

CASE STUDY

Proscend Compact Industrial Cellular Router M330-W5 and ISMS IoT management platform for mobile solar energy solution.

Background

The mobile solar power systems are designed for lighting or security using trailer or trolley on a portable platform, that can be easily transported and deployed where off-grid areas or special situations to enhance more efficient and more convenient applications. Although solar is the fastest-growing renewable energy source in the world, the high costs associated with solar monitoring system using IoT management solution are prohibitive for many. Therefore, the critical challenge is how to provide a reliable and cost-effective solution to manage mobile solar power systems. This solution will benefit the equipment that could be more difficult to access located in extremely isolated areas, such as drilling and mining operations, in wide range of areas where power lacks or for temporary needs, such as construction sites, emergency events, and outdoor stadiums.

Application Requirements

Proscend cooperates with one of leading solar power system providers in the United States of America to utilize IoT cellular devices of remote network management platform that help this company monitor and control a large quantity of mobile solar power systems from control center. This mobile solar power system has already used in a world-class electric vehicle manufacturer, a top-tier smartphone manufacturer, and a well-known aeronautics and space administration. Proscend integrates Industrial Cellular Router M330-W5 and ISMS cloud-based IoT management system with MPPT solar charge controller to simplify the deployment of their connected equipment and to identify where the issues in real time, manage systems remotely, driving down operating costs.

Application Features

- **24/7 Monitor And Control IoT Management**

Taking advantage of connecting the M330-W5 Industrial Cellular Router to Proscend's ISMS cloud-based IoT management system, it will help you determine whether the problem was network-related or hardware-related to diagnose where the problem originated and notify quickly a technician to fix your equipment. The M330-W5 Industrial Cellular Router with GPS tracking, so you can know accurately where your equipment is at all times when they are spread out over a massive desert for oil-drilling field. With alert notification feature, the M330-W5 can send the message to control center in case the equipment is moved

unusually by theft, or resolve problems remotely while the faults occur to ensure continuous operation.

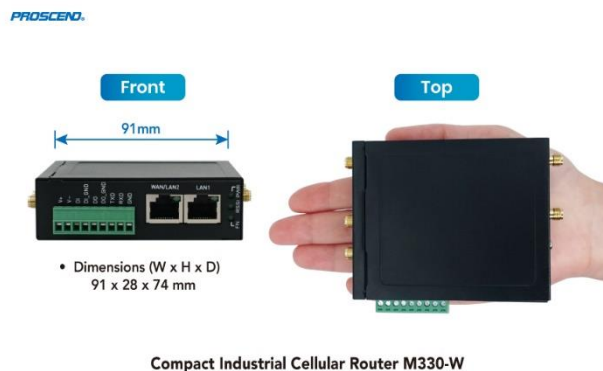
- **Easy-To-Communicate Modbus and MQTT Protocols**

With RS-485 serial interface, the M330-W5 Industrial Cellular Router as a Modbus gateway converts the Modbus TCP to the Modbus RTU protocol, enabling the communication needs of various occasions. For instance, the MPPT solar charge controller connects with M330-W5 Industrial Cellular Router via RS-485 to deliver the information of battery voltage and charging current to ISMS IoT management platform in the control center. You can also use MQTT protocols to transmit the data among connected devices at each field site to a remote server could save you unnecessary time, effort, and costs.

- **Sophisticated Design And Stable Connections**

Most of mobile solar power systems are set up in rigorous environments, Proscend's Industrial Cellular Router M330-W5 is proven to be consistently reliable and durable under different circumstances. The M330-W5 is designed to withstand extreme climates in a wide temperature range of -30 to 70°C. Because of vibration-resistant protection and compact rugged design, the M330-W5 Industrial Cellular Router is an ideal product to install into mobile space-constrained machines.

Product Used



Compact Industrial Cellular Router M330-W5

- 1 x 10/100 Base-TX RJ45 LAN port; 1x 10/100 Base-TX RJ45 WAN port.
- Multi-band support for FDD LTE / TDD LTE / WCDMA / GSM / LTE Cat4.
- IEEE 802.11b/g/n Wi-Fi standards compatibility.
- Built-in micro SIM connector, RS-485 serial port, and DI/DO interfaces.

- Ultra-compact and lightweight metal design with DIN-Rail installation.
- LED indicators for connection and data transmission status.
- Industrial rated from -30 to +70°C for use in harsh environments.
- Flexible power supply range of 8-48 VDC.
- IPv4 and IPv6 dual stack management.
- VPN tunnels, Firewall and cryptographic protocols for cybersecurity.
- Support serial communication protocols for M2M connectivity.

Integrated Service Management System (ISMS)

Proscend's Integrated Service Management System (ISMS) of IoT Management Software is designed for ensuring remote management and optimizing condition monitoring to ensure each device works well. ISMS offers an intelligent centralized device management platform for remote network configuration, device connectivity monitor, and data transmission control to enhance the management capabilities of Industrial IoT and machine-to-machine (M2M) applications.

Application Topology

PROSCEND®

Mobile Renewable Energy Solution

Industrial Cellular Router with Intelligent Cloud-based IoT Management System (ISMS)



Industrial Cellular Router M330-W5 with ISMS IoT Management Platform Enables Mobile Solar Energy Solution Reliability.