

The HIBPV3™ Series

Bidirectional inverters with PV Input

E2L®

P317E



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

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.

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 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.

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

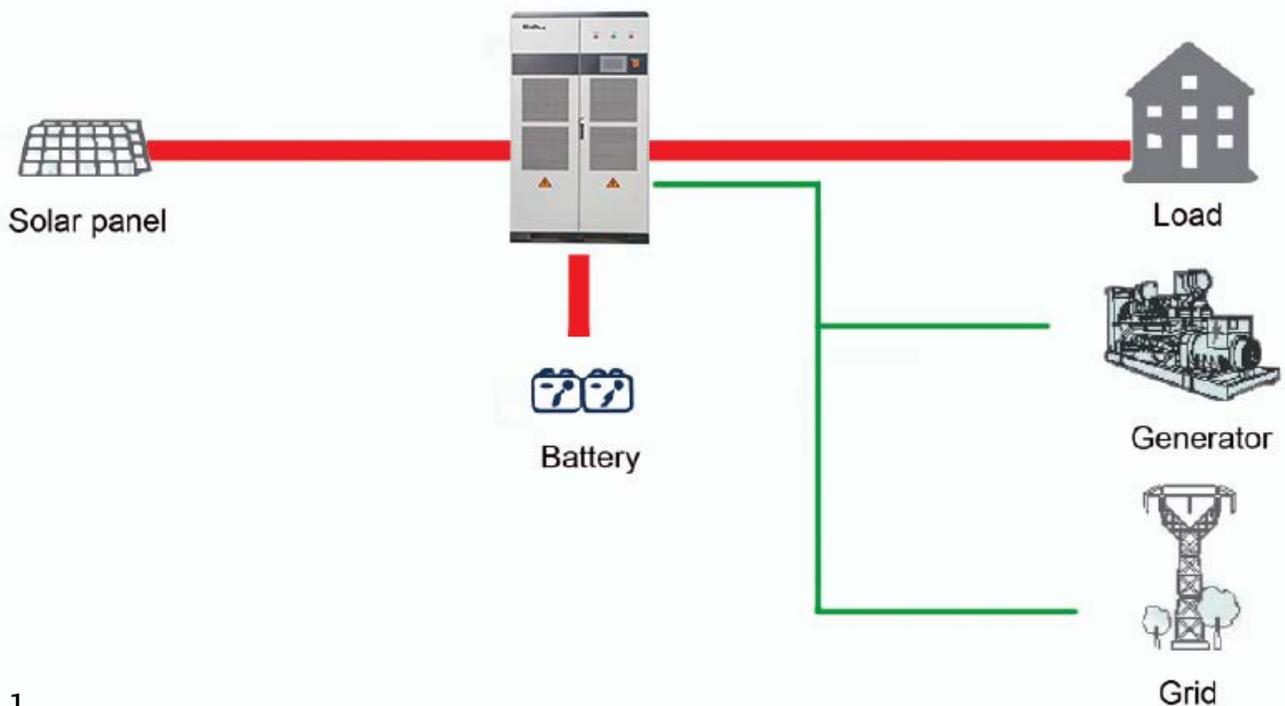


Fig. 1

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 advances algorithms that with 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 allow 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 multi-level 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.

Up to 4 Units can be connected in Parallel

Up to 4 Units can be placed in parallel to quadruple the power capacity and of course create N+X Redundancy.

Standard Containerized HIBPV3 Inverters

E24 offers pre-engineered and preassembled 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

State of the art Smoke Detection:

E24 uses advanced smoke detector system (ASD) that operates by constantly aspirating air to detect any electrolytic gas particles. ASDs use dual-wavelength technology to reliably detect electrical fires as well as electrolytic gases and vapors, even at high air speeds and low gas concentrations.

