



# A future-proof home: Solutions for Residential use

Single-phase hybrid inverters, low-voltage Pylontech batteries, single-phase 7kW wallbox



**Energy** was founded in **2013** with a dream: make clean energy accessible to everyone, and at any time of day. We develop systems that store energy from renewable sources, and together with our advanced software, we empower everyone to store, monitor, and manage energy like never before.

The **zeroCO<sub>2</sub>**® product range: small, large, and XL, encapsulates customized energy solutions for every need, **from residential to industrial, to agrisolar and grid scale**. Different sizes for every need, to take a step towards a world where renewable energy is not just a choice, but a way of life.

**We design and manage in Italy production, research and development, all the way to after-sales service**, stamping a mark of excellence and reliability on every product that leaves our warehouse

More than **80,000 installations** in Italy and Europe mount zeroCO<sub>2</sub> systems from Energy S.p.A.: from homes to large buildings, from companies to electric vehicles: we are radically changing the way we experience electricity.

## We power the energy of the future.

Since over 10 years, we have been creating storage systems for renewable energy of all sizes, from home to industry, up to grid scale.



### Industry leader

With more than 10 years of experience, Energy has shaped the energy storage industry in Italy, establishing itself as a leader and innovator.



### Italian excellence

From battery production to the cloud software, every element is designed and assembled in Italy.



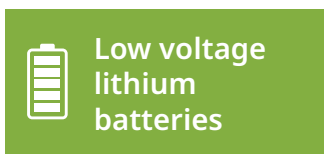
### Support from A to Z

Our technical support service is always by your side, from design to start-up to upgrade.

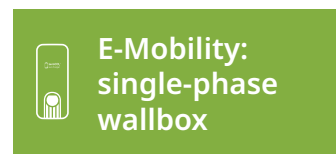
# zeroCO<sub>2</sub> small solutions



Single-phase or  
Off-Grid Hybrid  
Inverters



Low voltage  
lithium  
batteries



E-Mobility:  
single-phase  
wallbox

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# zeroCO<sub>2</sub> small (3-6)kW

## Single-phase hybrid inverter



zeroCO<sub>2</sub> small inverters represent excellence in the residential segment of single-phase hybrid inverters. With power ratings from **3 to 6 kW**, they are the ideal choice for residential use, both indoor and outdoor.

Their design prioritizes quietness, thanks to natural convection cooling, and efficiency, with simple and intuitive installation. zeroCO<sub>2</sub> small is distinguished by its **large 7-inch graphic display**, offering a clear and direct view of PV system operating data.

In addition, these inverters are compatible with high-quality Pylontech storage systems, and include a built-in backup function, ensuring power to essential loads even in the event of a blackout.

zeroCO<sub>2</sub> small inverters are the ideal solution for those seeking reliability, durability and ease of use in the residential sector.



Warranty 5 years extendable to 10 with "Energy Care"



Advanced features and guided installation

**IP65**

Protection class

**15A**

Input currents up to 15A to handle next-generation photovoltaic modules

**EPS**

Prepared for EPS function in case of grid blackout with power up to 5 kW (optional)



Energy meter included, installable on exchange and loads



Possibility of "zero feed-in" operation



Intelligent management of energy flows from PV, battery and grid



Possibility of retrofit installation, suitable for energy communities





Powerful 100 A battery charger for 4.6 - 5 and 6 kW sizes



Wi-Fi monitoring included

MODEL	S5-EH1P3K-L	S5-EH1P3.6K-L	S5-EH1P4.6K-L	S5-EH1P5K-L	S5-EH1P6K-L
Item code	90050875	90050880	90050885	90050890	90050895
<b>DC INPUT (PV SIDE)</b>					
Max. DC input power [kW]	4.8	5.7		8	
The max DC input voltage [V]			600		
Nominal DC voltage [V]			330		
Start-up DC voltage [V]			120		
MPPT operating voltage range [V]			90-520		
Full load MPPT voltage range [V]	100-520			120-520	
MPPT number/Max. Input strings number			2/2		
Max. Input current [A/B]			15.0/15.0		
Max. Short circuit current for each MPPT			22.5/22.5		
Return current from inverter to strings			0		
<b>BATTERY</b>					
Battery voltage range [V]			42 - 58		
Battery capacity [Ah]			50-2000		
Max. Charging power [kW]	3			5	
Max. Charge/discharge current [A]	62.5			100	
<b>AC OUTPUT (BACK-UP)</b>					
Rated output power [kW]	3			5	
Max. Apparent output power [kVA @10sec]	4.5			7.5	
Back-up switch time [ms]			<20		
Rated output voltage and frequency [V-Hz]			220/230 - 50/60		
Rated output current [A]	14/13.5			23 /22	
THDi [%]			2%		
<b>AC INPUT (GRID SIDE)</b>					
Range AC [V]			187-265		
Max. output current [A]	20.5/20	25/23.5	31.5/30	34.5/33	34.5/33
Frequency range [Hz]			50/60Hz		
<b>EFFICIENCY</b>					
Max efficiency of Inverter [%]			>97.5		
European efficiency of Inverter [%]			>96.8		
<b>AC OUTPUT (GRID SIDE)</b>					
Rated output power [kW]	3	3.6	4.6	5	6
Max. apparent output power [kVA]	3.3	4	4.6	5.5	6
Rated grid voltage and frequency [V-Hz]			220/230V - 50/60Hz		
Rated grid output current [A]	13.7 A / 13.1 A	16.4 A / 15.7 A	20.9 A / 20 A	22.8 A / 21.7 A	27.3 A / 26.1 A
Max. output current [A]	15 A / 14.5 A	18.5 A / 17.5 A	21 A / 20 A	25 A / 24 A	30 A / 29 A
Power Factor			>0.99 (0.8 leading ... 0.8 lagging)		
THDi [%]			<2%		
<b>PROTECTION</b>					
Ground fault monitoring, Residual current monitoring unit, Integrated DC AFCI, DC reverse-polarity protection					
Protection class / Over voltage category			I/II		
<b>GENERAL DATA</b>					
Dimension [WxHxD] [mm]			333x505x249		
Weight [kg]			17		
Topology			High frequency isolation (for battery)		
Operation temperature range [°C]			-25° +60°		
Protection degree			IP65		
Noise emission [db]			<20 (A)		
Cooling concept			Natural convection		
Max. operation altitude [m]			2000		
Design lifetime [years]			>20		
Grid connection standard	CEI 0-21, EN50438, G83/2, G98, G99, G59/3, AS4777.2:2015, VDE0126-1-1, IEC61727, VDE N4105				
Safety/ EMC Standard	IEC62040-1, IEC62109-1/-2, AS3100, NB/T 32004, EN61000-6-1, EN61000-6-3				
AC and DC Connections	Quick Connector / MC4 connector				
Display	7.0"LCD color screen display				
Communication	CAN/RS485/WiFi/GPRS optional				
Warranty [years]	5 (*)				

