

Mono-Directional Single Phase Off-line Inverter Plus Series

E2L™

P301E



Mono-Directional, Single Phase, Off-Line Solar inverters from 3KW to 11KW per unit for Off-Grid & Weak-Grid Applications.

The P301 Series offers a wide range of inverters ideally suited for applications where no energy feed-in to the grid is required. Different models and features are available to meet various applications.

Features include among other, the possibility of dual input or dual output: Dual Input makes it easy to connect the utility supply to one input and the back-up generator to the other in order to program different charging currents. Dual output units allow for a smart management of the load to prioritize critical load over standard load in case of low battery conditions.

Most units may be connected in parallel to increase power or in a three phase configuration to supply three phase loads (up to 66KW of total power supply can be attained).

The P301 series include Dry contact, Cloud communication and BMS RS485 and Wifi communication to connect by hardware or software to other control devices while providing an easy web interface to the end-user.

The ESIM01P™ Inverter Series

The ESIM01P inverters are built in modules of 3KW, 5KW, 6KW, 8KW and 11KW each that can be connected in parallel (Inverters > 6KW) in single or three phase configuration to reach a maximum power of 66KW (1 x 66 KW in single phase or 3 x 22KW in three phase).

The ESIM01P inverters are battery agnostic allowing them to be used with any type of battery (Lead Acid, ELA, Lithium, ...). The ESIM01P inverters operate modular battery units that can also be increased based on client needs.

The ESIM01P inverters allow the user to gradually upgrade in either power or Battery size at will in order to gradually adapt the system with his growing energy needs.

The ESIM01P inverters are fitted with a WiFi wireless connection that connects the client to an application allowing him to remotely monitor his energy system.

The ESIM01™ is highly compact and efficient allowing substantial savings in space and energy.

The ESIM01™ Hybrid Inverter Series exceptional design meets basic modern requirements in terms of energy efficiency and environmental friendly applications for homes and small businesses.

E24's inverters employ transformerless high-frequency technology to offer the highest efficiency while remaining silent during its operation.

- **DUAL AC input (ESIM01P-8KI, ESIM01P-11KI)**
- **90 to 500 Vdc solar input**
- **Super compact**
- **Works with or without solar panels**
- **Wide Utility/Generator input voltage**
- **Intuitive large LCD display**
- **Seamless unattended operation**
- **Bluetooth Communication**
- **Detachable LCD Control Screen (20 meters)for ESIM01P-3KI, ESIM01P-5KI, ESIM01P-11KI**
- **Seamless unattended operation**
- **Pure Sine Wave Output**
- **200% start-up power (overload) capacity**
- **Up to 97 % efficiency**
- **Unity power factor**
- **Up to 9 Units in Parallel**
- **Multiple Communication Ports (RS485, CAN-BUS, RS232, Dry Contact for BMS)**
- **Battery Equalization to extend battery life**
- **USB-ON-THE-GO function**
- **Easy Replaceable Fans**
- **OPTIONAL Automatic control of Generator**
- **Can be combined for single or three phase operation**



ESIM01P-6KI



ESIM01P-8KI



ESIM01P-3KI
ESIM01P-5KI
ESIM01P-11KI

The ESIM01P™ Unmatched Features

The ESIM01™ Hybrid Inverter Series is engineered to adapt to almost multiple existing number of energy sources in a manner to optimise energy costs and minimize generator operation while offering immediate power backup to the user.

Works with or without solar panels

The ESIM01P inverters charge the batteries from either the solar energy or the utility supply/back-up generator. If you do not install solar panels, the unit will still operate by only charging from your utility/generator. Off-course we recommend that you install solar panels in order to save on the cost of fuel and utilities.

Wide Utility/Generator input voltage

The ESIM01P inverters accept a wide range of input voltage to remain fully compatible with your utility and generator voltage outputs

Intuitive large LCD display

The ESIM01P inverters have a built in LCD display that provide intuitively all the data about the generated, stored or consumed energy.

