



Harness the full potential of your solar energy with SoPeM

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# SOLAR PANEL EFFICIENCY MONITORING

## ESCOM Enhanced Solutions



The Future of Wireless - Batteryless Energy Harvesting Sensing Technologies

ESCOM-ES is the R&D center founded in 2018 and owned by ESCOM Power Plants Engineering Services. We are focusing on and developing Self Powered - Wireless - Batteryless Sensors which is eliminating all wiring and cabling cost and workmanship which can reach many kms in a simple industrial plant. And offering smart and green solutions getting rid of batteries and cables...


No Battery - No Cable - No Wiring

ESCOM-ES offers a wide range of domestic and industrial sensing systems that can be used in harsh environment harvests its own power from ambient sources such as motion, temperature, sunlight, magnetic fields, or where energy is available to scavenge...

Self-powered, wireless sensing technology, combined with engineering expertise and rich analytics provide real-time information for our customer's needs...





 **ESCOM**  
Enhanced Solutions

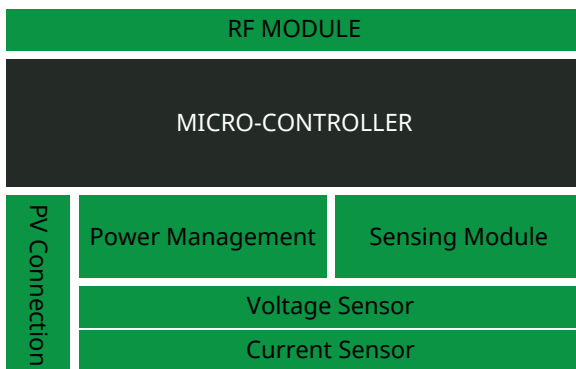
**SoPeM**  
Solar Panel Efficiency Monitoring

## SoPeM-Solar Panel Efficiency Monitoring

SoPeM continuously monitors the working efficiency of each solar panel in facilities where solar panels are used. The panel instantly measures the power output and transmits the measured value to the scada system without using any wire connection. While doing this, it takes its own energy from the panel it is connected to.



String monitoring system is performed with traditional methods. In case of a malfunction in any panel, the defective panel cannot be determined. SoPeM does panel-based monitoring. In other words, it specifically detects the failure of each panel. It can show the instant value of each panel.



- Online solar panel monitoring
- Wireless communication, batteryless and maintenance free.
- Simple installation.
- Provides instant display and tracking system to minimize efficiency loss.
- Provides panel based monitoring.
- Consumption average 0.58 Watt

