

INV (T 3Ph)

DC/AC industrial IGBT inverter for industrial applications

Lead acid or NiCd batteries

Output voltage 3Ph, input voltage 110V_{dc} o 220V_{dc}, output power from 5 to 200 kVA

INV model is the LEVER digital inverter, designed to supply critical loads in alternating current by means of a centralized battery bank

- **IGBT-based** digital inverter with **PWM control logic** to guarantee a stable voltage and a pure AC output sinewave output, including with non-linear loads
- INV operating modes: “**On-Line**”, where the inverter is in operation and supplies power to the load, “**Line-Interactive**”, where the output voltage is supplied by the emergency mains through the bypass to increase the efficiency of the system, and the inverter remains in hot stand-by for emergency
- Wide range of output AC voltage
- LEVER INV is an **engineered product, fully customizable** and with a wide range of options, to comply with **Client technical specifications**



Applications

INV inverter is designed and developed for a wide range of applications in the most demanding industrial environments

- **Oil & Gas** (petrochemicals offshore, onshore, pipelines)
- **Utilities & Power generation** (power plant, transmission, distribution)
- **Water** (desalination, treatment)
- **Instrumentation & Process control** (chemical, mining, steel, paper)
- All the **industrial** applications

Models available

Input voltage	Output voltage	Output power
110 V _{dc}	3F - 190 V _{ac} / 400 V _{ac}	10 – 60 kVA
220 V _{dc}	3F - 190 V _{ac} / 400 V _{ac}	10 – 200 kVA

Key features

- **AC output voltage THD < 1%** (with linear load)
- “Line-Interactive” operating mode efficiency >98%, “On-Line” operating mode efficiency >92%
- Digital technology with the microprocessor control
- Reliable **SCR-based static bypass switch**. The inverter is also equipped with a manual switch for the maintenance operations without disconnecting the load
- Compatibility with **lead acid** VRLA, AGM, Gel and **NiCd** batteries
- Provided with a **4.3” HMI display**, which shows the measurements, the alarms and the system mimic diagram and allows the configuration of the parameters
- Communication interfaces available: Ethernet, Modbus, dry contacts SPDT module
- Simple and fast integration with any existing battery chargers on the system

Datasheet

Input

Rated input DC voltage	110, 220 V _{dc}
DC voltage tolerance	±20%
Rated input AC voltage (bypass)	3Ph 190, 400, 440, 480 V _{ac}
AC voltage tolerance (bypass)	-20%, +10%
Frequency (bypass)	50-60 Hz
Frequency tolerance (bypass)	±10%

Output

Rated output voltage	3Ph 190, 400, 440, 480 V _{ac}
Output power	From 5 to 200 kVA
AC waveform	Sinewave with voltage THD <1%
Voltage regulation	±10%
Frequency regulation	±10%
Overload admitted	100-110% for 2 hours, 110-125% for 10 min, 125-150% for 10s

Battery

Type	Lead acid and NiCd (all types)
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Inverter technology

Type	IGBT full bridge with PWM control logic
Cooling	Forced, two levels of fan speed

Efficiency at 100% load

On-Line mode	>92%
Line-Interactive mode	>98%

Instrumentation

HMI display	4.3" LCD panel
Visual alarms and indications	Up to 20 signalizations on HMI
Communication interfaces	Modbus, Ethernet, dry contacts SPDT module

Static switch

Technology	SCR
Max overload current for 10 ms	10 x I _N
Transfer time	<2 ms

General data

Acoustic noise at 1 m	<60 dBA
Maximum altitude	1000 m
Cabinet cooling	Natural
Cabinet IP degree	IP20 (open door), IP31 (closed door), IP42 (closed door, optional)
Cabinet type, Color	Modular cabinet, RAL7035
Door thickness	2,0 mm
Degree of protection against external mechanical impacts	IK10
Cable entry	From the bottom
Humidity range	From 10% to 95% not condensated
Operating temperature	From 0°C up to +55°C (max)
Storing temperature	From -20°C to +70°C (battery excluded)
Relevant IEC	IEC 62040-1, IEC 62040-2, IEC 62040-3, IEC 62040-4