Super compact - Fits Anywhere

The ESIM01P inverters are wall mounted taking only 40cm height by 30cm width on your wall. The battery can be installed at a few meters away in an attic or an unused space in your home or business.

Programmable priority of energy sources:

When used as part of a turnkey E24 Energy Storage Solution, the ESIM01P™ may be programmed by default to priorities the energy source available to either supply the load directly or charge the batteries. Any unused renewable energy generated is feedback to the grid for Net-metering benefits. Other priority configurations can be programmed at will.

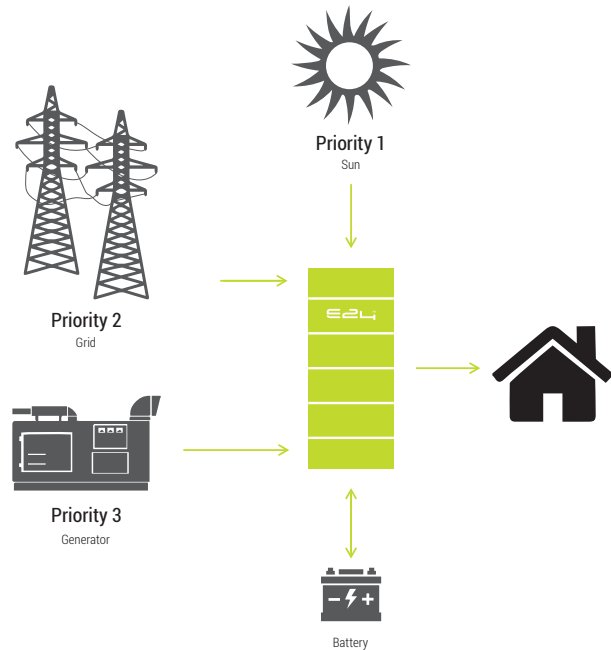
Generator control:

When used with E24 Energy Controllers as part of E24 innovative turnkey Energy Storage Solutions; the ESIM01P™ includes the controls to automatically start and stop an auxiliary generator in the event where the power drawn by the load either exceeds a preset level of current discharge of the batteries or a preset level of battery capacity.

The preset level of discharge can be set to trigger the starting of the generator when the load reaches a level that will deplete the batteries in less than 3 to 8 hours.

The preset level of battery discharge that will trigger the starting of the generator can be set to a depth of discharge ranging between 30% and 80%. The lower the depth of discharge set, the higher the runtime on batteries before the generator starts but the shorter the number of cycles that the battery can deliver (shorter battery lifetime). Refer to our battery brochure for details.

The ESIM01P™ automatically shuts down the generator when the load is decreased below the prest maximum load or when the battery capacity is restored.



System Topology

Seamless, easy operation:

The ESIM01P™ is engineered to operate without any user intervention. There is no need to push any buttons or understand how it works. It simply does.

Strong Overload Capability

The ESIM01™ Hybrid Inverter is capable of handling overloads of 110% - 125% / 150% for 10s / 5s respectively.

Power Walk In

Power Walk In function allows the rectifier of each unit to be turned on progressively and in sequences in order to avoid the sudden load on generators.

Dry Contacts

The ESIM01™ Series includes dry contacts that can be used to trigger certain actions like the automatic start-up of a diesel generator when battery is low and its shutdown when battery is charged.

Comprehensive Communication Options

Communications options include: RS232, RS485, Modbus (option), SNMP adaptor (Option), Dry Contacts, Wifi

Low input current total harmonic distortion (THDi)

The ESIM01™ Hybrid Inverter Series actively manages the input current total harmonic distortion (THDi) at a low level (2 percent at 100 percent load). E24's unique technology neutralizes the emission of harmonics at the input of the Hybrid Inverter system, providing greater reliability of operations for circuit breakers and extending the overall service life of the equipment. Low harmonic distortion saves unnecessary over sizing of gensets, cabling and circuit breakers, avoids extra heating of input transformers and extends the overall service life of all Hybrid Inverter stream components.

