

RS Hybrid SINGLE-PHASE

PHOTOVOLTAIC STORAGE



HIGHLIGHTS

- **Plug & Play installation**
- **Maximum PV power 150% overload**
- **LV lithium iron phosphate batteries**
- **Connect up to 6 battery modules for 30 kWh overall capacity**
- **High discharge rate**
- **Suitable for AC side retrofit**
- **Integrated backup module up to maximum nominal power**
- **IP65**
- **Natural ventilation**
- **Up to 3 units in parallel**

RS Hybrid Single-phase: range of hybrid inverters integrated into an energy storage system for residential applications.

RS Hybrid 3.6 and 6.0 single-phase, teamed with lithium ion battery modules, expand the functionality of an ON-GRID photovoltaic plant whilst at the same time creating a backup with the possibility of dedicating a preferential line to certain loads in the event of a grid failure. With a sleek design and easy Plug & Play installation, the system stores energy in up to 6 5.12 kWh modules installed in parallel, allowing the energy produced by the photovoltaic plant and not self-consumed to be stored for use in the evening hours or during periods of low solar irradiation. The system is therefore independent of the power supply grid and boosts energy saving. RS Hybrid single-phase inverters are available in 3.6 and 6.0 kW power and come with DC-side disconnect switches and batteries, category 2 surge arresters for immediate Plug & Play installation (requiring no additional field switchgear), and recharge the batteries themselves.

To ensure maximum configuration flexibility, efficiency optimisation and prolonged energy production, RS Hybrid single-phase inverters are fitted with 2 PV inputs that converge on 2 MPPT trackers. The MPPT trackers are independent and feature self-learning technology with a wide range and input voltage and a low threshold of output to the grid.

Ventilation is natural with a broad, efficient heat sink to ensure maximum heat exchange and low noise.

Finally, the inverters are fitted with an integrated backup module that, in the event of a mains failure, supports the load from the battery until the mains returns (intervention time below 10 ms).

To optimise the backup, a line supporting the full nominal power of the inverter can be set up.

The inverter is simple and intuitive to manage: 6 LEDs on the front signal the operating status and any alarms. There are various ways of communicating with the inverter: Bluetooth, RS485 (ModBus), Wi-Fi and Ethernet (optional): all methods



interface with the configuration app and cloud-based monitoring software for real-time viewing and control of system status.

IP65

RS Hybrid single-phase inverters have an IP65 protection level, making them suitable for outdoor installation.

OPTIONS

MONITORING AND CONFIGURATION

RS Connect / RS Monitoring 2.0

ACCESSORIES

Ethernet card

Cables

Shelves

Meter

LITHIUM IRON PHOSPHATE BATTERIES

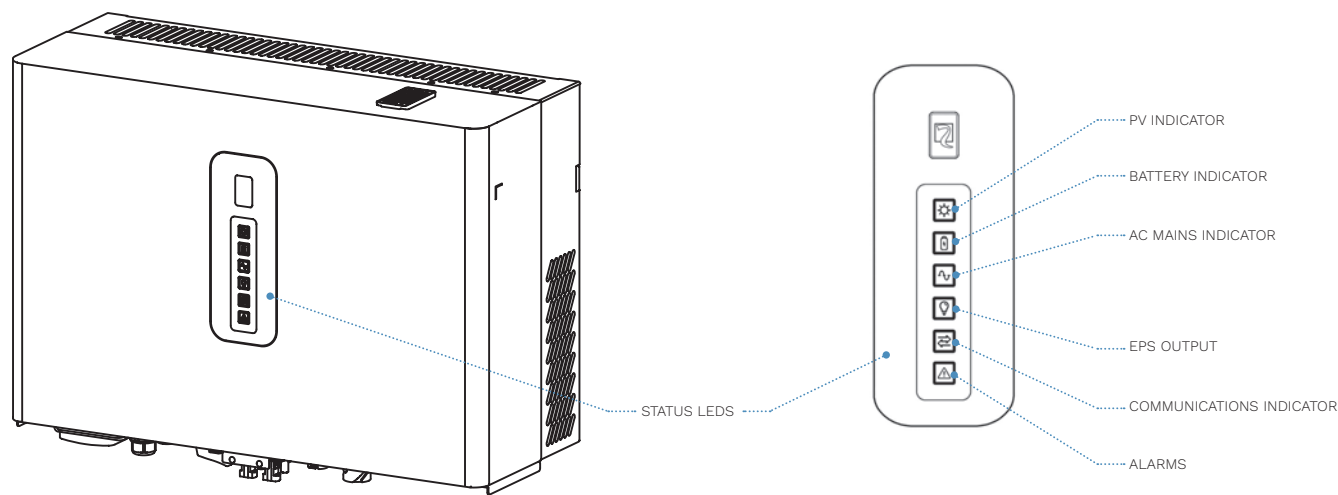
The lithium iron phosphate batteries for the storage system of these inverters are available in low voltage isolated modules (51.2 VDC) for greater safety in residential applications and a capacity of 100 Ah (5120 Wh). The system can manage up to six battery modules connected in parallel and the BMS (Battery Management System) is integrated into each battery module.

