



# Data Sheet

**RADIUS** APV-S



## PHOTOVOLTAIC STRING INVERTERS

*Technology from*  
**GEFRAN, Italy**



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## DESCRIPTION

> Rishabh, a leader in industrial sector with vast experience and know-how, presents the new Radius APV-S string inverter. Conforming to the most advanced international standards, the APV-S satisfies the application demands of a market in constant technological evolution.

The RADIUS range of PV inverters represents the most advanced technology in the sector for controlling state-of-the-art industrial and civil PV plants. Maximum energy efficiency, long term reliability, plant monitoring and high-level professional service are the cornerstones of the RADIUS range.

These inverters feature cutting-edge power components and advanced system controls that deliver superior performance with rapid returns on investments.



RADIUS -APV-S

## FEATURES

- ▶ Maximum efficiency up to 98.3%
- ▶ IP -65 structure suitable for both indoor & outdoor installation
- ▶ Full power without derating up to 50°C ambient temperature.
- ▶ Easy O&M.
- ▶ Robust design and latest-generation power components with SiC technology
- ▶ Maximum power point tracking, up to 3 MPPT trackers
- ▶ Wide MPPT voltage range 350 to 800V
- ▶ Large graphical display provides a easy, user-friendly operator interface
- ▶ "Transformerless" versions for enhanced efficiency
- ▶ String fault detection & DC fuses on both poles of string
- ▶ Integrated DC circuit breaker under load
- ▶ Tool free & maintenance free terminals for AC Side
- ▶ Integrated datalogger for operation and fault data logging
- ▶ USB port for quick & handy saving of production and operation data
- ▶ Integrated protections against overcurrent, overtemperature, reverse dc polarity, AC & DC overvoltage
- ▶ Wire Box to allow separate access for easy and quick installation.
- ▶ 2 Rs485 ports for communication interface
- ▶ Integrated inputs/outputs: 3 analog inputs, 2 digital inputs, 2 digital outputs
- ▶ Auxiliary 24 VDC out (500mA max) for connection of environmental sensors



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## VERY HIGH CONVERSION EFFICIENCY LEVEL



Maximum efficiency up to 98.3% makes the APV-S string inverter one of the highest performing products on the market.

The use of SiC technology achieves high efficiency even with low input voltages.

Choice of cutting-edge power components and its intelligent design of the conversion system demonstrate its attention to performance and ensure users the fastest and highest return on their investments.

**SiC** Silicon Carbide  
Technology

## PERFECT IN EVERY INSTALLATION CONDITION

### Full power up to 50°C

The ability to work at high ambient temperatures without derating makes the APV-S ideal even in the harshest environments. See specifications for details.

### IP 65

APV-S is suitable for both indoor and outdoor installations thanks to its IP65 structure.



## RIGHT ANSWER TO ALL ENGINEERING NEEDS



With a very wide range of modular configurations, the APV-S line of inverters ensures users not only the best technical solution but also the best price/performance ratio for every plant engineering need:

- AC power with variable cos phi

The offer is completed with a wide range of options, accessories, and services that make RADIUS the ideal partner for the entire life of the PV system.



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# APPLICATIONS

ADVANCED ENERGY Series APV-S-...k-AE - 50kW

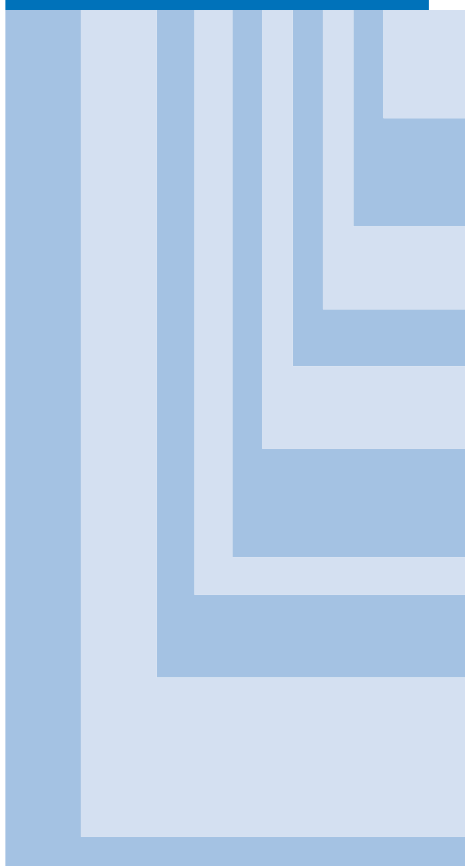
Maximum flexibility and performance even in systems with complex structure.