(\*) Extendable to 10 years with "Energy Care", order code 99990045

   EN50438, AS3100, G83/2, G98, G99, G59/3, AS4777.2:2015, AS3100, NB/T 32004, EN61000-6-1, EN61000-6-3

# zeroCO<sub>2</sub> island 3.6/6 kW

## Off-Grid Single-phase hybrid inverter



Off-Grid zeroCO<sub>2</sub> island inverters, with power ratings of **3.6 or 6 kW**, and MPPT from 120 to 430 Vdc, are ideal for off-grid settings, such as remote areas or isolated homes.

These inverters can also operate without batteries, powered by PV, grid or generator power, offering flexibility in a variety of situations.

**Up to nine single-phase or three-phase units can be connected in parallel**, with single-phase configurations from **3.6 to 54 kW** and three-phase configurations from **10.8 to 54 kW**.



Guided installation

**IP21** Protection class

### Operation without Power Grid

These inverters allow a system to be powered even without the use of mains power

### Auto Restart Function

Ensures automatic system resumption when the power source becomes available again

### Easy Monitoring

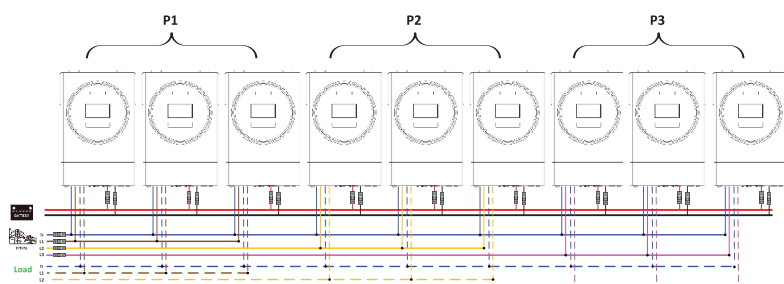
You can monitor the system via WiFi on App for iOS and Android

MODEL	zeroCO <sub>2</sub> island 3.6kW	zeroCO <sub>2</sub> island 6kW Twin
Item code	90080535	90080540
Rated Power [VA/W]	3.6/3.6	6/6
<b>AC INPUT</b>		
Nominal Voltage / Frequency [V/Hz]	230 / 50~60 (rilevamento automatico)	
Voltage Range (*) [V]	90~280 ±7	
Frequency Range (*) [Hz]	40~65 ±1	
<b>AC OUTPUT</b>		
AC Voltage Regulation [V]	230 ±5%	
Overload capacity	5s@≥150% load / 10s@110%~150% load / 100ms @ ≥200% load	
Efficiency [Peak]	93%	
Transfer Time [ms]	20	
Waveform	Onda sinusoidale pura	
<b>BATTERY</b>		
Battery Voltage Range [V]	45-54	
Charge Voltage [V]	54	
Overcharge Protection [W]	5000	
<b>SOLAR CHARGER &amp; AC CHARGER</b>		
MPPT	1	
Maximum PV Array Power [W]	5000	6000
MPPT Range @ Operating Voltage [VDC]	120 ~ 430	
Maximum PV Array Open Circuit Voltage [VDC]	500	
Max current from PV [A]	18	27
Maximum Solar Charge Current [A]	100	120
Maximum AC Charge Current [A]	100	120
<b>GENERAL DATA</b>		
Dimension, [WxHxD] [mm]	295x468x140	
Net weight [kg]	12	
Communication	USB, RS232, RS485, Bluetooth, WiFi	
Protection class	IP21	
<b>OPERATING ENVIRONMENT</b>		
Humidity	Umidità relativa dal 5% al 95% (senza condensa)	
Operating Temperature [°C]	-10 ~ + 50	
Storage Temperature [°C]	-15 ~ +60	
Warranty [years]	2	

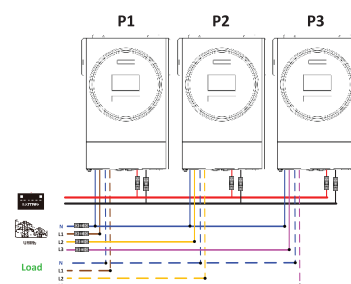
(\*) The inverter supplies electrical power again once the range is ok.

