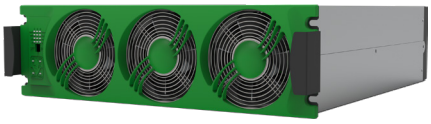
Leading Conversion Technology for Power Resilience

Hercules 20 kVA/kW



Power Conversion System for Local Energy Management

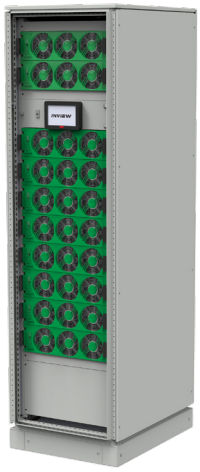
AC 3 x 400 Vac + N

DC 408 Vdc

Power 20 kW/KVA

20-240 kW/kVA

Description



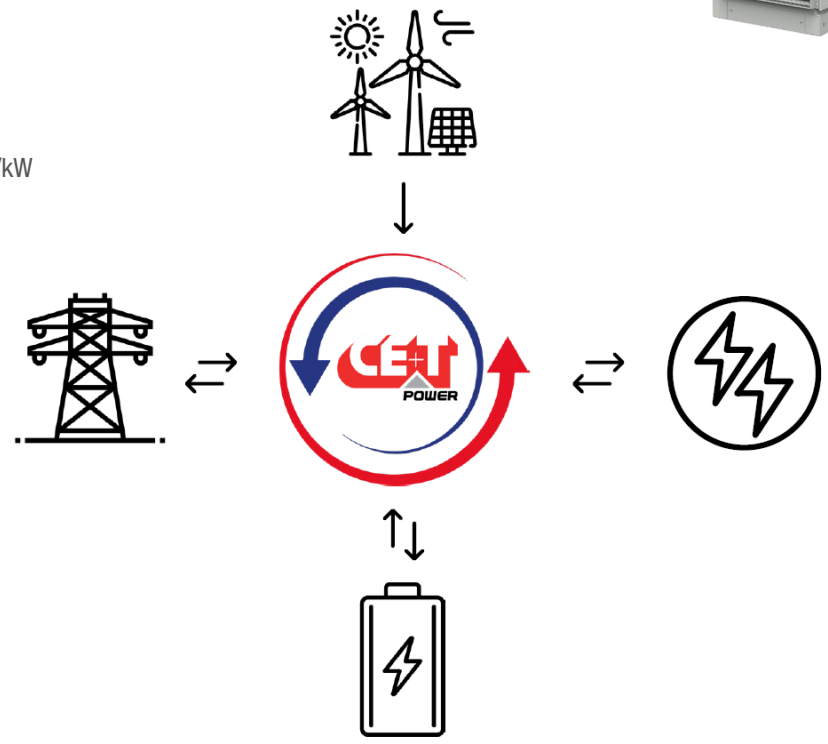
Hercules is a **bidirectional modular Power Conversion System (PCS)** made of 20 kW building blocks. It can reach power levels up to 640 kW when assembling 32 converters in parallel.

The two AC ports and one DC port make it ready for **energy storage applications**. Indeed, Hercules's solution involves a **built-in Battery Management System (BMS)** compatible with different battery chemistries (lead, lithium, NiMH, NiCd). Moreover, it is also intended to **communicate with Energy Management Systems (EMS)**.

Applications

Hercules focus on **off-grid and grid-tied applications**. Paired with batteries, the Energy Storage System can optimize your energy bills through:

- Peak shaving
- Increase self-consumption
- Frequency Demand response
- Energy storage grid interactive up to 240 kVA/kW



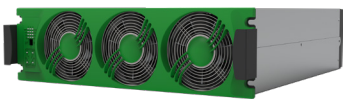
Main Features

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

Illustrations are non-binding and may include customized fittings.

