

# The HIBPV3™ Series

## Bidirectional inverters with PV Input

E2L®

P312E



**The HIBPV3 Bidirectional Inverter series allows the easy setup of large PV systems DC coupled with energy storage.**

The HIBPV3 series is a modular bidirectional transformerless energy storage inverter conceived in modules of 30, 50, 100, 150, 250 and 500KW.

The HIBPV3 Series is designed to allow the easy setup of large PV systems coupled with batteries by simply connecting the batteries, load, PVs, Diesel Generator and Grid (if available) directly into the inverter.

International units are available in 400/230Vac, 50/60Hz while North American units are available in 460/277Vac 50/60Hz.

A containerized version with full environmental protection (temperature, humidity, saline vapors, heavy winds) is also available from 750KW to 2MW per container.

The HIBPV3 is ideal to power large remote industrial sites, factories, mines, islands, etc.

# Product Description

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The HIBPV3 Series is designed to allow the easy setup of large PV systems coupled with batteries by simply connecting the batteries, load, PVs, Diesel Generator and Grid (if available) directly into the Inverter.

The HIBPV3 includes a sophisticated field configurable Energy Management Software (EMS) allowing to easily setup the unit on the field.

A containerized version with full environmental protection (temperature, humidity, saline vapours, heavy winds) is also available from 750KW to 2MW per container.

The HIBPV3 is ideal to power large remote industrial sites, factories, mines, islands, etc.

Easy installation and maintenance was at the base of the design permitting easy access to electrical connections and serviceable components.

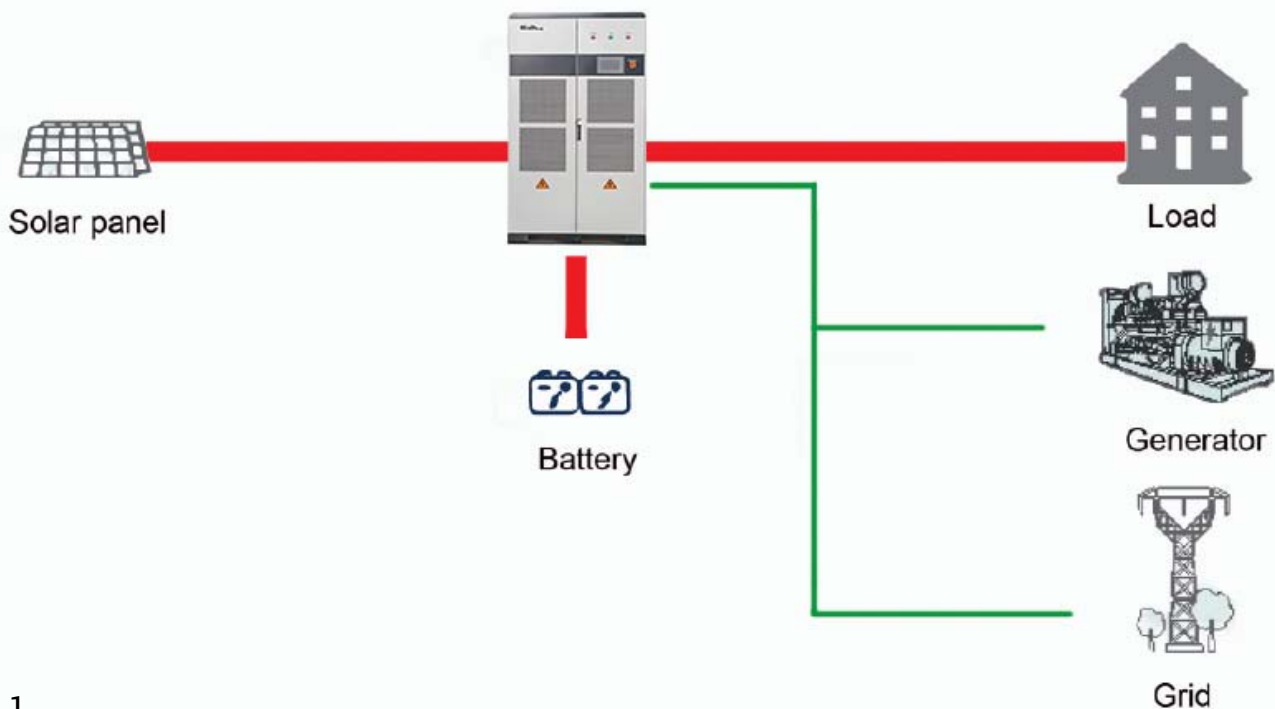


Fig. 1

# Product Features

## Fully Integrated

The HIBPV3 is fully integrated, allowing to connect load, batteries, grid, diesel generator and PV to the same unit which manages all operations.