## Examples of configuration

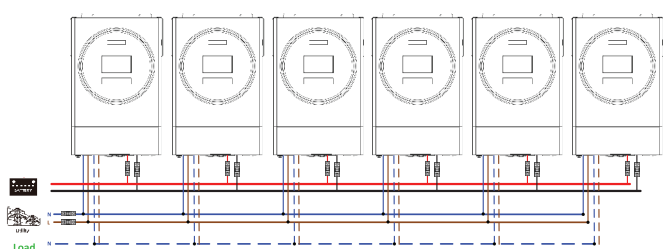
### Three-phase 54 kW



### Three-phase 18 kW



### Single-phase 36 kW



# Compatible Batteries

## Lithium Iron Phosphate Pylontech Batteries

**Pylon Technologies** is one of the pioneering companies in the manufacture of Lithium batteries for use in renewable energy storage systems.

Building on its proprietary technology in the field of storage batteries and battery management systems (**BMS**), Pylontech is one of the few vertically integrated companies in the world in the field of Lithium battery manufacturing.

## Low Voltage Models: Ideal for Residential Installations

Our low-voltage batteries are designed specifically for residential-sized installations. They offer variable storage capacity, with options of **2.4, 3.55 and 4.8 kWh** per single module.

Their modular design allows multiple units to be combined to achieve larger storage capacities, **from 4.8 up to 30 kWh**, fitting perfectly with the needs of each home.

The **US-C** series, distinguished by a “**rackable**” format, are ideal for housing in technical cabinets.

These models are available in a variety of sizes, allowing easy integration and installation flexibility according to specific needs.



The **FL** series, on the other hand, features a “**stackable**” format, meaning the batteries can be stacked on top of each other, providing an efficient and space-saving storage solution.

They are the most compact and easiest to install batteries.

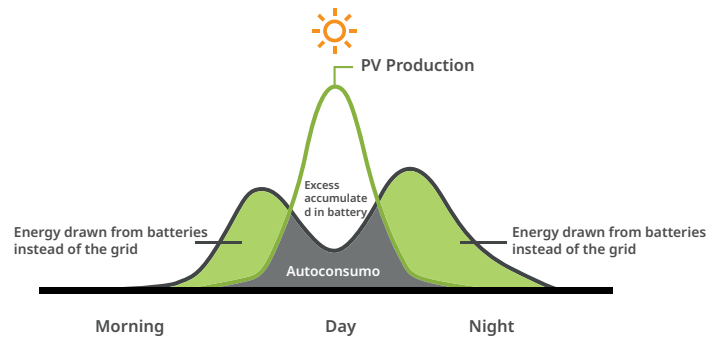




## Why install storage batteries?

A storage system allows you to store surplus energy produced by PV, and then use it at times when production is lower, such as at night or during cloudy days.

**You use all the energy you produce, saving significantly on energy costs.**



## What does LFP mean?

Pylontech LFP batteries, use lithium iron phosphate ( $\text{LiFePO}_4$ ) as the cathode. This type of battery chemistry is known to be more stable and safer than other lithium technologies, reducing the risk of overheating or fire.

In addition, Pylontech batteries are equipped with an advanced Battery Management System (**BMS**), which provides more accurate control of charge and discharge cycles, further contributing to safety.

The BMS prevents overcharging and overdischarging through an automated on/off function, constantly monitoring cell temperature, voltage, and current to anticipate any abnormalities.




## Installing instructions

Find out **how to optimally install and configure** zeroCO<sub>2</sub> products on our **YouTube** channel.

You will find a series of detailed and easy-to-follow video instructions that will guide you step by step through the installation process.



 [Subscribe on YouTube](#)

# Force L1

## Low voltage stackable battery

**FORCE L1**  
Modules  
**3.55 kWh**



Force L1 batteries are perfectly suited for residential use, combining elegant design and simple installation. Each **3.55 kWh** module is quickly assembled without cables by stacking them on top of each other. The capacity of each stack can be extended **up to 24.85 kWh with 7 elements**, with a 95% depth of discharge.

These batteries can be **connected in parallel up to 6 groups**, reaching a total capacity of **149 kWh**, suitable for meeting higher energy needs. The group BMS ensures optimal charge and discharge management, maximizing safety and longevity.

With a **10-year warranty** and **IP55** protection rating, Force L1 batteries are built to last.



