kV (with optional transformer)			
AC operating current	300 A	1890 A		
Maximal AC current	330 A	2100 A		
Grid frequency	50 Hz/60 Hz			
Max. efficiency	98.5 %			
DC-Connection				
Compatible NAS <sup>®</sup> Bat.	250 kW	500 kW	750 kW	1000 kW
General data				
Container size	ISO 20ft. Container			
Weight	10 t	12 t		
Cooling	Liquid and air cooling			
Relative humidity	15 % to 100 % without dew conditions			
Operation temperature	-25... +50°C (extended range upon request)			

*Technical data are subject to change, even for reasons on country-specific deviations.*

*Indrivetec assumes no liability for errors and omissions.*

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## FlexConvert-BESS-High-energy-2MVA

### FlexConvert FC2000-Outdoor for 8 NAS<sup>®</sup> Batteries

AC connection off-grid	Technical data
Nominal power range	Up to 2000 kVA
Voltage Fault Ride Through	ARN 4110/4120/4130, other upon request
Power factor cos ( $\varphi$ )	$\pm 0 - 1.0$ (four-quadrant operation)
PCS voltage	370 V
AC nominal operating current	2900 A
Maximal AC current	3120 A
Grid frequency	50 Hz/60 Hz
Grid structure	IT, other upon request
Harmonic distortion (THD $I_{AC}$ )	< 3 %
Max. efficiency	98.4 %
DC connection	
Number of battery inputs	2 x 4 NAS <sup>®</sup> Batteries
Max. DC current	3000 A
DC voltage range	556 V— 912 V
Maximal DC voltage	1100 V, other upon request
General data	
Dimensions (W x D x H)	4800 x 800 x 2050 mm
Weight	4300 kg
Ambient temperature	-20... +45°C (above 35°C derating)
Cooling	Fully closed cabinet with liquid cooling
Standards	
CE conformity / EMC	CE, others and UL/UR, CSA upon request
Applicable standards	EN61000-6-2, EN61000-6-4, EN62477-1, IEC62103
User Interface	
Communication interfaces	Ethercat, EtherNet/IP, Modbus TCP, Profinet

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compatible with NAS<sup>®</sup> Batteries,  
produced by NGK Insulators Ltd. and distributed by BASF

DC-Connection	250 kW System	500 kW System	750 kW System	1000 kW System
Max. discharge power	250 kW	500 kW	750 kW	1000 kW
Max. charge power	250 kW	500 kW	750 kW	1000 kW
Dischargeable Energy	1450 kWh	2900 kWh	4350 kWh	5800 kWh
DC voltage range	139 - 228 VDC	278 - 456 VDC	416 - 684 VDC	556 - 912 VDC
Max. charging current	1200 A			
Max. discharging current	1500 A			
Aux. power at 440 VAC	30 kW	60 kW	90 kW	120 kW
Battery life	20 years, 7300 equivalent cycles * with DOD 100 %			
<b>General data</b>				
Container size	ISO 20ft. Container			
Numbers of Containers	1	2	3	4
Weight	21 t	42 t	63 t	84 t
Operation temperature	-20... +45°C (extended range upon request)			
Cooling	Air conditioner and air cooling			
Relative humidity	15 % to 85 % without dew conditions			
Altitude	1000 m			
Snow accumulation	1 meter high			
Site condition	Outdoor			
Seismic	Static horizontal acceleration 1.0 g			

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\* The equivalent operation cycle is only defined by accumulated discharged energy and independent from operating Depth-of-Discharge (DoD).

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"BRICK" FlexConvert-BESS-High-Energy

## NAS<sup>®</sup> Batteries

produced by NGK Insulators Ltd., distributed by BASF

NAS<sup>®</sup> batteries are designed for stationary energy storage and boast an array of superior features:

**High energy**

**Long life time 20 years / 7,300 equivalent cycles \***

**Low capacity degradation \*\***

**Enhanced safety**

**Environmental benignity**

**Fast response**

**Low maintenance**

**"All climate" technology**

**Reliability**

*\*The equivalent cycle is only defined by accumulated discharged energy and independent from operating Depth-of-Discharge (DoD).*

*\*\* Average capacity degradation <1% per 365 equivalent cycles .*

*NAS<sup>®</sup> Battery cell and module are certified by UL Solutions as a recognized component to UL 1973 and have been evaluated using UL 9540A. Technical data are subject to change, even for reasons on country-specific deviations. Indrivetec assumes no liability for errors and omissions .*