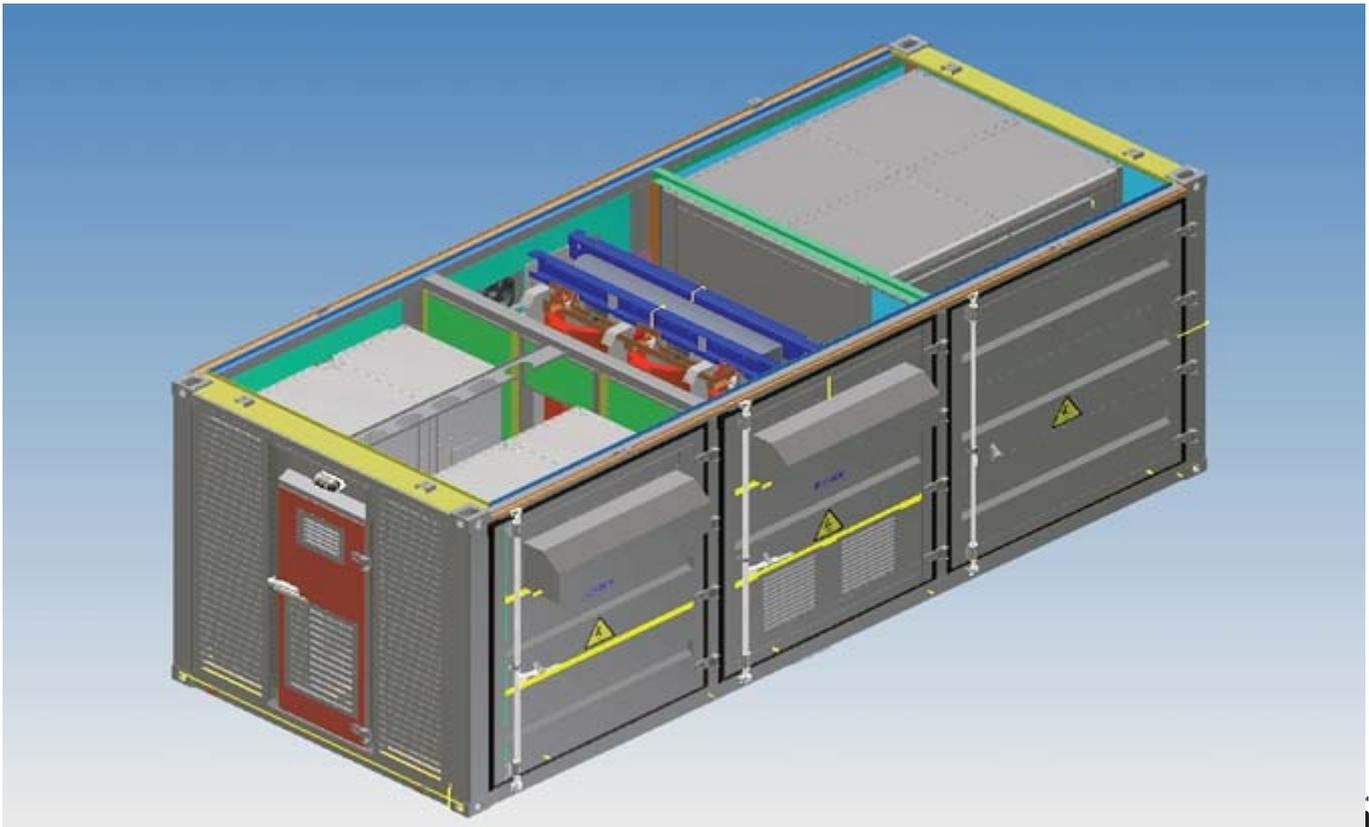
High end Fire Extinguishing System:

Upon any electrolytic gas detection, the battery system is flooded with a gaseous extinguishing agent introduced through nozzles. The gas displaces the oxygen that sustains the fire, thus extinguishing even hidden and obscured fires.

Security System:

LFP Containers are designed in manner to include all the equipment (batteries, equipment, ACs etc.) in a temper-proof container. Each container also includes an advanced security system that would immediately trigger an alarm and notify a number of related parties through the cloud interface in case of a security breach.

The container is fitted with an internal locking mechanism that prevents its opening even if the lock on the door is cut. All security events are logged on the cloud and can be programmed to alert different people by email and SMS.



