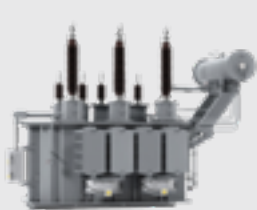


RM CONDITION MONITORING SOLUTION

Transformer



Gas Insulated Switchgear



MV Panel Switchgear



Air Insulated Switchgear



Rotating Machines



Power Cable



Comprehensive, Most Versatile, Electrical Asset Monitoring with advanced Sensors, Monitors and Remote Monitoring Software

TRANSFORMER

Rugged Monitoring offers advanced monitoring solution for transformers to increase asset life and gain higher ROI

1 Transformer Condition Monitoring

Complete Transformer Condition Monitoring System

- Hot Spot Temperature Monitoring
- Partial Discharge Monitoring
- Bushing Monitoring (Tan Delta and Capacitance)
- OLTC Contact Wear & Monitoring
- Cooling System Monitoring
- Dissolved Gas Analysis



R501

2 Fiber Optics Temperature Sensor & Monitor

Rugged high dielectric FO sensors (TSENS), T301 monitor with PRP redundancy, and accessories



3 Bushing Sensor & Monitor

Cost effective solution for Bushing tan-delta, capacitance, transformer PD monitoring



4 PD sensors & Monitors

Wide range of PD sensors (HF, UHF, Acoustic) & Monitors for periodic testing & online monitoring.



5 Dissolve Gas Analyzer

Easy integration with all DGA systems available in industry.



6 Condition Monitoring Software

- Health Assessment Analytics
- Transformer Health Index
- Transformer Risk Index
- Transformer Criticality Index

7 Our Services

Expert Reporting & Recommendations from industry experts.



Monitoring Software
RM EYE

MEDIUM VOLTAGE SWITCHGEAR

Monitoring and tracking switchgear performance is important for an efficient and increased asset lifetime

1 Switchgear Condition Monitoring

Complete Switchgear Condition Monitoring system such as

- Real Time Temperature Monitoring
- PD Monitoring
- Switching system monitoring
- SF6 monitoring
- Moisture monitoring



R501

2 Fiber Optic Temperature Sensors & Monitors

Highly dielectric Temp sensors & cyber security proof monitors



3 PD Monitoring

Cost effective PD sensors & monitors for busbar, breaker & cable termination compartments



4 Condition Monitoring Software

- Health Assessment Analytics
- Switchgear Health Index
- Switchgear Risk Index
- Switchgear Criticality Index

5 Our Services

Expert Reporting & Recommendations from industry experts.



Monitoring Software
RM EYE

GAS INSULATED SWITCHGEAR (GIS)

Reliable monitoring solution for all the critical parameters in GIS

1 Switchgear Condition Monitoring

Complete GIS condition Monitoring system such as

- PD Monitoring
- SF6 Monitoring
- Breaker Monitoring
- Disconnecter Monitoring
- CT/VT Monitoring



R501

2 GIS PD Monitoring

Highly sensitive and custom designed PD sensors and monitors for new and retrofit GIS.



3 SF6 Monitoring

- Analytics for reducing SF6 filling cost & One Click SF6 emission reporting
- SF6 Leak Rate
- SF6 Time to Refill
- SF6 Time to Lockout
- Moisture / Dewpoint



4 Breaker / Disconnecter Monitoring

Realtime monitoring of switching mechanism and control cubical

- Trip and close timing analysis
- Stored energy Analysis
- Travel Curve Analysis
- Contactwear analysis



5 Condition Monitoring Software

- Health Assessment Analytics
- GIS Health Index
- GIS Risk Index
- GIS Criticality Index

6 Our Services

Expert Reporting & Recommendations from industry experts.



