RUGGED
MONITORING
MONITORING SIMPLIFIED

Condition Monitoring System
for Solar Farms

We help deliver enhanced reliability and security to your solar farms. From delivering insightful monitoring to providing Higher ROI, RM's condition monitoring system plays an ever-increasing role within renewable energy installations.

Our **Solution**

The increasing numbers of solar power plants are putting more stress into the electrical assets of current infrastructure. Higher transients and harmonics from converted power supply of ESS (Energy Storage Systems), Increasing supply related fluctuations and the impact of climactic changes are some of the major issues that impact the long-term sustainability of our transmission and distribution network.

RM's condition monitoring systems perform more efficiently to cater the needs of solar power industry. It facilitates planned maintenance with deep insight into the component failures before they affect energy production. Ensuring that the integrity of processed data is not compromised by severe and extreme climates.

We at Rugged Monitoring have developed wide range of products with deep understanding of the stress and strain placed on renewable energy applications. Delivering several advantages over conventional equipment, the popularity of condition monitoring solutions in solar farm has gathered much attention than yesteryears.

Solar Farm Condition Monitoring System Benefits

- Reduces expensive emergency repairs by detecting problems early, avoiding unplanned downtime and optimizing the planned outage cost with planned maintenance.

- Real time monitoring of electrical assets

- Detailed diagnosis of the faults in different assets

- Root cause analysis of damage event

- Data trending

- Operational and economic benefits are realized through reduced downtime

- Seamless communication among multiple systems

Features of Condition Monitoring System

- High precision modular design
- Accurate measurement
- Multiple Digital and Analog Outputs
- Plug and Play, No Re-Calibration
- Accessible Installation and Commissioning
- Data integration with high level systems

Flexible solutions for Renewable Energy Applications

	Solar Panel	Ess/Battery	Power Cables	Inverter/ Power Electronic	Switchgear	GIS	Transformer
Temperature	✓	✓	✓	✓	✓	✓	✓
Voltage	✓	✓	✓	✓	✓	✓	✓
Current	✓	✓	✓	✓	✓	✓	✓
Gas Density Monitoring					✓	✓	
Moisture			✓	✓	✓	✓	✓
UHF PD			✓		✓	✓	✓
HF PD			✓		✓		✓
Breaker Condition Monitoring					✓	✓	
Vibration Sensor							✓

R501

Rack Mount Comprehensive and Customizable Asset Monitoring Solution

Most Versatile, Multi-Channel, Multi Asset Comprehensive Monitoring Solution

Key Features

- Widest range of monitoring available in 1 chassis with an option to expand
- Completely configurable system as per customer requirement
- Simple visualization & easy to configure

- Faster installation & lower maintenance cost
- Ethernet redundancy
- Easy to integrate with third party systems
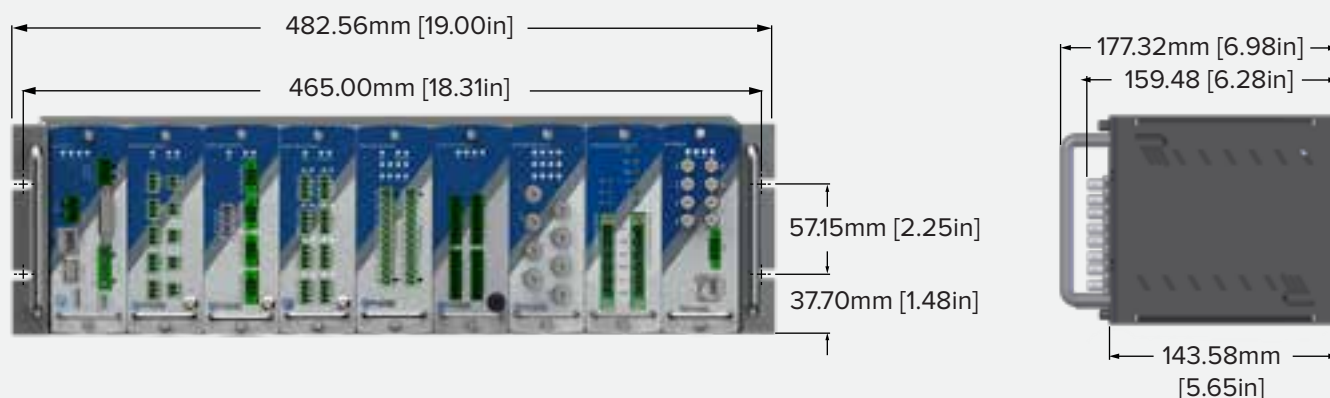- Supports multiple protocols: Modbus, DNP3.0, IEC 60870-5-104, IEC61850