## Built-In Energy Management Software

The HIBPV3 includes energy Management Software (EMS) allowing the unit to operate in different modes as configured on the field.

## Optimization of the use of renewable energy

The HIBPV3 built-in software, includes advanced algorithms that will optimize the generation and use of renewable energy over diesel generators or the grid (if available).

## On-Grid and Off-Grid Operation

The HIBPV3 can operate in both On-Grid and Off-Grid mode. When utility is available it uses the PV input to charge the batteries on priority basis while drawing just the necessary power from the utility to complete the charging. In the case where generator is operational, the HIBPV3 may be programmed to draw a limited amount of energy for charging as set by the user. When utility / diesel is not operational, the HIBPV3, charges first the batteries from the available solar energy, supplies the load and injects the remaining energy in the grid if available. Upon low battery condition, the HIBPV3 initiates the starting of the generator and shuts it down when battery reaches a preset charging level.

## Seamless transfer time from On-Grid to off-Grid

The HIBPV3 uses static switch when switching between off-Grid and on-grid operation in order to avoid downtime.

## PV configuration can be field programmed.

In some instances, it is desirable to add energy storage to an existing on-grid solar array. In such a case it is costly and cumbersome to change the existing PV configuration. In most cases, the HIBPV3 can be software configured to adapt to the existing PV array without the need for any changes.

## Prediction of remaining runtime

The HIBPV3 continuously calculates the estimated available run time on batteries based on the current conditions. The data is available on the unit screen but can also be read on any device that can connect to the HIBPV3 via CANBUS or RS485 MODBUS.

## Strong Overload capability

The HIBPV3 is designed to allow 110% overload for a period of 10 minutes and up to 120% for 1 minute. This will allow the time for any breakers to trip without tripping the entire unit. This feature also allows any high starting current equipment like pumps and motors to start without tripping the unit.

## Multi-Level Protection circuitry

The HIBPV3 is fully protected against surges from both the DC and AC side. The unit also includes multilevel protection circuitry to avoid cascaded failures.

## Easy to install, connect and operate

The HIBPV3 uses an intuitive graphic user interface allowing the easy initial setup and operation of the unit.

## Field configurable battery

The HIBPV3 may be setup on the field to connect to lead based or Lithium based batteries.

## Seamless, easy operation:

The HIBPV3 is engineered to operate without any user intervention. There is no need to push any buttons or understand how it works. It simply does.

## Intelligent Battery Management

The HIBPV3 Modular Decentralised Inverter includes an intelligent battery charger that includes a float/boost charger and a dynamic cut-off level that reduces battery maintenance and improves battery life.

# Applications

The HIBPV3 is ideally suited to economically and rapidly build solar systems with energy storage from 30KW up to 10MW including data centres, Factories, Mines, Remote Water Pumping stations, Islands, Remote residential compounds, Solar Car Charging etc.

The HIBPV3 is particularly suited for the following topologies:

## Back-up Power

Applications requiring to power a load 24/7 by sourcing the majority of the energy from renewable source with a diesel generator as a back-up (grid source is optional).

## Micro-Grid

Applications requiring the setup of an energy source to power a micro-grid on which other solar inverters may be synchronized.

## Large Off-Grid Solar

Applications requiring to power large loads in a centralized or decentralized manner using solar or wind energy as a primary source with diesel generators as back-up.