This avoids the risk of all storage being out of use in the event of a problem on a single battery module. The BMS also includes overload, overcurrent and over-temperature protection.

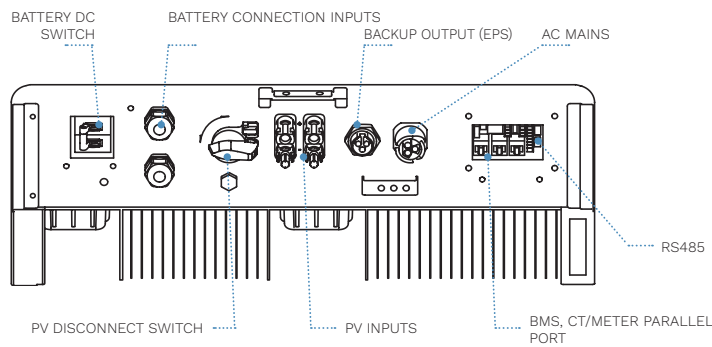
The batteries have a high discharge rate and an operating temperature between -20 °C and 55 °C. The entire system is safe and guarantees 100% protection for the end user by detecting possible failures of the cell and/or other components.



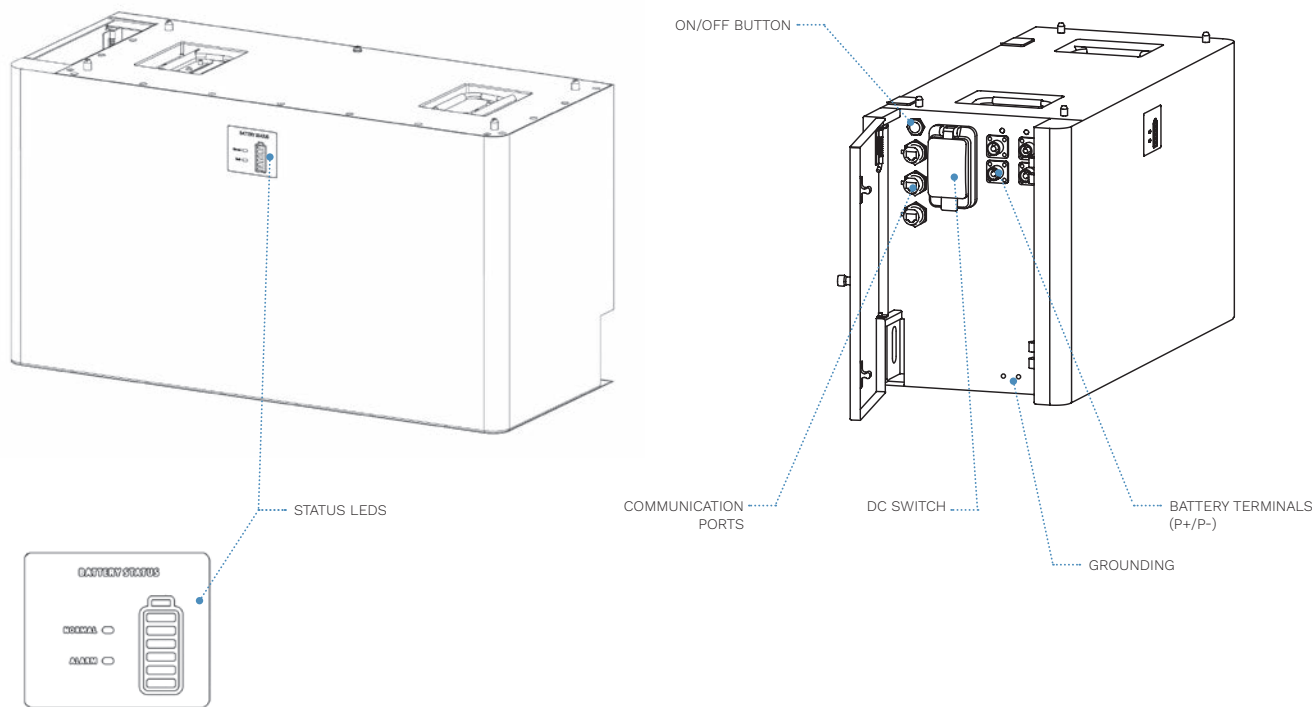
INVERTER MODULE



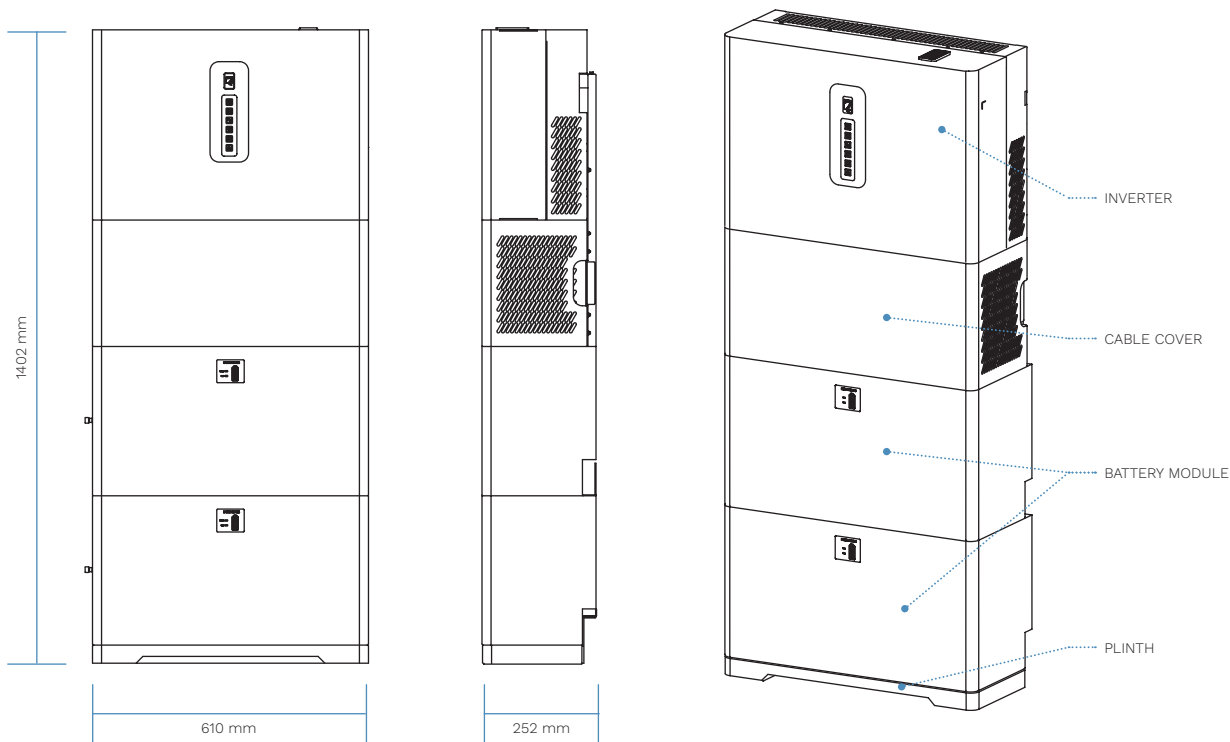
View from below



BATTERY MODULE

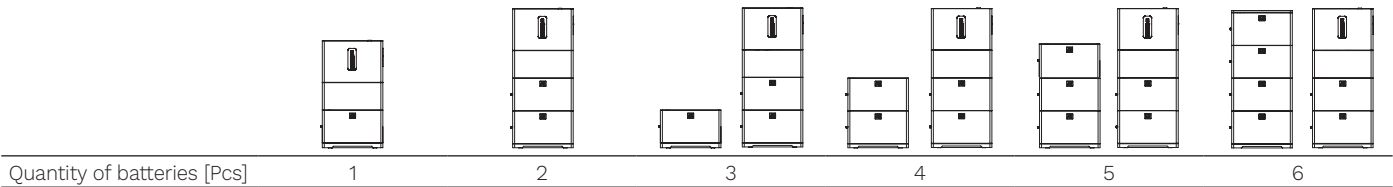