PLANTS WITH NON-UNIFORM STRINGS



## CODE DESCRIPTION

APV-S-XXk-XX-TL-X X X X X -XX

	Display	KA = advanced display
	Grounding kit	X = not included
	Interface protection system to CEI-021 standard and AC3 contactor	X = not included
	DC fuses and Broken string recognition	F = included
	DC circuit breaker under load	S = included
	MPPT numbers	3 = 3 MPPT
	Transformer:	TL = not included
	Model	AE = Advanced Energy
	Inverter power in kW:	50k = 50 kW
Photovoltaic string inverter, APV-S series		



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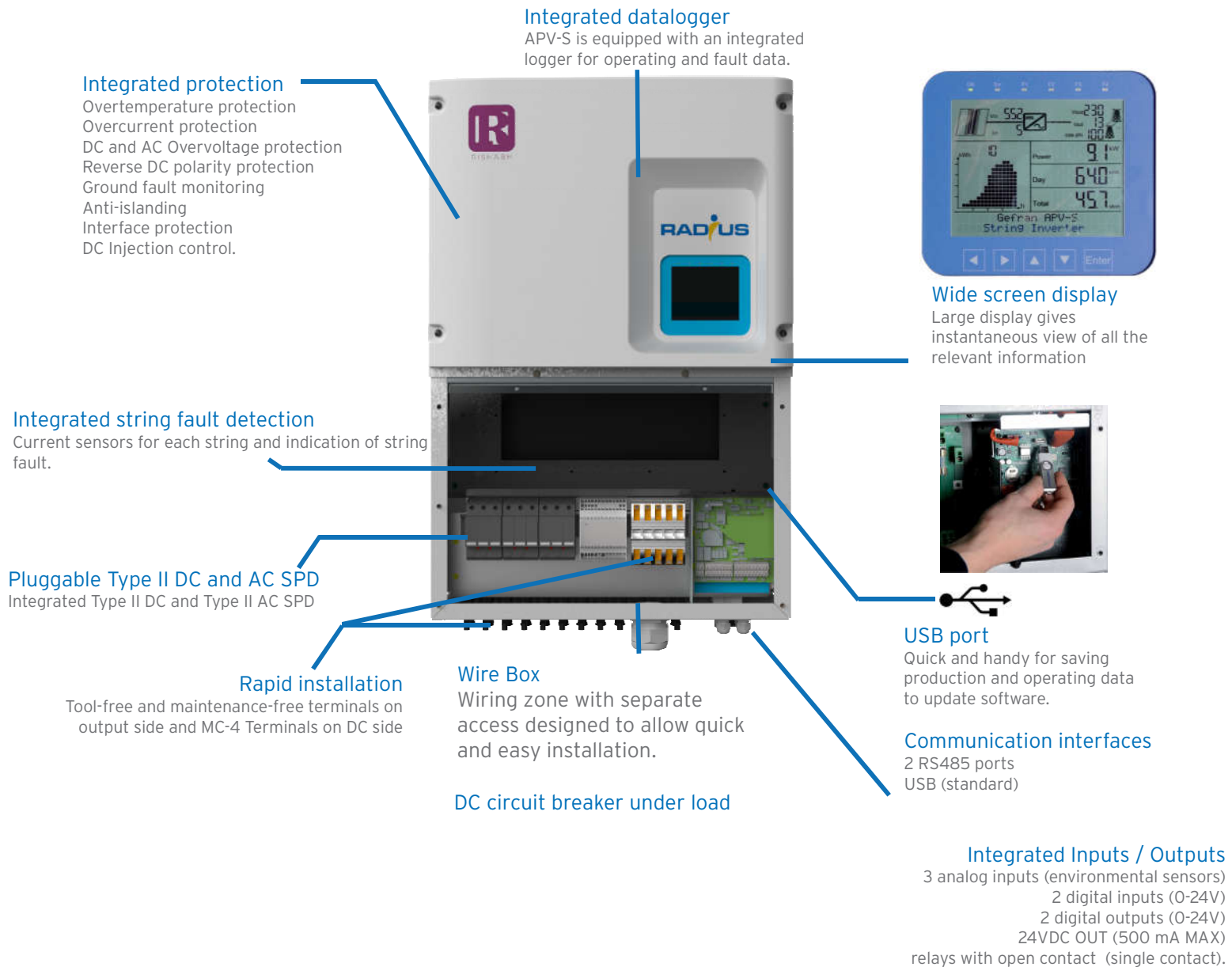
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## GENERAL CHARACTERISTICS