# Technical Specifications

Model	HIBPV3-30KI	HIBPV3-50KI	HIBPV3-100KI	HIBPV3-150KI	HIBPV3-250KI	HIBPV3-500KI
<b>AC(grid-connected)</b>						
Apparent power	33kVA	55kVA	110kVA	165kVA	275kVA	550kVA
Rated power	30kVA	50kVA	100kVA	150kVA	250kVA	500kVA
Rated voltage	400/230V					
Rated current	43A	72A	144A	217A	361A	722A
Voltage range	320-460V					
Rated frequency	50/60Hz					
Frequency range	45-55/55-65Hz					
THDI	<3%					
PF	1(0.8lagging-0.8leading)					
AC connection	3W+N+PE					
Transformer	Yes					
<b>AC(off-grid)</b>						
Apparent power	33kVA	55kVA	110kVA	165kVA	275kVA	550kVA
Rated power	30kW	50kW	100kW	150kW	500kW	550kVA
Rated voltage	400/230V					
Rated current	43A	72A	144A	217A	361A	722A
THDU	≤2% linear					
Rated frequency	50/60Hz					
Overload capability	110%-10min 120%-1min					
<b>PV</b>						
Max. PV open-circuit voltage	1000V DC					
MAX PV power	60/120kW		120/180/240kW		300/360kW	600/660/720kW
MPPT voltage range	200V DC-850V DC					
<b>Battery</b>						
Battery voltage range	150V-850V	150V-850V	320V-850V	420V-850V	420V-850V	500V-850V
Max. charging power	60/120kW		120/180/240kW		300/360kW	600/660/720kW
<b>General data</b>						
Dimension(WXDXH)	800/800/1900mm		1200/800/2050mm		1800/800/2050	2800/1050/2050
Weight	440kg	620kg	900kg	1250kg	1700kg	3520kg
Environmental temperature	-25°~+55°					
Relative humidity	0-95%non-condensing					
Protection degree	IP20					
Noise emission	<65dB					
Maximum altitude	5000m(derate over 3000m)					
Standby consumption	<300W					
Cooling	Forced air					
<b>Communication</b>						
Display	Touch screen LCD					
Communication interface	RS485/CAN					

Model	HIBPV3-30KD	HIBPV3-50KD	HIBPV3-100KD	HIBPV3-150KD	HIBPV3-250KD	HIBPV3-500KD
<b>AC(grid-connected)</b>						
Apparent power	33kVA	55kVA	110kVA	165kVA	275kVA	550kVA
Rated power	30kVA	50kVA	100kVA	150kVA	250kVA	500kVA
Rated voltage	460/277V					
Rated current	36A	60A	120A	180A	300A	600A
Voltage range	368-529V					
Rated frequency	50/60Hz					
Frequency range	45-55/55-65Hz					
THDI	<3%					
PF	1(0.8lagging-0.8leading)					
AC connection	3W+N+PE					
Transformer	Yes					
<b>AC(off-grid)</b>						
Apparent power	33kVA	55kVA	110kVA	165kVA	275kVA	550kVA
Rated power	30kW	50kW	100kW	150kW	500kW	550kVA
Rated voltage	460/277V					
Rated current	36A	60A	120A	180A	300A	600A
THDU	≤2% linear					
Rated frequency	50/60Hz					
Overload capability	110%-10min 120%-1min					
<b>PV</b>						
Max. PV open-circuit voltage	1000V DC					
MAX PV power	60/120kW		120/180/240kW		300/360kW	600/660/720kW
MPPT voltage range	200V DC-850V DC					
<b>Battery</b>						
Battery voltage range	150V-850V	150V-850V	320V-850V	420V-850V	420V-850V	500V-850V
Max. charging power	60/120kW		120/180/240kW		300/360kW	600/660/720kW
<b>General data</b>						
Dimension(WXDxH)	800/800/1900mm		1200/800/2050mm		1800/800/2050	2800/1050/2050
Weight	440kg	620kg	900kg	1250kg	1700kg	3520kg
Environmental temperature	-25°~+55°					
Relative humidity	0~95%non-condensing					
Protection degree	IP20					
Noise emission	<65dB					
Maximum altitude	5000m(derate over 3000m)					
Standby consumption	<300W					
Cooling	Forced air					
<b>Communication</b>						
Display	Touch screen LCD					
Communication interface	RS485/CAN					



# Standard Containerized HIBPV3 Inverters

E24 offers pre-engineered and pre-assembled containerized HIBPV3 Inverters in a manner to facilitate pricing, deployment and scaling of projects.

HIBPV3 inverters are installed in temperature isolated standard 20ft containers with all the controls, fire fighting and HVAC needed for continuous operation under the harshest environmental conditions.



## International Models

Reference:	HIBPVC3-750KI	HIBPVC3-1MI	HIBPVC3-1M5I	HIBPVC3-2MI
Inverter Used	HIBPV3-250KI	HIBPV3-500KI	HIBPV3-500KI	HIBPV3-500KI
Number of Units	3	2	3	4
Power per Container (KW)	3x250	2x500	3x500	4x500
DC Voltage Input Range (Vdc)	420-850	500-850		
Output and Grid/Diesel Genset Voltage (Vac), Freq.(Hz)	400/230, 50/60			
Communication	RS485 Modbus, CAN, TCP/IP			
Efficiency at 0.5C Rate of Discharge	96%			
Dimensions (WxDxH) (mm)	20Ft Container (6058x2438x2896)			
Weight (Kg)	7655	9692	13388	17084
Index of Protection	IP65			
Design Life (Years)	30+			
Operating Temperature (°C)	-40 to +60			
Humidity (%)	6 to 95			
Altitude (m)	5000			
Standard Warranty	3 Years (*)			

