

RS single-phase



HIGHLIGHTS

- **Cooling technology with natural convection**
- **Maximum efficiency 97.6%**
- **European efficiency 97.1%**
- **Wide MPPT range**
- **Threshold voltage for grid supply very low**
- **Built-in dual channel Wi-Fi**
- **Smart Autotest and self-learning via the App**
- **Night-time consultation**

Riello Elettronica is strengthening its presence on the market of electrical conversion with the new range of PV inverters, totally dedicated to the residential sector, under the Riello Solartech brand.

The inverters in the RS range implement innovative technologies, have high-quality components, and are sized with a wide margin for normal operations and can provide for routine machine maintenance without compromising on the wide-ranging operational flexibility.

The innovative digital control for all power stages guarantees low susceptibility to power disruptions, avoiding undesired disconnection due to variations or micro-interruptions.

The RS models integrate input and output surge protection and have control devices and redundancy protection—especially in the output stage—to guarantee operability and continuous operation.

INNOVATION

Unique, innovative, light and compact design. The die-cast aluminium case makes it particularly lightweight and ensures an optimum real IP65 protection level, even for outdoor applications. The materials chosen are high-quality, to ensure maximum reliability. Thanks to the wide voltage range, the inverter can be perfectly integrated into the various operating conditions of the electricity grid and is particularly suited for the typical low voltage of rural areas.

- Cooling technology with natural convection to ensure a period of reliable use in high temperature situations.
- Smart Autotest with self-learning via the app.
- Multiple remote monitoring for operation and maintenance.

EFFICIENCY

- High efficiency and higher efficiency rate.
- Maximum efficiency 97.6%.
- European efficiency 97.1%.
- MPPT self-learning technology to optimize the efficiency of each module.
- Wide MPPT range.
- Threshold voltage for grid supply very low.

TOTAL FLEXIBILITY

- Simple installation, smart operation and maintenance.
- User-friendly communication interface with built-in dual channel Wi-Fi.
- AC/DC connectors that can be plugged in for immediate connection.
- App/Web for remote system control and firmware updates, smart operations and maintenance.
- Light and extremely compact for easy installation.

Attractive design, lightweight, compact, easy to install and configure; these are the special features of the RS series, particularly well-suited for residential and small-scale commercial installations. Thanks to the wide range of input current and voltage, they are found to be extremely well-adapted to plants with size limitations. The innovative digital control of all the power states –which ensures low sensitivity to mains interference, combined with the IP65 protection level – which means the inverter can be positioned outside near the generator, simplify the wiring on the DC side, reducing leakage, helping to limit installation costs and greatly improve system reliability. The multi-string technology for 5 and 6 kWp models also enables strings with different orientations and inclinations to be managed, to work better with any type of photovoltaic module, even if partially in the shade; making the inverter more flexible and assisting the installer in different configurations. The integrated DC switch disconnecter means the inverter can be rapidly and securely isolated in the event of an emergency or non-routine maintenance.

A series of LED icons on the front of the case immediately identify the operating status of the inverter while an LCD display shows the instantaneous power produced or an alarm code, if any.

COMMUNICATION INTERFACE

Built-in dual channel Wi-Fi.

1CH) used for local connection with dedicated app (RS Connect):

- For direct connection to the inverter and local configuration and installation (self-test and threshold setting)
- Local consultation
- Night-time consultation

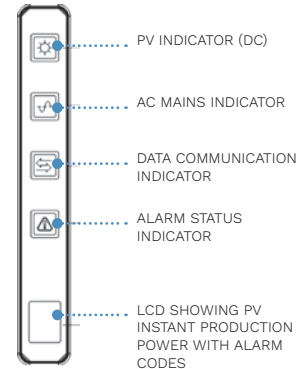
2CH) for the router connection and data management in the CLOUD; viewing with the RS Monitoring supervisory portal.



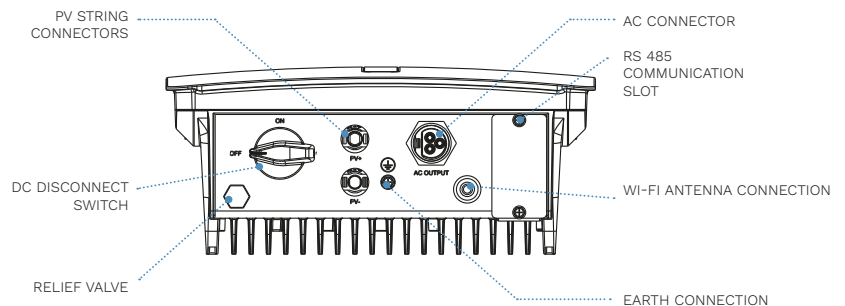
DB9 expansion slot used for optional communication cards, such as RS485.

INTERFACE PANEL

Panel with LED status indicators and LCD display showing instant production power.