DSP Technology

The ESIM01™ Hybrid Inverter is built on advance Digital Signal Processing technology in order to provide high performance steady and accurate operation over its lifetime while offering outstanding efficiency (up to 96% in online mode).

Standards

The ESIM01P™ Hybrid Inverter complies to EN 60950-1 standards.

Intelligent Battery Management

The ESIM01™ Hybrid 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.

Modularity up to 9 units

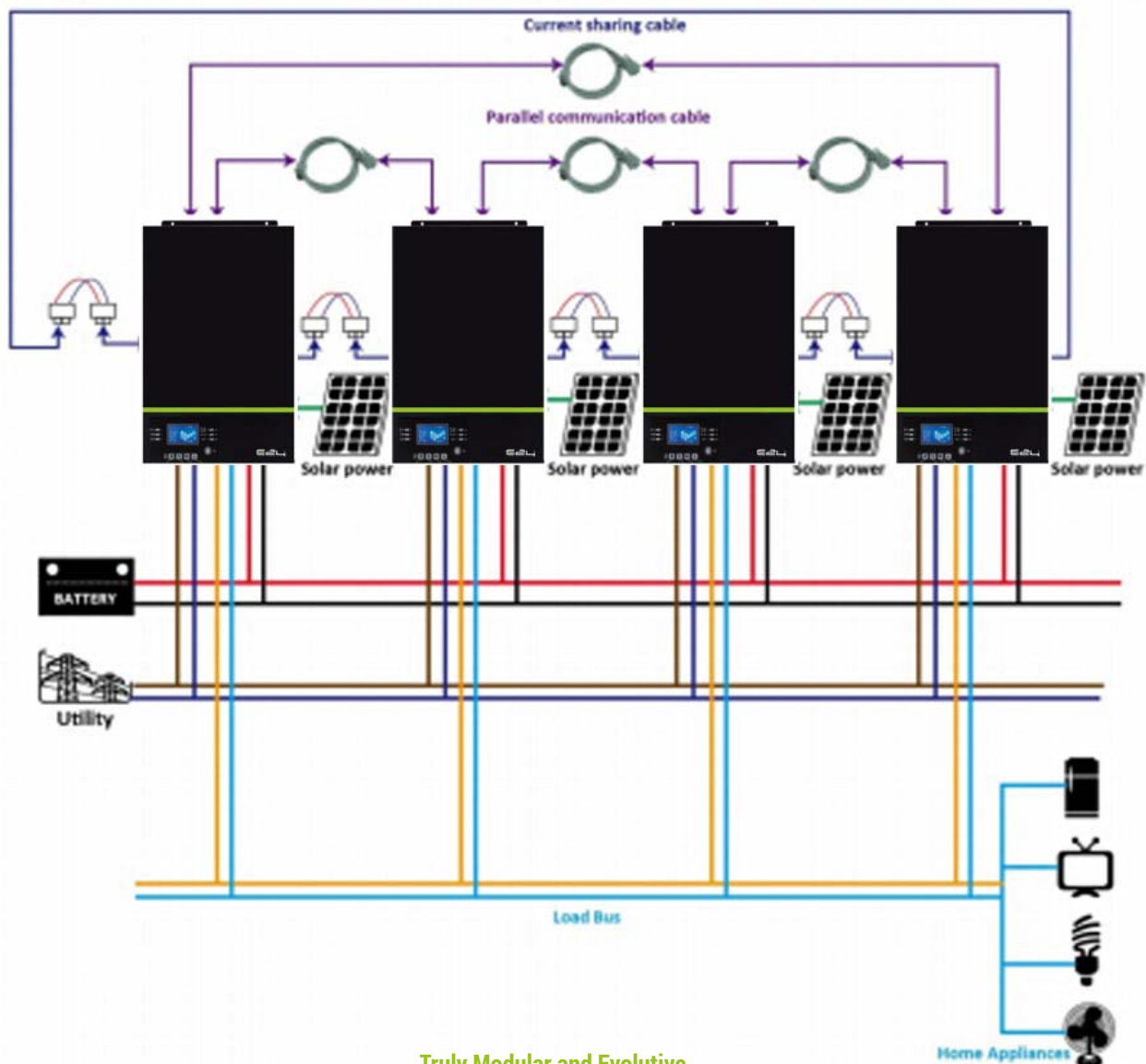
Up to 9 units can be positioned in parallel (refer to the specifications of each model) to provide a maximum power out in either single-phase or three-phase configurations.