Complies with VDE 2510-50

## Components



BMS Module

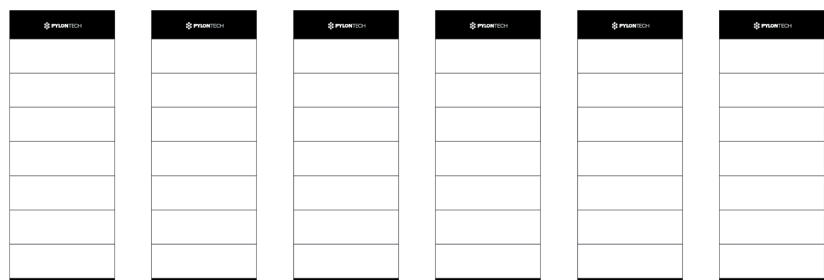


BMS Display



Battery Module

Connectable up to 6  
batteries in parallel max.  
**149.10 kWh**



## Stack of Batteries

MODEL	FORCE L1					
Item code [battery module]	90040227					
Item code [BMS]	90040228					
Battery module quantity [pcs]	2	3	4	5	6	7
Battery system voltage [V]	48					
Battery system capacity [kWh/Ah] 1 stack	7.10 / 148	10.65 / 222	14.20 / 296	17.76 / 370	21.31 / 444	24.85 / 518
Battery system charge/discharge current [A, normal]	75	100				
Dimension [450x296xH, mm]	530	700	870	1040	1210	1380
Weight [kg]	86.5	123	159.5	196	232.5	269
Battery system charge voltage [min~max,V]	44.5 ~ 53.5					
Charge / discharge test current [A] (*)	30	45	60	75	90	100
Battery system charge/discharge current [A, max.]	110@15s					
Battery module name	FL48074					
Battery module voltage [V]	48					
Battery module capacity [kWh/Ah]	3.552 / 74					
Depth of Discharge [%]	95					
Efficiency [%]	96					
Battery controller name [BMS]	FC0048-100S					
Communication bus	RS485\CAN					
Operation temperature [°C]	0 ~ 50					
Storage temperature [°C]	-20 ~ 60					
Altitude [mt]	<2000					
Protection class	IP55					
Transport certificate	UN38.3					
Product certificate	VDE2510-50, IEC62619 , CE RED, IEC62477-1, CEC					
Battery controller dimension [WxHxD]	600x150x380					
Battery bottom base dimension [WxHxD]	600x40x380					

(\*) Current value used to determine the capacity of the battery during test.



## Battery Module

MODEL	FL48074
Cell technology	Li-ion (LFP)
Battery module voltage [V]	48
Battery module capacity [kWh/Ah]	3.552 / 74
Battery type	2p 15 s
Dimension [WxHxD, mm]	600x170x380
Weight [kg]	36.5
Battery cell voltage [V]	3.2
Battery cell capacity [Wh/Ah]	118.4 / 37
Operation temperature [°C]	0 ~ 50
Storage temperature [°C]	-20 ~ 60
Operation life [years]	15+
Operation cycle life	6000
Transport certificate	UN38.3



# Force L2

**FORCE L2**  
Modules  
**3.55 kWh**

## Low voltage stackable battery



Pylontech's Force L2 series represents the top in terms of home energy storage systems. With its modular and elegant design, it fits easily into any home space.

Each **3.55 kWh** module installs quickly by stacking them without cables, with a 95% depth of discharge and **expandable capacity up to 14.20 kWh** per stack of 4 elements. Group BMS ensures optimal charge and discharge management, providing safety and efficiency.

**Expandable up to 6 stacks in parallel**, it can reach a capacity of **85.2 kWh**.



Complies with VDE 2510-50

## Components



BMS Module



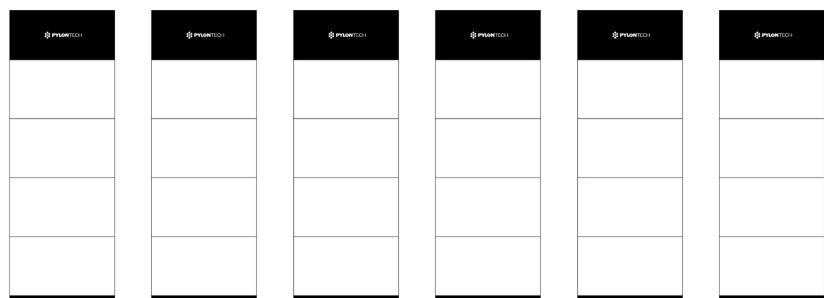
BMS Display



Battery Module

Connectable up to 6  
batteries in parallel max.

**85.2 kWh**



## Stack of Batteries

MODEL	FORCE L2		
Item code [battery module]	90040225		
Item code [BMS]	90040223		
Battery module quantity [pcs]	2	3	4
Battery system voltage [V]	48		
Battery system capacity [kWh/Ah] 1 stack	7.10 / 148	10.65 / 222	14.20 / 296
Battery system charge/discharge current [A]	75	100	
Dimension [450x296xH, mm]	822	1120	1415
Weight [kg]	82	117.5	153
Battery system charge voltage [min~max,V]	44.5 ~ 53.5		
Charge / discharge test current [A] (*)	30	45	60
Max. battery system charge/discharge current [A]	110@15s		
Battery module name	FL4874M		
Battery module voltage [V]	48		
Battery module capacity [kWh/Ah]	3.552 / 74		
Depth of Discharge [%]	95		
Efficiency [%]	96		
Battery controller name [BMS]	FC0048M-100S		
Communication bus	RS485\CAN		
Operation temperature [°C]	0 ~ 50		
Storage temperature [°C]	-20 ~ 60		
Altitude [mt]	<2000		
Protection class	IP55		
Transport certificate	UN38.3		
Product certificate	VDE2510-50, IEC62619 , CE RED, IEC62477-1, CEC		
Battery controller dimension [WxHxD]	450x190x296		
Battery bottom base dimension [WxHxD]	450x40x296		

(\*) Current value used to determine the capacity of the battery during test.