Technical Specifications (International)

	HIBPV3-30KI	HIBPV3-50KI	HIBPV3-100KI	HIBPV3-120KI	HIBPV3-150KI	HIBPV3-250KI	HIBPV3-500KI
AC (Grid-Connected)							
Apparent power	33kVA	55kVA	110kVA	132kVA	165kVA	285kVA	550kVA
Rated power	30kW	50kW	100kW	120kW	150kW	250kW	500kW
Rated voltage	400V						
Rated current	43A	72A	144A	173A	217A	361A	722A
Voltage range	360V - 440V						
Rated frequency	50/60Hz						
Frequency range	45~55/55~65Hz						
THDI	<3%						
PF	0.8lagging~0.8leading						
AC connection	3/N/PE						
AC input	60kVA	100kVA	200kVA	240kVA	240kVA	400kVA	800kVA

AC (Off-Grid)							
Apparent power	33kVA	55kVA	110kVA	132kVA	165kVA	285kVA	550kVA
Rated power	30kW	50kW	100kW	120kW	150kW	250kW	500kW
Rated voltage	400V						
Rated current	43A	72A	144A	173A	217A	361A	722A
THDU	≤2%linear	≤2%linear	≤2%linear				
Rated frequency	50/60Hz						
Overload capability	110%-10 mins 120%-1 min						

DC (Battery and PV)							
Max. PV open-circuit voltage	1000V DC						
Max. PV power	45kWp	75kWp	150kWp	180kWp	225kWp	360kWp	720kWp
PV MPPT voltage range	480V-800V DC						
Battery voltage range at Max. charge power	450V-600V	500V-600V	500V-600V	517V-600V	500V-600V	420V-850V	500V-850V
Battery voltage range	352-600V						
Max. charge power	45kW	75kW	150kW	180kW	225kW	360kW	720kW
Max. discharge power	33kW	55kW	110kW	132kW	165kW	285kW	550kW
Max. charge current	100A	150A	300A	350A	450A	720A	1440A
Max. discharge current	93A	156A	313A	374A	467A	570A	1100A

General Information							
Protection degree	IP20						
Noise emission	<65dB(A)@1m						
Operating temperature	-25 °C~+55 °C						
Cooling	Forced-air						
Relative humidity	0-95% non-condensing						
Maximum altitude	6000m (derate over 3000m)						
Dimension (W/H/D)	700/1660/600mm	950/1860/750mm	1200/1900/800mm	1200/1900/800mm	1200/1900/800mm	1800/2050/800mm	2800/2050/1050
Weight	355kg	610kg	948kg	1025kg	1230kg	1700kg	3720kg
Build-in transformer	Yes						
Transfer between on/off grid	Automatic≤10ms						
Standby consumption	<30W						

Communication							
Display	Touch screen						
Communication	RS485/CAN						

Certificates CE, MEA, PEA, AS 4777.2, EN 61000-6-4:2007+A1:2011, EN61000-6-2:2005, EN62109-1:2010, EN62109-2:2011, EN 50549-1:2019, IEC62109.1, IEC62109.2, NRS 097-2-1:2017, G99, VDE-AR-N 4105:2018, DIN VDE V 0124-100:2020-06

Technical Specifications (North America)

HIBPV3-30KD

HIBPV3-50KD

AC (Grid Connected)

Apparent power	33kVA					55kVA				
Rated power	30kW					50kW				
Rated voltage	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V
Rated current	91A	87A	83A	79A	72A	152A	144A	139A	131A	120A
Voltage range	171-209V	180-220V	187-229V	198-242V	216-264V	171-209V	180-220V	187-229V	198-242V	216-264V
Rated frequency	50/60Hz					50/60Hz				
Frequency range	45~55/55~65Hz					45~55/55~65Hz				
THDI	<3%					<3%				
PF	0.8lagging~0.8leading					0.8lagging~0.8leading				
AC connection	3/N/PE					3/N/PE				
AC input	45kVA					75kVA				

AC (Off-Grid)

Apparent power	33kVA					55kVA				
Rated power	30kW					50kW				
Rated voltage	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V
Rated current	91A	87A	83A	79A	72A	152A	144A	139A	131A	120A
THDU	≤2%linear					≤2%linear				
Rated frequency	50/60Hz					50/60Hz				
Overload capability	110%-10 mins 120%-1 min					110%-10 mins 120%-1 min				

DC (Battery and PV)

Max. PV open-circuit voltage	1000V DC					1000V DC				
Max. PV power	45kWp					75kWp				
PV MPPT voltage range	480V-800V DC					480V-800V DC				
Battery voltage range at Max. charge power	450V-600V					500V-600V				
Battery voltage range	352-600V					352-600V				
Max. charge power	45kW					75kW				
Max. discharge power	33kW					55kW				
Max. charge current	100A					150A				
Max. discharge current	93A					156A				

