Industrial Inverter

In the dynamic world of industrial applications, Hannibal industrial inverters stand out as essential components for converting direct current (DC) into reliable alternating current (AC). Designed to manage high power loads, they are integral to manufacturing, Power generation, and large-scale data centers.

Experience enhanced energy efficiency and operational continuity with our advanced inverters, featuring remote monitoring, fault diagnosis, and automated control. Their robust design ensures stability in fluctuating conditions, making them indispensable for your industrial systems.

Industrial Inverter INV SERIES

Benefits

Unrivalled adaptability to existing site conditions, thanks to the wide input DC voltage range:
• Compatibility with any battery configuration already installed on site.
• Optimum operation with DC bus having a wide voltage excursion.

Technical and budgetary optimization of the battery:
On greenfield or brownfield projects where battery may represent an important part of the system total price, the wide input DC voltage range allows:

• Optimization of the number of battery cells as per the input tolerance of the loads to be secured.
• Optimization of the battery capacity and therefore the price, as per the required autonomy.
Smart access to inverter data:
• User interface with large, colour touchscreen.
• Embedded event logger (up to 2000 events) and capability to export recorded events via USB stick.

Easy maintenance and serviceability:
• Full front access for easy maintenance and a very low mean time to repair (MTTR),achieving the highest possible availability.

Features

Reliability: Unique design which allows the UPS to continuously operate for at least 20 years at full load at 40 °C.

Robust mechanical design: the system withstands vertical and horizontal acceleration stress tests 0.5g as standard.

Galvanic isolation: output transformer is included as standard
Remote monitoring solutions: Modbus, Profibus, Ethernet, IEC61850, volt-free contact, monitoring software.

Range Overview

Hannibal inverter converts a DC input voltage (from batteries or from a DC bus) into a perfect sinusoidal output voltage to provide power to critical AC loads.

It uses the patented digital Vector Control technology which increases the performances of power components, enables an active conditioning of the load and allows personalized system settings. The result is improved reliability for the process and enhanced safety for the personnel.

Hannibal range offers a wide choice of DC input voltages (from 110 Vdc to 240 Vdc) and of output voltages. It is available from 5 kVA to 250 kVA in single- phase output configuration, and from 5 kVA to 320 kVA in three-phase output configuration.

Hannibal inverter is also available with 400 Vdc input. To further improve load availability and process reliability, Hannibal is able to operate in dual parallel configuration, with centralized or distributed reserve line, and can include an AC bus-tie.

Applications

- Oil & Gas.
- Power Generation.
- Transportation.
- Water Desalination.
- Chemical Industries.
- Marine.
- Other Heavy Industries.

Hannibal Power and Technology

Technical Data

Input	
AC Bypass Voltage	1 x 230 V (220, 240) ; 1 x 110 V (115, 120)[1] 3 x 400 V (380, 415) ; 3 x 220 V (200, 208, 230)[1]
DC voltage	24/48/110/125/220/384 VDC

Output	
AC Voltage - Single phase - Three phase	 1 x 230 V (220, 240) ; 1 x 110 V (115, 120)[1] 3 x 400 V (380, 415) ; 3 x 220 V (200, 208, 230)[1]
Frequency	50 Hz (60 Hz)
Frequency stability - With internal oscillator - With reserve synchronism	 +/- 0.05 % +/- 3 % (from 1 to 5 % adjustable)
Voltage stability (for 0 to 100 % load variation)	
- Static - Dynamic	+/-1 % (+/-2 % for parallel systems) VFI SS 11 as per IEC/EN 62040-3:2021, class 1
Inverter overload capability	
- 1 minute - 10 minutes	150 % of nominal power 125 % of nominal power
Short-circuit clearance (in % of nominal current)	
- 1-ph output Ph-N: - 3-ph output Ph-N(ik1): Ph-Ph(ik2): Ph-Ph(ik3):	250 % / 100ms - 180% / 5s 315 % / 100 ms - 220 % / 5s 190 % / 100 ms - 135 % / 5s 225 % / 100 ms - 135% / 5 s
Harmonic voltage distorsion - With 100 % linear load - With 100 % non-linear load	 < 3 % SS as per IEC/EN 62040-3
Allowable power factor	0,5 lagging to 0,5 leading
Allowable crest factor	Up to 3/1