## Battery Module

MODEL	FL4874M
Cell technology	Li-ion (LFP)
Battery module voltage [V]	48
Battery module capacity [kWh/Ah]	3.552 / 74
Battery type	2p 15 s
Dimension [WxHxD, mm]	450x296x296
Weight [kg]	35.5
Battery cell voltage [V]	3.2
Battery cell capacity [Wh/Ah]	118.4 / 37
Operation temperature [°C]	0 ~ 50
Storage temperature [°C]	-20 ~ 60
Operation life [years]	15+
Operation cycle life	6000
Transport certificate	UN38.3



# US3000C & US5000

## Low voltage lithium battery

**US3000C**  
Modules  
**3.55 kWh**

**US5000**  
Modules  
**4.8 kWh**



Longer life cycle, exceeding 5000 cycles, corresponding to about 11 years of work, with end-of-life capacity of 80%



Integrated BMS capable of managing and monitoring cell voltage, current and temperature

### DoD

Depth of discharge (DOD) of 95%, available for inverters aligned with the latest Pylontech protocol, means that almost all of the stored energy is actually usable in each charge cycle



10-year warranty



Ease of expansion, to increase storage

**IP20** Protection class

MODEL	US3000C	US5000
Item code	90040082	90040084
<b>ELECTRICAL DATA</b>		
Cell technology	Li-ion (LFP)	
Nominal voltage [V]	48	
Nominal capacity [kWh/Ah]	3.552 / 74	4.8 / 100
Depth of discharge DOD [%]	95	
Usable capacity [kWh/Ah]	3.37/70.2	4.56 / 95
Recommend charge current [A]	37	80*
Charge/discharge voltage [V]	52.5 ~ 53.5 / 44.5 ~ 53.5	52.5 ~ 53.5 / 43.5 ~ 53.5
<b>BUS</b>		
Communication Bus	RS232, RS485, CAN	RS485, CAN
Communication protocol	YD/T 1363.3-2005	-
Dimensions [WxHxD, mm]	442x132 (3U)x420	442x161 (4U)x 20
Weight [kg]	32	39,7
<b>GENERAL DATA</b>		
Charge working temperature [°C]	0 ~ 50	
Discharge working temperature [°C]	-10 ~ 50	
Storage temperature [°C]	-20 ~ 60	-20 ~ 45
Protection class	IP20	
Operation life at 25 °C [years]	15+	
Life cycles	>6000 25°C	
Transfer certificate	UN38.3, UN 3090	UN38.3, UN 3480
EMC Standard	IEC62619, IEC63056, IEC62040, IEC62477-1, UL1973, U1642, UL9540A, VDE2510-50, IEC61000-6-2, IEC61000-6-3, GR-1089, GB/T 2423, TÜV, CE, UL	IEC62619, IEC63056, UL1973, UL9540A, IEC61000-6-2, IEC61000-6-3, GR-1089, GB/T 2423, TÜV, CE, UL

(\*) The recommended and max. continuous operation current is for a battery cell temperature within 10 ~ 40°C to consider. Operating out of such temperature range will cause derating on operation current.



# B4850

## Low voltage lithium battery

B4850  
Modules  
2.4 kWh



Longer life cycle, exceeding 6000 cycles

**DoD**

Ability to connect multiple battery modules in parallel, up to 40 units, to expand capacity and power



10-year warranty



Ease of expansion, to increase storage



Long life and efficiency over time

MODEL	B4850
Item code	90040500
<b>ELECTRICAL DATA</b>	
Cell technology	LiFePO4
Nominal voltage [V]	48
Nominal capacity [kWh/Ah]	2.4/ 50
Depth of discharge DOD [%]	90
Usable capacity [kWh/Ah]	2.16/45
Recommend C-Rate [C]	0.5
Recommended charge/discharge current [A]	25
Max. charge/discharge current [A]	50
Peak power charge/discharge current [A]	55 (1s)
Charge/discharge voltage [V]	54 / 42
<b>BUS</b>	
Communication Bus	CAN, RS485
Dimensions [WxHxD, mm]	480x 90x 360
Weight [kg]	22
<b>GENERAL DATA</b>	
Charge / discharge working temperature [°C]	0 ~ 50 / -20 ~ 50
Protection class	IP20
Operation life at 25 °C [years]	15+
Life cycles	>6000
Compatible inverters	Victron, SMA, Goodwe, Solis, zeroCO <sub>2</sub> , SAJ, Growatt, Luxpower, Voltronic, Deye ecc.
Transfer certificate	TÜV, CE, UN38.3, UL1973, CEI-021
EMC Standard	EN62619, IEC62040, Accreditato CEC



# LV-HUB-A

## Communication Hub



**IP20** Protection class

**LV-Hub** is a device that enables communication between battery stacks in parallel. The available communication protocol is CAN/o RS485.

Each LV-Hub can connect up to a maximum of 5 battery strings.

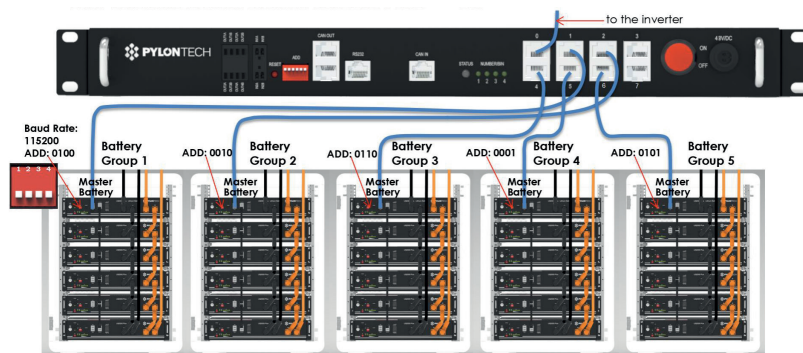
Each battery string can contemplate a maximum of 16 units for the US2000C, US3000C and for the US5000.