General Information

Protection degree	IP20					IP20				
Noise emission	<65dB(A)@1m					<65dB(A)@1m				
Operating temperature	-25 °C~+55 °C					-25 °C~+55 °C				
Cooling	Forced-air					Forced-air				
Relative humidity	0-95% non-condensing					0-95% non-condensing				
Maximum altitude	6000m (derate over 3000m)					6000m (derate over 3000m)				
Dimension (W/H/D)	700/1660/600mm					950/1860/750mm				
Weight	355kg					610kg				
Build-in transformer	Yes					Yes				
Transfer between on/off grid	Automatic≤10ms					Automatic≤10ms				
Standby consumption	<30W					<30W				

Communication

Display	Touch screen					Touch screen				
Communication	RS485/CAN					RS485/CAN				

	HIBPV3-100KD					HIBPV3-120KD					HIBPV3-150KD				
AC (Grid-Connected)															
Apparent power	110kVA					132kVA					165kVA				
Rated power	100kW					120kW					150kW				
Rated voltage	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V
Rated current	304A	289A	278A	262A	241A	365A	346A	333A	315A	289A	456A	433A	416A	394A	361A
Voltage range	171-209V	180-220V	187-229V	198-242V	216-264V	171-209V	180-220V	187-229V	198-242V	216-264V	171-209V	180-220V	187-229V	198-242V	216-264V
Rated frequency	50/60Hz					50/60Hz					50/60Hz				
Frequency range	45~55/55~65Hz					45~55/55~65Hz					45~55/55~65Hz				
THDI	<3%					<3%					<3%				
PF	0.8lagging~0.8leading					0.8lagging~0.8leading					0.8lagging~0.8leading				
AC connection	3/N/PE					3/N/PE					3/N/PE				
AC input	140kVA	145kVA	150kVA	150kVA	150kVA	180kVA	180kVA	180kVA	180kVA	180kVA	180kVA	190kVA	195kVA	205kVA	225kVA

AC (Off-Grid)															
Apparent power	110kVA					132kVA					165kVA				
Rated power	100kW					120kW					150kW				
Rated voltage	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V	190V	200V	208V	220V	240V
Rated current	304A	289A	278A	262A	241A	365A	346A	333A	315A	289A	456A	433A	416A	394A	361A
THDU	≤2%linear					≤2%linear					≤2%linear				
Rated frequency	50/60Hz					50/60Hz					50/60Hz				
Overload capability	110%-10 mins 120%-1 min					110%-10 mins 120%-1 min					110%-10 mins 120%-1 min				

DC (Battery and PV)															
Max. PV open-circuit voltage	1000V DC					1000V DC					1000V DC				
Max. PV power	150kWp					180kWp					225kWp				
PV MPPT voltage range	480V-800V DC					480V-800V DC					480V-800V DC				
Battery voltage range at Max. charge power	500V-600V					517V-600V					500V-600V				
Battery voltage range	352-600V					352-600V					352-600V				
Max. charge power	150kW					180kW					225kW				
Max. discharge power	110kW					132kW					165kW				
Max. charge current	300A					350A					450A				
Max. discharge current	313A					374A					467A				

General Information															
Protection degree	IP20					IP20					IP20				
Noise emission	<65dB(A)@1m					<65dB(A)@1m					<65dB(A)@1m				
Operating temperature	-25 °C~+55 °C					-25 °C~+55 °C					-25 °C~+55 °C				
Cooling	Forced-air					Forced-air					Forced-air				
Relative humidity	0-95% non-condensing					0-95% non-condensing					0-95% non-condensing				
Maximum altitude	6000m (derate over 3000m)					6000m (derate over 3000m)					6000m (derate over 3000m)				
Dimension (W/H/D)	1200/1900/800mm					1200/1900/800mm					1200/1900/800mm				
Weight	948kg					1025kg					1230kg				
Build-in transformer	Yes					Yes					Yes				
Transfer between on/off grid	Automatic≤10ms					Automatic≤10ms					Automatic≤10ms				
Standby consumption	<30W					<30W					<30W				

Communication															
Display	Touch screen					Touch screen					Touch screen				
Communication	RS485/CAN					RS485/CAN					RS485/CAN				

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[®]

www.e24solutions.com



ISO 9001:2015



QUALITY STANDARD