Benefit

- Improved asset reliability
- Accurate predictive analysis
- Access asset data from anywhere
- One monitoring solution for multiple assets
- Increased asset lifetime
- Highest Return on Investment
- Field upgradable with no device downtime
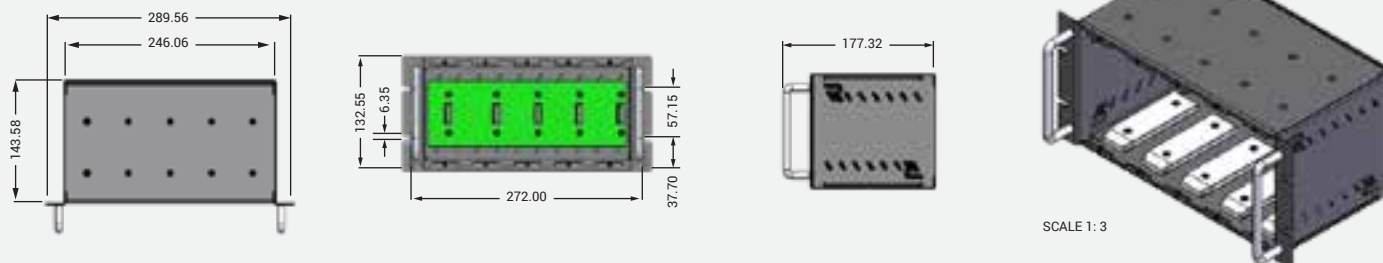
Sensors that can be connected to R501

1. OTI,WTI, RTD, PRD, Breather, Buchholz Relay, LLG/OLI, Pressure Sensor etc.
2. Direct winding Hot Spot Monitor
3. Cooling System and Control Cabinet

4. Dissolved Gas Analyzer
5. Bushing Monitoring
6. Partial Discharge Monitor

Product Drawing

Weight : 5 Kilograms

Optional Smaller 3U Chassis

Ordering Code

Contact our sales team for Ordering Code

Fiber Optics

Based Solutions Continue to Expand Renewable Technology
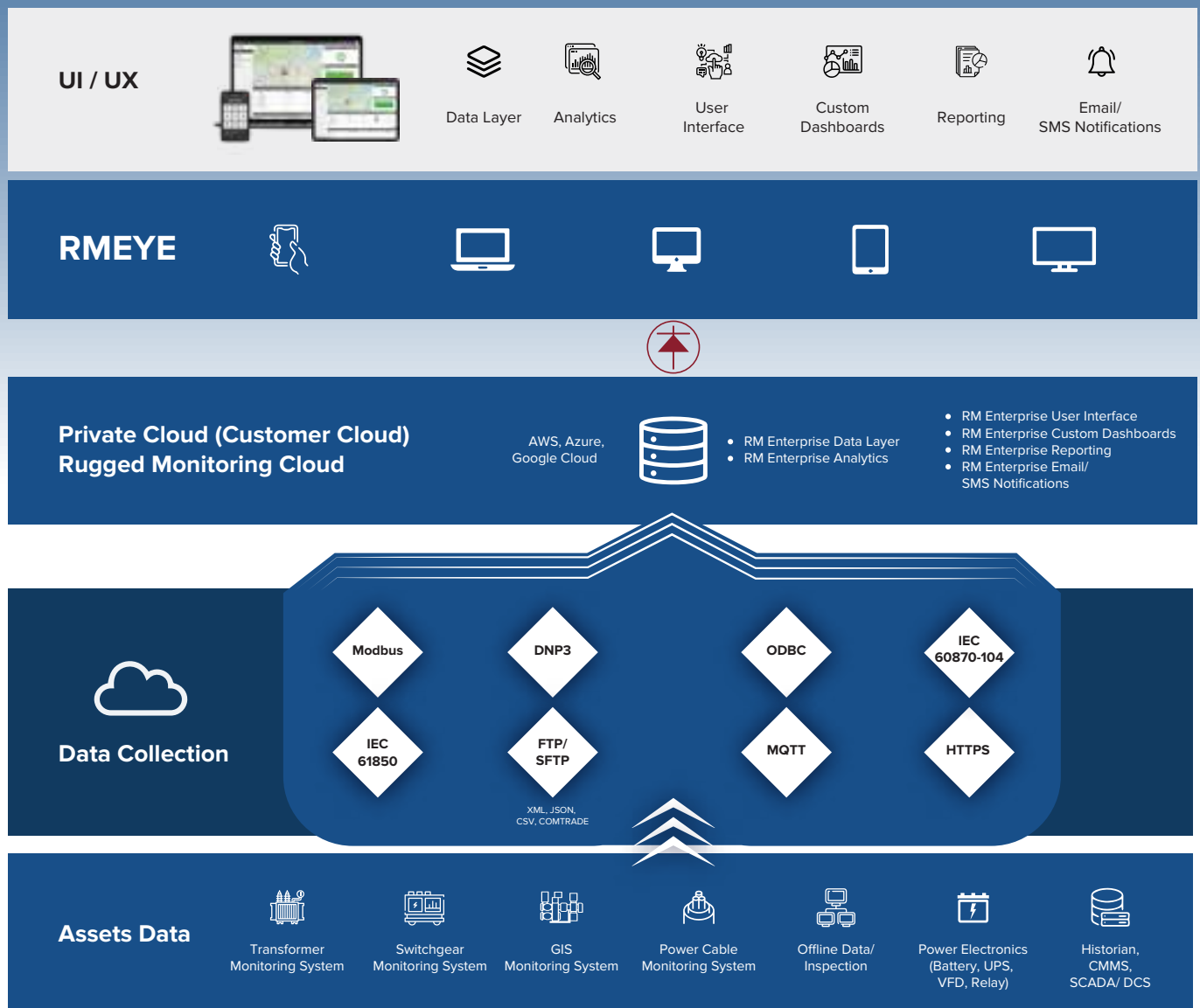
RM EYE Enterprise APM Suite

RM EYE is our advanced Asset Performance Management (APM) system designed to provide a scalable and future-ready solution undergoing digital transformation.