# INDRIVETEC AG

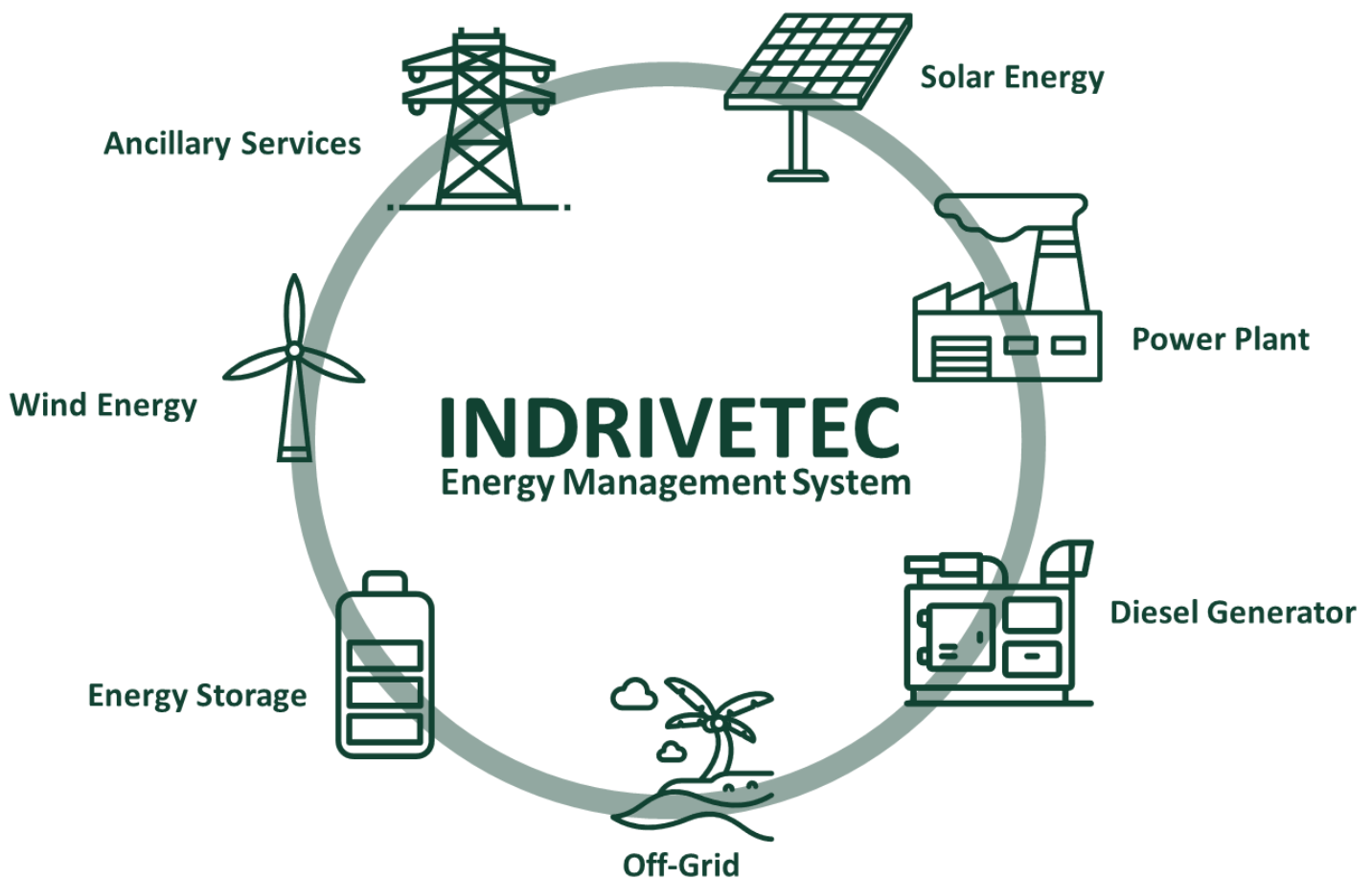
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"BRICK" IDT-Energy Management System

**IDT-Energy Management System EMS** has been designed to control, monitor, and optimize the performance of renewables, or various power generating units, and adapted for power management of **Indrivetec FlexConvert BESS** systems.

The EMS ensures the connection between the renewable energy sources, the gensets and loads and ensures maximum security and also minimizes CO2 emissions, fuel and maintenance costs.

The EMS Monitor enables the user to monitor their installations and to analyse the current load and grid conditions.



# INDRIVETEC AG

## SERVICE PROGRAM

**Indrivetec AG** is provider of linear motor drives and energy storage systems

**Indrivetec AG** accompanies the customers through the product life cycle with consulting, simulations, project development, project management, installation, commissioning, training, after sales and maintenance.

**Indrivetec AG** offers its customers an interesting range of service programs. We keep devices, installations and systems in good shape thanks to preventive maintenance and servicing.

We will train you in all aspects of commissioning, operation, maintenance and project management required for your installations and systems to avoid or minimise downtimes and protect your investments and focused on building strong, long-term partnerships with our customers.



# INDRIVETEC AG

## SERVICE ASSETS



### Maintenance

The maintenance restores the target status of the devices and systems. The maintenance ensures the functionality of the devices and systems and increases their service lifetime significantly. All work will be recorded in a maintenance report. Regularly performed and documented maintenance receive the warranty claim.



### Inspection

The inspection includes testing of devices and systems. The actual status will be registered and documented. The functionality of the entire system, including all system parts, settings and data value, will be checked. The goal is to find out if the devices and systems are in a proper, fully operative and safe condition



### Repairs

Defective components and system parts which are detected during maintenance work will be repaired or replaced.

The target status of the devices and systems will be restored and therefore the fully operational character and functional safety will be ensured. All repair measures will be recorded in the maintenance report



### Support

E-mail support with IDT support hotline

Phone support +41 55 515 3737 or +49 40 87 407 340

Weekend and public holiday support from 08:00 – 19:00 CET



Indrivetec supply qualified technicians to work at site

### Monitoring

Monitoring and availability of help desk based on Indrivetec standards

The monitoring includes a number of algorithms for evaluating the collected battery and system data.



### Training

Level 1 – “basic knowledge”, safety functions of PCS, coolant system, visual checks and low-level maintenance

Level 2 - “authorized service partner”, cold commissioning, hot commissioning, alarm handling, high-level maintenance, troubleshooting with IDT support hotline

Certification to an authorized Indrivetec service partner