General data

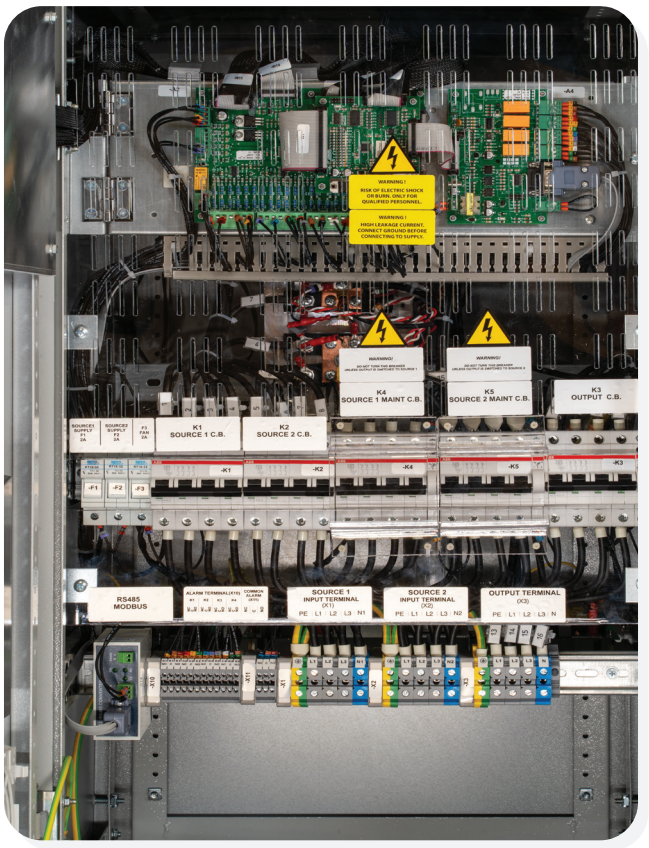
General data	
Operating temperature	0 to 40 °C[1]
Storage temperature	-20 to +70 °C
Relative humidity	< 95 % non condensing
Operating altitude	1000 m max without derating
Cooling	Forced ventilation
Efficiency	Up to 94 % according to rating
External protection	IP 21[1] according to IEC 60529
Internal protection	Protection against unintentional direct contacts, as per IEC 60950-1
Noise (at 1m in front of the unit)	60-72 dB according to rating
Cabinet color	RAL 7035[1]
Dimensions	Varying according to ratings and options

(1) Other option available on request

Standards

Standards	
IEC62040-1:2017 +AMD1:2013	Uninterruptible power systems (UPS) - Part 1-2: General and safety requirements for UPS in restricted access locations
IEC62040-2:2016	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements
IEC62040-3:2017	Uninterruptible power systems (UPS) - Part 3: Method of specifying the performance and test requirements
IEC61439-1:2011	Low voltage switchgear and controlgear assemblies - Part 1: General rules
IEC60529:1989 +AMD1:1999	Degrees of protection provided by enclosures (IP Code)
IEC60076-11:2004	Power transformers – Part 11: Dry type transformers

Conformity	
Low voltage directive	2006/95/EC and 2014/35/EU
EMC directive	2004/108/EC and 2014/30/EU
CE & UKCA Mark	



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Options

Consult us for any other requirements, subject to feasibility

Inverter

. Automatic precharge of capacitors
. AC distribution
. Inverter oversizing

Bypass line

. Bypass transformer (H class)(1)
. Bypass stabilizer (servo-controlled)
. Backfeed protection (standard option)

System

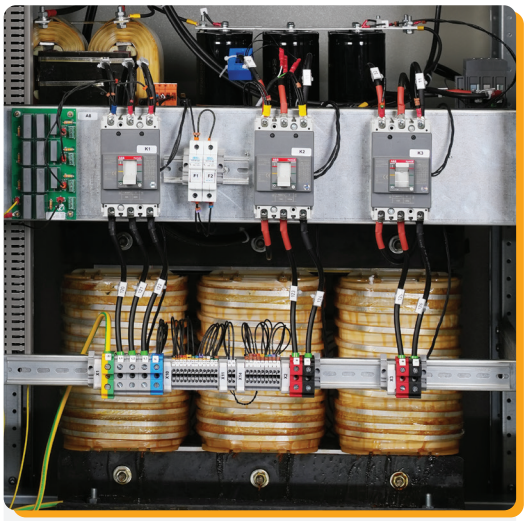
. Inverter with or without bypass line
. Parallel configurations
. Earth fault detection or monitoring
. Internal lighting
. Anti-condensation heater
. Cabinet temperature monitor

Mechanical

. External ingress protection up to IP42
. Top cable entry
. Specified color of panels
. Special feet height (200mm or 300mm)
. Special keylock
. Non-magnetic gland plate (brass or aluminum)
. Lifting eyes
. Specified cabinet identification (tag, nameplate)
. Anti-seismic design on demand

Communication

. Front panel analogue meters (72x72, class 1.5 or class 1)
. Transducers 4-20mA
. Additional volt-free contacts, 5 in standard, up to 20 in option
. Modbus RTU (RS232 or RS485)
. Modbus / TCP / IP
. Profibus
. IEC61850 protocol
. PPVis monitoring software
. Mimic panel on front:
  - Passive mimic of the system
  - Active mimic with integrated LEDs Lamp indicators on front panel (22 mm diameter)



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