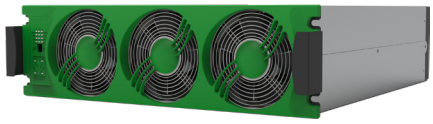
Hercules



Power Conversion System for Local Energy Management

AC
3 x 400 Vac
+ N

DC
408 Vdc

Power
20 kW

20-640 kW

Description

Hercules is a family of modular AC/DC Power Conversion System (PCS) suited for usage with low voltage batteries (400 Vdc). Its fundamental building block consists in a 20-kW 3-phase converter. It can reach power levels up to 640 kW when assembling 32 converters in parallel.

Next to the Basic 2-port version, a 3-port version is also available and provides a 3-phase AC output. This version is called Hercules Back-Up as this additional port can be used to supply a critical load that must be protected when the grid is dropped.

Hercules solution involves a built-in Battery Management System (BMS) relevant for lead-acid batteries. It is also compatible with Li-Ion batteries providing appropriate software interface customization for specific BMS, e.g., relying on existing CANBUS capabilities. It is also intended to communicate with Energy Management Systems (EMS) providing appropriate software interface customization for specific EMS, e.g., relying on existing SNMP capabilities.

Applications

Hercules focus on the Microgrid applications for the Commercial & Industrial market. Paired with batteries, the Energy Storage System can optimize your energy bills through:

- Peak shaving
- Increase Self Consumption
- Demand response
- Back-up (only with Hercules Back-Up modules)

Hercules Basic

Main Features

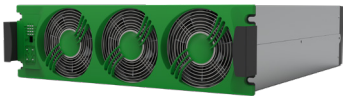
- Modularity
- Hot-pluggable
- Versatile charging
- Battery sustainability
- Harshest AC conditions
- High efficiency, certified by SGS
- Control and monitoring capabilities

Hercules Back-Up

Illustrations are non-binding and may include customized fittings.

Hercules Modules

General	Hercules Basic 200 – 400/230	Hercules Back-Up 200 – 400/230
MTBF / Cooling	240 000 hrs / Forced	
Efficiency (Typical)	96% certified by SGS at 45% load	
True Redundant Systems – compliant	3 disconnection levels on DC 4 disconnection levels on AC Input	3 disconnection levels on AC Output and DC 4 disconnection levels on AC Input
Vibration	GR63 office vibration 0 to 100Hz-0.1g / transport vibration 5 to 100Hz-0.5 g, 100 to 500Hz - 1.5g / Drop test	
Operating conditions	Designed for installation in an IP20 or IP21 environment. When installed in a dusty or corrosive environment, appropriate measures (air filtering, …) must be taken.	
Altitude above sea without de-rating	1500m / Above 1500m : 0.8% de-rating per 100m	
Ambient / storage temperature / relative humidity	-10 to 40 °C / -40 to 70 °C / 95%, non-condensing	
Material (casing)	Coated steel-ALU ZINC-Front plate coated black RAL9005	
Internal temperature management and switch off	Yes	
Turn on delay	20 s to 40 s depending on the number of modules installed	
Galvanic isolation	No	
Power		
AC Input Specifications		
Maximum power (VA) / (W)	20 kVA / 20 kW / Bi-directional	
Short time backfeed capacity (@PF 0.9)	150% - 15s | 130% - 30s | 120% - 60s | 110% permanent	
Nominal voltage (AC)	3 x 380V / 400V / 415V + Neutral 5 wires	
Voltage range (AC)	150 Vac to 275 Vac line to neutral (power derating below 220 Vac)	
Conformity range before transfer to DC	Adjustable	
Power factor at rated power	> 99%	
Frequency range (selectable) / synchronization range	50 or 60 Hz / range 30 to 70 Hz adjustable	
Short circuit backfeed current per phase	53 A 20 mS - 38 A Rms 15 Sec.	
DC Battery Specifications		
Maximum power (W)	20 kW / Bi-directional	
Nominal voltage (DC)	-204 Vdc / 0 Vdc / +204 Vdc with the zero-voltage connected to AC neutral	
Voltage range (DC)	-168 Vdc to 245 Vdc / 0 Vdc / +168 Vdc to +245 Vdc	
Nominal current (at 408 Vdc)	52 A	
Maximum input current (for 5 second) / voltage ripple	67 A / < 400 mVrms	
Input voltage boundaries	User selectable	
AC Output Specifications		
Maximum power (VA) / (W)	-	20 kVA / 20 kW / Bi-directional
Nominal voltage (AC)	-	3x380V / 400V / 415V + Neutral 5 wires
Short time overload capacity (@PF 0.9)	-	150% - 15s | 130% - 30s | 120% - 60s | 110% permanent
Short circuit clear up capacity	-	5 x In for 20 msec – Only if AC Input is available With magnitude control and management
Short circuit current on battery, per phase	-	53 A 20 mS - 38 A Rms 15 Sec.
Admissible load power factor	-	Full power rating from 0 inductive to 0 capacitive
Frequency / frequency accuracy	-	50 - 60 Hz / 0.03 %
Total harmonic distortion (resistive load)	-	< 1.5 %
Load impact recovery time	-	0.4 ms
Nominal current per phase (In)	-	29 A
Crest factor at nominal power	-	2.8 : 1
In Transfer Performance		
Max. voltage interruption / total transient voltage duration (max)	-	0 s / 0 s
Signaling & Supervision		
Display	Synoptic LED	
Alarms output / Supervision	Via Pegasus controller (refer to Pegasus datasheet)	
Certificates & Approvals		
Safety	EN 62040-1-1	
EMC (immunity)	EN 55022 (A), EN 61000-4-2/3/4/5/6/8	
Functionality	VFI-SS-111	
Planned certificates	IEC 62109-1/2, Synergrid C10/11	
Mechanical Specifications		
Dimensions (W x H x D mm)*	19" x 3U x 572 mm	
Weight	20 kg	24 kg
AC Connection / DC Connection	Pluggable blade terminals / Pluggable blade terminals	



HERCULES