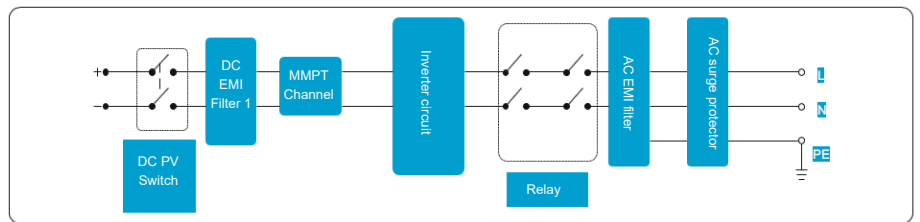


INVERTER

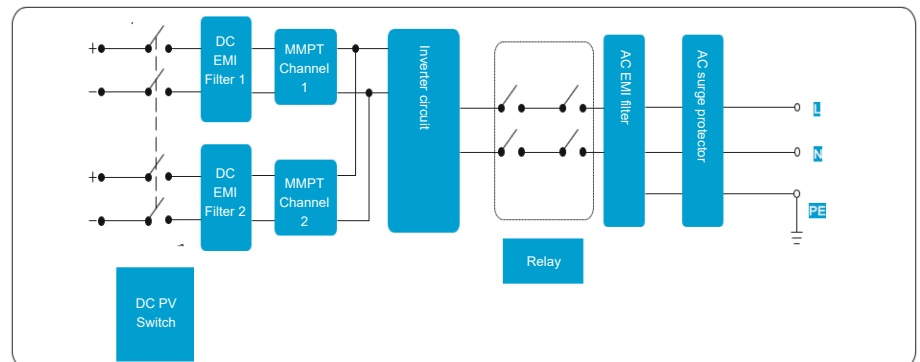


The RS 1.5-2.0-3.0 inverter with a single MPPT input receives signals from a single string of PV panels. RS 4.0-5.0-6.0 inverters with a dual MPPT input receive signals from two strings of PV panels.

The inputs are then grouped into one or two independent MPPT channels within the inverter to track the maximum power point of the PV panels. The MPPT power is then converted in the DC bus and the DC voltage is then converted to AC voltage via an inverter circuit. The AC voltage is then fed into the mains. An EMI filter is used on the DC and AC sides to reduce electromagnetic interference; there is power surge protection on the AC side.



RS 1.5-2.0-3.0 inverter circuit with single MPPT input



RS 4.0-5.0-6.0 inverter circuit with dual MPPT input

MODEL	RS 1.5	RS 2.0	RS 3.0	RS 4.0	RS 5.0	RS 6.0
PRODUCT CODE	6PS11K5B	6PS12K0B	6PS13K0B	6PS14K0B	6PS15K0B	6PS16K0B
EFFICIENCY						
Maximum efficiency	97.6%	97.6%	97.5%	97.4%	97.4%	97.1%
European efficiency	96.1%	96.6%	96.8%	96.9%	96.9%	97.1%
INPUT						
Minimum DC power [W]	1000	1600	2400	3200	4000	4800
Maximum DC power [W]	1700	2300	3500	4600	5800	7000
Maximum input voltage [V]	600					
Nominal input voltage [V]	360					
Maximum input current [A]	13			26 (13 for MPPT)		
Maximum short circuit current [A]	15			30 (15 for MPPT)		
Starting voltage / minimum operating voltage [V]	90 / 70					
MPPT operating voltage range [V]	90-580					
MPPT operating voltage range (full load) [V]	130-520	170-520	240-520	240-520		300-520
Maximum number of PV strings	1			2 (1/1)		
MPPT number	1			2		
OUTPUT						
AC active power (nominal) [W]	1500	2000	3000	4000	5000	6000
Active power max. AC (PF = 1) [W]	1500	2000	3000	4400	5000	6000
Max current AC output [A]	7.2	9.5	14.3	19.1	23.8	28.6
Nominal voltage AC [V]	220 / 230 L+N+PE					
AC voltage range [V]	160-300					
Nominal mains frequency [Hz]	50 / 60					
Grid frequency range [Hz]	45-55 / 55-65					
Current Harmonic Distortion (THDi)	<3% (nominal power)					
Direct current injection	<0.5% I _n					
Power factor	(selectable 0.8 lead - 0.8 lag)					
PROTECTIONS						
DC disconnect switch	Yes					
Anti-islanding protection	Yes					
AC overcurrent protection	Yes					
Short circuit protection	Yes					
DC pole inversion control	Yes					
Surge arrester (VDR)	DC type II / AC type III					
Ground fault detection	Yes					
Current leakage protection	Yes					
OVERALL SPECIFICATION						
Type	Transformer-free					
Protection level	IP65					
Night self-consumption [W]	<5					
Natural	Cooling					
Operating temperature range	-25 °C - 60 °C					
Relative humidity range	0% - 100%					
Maximum operating altitude [m]	4000 (>2000 derating)					
Noise level [dB]	<30 (measured at 1 m)					
Dimensions (WxDxH) [mm]	298x130x377			367x135x467		
Weight [kg]	9.3			12.9		
COMMUNICATIONS						
Display	LCD + LED					
Communications	Integrated Wi-Fi (dual channel), RS485 (optional)					
Monitoring	App (RS Connect), Supervisory portal (RS Monitoring)					
CERTIFICATIONS						
Safety	IEC62109-1, IEC62109-2					
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4					
Regulations	CEI 0-21					
Warranty	5 years (with possibility of extending to 10)					