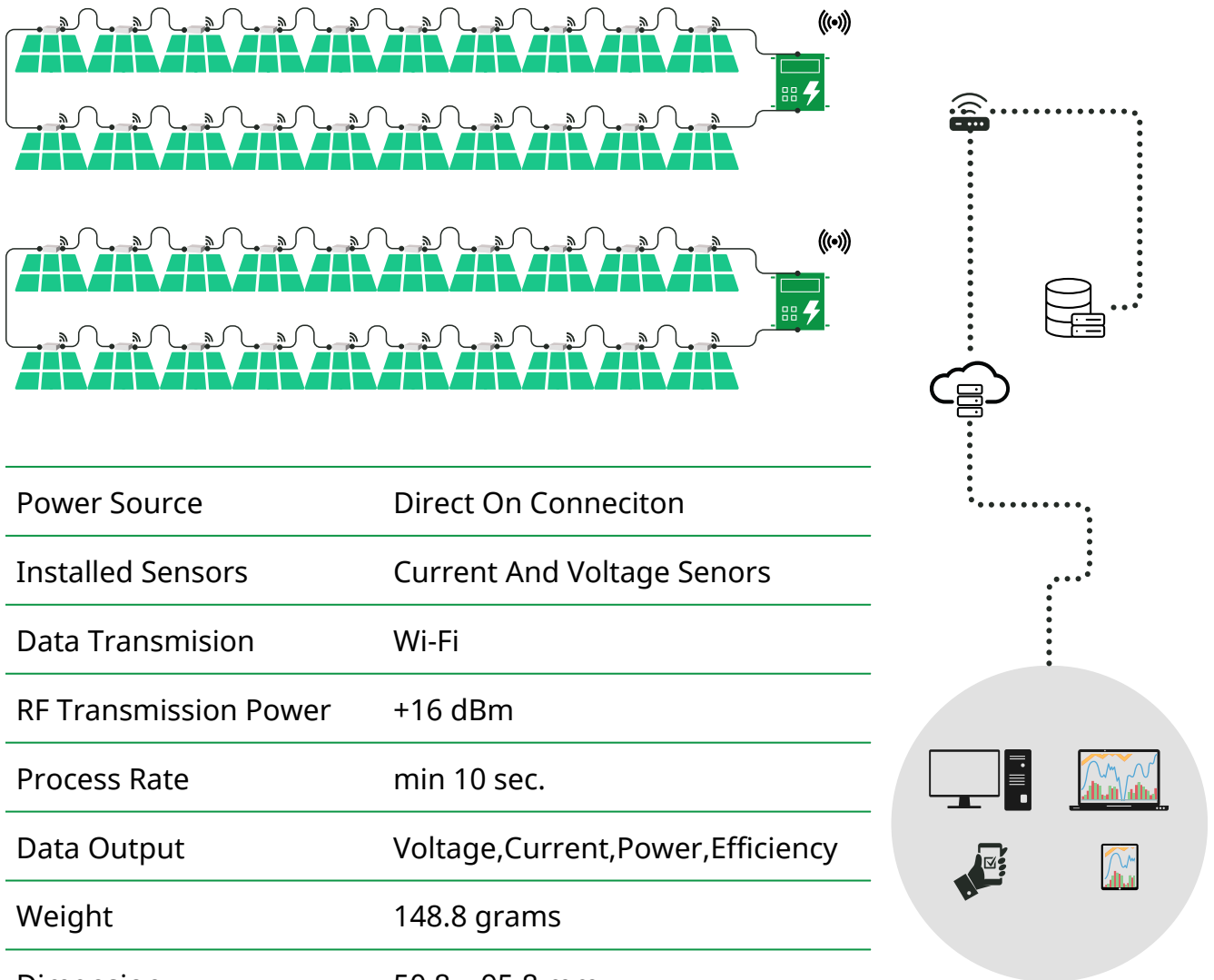
SoPeM-C ; it measures voltage of solar panel where is it connected and current on a string. One SoPeM-C is enough for one string.

SoPeM-V ; it measures voltage of solar panel where is it connected. It should connect to each solar panel.

SoPeM consists of a regulation circuit in order to use the energy it receives from the PV panel, a hardware measuring the voltage and current at the output of the panel, a Wi-Fi/RF communication module that will process the collected data and send it to the receiver in a specified period, and a sealed enclosure box made of plastic material containing all the above-mentioned components.

## SoPeM-Solar Panel Efficiency Monitoring

SoPeM detects the user-defined percentage deviation from the mean within a string. At the same time, SoPeM detects the string that deviates from the mean by comparing the power between the strings. Energy produced by each panel and each series are monitored instantly.



|                         |                                     |
|-------------------------|-------------------------------------|
| Power Source            | Direct On Connection                |
| Installed Sensors       | Current And Voltage Sensors         |
| Data Transmission       | Wi-Fi                               |
| RF Transmission Power   | +16 dBm                             |
| Process Rate            | min 10 sec.                         |
| Data Output             | Voltage, Current, Power, Efficiency |
| Weight                  | 148.8 grams                         |
| Dimension               | 50.8 x 95.8 mm                      |
| Operating Temperature   | -40 - +85 Celsius Degree            |
| Customizable (Physical) | Yes                                 |
| Power Consumption       | Average 0.58 Watt                   |





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