(\*) Refer to Terms and Conditions

## North American Models

Reference:	HIBPVC3-750KD	HIBPVC3-1MD	HIBPVC3-1M5I	HIBPVC3-2MD
Inverter Used	HIBPV3-250KD	HIBPV3-500KD	HIBPV3-500KD	HIBPV3-500KD
Number of Units	3	2	3	4
Power per Container (KW)	3x250	2x500	3x500	4x500
DC Voltage Input Range (Vdc)	420-850	500-850		
Output and Grid/Diesel Genset Voltage (Vac), Freq.(Hz)	460/277, 50/60			
Communication	RS485 Modbus, CAN, TCP/IP			
Efficiency at 0.5C Rate of Discharge	96%			
Dimensions (WxDxH) (mm)	20Ft Container (6058x2438x2896)			
Weight (Kg)	7655	9692	13388	17084
Index of Protection	IP65			
Design Life (Years)	30+			
Operating Temperature (°C)	-40 to +60			
Humidity (%)	6 to 95			
Altitude (m)	5000			
Standard Warranty	3 Years (*)			

(\*) Refer to Terms and Conditions

# Container Customizations

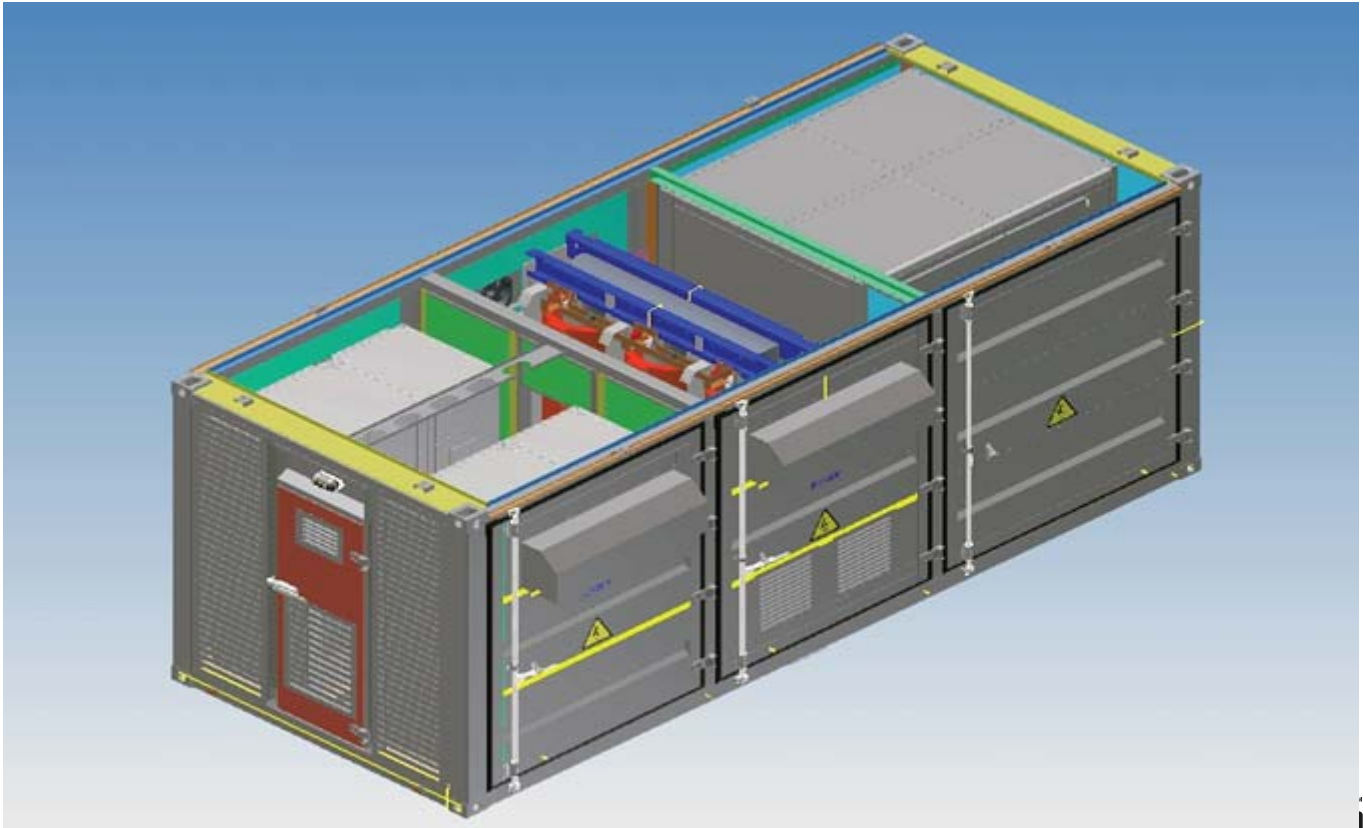
In some projects, it might be mandatory to supply a turnkey solution in a number of containers. E24 offers to customize the inverter container to fit other equipment like switch-gears, transformers, HVAC, UPS systems, control panels etc.