Wide Solar Input Voltage Range

Most inverters of small power capacity have an input voltage from solar PVs limited to 100-150Vdc maximum. This limits the numbers of Solar panels that be installed in series rather than in parallel which decreases the energy generation performance. The ESIM01P inverters can accept Solar input voltage from 90 to 450Vdc (MPPT tracking). Max Solar DC voltage is 500Vdc.

Seamless unattended operation

The ESIM01P is fully automated with large number of protection features built-in. The unit includes surges arrestors and input fuses to protect against input surges. The unit also includes overload protection circuitry that is easily user resettable in case of inadvertently connecting a load above the unit capacity.



Detachable LCD Control Screen (20 meters) (for 3K,5K and 11K units)

The LCD screen which includes all system information as well as the control interface can be detached and installed at a distance that should not exceed 20 meters.



Detachable LCD Control Screen (20 meters)

Pure Sine Wave Output

The unit provides an impeccable Sine wave output with no noise or any possible interference with your appliances or equipment.

200% start-up power capacity

When turning on electrical equipment, some have high in-rush current at start-up. Air conditioning units, pumps, motors, lazer printers, photocopiers, are typical examples of high in-rush current equipment. The ESIM01P are capable of providing twice the rated capacity of the inverter during the starting up of your equipment allowing you to save on the size of the inverter required.

Up to 96 % efficiency

The ESIM01P use the latest high frequency SPWM technology to provide the highest operation efficiency bring the highest possible return on investment.

Unity power factor

An inverter of 3KVA with a power factor of 0.8 is in reality a 2.4KW inverter. E24 inverters are rated a unity power factor delivering 3KW for 3KVA inverters and 5KW for 5KVA inverter and so on.

Multiple Communication Ports (Wifi, RS485, CAN-BUS, RS232, Dry Contact for BMS)

Communication ports are used to exchange information between different systems in order build a fully integrated solution. When using lithium batteries, it is necessary for the batteries to exchange information with the inverter. Similarly, when using an E24 optional Energy Storage controller, it is necessary for the controller to read information from the inverter and battery for it to take the proper decisions (for example start the generator etc...)



USB-ON-THE-GO Function

Battery Equalization to extend battery life

When operating multiple batteries in series for a given time, some batteries may be slightly more charged than others. As a result the entire system may loses some of its performance due to the fact that batteries are not 100% equal to each other. The ESIM01P includes an internal algorithm that forces batteries to equalize which substantially increase system performance and battery life.

USB-ON-THE-GO function

The ESIM01P include a USB port to plug a USB drive in order to download historical data of the system that can be used for analysis and to rapidly program the inverter from a laptop.

Easy Replaceable Fans

One of the components that must be replaced with time on inverters are the fans that run continuously. These fans must be easy to replace in order to avoid downtime. The ESIM01P is engineered in a way to allow easy replacement of the fans with minimal complexity and downtime.

OPTIONAL Automatic control of Generator

When used with the E24 optional Energy Controller it is possible to automatically start and stop an auxiliary generator in the event where the power drawn by the load either exceeds a preset level or when batteries start to be depleted.

The controller will automatically shuts down the generator when the load is decreased below the preset maximum load or when the battery capacity is restored.

