

SPARQ's Innovative Microinverter Technology



The SPARQ Advantage

Powered by advanced digital control software, SPARQ's innovative approach eliminates electrolytic capacitors and optical isolators and uses fewer energy conversion stages. This allows SPARQ to deliver the smallest, most flexible and most reliable microinverter with enhanced energy harvest and with the ability to reduce costs to the lowest of any microinverter.

SPARQ's Competitive Edge

- Highly reliable SPARQ microinverters offer an industry first: a lifetime that matches or exceeds that of the solar module. This is achieved by eliminating all unreliable components such as electrolytic capacitors, enabling SPARQ to offer a 25-year warranty.
- Highly compact and lightweight, SPARQ microinverters facilitate convenient attachment to the panel and easy installation.
- Our patented maximum power point tracking algorithm ensures that optimal energy is harvested from all panels at all times, and is extremely fast, even in the changing shade and lower light conditions of urban installations.
- Higher quality power is generated by SPARQ microinverters over all solar irradiation levels due to a patented digital control technology that produces extremely low Total Harmonic Distortion (THD) in the output current, even at very low illumination levels.
- Safety is enhanced through the use of galvanic isolation between the PV panel and the grid. This feature facilitates compatibility with thin-film PV modules for the European market.

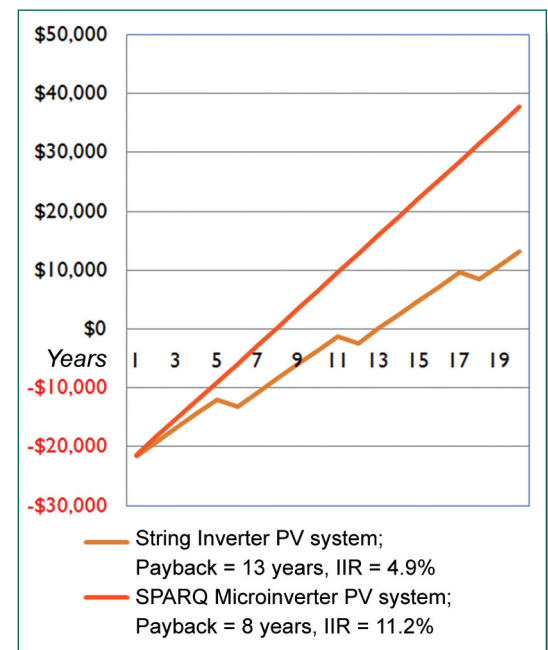
- Plug-and-play adaptability with voltage and frequency standards in North America, Asia or Europe eliminates any need for manual adjustment. SPARQ microinverters comply with all global standards for grid-tied connection.
- Continuous per-module monitoring through power line communications offers the flexibility to check system performance anytime, anywhere.
- Our versatile design meets the needs of module manufacturers, distributors and installers.
- Our microinverter is priced competitively due to a lower component part count and fewer power conversion stages.

High Return On Investment for grid-connected SPARQ microinverter systems

The table below presents an example of a 3kW residential rooftop grid-connected PV system in Ontario, Canada. A SPARQ microinverter-based PV system requires an investment of \$24,600, which is slightly higher than the \$24,000 required for a traditional string-inverter PV system. However, with an internal rate of return (IRR) of 11.2% and an 8-year payback, SPARQ microinverter-based PV systems deliver dramatically more attractive returns relative to string-based PV systems, which have a 4.9% IRR and a 13-year payback.

Parameter	SPARQ Microinverter PV System	String Inverter PV System
Peak Power	3 kWp	3 kWp
Ontario Feed-in Tariff	80 ¢/kWh	80 ¢/kWh
Total PV System Costs (Installed)	\$24,600	\$24,000
Inverter Price per Watt	60 ¢/kWh	40 ¢/kWh
Installed Costs per Watt	\$8.20 /W	\$8.00 /W
Inverter Life	25 years	6 years
Annual PV Production	1300 kWh/kWp	1000 kWh/kWp
Repairs Labour	\$500	\$2,400
Payback	8 years	13 years
Internal Rate of Return (IRR)	11.2%	4.9%

PV Module Investment Profiles



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