INV (M 1Ph)

DC/AC industrial IGBT inverter for industrial applications

Lead acid or NiCd batteries
Output voltage 1Ph; input voltage 110V_{dc} o 220V_{dc}, output power from 5 to 160 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}	1F - 115 V_{ac} / 230 V_{ac}	5 – 60 kVA
220 V_{dc}	1F - 115 V_{ac} / 230 V_{ac}	5 – 160 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)	1Ph 115, 230 V_{ac},
AC voltage tolerance (bypass)	-20%, +10%
Frequency (bypass)	50-60 Hz
Frequency tolerance (bypass)	±10%
Output	
Rated output voltage	1Ph 115, 230 V_{ac}
Output power	From 5 to 160 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)
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