ESIM01P™ Technical Specifications (European Models in 230Vac)

Line Mode Specifications	Inverter Model	ESIM01P-3KI	ESIM01P-5KI	ESIM01P-6KI	ESIM01P-8KI	ESIM01P-11KI	
	Input Voltage Waveform	Sinusoidal (utility or generator)					
	Nominal Input Voltage	230Vac					
	Low Loss Voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)					
	Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)					
	High Loss Voltage	280Vac±7V					
	High Loss Return Voltage	270Vac±7V					
	Max AC Input Voltage	300Vac					
	Nominal Input Frequency	50Hz / 60Hz (Auto detection)					
	Low Loss Frequency	40±1Hz					
	Low Loss Return Frequency	42±1Hz					
	High Loss Frequency	65±1Hz					
	High Loss Return Frequency	63±1Hz					
	Output Short Circuit Protection	Circuit Breaker					
	Efficiency (Line Mode)	>95% (Rated R load, battery full charged)					
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)						
Power Limitation	<p>The graph plots Power (Y-axis) against Input Voltage (X-axis). The X-axis has markers at 90V, 170V, and 280V. The Y-axis has markers for 50% Power and Rated Power. The power starts at 50% at 90V, increases linearly to reach the Rated Power at 170V, and then remains constant at the Rated Power level up to 280V.</p>						
Charge Mode Specifications	Charging Algorithm	3-Steps					
	Utility Charging Mode						
	Programmable Utility Charging Current (A)	100	100	120	120	150	
	Max. Battery Charging Current (A)	100	100	120	150	150	
	Charging Floating Voltage	27Vdc		54Vdc			
	Solar Charging Mode						
	Maximum Solar Charging Current (MPPT)	100	100	120	150	150	
	# of MPPT x Max. PV Array Power (Wp) per MPPT	4000	5000		2x4000	2x6000	
	System DC Voltage	24Vdc		48Vdc			
	Max. PV Array Open Circuit Voltage	500Vdc (MPPT from 90Vdc to 450Vdc)					
	Standby Power Consumption	2W					
	DC Voltage Accuracy	+/-0.3%					
General Specifications	Communication Interface	USB, RS232, RS485, Wifi, Dry Contact					
	Safety Certification	CE					
	Operating Temperature Range	0°C to 50°C					
	Storage temperature	-15°C~ 60°C					
	Dimension (D*W*H), mm	115x300x400			140x295x468	158x502x531	147x432x554
	Net Weight, kg	9	10	12	18.4	18.4	

Invert Mode Specifications	Inverter Model	ESIM01P-3KI	ESIM01P-5KI	ESIM01P-6KI	ESIM01P-8K	ESIM01P-11K
	Rated Output Power	3KVA / 3KW	5KVA / 5KW	6KVA / 6KW	8KVA / 8KW	11KVA / 11KW
	Maximum # of Units in Parallel Operation	1	1	9	6	6
	Output Voltage Waveform	Pure Sine Wave				
	Output Voltage Regulation	230Vac±5%				
	Output Frequency	50Hz				
	Peak Efficiency	90%				
	Surge Power	5s@≥150% load; 10s@110%~150% load				
	Surge Capacity	2x rated power for 5 seconds				
	Nominal DC Input Voltage	48Vdc				
	Cold Start Voltage	46.0Vdc				
	Low DC Warning Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	44.0Vdc 42.8Vdc 40.4Vdc				
	Low DC Warning Return Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	46.0Vdc 44.8Vdc 42.4Vdc				
	Low DC Cut-off Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	41.0Vdc 40.8Vdc 38.4Vdc				
	High DC Recovery Voltage	58Vdc				
	High DC Cut-off Voltage	60Vdc				
No Load Power Consumption	<50W					
Saving Mode Power Consumption	<15W					

Charging Controls	Voltage Setting	Battery Type	Float
			48
		Flooded/AGM/Gel	54
Charging Curve			
Dual AC Input Availability			

ESIM01P™ Technical Specifications (North American Models in 120Vac)