Monitoring Software
RM EYE



ROTATING MACHINES (DOL MOTOR, VFD MOTOR, GENERATOR)

Turnkey monitoring solution with greater diagnostic capability to analyze crucial parameters of your rotating machines

1 Rotating Machine Condition Monitoring

Complete Rotating Machine Condition Monitoring system such as

- Current signature analysis (CSA)
- PD Monitoring
- Temperature Monitoring
- Vibration monitoring
- Flux monitoring
- Air gap monitoring



R501

2 PD monitoring

Wide range of capacitive couplers and advanced PD monitors for direct online (DOL) & variable frequency Driven (VFD) machines



3 FO Temperature Sensors & Monitors

T301 - For Hot Spot Temperature monitoring with PRP redundancy and OEM agnostic features

- Stator Winding
- Hot Spot Monitoring



4 Integration with other monitoring system

Faster & Easy integration with motor monitoring system available in the industry (CSA, Flux, Vibration, Air gap)

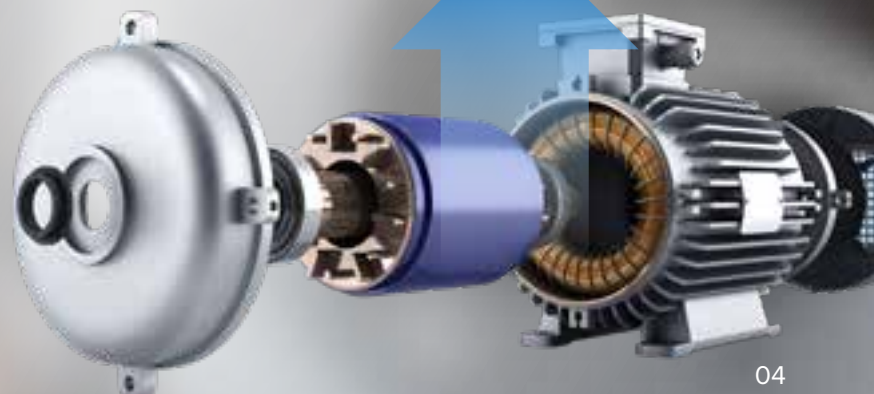
5 Condition Monitoring Software

- Health Assesment Analytics
- Rotating Machines Health Index
- Rotating Machines Risk Index
- Rotating Machines Criticality Index

6 Our Services

Expert Reporting & Recommendations from industry experts.

Monitoring Software RM EYE



POWER CABLE

Real time monitoring of cable terminations and joints for early fault detection, notification and enables condition based maintenance of power cables

1 Power Cable Condition Monitoring

Complete Power Cable Condition Monitoring system such as

- Real Time Temperature Monitoring
- Joint PD Temperature Monitoring (cable upto 400kV system)
- PD Monitoring
- Sheath Current monitoring



T501

2 PD Monitoring

Highly sensitive and accurate PD monitoring & Fault localization



3 Temperature monitoring

Easy to install FO temperature sensors for new & retrofit terminations & joints



4 Sheath Current Monitoring

Advanced sensors & monitors for all voltage levels



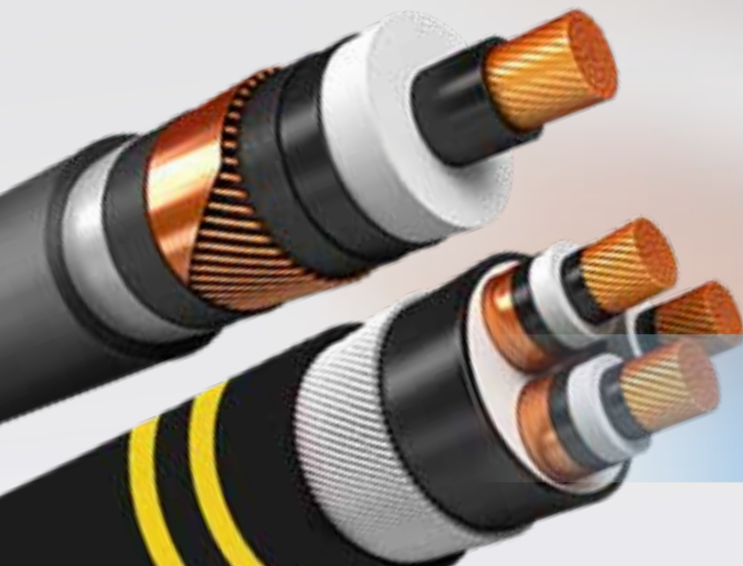
5 Condition Monitoring Software

- Health Assessment Analytics
- Power Cable Health Index
- Power Cable Risk Index
- Power Cable Criticality Index

6 Our Services

Expert Reporting & Recommendations from industry experts.