EXAMPLE OF A TYPICAL SYSTEM WITH 2 BATTERIES IN PARALLEL PLUS INVERTER



BATTERY CONFIGURATION

One or more battery modules (RS BATLIO 5120) can be stacked to expand the system's overall capacity. Each battery has its own power supply monitoring module. The system supports up to six battery modules in parallel.



SIDE MOUNTING KIT (optional)

Plinth
Plinth brackets (qty 2)
M6 expansion screws (qty 2)
Feet adjustment tools (spirit level and Allen key)
Communication cable (LINK COM)
Top cover
Alignment pins (qty 4)
Safety screws M4 (qty 6) and M5 (qty 4)
Battery cables (BAT+/BAT-)

WALL MOUNTING KIT (optional)

Wall mounting bracket
Alignment pins (qty 4)
M6 expansion screws (qty 6)

SYSTEM CONFIGURATIONS	1 battery	2 batteries	3 batteries	4 batteries	5 batteries	6 batteries
Inverter type	Hybrid inverter					
Nominal power output [W]	3600 / 6000					
Battery type	LFP (LiFePO4)					
Quantity of batteries [Pcs]	1	2	3	4	5	6
Total battery energy [kWh]	5.12	10.24	15.36	20.48	25.6	30.72
Protection level	IP65					
Weight [kg]	81.2 (3.6) 84.0 (6.0)	131.3 (3.6) 134.1 (6.0)	181.4 (3.6) 184.2 (6.0)	231.5 (3.6) 234.3 (6.0)	281.6 (3.6) 284.4 (6.0)	331.7 (3.6) 334.5 (6.0)
Dimensions (WxDxH) [mm]	610x252x1072	610x252x1402	610x252x1402 610x252x372	610x252x1402 610x252x702	610x252x1402 610x252x1032	610x252x1402 610x252x1362