With AI-powered data intelligence, it offers comprehensive health indices for various assets across multiple locations. RM EYE surpasses traditional condition monitoring and facilitates a shift from reactive maintenance to predictive maintenance, maximizing asset lifespan and boosting ROI.

With its real-time remote monitoring capabilities, RM EYE equips experts, operators, SMEs, and engineers with real-time insights that support more informed, data-driven decisions. Through a combination of offline, periodic, and online assessments, it effectively lowers maintenance costs, helps avert unexpected failures, and enhances overall operational efficiency.

RM EYE' Architecture

UI / UX

| Data Layer | Analytics | User Interface | Custom Dashboards | Reporting | Email/ SMS Notifications |

RMEYE

Private Cloud (Customer Cloud) Rugged Monitoring Cloud

AWS, Azure, Google Cloud

- RM Enterprise Data Layer
- RM Enterprise Analytics

- RM Enterprise User Interface
- RM Enterprise Custom Dashboards
- RM Enterprise Reporting
- RM Enterprise Email/ SMS Notifications

Data Collection

- Modbus
- DNP3
- ODBC
- IEC 60870-104
- IEC 61850
- FTP/ SFTP
- MQTT
- HTTPS

XML, JSON, CSV, COMTRADE

Assets Data

| Transformer Monitoring System | Switchgear Monitoring System | GIS Monitoring System | Power Cable Monitoring System | Offline Data/ Inspection | Power Electronics (Battery, UPS, VFD, Relay) | Historian, CMMS, SCADA/ DCS |

One Solution for Multi-Site
Multi Asset Monitoring

RM EYE - Unified platform to monitor entire network of electrical assets

Features

- **Advanced asset health monitoring** with analysis and recommendations to increase asset effectiveness in addition to maximizing equipment uptime

- **Modern remote monitoring solutions** provide valuable insights to Multiple Assets at Multiple Sites from time to time

- **Establish a real time and consistent monitoring** by getting the right information into right hands

- **Simple and user-friendly interface** providing easy and fast access to all the features

- **Everything about the asset at one place** The raw data, analysis and recommendations

- **Advanced asset algorithms** for electrical assets to evaluate asset health

- **Advanced reporting technology with automated alerts**

- **An efficient, reliable partial discharge monitoring for all the assets**

- **A detailed comprehensive DGA analysis**

- **Built on well-established remote and cloud-based monitoring technology**

- **Quick configuration** so that you are not required to configure separately.

- **Protocols: IEC 61850, MODBUS, MQTT**

- **Robust integration with 3rd party systems and devices** with industry standard protocols

- **Bulk configuration imports for fast deployment**

- **Encompasses a secure access to data and configuration**

- **QR code scanner on mobile devices**

- **Accessible on web browser and mobile app**

- **Historical data storage and on demand access** via export feature

- **Extended multilingual support** to handle product inquires or troubleshoot problems proactively

- **Systematic fleet management analysis**

- **Offline test data integration and analysis**

A plan for Success
Our Customers are well satisfied with the advisory services that we offer to help them with best in class technological performance and a long durable life.

Why Customers **Choose Us**?

RM solution, the trusted monitoring solution for over 10000+ assets across 50+ countries. We are a leading High Value Electrical Asset Monitoring Company integrating fibre optic technology to the assets.

Experts only
We bring-in our diversified experienced team with over 100+ years of experience in Asset Monitoring

Money Matters
We protect you against currency fluctuation with competitive and fair market prices

Meeting Deadlines
Work with us, and you'll work with seasoned professionals – vigilant of deadlines, and committed to exceeding client expectations.

Our Presence **Across the Globe**

Head Office

🇨🇦 **Canada**

1415 Frank-Carrel, Suite 230, Quebec, QC - G1N 4N7, CANADA

📞 +1-418-767-0111

Asia Pacific | China | India | Middle East and Africa | Europe | North America | Latin America

Certification

ISO 9001	ISO 14001	ISO 45001/ OHSAS 18000	Llyod's Register	ATEX Certification	NIST Certification

⚙️ **Rugged Monitoring Services**

Rugged Monitoring provides customization of sensors, monitors & software. In addition we offer on-site commissioning services, maintenance contracts and technical support to all customers worldwide.

ℹ️ **About Rugged Monitoring**

Industry's leading team of asset condition monitoring experts with 100+ years of combined experience committed to delivering customizable solutions for challenging applications. We offer a range of reliable, high performance, customizable sensors and monitoring solutions that are immune to external influence.

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