Configurations using one master LV-Hub and 5 slave LV-Hubs are also contemplated, thus allowing up to a maximum of 400 battery modules to be controlled using the CAN communication protocol.

MODEL	LV-HUB-A
Item code	90040214
<b>ELECTRICAL DATA</b>	
Cell Technology	Li-ion (LFP)
Operating voltage range [V]	48
System consumption [W]	2
Dimensions [WxHxD, mm]	442x44x150
Weight [kg]	3
Operation life [years]	15
Working / Storage temperature [°C]	-20 ~ 60 / -40 ~ 80
Protection Class	IP20
Communication interface	RS485\CAN
CAN [Max 5 groups]	Baud rate: 500K; terminal resistance: 0/120Ω
RS485 [Max 5 groups]	Baud rate: 9600/115200
Transport certificate	UN38.3
Transfer certificate	TÜV (IEC62619)



### Connection diagram with battery stacks

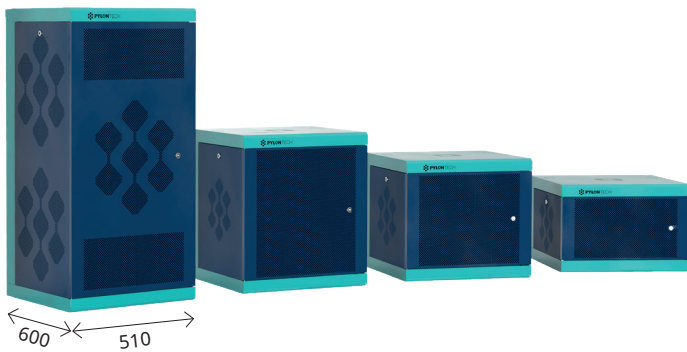




# Rack Cabinets

“Rackable” series batteries range in size from 2U to 4U, a rack unit, abbreviated as U (Rack Unit), is a standard unit of measurement used to indicate the height of components installed in a rack.

We provide durable 19” rack cabinets, for wall or floor installations, designed to accommodate your storage systems.



## Features:

- Single-section rack cabinet with reinforced thickness of painted galvanized steel and ventilation grilles;
- Polyester powder coated, embossed finish;
- Reversible door equipped with quarter-turn latch;
- Removable side panels with quarter-turn closure;
- Provided with cable entries at base and top end with pre-cut profiles;
- 19” steel front rails;
- Grounding kit included;
- Protection class: IP20;
- Adjustable feet kit included;
- Rear brackets for battery support included.

CODE	MODEL	HEIGHT - H [mm]	WEIGHT [kg]	MAX. CAPACITY [kg]	LOW VOLTAGE
90040340	Kit Case Pylontech 6U	404	17	70	Up to 2 US3000C or 1 US5000
90040342	Kit Case Pylontech 9U	538	20	108	Up to 3 US3000C or 2 US5000
90040344	Kit Case Pylontech 12U	671	23	142	Up to 4 US3000C
90040348	Kit Case Pylontech 24U	1205	40	285	Up to 8 US3000C

## Cabinet zeroCO<sub>2</sub> sun box

Energy also offers, to accommodate the full range of batteries, the zeroCO<sub>2</sub> sun box cabinet. With the same single-section structure with reinforced galvanized steel thickness, painted and with ventilation gratings, it has side support brackets for drawer installation of batteries.



CODE	MODEL	HEIGHT - H [mm]	WEIGHT [kg]	MAX. CAPACITY [kg]	LOW VOLTAGE
90040546	Rack 19” ZeroCO2 Sun Box - 16U	858	31	189	Up to 8 B4850 or 5 US3000C or 4 US5000C
90040566	Rack 19” ZeroCO2 Sun Box - 16U Supplied in kit	858	31	189	Up to 8 B4850 or 5 US3000C or 4 US5000C

# zeroCO<sub>2</sub> sun charger

## 7.3 kW Wallbox



The single-phase **zeroCO<sub>2</sub> sun charger** is the ideal solution for **residential or condominium applications, offices and workplaces**. It is designed to integrate seamlessly with the zeroCO<sub>2</sub> range of inverters and storage systems.

This versatile device, is the ideal solution for home charging of electric vehicles.

**IP54** Suitable for outdoor installation



Control via APP for dynamic power management and hourly scheduling



Ability to lock the wallbox for RFID card use

### Integration with the zeroCO<sub>2</sub> Range

When installed in systems with inverters and zeroCO<sub>2</sub> systems, you will not need to install additional meters

### Dynamic Recharge Distributor (RDR-EV)

Connects multiple wallboxes and distributes the available power among the wallboxes connected to the same POD

### Installation Flexibility

Can be installed on the wall or as a stand-alone column with its floor stand

### Smart Control

Automatically adjusts charging, to give power to the car only when available.