INVERTER MODULE

MODEL	RS 3.6 HYBRID	RS 6.0 HYBRID
EFFICIENCY		
Maximum efficiency [%] (PV to grid)	95.7	96.6
Max efficiency (AC to BAT) [%]	92.3	92.7
Max efficiency (BAT to AC) [%]	92.6	92.8
Nominal battery voltage [V]	51.2	
Permissible battery voltage range [V]	40 - 60	
Max charge/discharge current [A]	60 / 60	120 / 120
INPUT		
PV maximum input power [W]	9000 (4500 / 4500)	
PV maximum input voltage [V]	550	
PV minimum input voltage [V]	70	
PV nominal input voltage [V]	360	
Maximum input current (input A/input B) [A]	15 / 15	
Maximum short circuit current (input A/input B) [A]	20 / 20	
Initial operating voltage [V]	90	
MPPT operating voltage range [V]	90 to 520	
Number of MPPT trackers	2	
String per MPPT tracker	1	
OUTPUT		
Nominal AC power output [W]	3600	6000
Maximum apparent AC power [VA]	3960	6000
Maximum active AC power (PF=1) [W]	3600	6000
Maximum AC output current [A]	18	27.2
Nominal output voltage [V]	230	
Output voltage range [V]	230 ±5%	
Mains voltage range [V]	176 - 264 (as per local standard)	
Grid nominal frequency [Hz]	50 / 60	
Grid frequency range [Hz]	45-55 / 55-65	
Current harmonic distortion (THDi) [%]	<5 (nominal power)	
Direct current injection [%]	<0.5 In	
Power factor	1 @nominal power (selectable 0.8 inductive – 0.8 capacitive)	
BACK-UP		
Nominal output voltage [V]	230	
Output voltage range [V]	230 ±5%	
Nominal output frequency [Hz]	50 / 60	
Output frequency range [Hz]	50 / 60 (±0.2 %)	
Nominal power output [VA]	3600	6000
Nominal power output [W]	2800 @ 51.2 V battery voltage	5500 @ 51.2 V battery voltage
Nominal output current [A]	15.6	26
DC component output voltage [mV]	≤200	
Output overload capacity [%]	≥105 for 1 s	
Transfer time [ms]	10 (typical), 20 (max)	
THDV	<3% (Rated R Load)	

OVERALL SPECIFICATION		
CT included in the supply	1x 50 A - 5 m cable	
Type	Transformer-free	
Protection level	IP65	
Overvoltage category battery input	I	
PV input overvoltage category	II	
Overvoltage category AC output	II	
Protection class	I	
Battery overcurrent protection	DC circuit breaker	
Pollution degree	PDIII as per IEC 60664-1 (internal reduced to PDII)	
Cooling	Natural ventilation	
Operating temperature range [°C]	-25 to 60 (up to 40 without derating)	
Storage temperature range [°C]	-30 to 65	
Relative humidity range [%]	0 to 95	
Maximum operating altitude [m]	4000 (up to 2000 without derating)	
Noise level [dB] (@ 1 m)	<30	
Dimensions (WxDxH) [mm]	610x232x458	
Weight [kg]	31.1	33.9
Weight (packed) [kg]	46.5	49.4
Photovoltaic connection	MC4 / H4	
Battery connection	Dedicated DC connector	
AC connection mode (grid and backup)	Dedicated AC connector	
COMMUNICATIONS		
Display	LED	
Communications	Bluetooth / RS485 / Wi-Fi / Ethernet (optional)	
CERTIFICATION		
Regulations	CEI 0-21, UNE 217001, RD 1699, RD 661, RD 413, RD 647, RD 244, UNE 217002, NTS Type A version 2.1	
Safety	IEC / EN 62109-1: 2010; IEC / EN 62109-2: 2011; IEC 62040-1:2017	
EMC	IEC 61000-6-1 / 2 / 4: 2019; IEC 61000-6-3: 2021	

BATTERY MODULE

MODEL	RS BATLIO 5120
Battery type	LFP (LiFePO4)
Nominal battery voltage [V]	51.2
Battery voltage range [V]	44.8 to 58.4
Battery module energy [kWh]	5.12
Max charge/discharge current [A]	100 / 100
Max modules in parallel [Pcs]	6
Operating temperature range for charging [°C]	0 to 45
Operating temperature range for discharging [°C]	-20 to 55
Number of cycles	≥4,000
Dimensions (WxDxH) [mm]	610x252x330
Weight (net) [kg]	50.1
Overcurrent protection	DC circuit breaker
Communication protocol	CAN
Certification	IEC 62619:2017; EN 62619:2017; IEC 61000-6 / 2 / 4:2019; UN 38.3: Rev.7
COMMUNICATIONS	
Display	LED