Monitoring Software RM EYE



Asset Monitoring : Enterprise Architecture

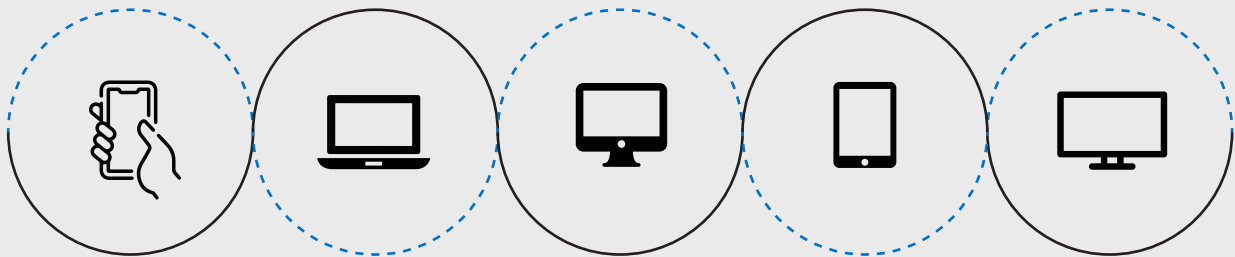
Compatible with Rugged Monitoring Enterprise Solution

UI UX



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

RM EYE



Private Cloud (Customer Cloud),
Rugged Monitoring Cloud

IEC 60870-104

IEC 61850

FTP/SFTP

- XML, JSON
- CSV, COMTRADE



Data Collection

ODBC

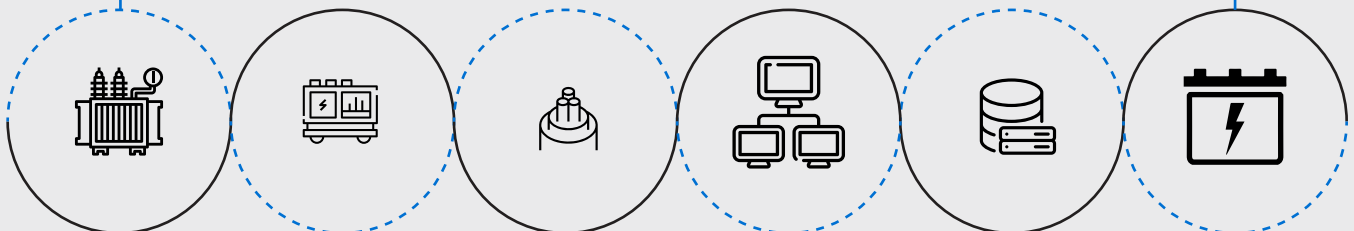
MODBUS

DNP 3.0

HTTPS

MQTT

Asset Data



Transformer
Monitoring
System

Switchgear
Monitoring
System

Power Cable
Monitoring
System

- Offline Test Results
- Inspection Records
- Name Plate

- Historian
- CMMS
- SCADA/ DCS

Power Electronics
(Battery, UPS,
VFD, Relay)




Our Presence Across the Globe



Head Office

 **Canada**

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

 +1-418-767-0111

[Asia Pasific](#) | [India](#) | [Europe](#) | [Latin America](#) | [Middle East](#) | [North America](#)

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.

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.



 [ruggedmon](#)

 info@ruggedmonitoring.com

 www.ruggedmonitoring.com

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