### Advanced Safety

Overvoltage, undervoltage, overcurrent and short-circuit protections, and IP54 rating

### 5 Meter Charging Cable

Built-in charging cable

MODEL	zeroCO <sub>2</sub> sun charger 7.3K
Item code	90200005
<b>TECHNICAL DATA</b>	
Charging interface type	Type 2/standard 5m
Rated power [kW]	7.3
Input voltage range [Vac]	230Vac±10%
Rated frequency [Hz]	50/60
Output current range [A]	0-32
Startup mode	Plug and charge / APP (RFID optional)
Installation mode	Wall mounted (Column mounted optional)
<b>PROTECTION</b>	
Protection function	Overvoltage protection, undervoltage protection, overcurrent protection, short circuit protection, grounding protection and emergency stop protection
Leakage current protection	30mA type A RCD external/6mA DC component built-in
<b>GENERAL DATA</b>	
Dimensions [WxHxD] [mm]	170x400x110
Weight [kg]	≤5
Operation temperature range [°C]	-30 ~ 50
Storage temperature [°C]	-40 ~ 70
Working humidity	5%~95%RH
Protection degree	IP54
Noise [dB]	<65
Altitude [m]	≤2000
Status indication	3-colori LED
Communication mode	Bluetooth/WiFi (Ethernet Optional)
Metering function	Optional
Communication	RS485
Safety/ EMC Standard	IEC-61851-1-2017/IEC-61851-21-2-2018
Standard	CE
Warranty [years]	2

## zeroCO<sub>2</sub> Dynamic Charging Management

zeroCO<sub>2</sub> sun charger wallboxes can be connected in parallel to manage multiple charging points, via the **Dynamic Charging Management (DCM)** device.

This system is designed to dynamically manage the load **from 2 up to 15 wallboxes** simultaneously, either single-phase or three-phase.

The system with DCM integrates seamlessly with zeroCO<sub>2</sub> hybrid inverters to allow vehicles to be charged only when excess energy is available.

NB: Item code: 90200016

The three-phase meter is included. In the case of single-phase system, it is necessary to order the single-phase meter kit SDM120CT available as an accessory.



# How to size the storage system to the PV?

Proper sizing is crucial to ensure energy efficiency, economic viability and system longevity.



## 1. Assesses the Customer's Energy Consumption:

- Analyze the customer's daily energy consumption. Consider both daytime and nighttime consumption.
- Collect historical data if available to get a more accurate view of energy consumption during different seasons.



## 2. Capacity of Photovoltaics:

- Determines the capacity of the existing PV system or the one that will be installed, and estimates the average daily production.



## 3. Calculation of Accumulation Sizing:

- Calculate the difference between the energy produced by PV and the customer's daily energy consumption. This will give you an idea of the amount of energy that needs to be stored to cover consumption when PV is not producing.



## 4. Adaptability to Seasonal Variations:

- In summer, energy production will be higher; in winter, lower. Ensure that the storage can cover some of the consumption even during periods of lower solar production.
- Consider installing a storage system with a slightly higher capacity to compensate for these variations.



## 5. Lifespan and Life Cycles of the Battery:

- Choose Pylontech systems with a high number of life cycles to ensure long system life.

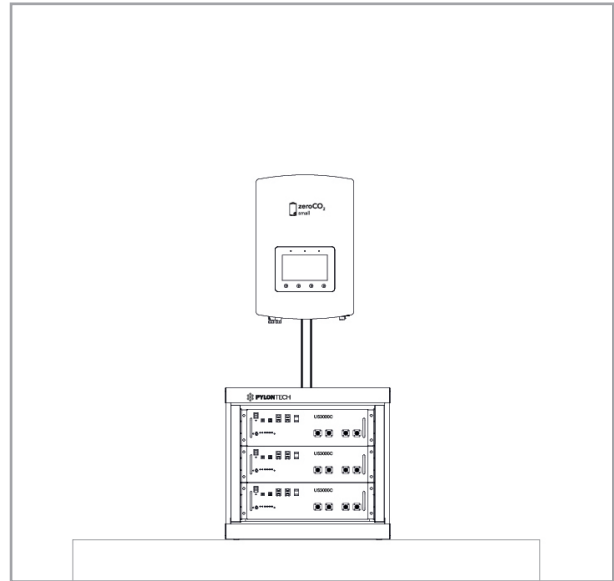
Accurate sizing of the storage system is critical to maximizing efficiency and customer satisfaction. Remember that each installation is unique, so tailor these principles to the specific needs and characteristics of the installation site.

**Your expertise as an installer is crucial to ensure that the storage system works to its full potential.**

## Examples of complete solutions

The single-phase zeroCO<sub>2</sub> small inverter can be configured with:

- US3000C batteries (minimum 1 module)
- US5000 batteries (minimum 1 module)
- B4850 batteries (minimum 1 module)
- Force L1 batteries (2 to 7 modules)
- Force L2 batteries (2 to 4 modules)



zeroCO<sub>2</sub> small inverter with 3 US3000C batteries in 9U cabinet

## Accessories

### zeroCO<sub>2</sub> EPS Box single-phase

The EPS Box allows the inverter to be used even **in the event of a blackout**, in the absence of the grid, allowing the loads to be supplied from both the public grid and the generation plant, avoiding parallel operation with the distributor's grid, by means of interlocked contactors.

The interlocking is realized electrically and mechanically, in accordance with the requirements of CEI 0-21. In order to ensure safety in island operation, the EPS box grounds the neutral during only off-grid operation.



NB: Item Code: 90900450

## Tigo TS4-A-O Optimizers

The **TIGO TS4-A-O** optimizer is the module to be integrated with PV panels for maximum yield. Designed for unequal string lengths, mixed orientations or mismatch. Also installable in shaded areas to increase panel efficiency.

In addition to optimization, TS4-A-O enables module-level monitoring and fast shutdown in compliance with NEC 2014, 2017, 2020.