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### CHOOSING THE INVERTER - TECHNICAL DATA

APV-S-...-AE			Radius
			Designed on the Technology Platform of Radius
			50k-AE-TL-3
Input data	Maximum DC voltage	V <sub>DC</sub> max [V]	1000
	MPPT Operating Range	[V]	350..890
	MPPT Range(@ maximum power)	[V]	520..800
	Start- up voltage	[V]	>200
	Max. Recommended PV Power (balanced input)	[kWp]	60
	MPPT number	No. MPPT	3
	Number of strings per each MPPT	No.	4
	Maximum DC current per MPPT	I <sub>DC</sub> max [A]	33.7
Output data	Rated AC Power	P <sub>NOM</sub> AC [kW]	50
	AC rated current/Max current	I <sub>AC</sub> max [A]	72.1/79
	AC voltage	V <sub>AC</sub> [V]	415V (3-phases + Neutral) (output voltage range 320..480) <sup>(1)</sup>
	Rated AC frequency	f <sub>AC</sub> [Hz]	50/60Hz (Output frequency range 47..53/57..63) <sup>(1)</sup>
	Grid connection		TN-C/TN-S/TN-C-S/TT
	THDi	THD grid [%]	≤3
	Power factor (settable)	cosphi	+/- 0.8
Efficiency	Maximum efficiency	[%]	98.1
	European efficiency (Euro ETA)	[%]	97.6
	Interface protections(grid monitor)		Integrated
	Anti-islanding		Integrated (Where required by local regulations)
	Insulation control		Integrated
	Residual current monitoring		Integrated
	Reverse DC polarity protection		Integrated
	AC/DC overvoltage		Type 3 SPD standard with thermal protections & DC side indication Optional: Type 2 pluggable DC SPD & AC SPD <sup>(2)</sup>
	DC injection control		Integrated
	DC circuit breaker		Circuit breaker under load
Protections	DC fuses & string failure detection		12A fuses on both poles of each string + current sensors for each string
	Night Consumption(Standby loss)		< 1W

(1) The output voltage and frequency interval may vary according to the network connection standard.



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## CHOOSING THE INVERTER - TECHNICAL DATA

APV-S-...-AE		Radius
		Designed on the Technology Platform of Radius
		50k-AE-TL-3
Interface	Display	KA
		KA = 100 x 100mm graphic display with keypad
	Communications	2 Rs485 ports (both with separate in/out) 1 standard USB port (only for firmware updates and downloading of historical data In built GSM based remote monitoring system(optional)
	Inputs/Outputs	3 analog inputs (environment sensors 0..10V) 2 Digital inputs (0-24V) 2 Digital outputs (0-24V) 24V OUT (500mA MAX) 1 relay single contact (30Vdc, 250Vac/2A)
Cooling		Forced Convection
Environmental Data	Temperature Range	-20...+60°C
		Over 50°C derating
	Vibration	1G
	IP protection degree	IP 65
	Environmental conditions	4K4H
	Maximum permissible value for relative humidity, non condensing	100%
	Pollution degree	EN 60721-3-4, free from direct solar radiation To avoid increase in the internal temperature of the inverter and cause a reduction of the output power (derating)
	Altitude	Up to 2000m with derating (1.2% each 1000m above 1000m
Dimension & Weight	Dimensions	W x H x D: 551 x 864 x 377mm
	Weight(Kg)	103
Standards	Approvals	Designed to meet all the relevant applicable IEC standards