Line Mode Specifications	Inverter Model	ESIM01P-6K5D		
	Input Voltage Waveform	Sinusoidal (utility or generator)		
	Nominal Input Voltage	120Vac		
	Low Loss Voltage	85Vac±7V (UPS); 90Vac±7V (Appliances)		
	Low Loss Return Voltage	90Vac±7V (UPS); 80Vac±7V (Appliances)		
	High Loss Voltage	140Vac±7V		
	High Loss Return Voltage	135Vac±7V		
	Max AC Input Voltage	150Vac		
	Nominal Input Frequency	50Hz / 60Hz (Auto detection)		
	Low Loss Frequency	40±1Hz		
	Low Loss Return Frequency	42±1Hz		
	High Loss Frequency	65±1Hz		
	High Loss Return Frequency	63±1Hz		
	Output Short Circuit Protection	Circuit Breaker		
	Efficiency (Line Mode)	>92% (Rated R load, battery full charged)		
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)			
Power Limitation				
Charge Mode Specifications	Charging Algorithm	3-Steps		
	Utility Charging Mode			
	Programmable Utility Charging Current (A)	120		
	Max. Battery Charging Current (A)	120		
	Charging Floating Voltage	27Vdc	54Vdc	
	Solar Charging Mode			
	Maximum Solar Charging Current (MPPT)	120		
	# of MPPT x Max. PV Array Power (Wp) per MPPT	2x4000		
	System DC Voltage (Vdc)	48		
	Max. PV Array Open Circuit Voltage	250Vdc (MPPT from 90Vdc to 230Vdc)		
	Standby Power Consumption	2W		
	DC Voltage Accuracy	+/-0.3%		
General Specifications	Communication Interface	USB, RS232, RS485, Wifi, Dry Contact		
	Safety Certification	UL		
	Operating Temperature Range	0°C to 50°C		
	Storage temperature	-15°C~ 60°C		
	Dimension (D*W*H), mm	147 x 433 x 554		
	Net Weight, kg	18.4		

Invert Mode Specifications	Inverter Model	ESIM01P-6K5D	
	Rated Output Power	6.5KVA / 6.5KW	
	Maximum # of Units in Parallel Operation	6	
	Output Voltage Waveform	Pure Sine Wave	
	Output Voltage Regulation	120Vac±5%	
	Output Frequency	50Hz / 60Hz (Auto-sensing)	
	Peak Efficiency	93%	
	Surge Power	5s@≥150% load; 10s@110%~150% load	
	Surge Capacity	15KVA	
	Nominal DC Input Voltage	48Vdc	
	Cold Start Voltage	46.0Vdc	
	Low DC Warning Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	44.0Vdc 42.8Vdc 40.4Vdc	
	Low DC Warning Return Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	46.0Vdc 44.8Vdc 42.4Vdc	
	Low DC Cut-off Voltage @ load < 20% @ 20% ≤ load < 50% @ load ≥ 50%	41.0Vdc 40.8Vdc 38.4Vdc	
	High DC Recovery Voltage	58Vdc	
	High DC Cut-off Voltage	60Vdc	
No Load Power Consumption	<50W		
Saving Mode Power Consumption	<15W		

Charging Controls	Voltage Setting	Battery Type	Float
			48
		Flooded/AGM/Gel	54
	Charging Curve		
	Dual AC Input Availability	No	