Hercules 20 kVA/kW - 3 Ports

General	Hercules 20 kVA/kW – 3 Ports
Part number	T451970528
MTBF / Cooling	240 000 hrs / Forced
Efficiency (Typical)	96% certified by SGS at 45% load
True Redundant Systems – compliant	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
Operating T° / Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-3 Class 3.1 -20°C to 65°C, power de-rating from 40°C to 65°C / Max RH 95% for 96 hours per year
Storage T° / Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-1 Class 1.2 -40°C to 70°C / Max RH 95% for 96 hours per year
Public transport T°/ Relative Humidity (RH) non-condensing	Tested according ETS300-019-2-2 Class 3.1 -40°C to 70°C / Max RH 95% for 96 hours per year
Material (casing)	Coated steel-ALU ZINC-Front plate coated black RAL9005
Internal temperature management and switch off	Yes
Turn on delay	20 to 40 seconds, 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 s.
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)	-170 Vdc to -240 Vdc / 0 Vdc / +170 Vdc to +240 Vdc
Nominal current (at 408 Vdc)	52 A
Maximum input current (for 15 seconds) / 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	61 A, 20 ms - 43.5 A RMS, 15 s.
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 / Grid Interactive	EN 62040-1-1 / Synergrid: C10-11, EN50549 (up to 240 kW)
EMC (immunity)	EN 55022 (A), EN 61000-4-2/3/4/5/6/8
Functionality	VFI-SS-111
Mechanical Specifications	
Dimensions (W x H x D mm)*	19" x 3U x 572 mm
Weight	24 kg
AC Connection / DC Connection	Pluggable blade terminals / Pluggable blade terminals



HERCULES

Hercules Standard Cabinets

General	Hercules 60	Hercules 100	Hercules 160	Hercules 200	Hercules 240
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.				
Galvanic isolation	No				
Power					
AC Input Specifications					
Maximum power (VA) / (W)	60 kVA / 60 kW	100 kVA / 100 kW	160 kVA / 160 kW	200 kVA / 200 kW	240 kVA / 240 kW
Short circuit backfeed current per phase	183 A for 20 ms, 130 A Rms for 15 sec.	304 A 20 for ms, 217 A Rms for 15 sec.	487 A for 20 ms, 348 A Rms for 15 sec.	609 A for 20 ms, 435 A Rms for 15 sec.	730 A for 20 ms, 522 A Rms for 15 sec.
DC Battery Specifications					
Maximum power (W)	60 kW	100 kW	160 kW	200 kW	240 kW
Nominal current (at 408 Vdc)	153 A	255 A	408 A	511 A	613 A
Maximum input current (for 15 seconds) / voltage ripple	230 A / < 400 mVrms	383 A / < 400 mVrms	613 A / < 400 mVrms	766 A / < 400 mVrms	919 A / < 400 mVrms
AC Output Specifications	(Only with Hercules Back-Up Modules)				
Maximum power (VA) / (W)	60 kVA / 60 kW	100 kVA / 100 kW	160 kVA / 160 kW	200 kVA / 200 kW	240 kVA / 240 kW
Short circuit current on battery, per phase	183 A for 20 ms, 130 A Rms for 15 sec.	304 A 20 for ms, 217 A Rms for 15 sec.	487 A for 20 ms, 348 A Rms for 15 sec.	609 A for 20 ms, 435 A Rms for 15 sec.	730 A for 20 ms, 522 A Rms for 15 sec.
Nominal current per phase (In)	87 A	145 A	232 A	290 A	348 A
Signaling & Supervision					
Display	7” display included (rack mounting)				
Controller	Pegasus controller included				
Alarms output / Supervision	Dry contact on Pegasus controller / Modbus, CANBUS and SNMP via Pegasus controller				
Mechanical Specifications					
Dimensions (W x H x D mm)*	600 x 1800 x 800 mm	600 x 1800 x 800 mm	600 x 2100 x 800 mm	600 x 2100 x 800 mm	1200 x 2100 x 800 mm
Numbers of cabinets	1	1	1	1	1 + 1 (for external MBP)
AC Connection / DC Connection	Nut and bolt on copper bar / Nut and bolt on copper bar				

* Other cabinet heights on demand.

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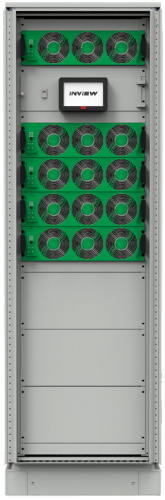

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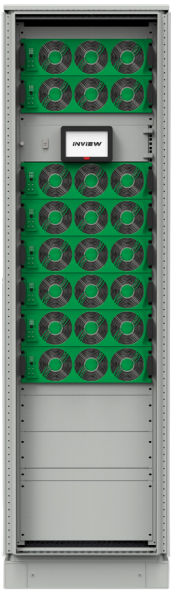

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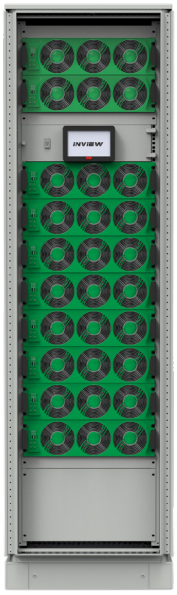

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