(2)The complete series of Radius including new model of 50kW is available under manufacturer name Rishabh.



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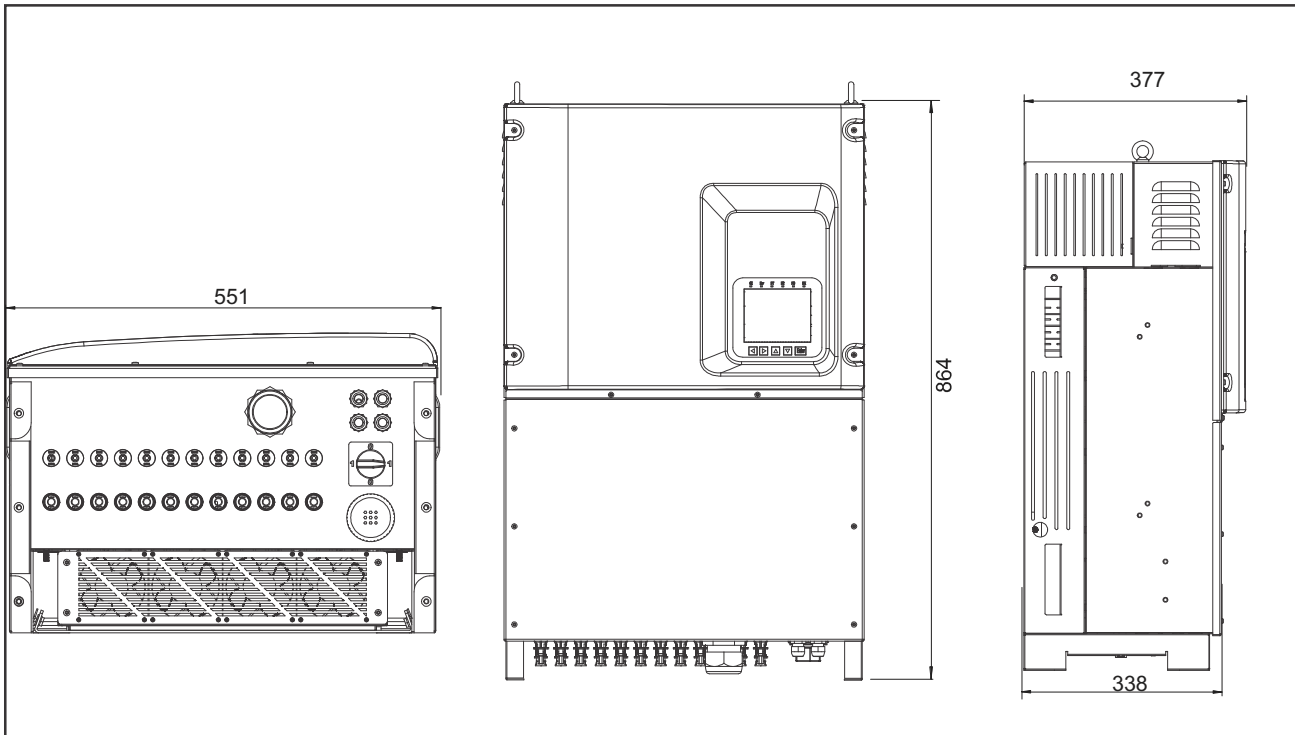


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## APV-S- 50kW-AE DIMENSION



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SOLAR ON-GRID INVERTERS  
from



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