It is available as a complete kit that includes a datalogger, the **Cloud Connected Advanced (CCA)** communication hub for Tigo's SMART platform, and the **Tigo Access Point (TPA)** that enables control and management of up to 300 TS4 units within a 35-meter radius.



MODEL	TS4-A-O	CCA	TPA
Complete kit code	Complete Kit: 90900720		
Item code	90900700		90900730
<b>TECHNICAL DATA</b>			
Max. Power [W]	700	-	-
Max. Input Voltage [V]	80	-	-
Voltage Range [V]	16 ~ 80	10 ~ 25 Vdc	
Power Consumption [W]		3 ~ 7	
Max. Current [A]	15	-	-
Recommended Fuse rating [A]	30	-	-
Capacity	-	Supports up to 900 TS4 units and up to 7 TAPs	Supports up to 300 TS4 units up to 115ft (35m) away
<b>GENERAL DATA</b>			
Dimensions [WxHxD] [mm]	138.4x22.9x139.7	31x71.54x115.51	126.2x26.8x130 (staffa inclusa)
Weight [g]	520	126	227
Operating Temperature range [°C]	-40°C~70°C	-20°C~70°C	-20 ~+85
Protection class	IP68, Type 4R (if installed in outdoor boxes)		
Altitude [m]	2000	-	-
Output cable Length [m]	1.2 (standard)	-	-
Connectors	MC4, EVO2	-	-
Cooling	Natural Convection		
Led Status	-	Multi-function LED status indicator	-
Communication	Wireless	Mobile App: Tigo SMART App for Android and iOS	-
Standard	CE, FCC, CSAus		
Warranty [years]	2		

N.B: For monitoring and security functions you must purchase the Kit Cloud Connect Tigo (COD. 90900720) complete with datalogger, Access Point (TPA) and DIN mounted power supply.

# Item Codes

CODE	DESCRIPTION
90050875	zeroCO2 small 3 - Inverter S5EH1P3K-L with WiFi device and Meter - 5 YEAR WARRANTY
90050880	zeroCO2 small 3.6 - Inverter S5EH1P3.6K-L with WiFi device and Meter - 5 YEAR WARRANTY
90050885	zeroCO2 small 4.6 - Inverter S5EH1P4.6K-L with WiFi device and Meter - 5 YEAR WARRANTY
90050890	zeroCO2 small 5 - Inverter S5EH1P5K-L with WiFi device and Meter - 5 YEAR WARRANTY
90050895	zeroCO2 small 6 - Inverter S5EH1P6K-L with WiFi device and Meter - 5 YEAR WARRANTY
90080535	zeroCO2 island 3.6K - Single-Phase inverter Off Grid 3.6 kW
90080540	zeroCO2 island 6K - Single-Phase inverter Off Grid 6 kW
99990045	ENERGY CARE_extension of the zeroCO2 small warranty to 10 years_ CER provision included
90200005	zeroCO2 sun charger – 7.3 kW Wallbox with type 2 socket with 5mt cable
90040082	Pylontech US3000C 3.55 kWh, for rack cabinets, low voltage
90040084	Pylontech US5000 4.8 kWh, for rack cabinets, low voltage
90040227	Pylontech Battery Module FL48074 3.55 kWh Stackable - Force L1
90040228	Pylontech BMS LV FC048-100S Stackable - Force L1
90040225	Pylontech Battery Module FL48074M Stackable - Force L2
90040223	Pylontech BMS LV FC0048M-100S Stackable - Force L2
90040500	Dyness B4850 - Battery Module 50 Ah/48V - 2.4 kWh
90040214	Pylontech LV-Hub Modul MBMS paralleling for low-voltage batteries

# Accessory Codes

CODE	DESCRIPTION
90900450	ZeroCO2-EPS Box 1Ph - Double single-phase meter for island operation in EPS
90200016	zeroCO2 DCM - Dynamic Charging Management - Parallel module for sun charger
90200017	zeroCO2 RFID Card - RFID card for EV Charger
90200018	zeroCO2 Card reader - RFID reader for EV Charger
90200010	zeroCO2 sun charger - Floor stand black color
90900700	TIGO TS4-A-O module optimizer for panels up to 700 Wp
90900720	TIGO Complete Kit - CCA, TAP, DIN power supply and datalogger. For monitoring up to 900 TS4
90900730	TIGO TAP Additional Access point. Up to 7 total access points per Cloud Connect
90900220	Pylontech - Pylontech/Inverter battery connection cable kit vers. C
90900230	Dyness/Inverter connection cable kit
90900310	Eastron single-phase meter kit with MID external CTs (1 SDM120MCT [100mA] and 1 transformer)
90900407	Wifi + LAN module for internet connection to the Solis portal - 4-pin connector
90900403	USB module for Solis Inverter FW update
90040340	Kit Case Pylontech 06U Std – Max (2 Pz US3000 7.1 kWh) - (1 Pz US5000 4.8 kWh)
90040342	Kit Case Pylontech 09U Std – Max (3 Pz US3000 10.65 kWh) - (2 Pz US5000 9.6 kWh)
90040344	Kit Case Pylontech 12U Std – Max (4 Pz US3000 14.2 kWh)
90040348	Kit Case Pylontech 24U Std – Max (8 Pz US3000 21.3 kWh)
90040546	Rack 19" ZeroCO2 SunBox-16U – Max (4 Pz US5000 20.00 kWh ) – (8 Pz Dyness 19.20 kWh)



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