Hybrid

Storage Inverter

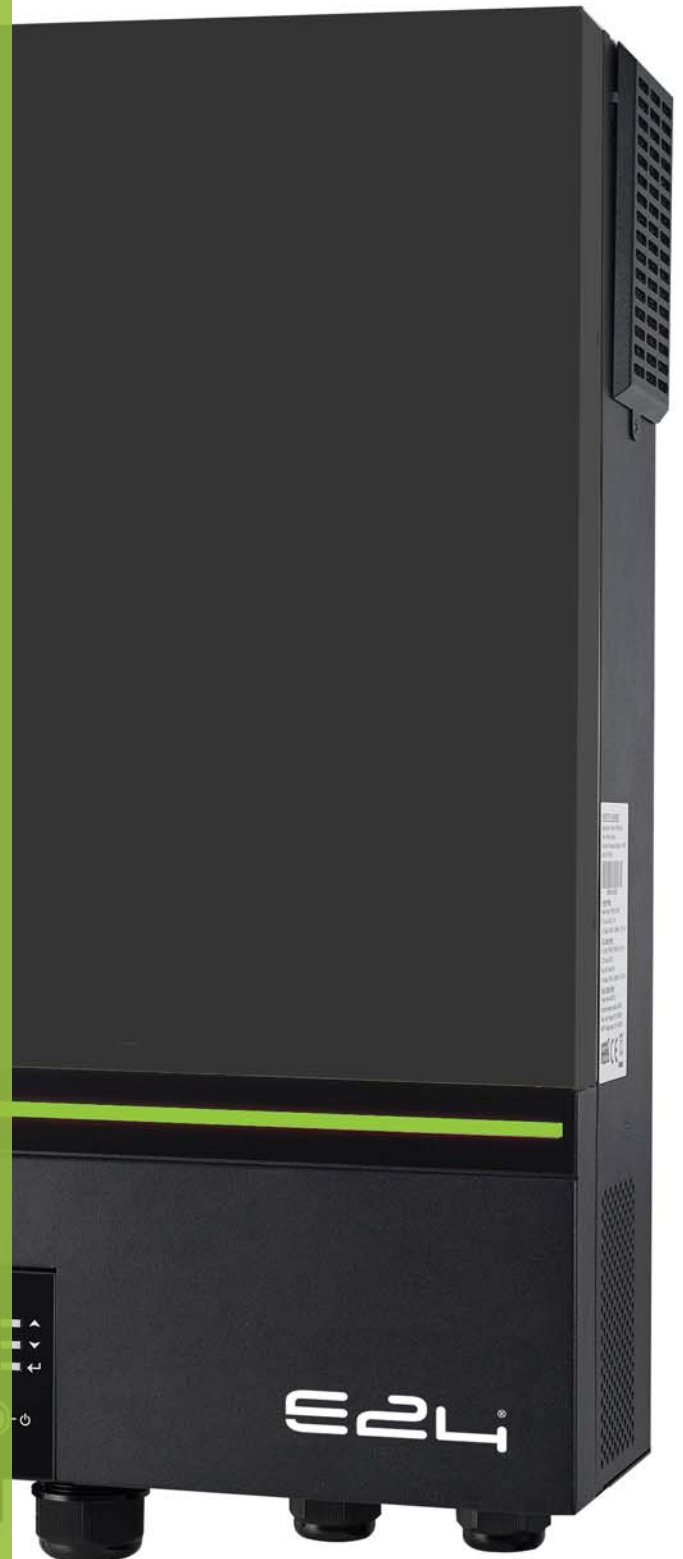
Battery



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
ESIM01P-3KI	Solar off-Grid Inverter, 24Vdc, 3KW, 1 Phase, 230V, 50/60Hz, 4KWp, 500Vdc, Cloud Mon., RS485, RS232
ESIM01P-5KI	Solar off-Grid Inverter, 48Vdc, 5KW, 1 Phase, 230V, 50/60Hz, 5KWp, 500Vdc, Cloud Mon., RS485, RS232
ESIM01P-6KI	Mod. Solar off-Grid Inverter, 48Vdc, 6KW, 1 Ph. , Dual Output, 230V, 50/60Hz, 8KWp, 500Vdc, Cloud Mon., USB,RS485, RS232,Wifi, Dry
ESIM01P-6K5D	Solar off-Grid Inverter, 48Vdc, 6.5KW, 1 Phase 120V, 50/60Hz, 2x4KWp, 250Vdc, Cloud Mon.,WiFi, RS485, RS232
ESIM01P-8KI	Mod. Solar off-Grid Inverter, 48Vdc, 8KW, 1 Ph. dual Input, 230V, 50/60Hz, 2x4KWp, 500Vdc, Cloud Mon., USB,RS485, RS232,Wifi, Dry
ESIM01P-11KI	Mod. Solar off-Grid Inverter, 48Vdc, 11KW, 1 Ph. dual Input, 230V, 50/60Hz, 11KWp, 500Vdc, Cloud Mon., USB,RS485, RS232,Wifi, Dry

E24®

www.e24solutions.com



ISO 9001:2015



QUALITY STANDARD