### Containers Structure change

E24 may swap container size from 20ft to 40ft or 40ft HC. It is also possible to include side doors instead of front door and vice versa. When installing MV transformers, it is possible to include separate chambers within the containers with separate doors when needed.

### Security System and cloud monitoring changes:

E24 may customize the security system to receive reading signals or video from other devices and feed the information into its cloud monitoring software in order to consolidate all readings on one platform.



String Inverters   Storage Inverters   Batteries



# E24 Modular Range Of Products For Building Easy, Flexible & Evolutive Solutions

E24 products dynamically evolve with the lifestyle and work style of its customers while easing the installation process.

E24 products are conceived in modules allowing for an easy upgrade to adjust with the needs of the customers. Being modular and easy to connect E24 products allow installers to easily configure the required modules for an optimal solution while offering easy upgrade options.





# Ordering Information

Ref Number	Description
HIBPV3-30KI	Bidirectional Inverter with PV input, transformerless, 30KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-50KI	Bidirectional Inverter with PV input, transformerless, 50KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-100KI	Bidirectional Inverter with PV input, transformerless, 100KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-150KI	Bidirectional Inverter with PV input, transformerless, 150KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-250KI	Bidirectional Inverter with PV input, transformerless, 250KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-500KI	Bidirectional Inverter with PV input, transformerless, 500KW, 3Phase, 400/230V, 50/60Hz
HIBPVC3-750KD	Containerized Bidirectional Inverters with PV input, transformerless, 3x250KW, 3Phase, 400/230V, 50/60Hz
HIBPVC3-1MD	Containerized Bidirectional Inverters with PV input, transformerless, 2x500KW, 3Phase, 400/230V, 50/60Hz
HIBPVC3-1M5D	Containerized Bidirectional Inverters with PV input, transformerless, 3x500KW, 3Phase, 400/230V, 50/60Hz
HIBPVC3-2MD	Containerized Bidirectional Inverters with PV input, transformerless, 4x500KW, 3Phase, 400/230V, 50/60Hz
HIBPV3-30KD	Bidirectional Inverter with PV input, transformerless, 30KW, 3Phase, 460/277V, 50/60Hz
HIBPV3-50KD	Bidirectional Inverter with PV input, transformerless, 50KW, 3Phase, 460/277V, 50/60Hz
HIBPV3-100KD	Bidirectional Inverter with PV input, transformerless, 100KW, 3Phase, 460/277V, 50/60Hz
HIBPV3-150KD	Bidirectional Inverter with PV input, transformerless, 150KW, 3Phase, 460/277V, 50/60Hz
HIBPV3-250KD	Bidirectional Inverter with PV input, transformerless, 250KW, 3Phase, 460/277V, 50/60Hz
HIBPV3-500KD	Bidirectional Inverter with PV input, transformerless, 500KW, 3Phase, 460/277V, 50/60Hz
HIBPVC3-750KD	Containerized Bidirectional Inverters with PV input, transformerless, 3x250KW, 3Phase, 460/277V, 50/60Hz
HIBPVC3-1MD	Containerized Bidirectional Inverters with PV input, transformerless, 2x500KW, 3Phase, 460/277V, 50/60Hz
HIBPVC3-1M5D	Containerized Bidirectional Inverters with PV input, transformerless, 3x500KW, 3Phase, 460/277V, 50/60Hz
HIBPVC3-2MD	Containerized Bidirectional Inverters with PV input, transformerless, 4x500KW, 3Phase, 460/277V, 50/60Hz

**E24<sup>®</sup>**

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ISO 9001:2015



QUALITY STANDARD

