



The RMM (Rotating Machine Monitor) is a microprocessor-based device that continuously monitors the insulation system as well as other parameters such as power, thermal and mechanical condition of a medium voltage motor, turbine generator or Hydro generator. The basic standalone unit shown in the picture consists of three modules (from the left to the right): Power Supply, main CPU module and a 15-channel partial discharge module.

The basic unit may be extended with additional modules allowing for more economical or accurate way of monitoring multiple objects. RMM can have up to six PD modules allowing monitoring up to six motors (within allowable signal cable distance) with one monitor.

A separate vibration module may be installed and used in conjunction with the four vibration signal channels located on the main CPU module. This will allow for remote vibration monitoring of the machine and the load if other vibration monitoring equipment is not installed.

The RMM offers a variety of additional inputs/outputs for monitoring temperatures, humidity, pressures, motor frame or shaft vibrations, shaft currents, flux probe, voltages and currents along with partial discharges. With four dry C-form relay contacts and a 4-20 mA output, the RMM can easily be connected to the plant DCS or SCADA system.

Three communication interfaces including USB, Ethernet and an Isolated RS-485 providing flexibility for monitor networking, as well as for easy local communication to the instrument. All configuration and other features of RMM are available for any higher level plant automation system over MODBUS RTU communication protocol.

The RMM comes with IHM (Insulation Health Monitoring) software for data presentation and analysis and maintenance planning.



Electrical Diagnostic Innovations, Inc.

Technical Specifications	
Application	Medium voltage motors and generators
Modules	Three: Power supply, Main, PDM
Mechanical dimensions, total	7"x7"x4.5", DIN rail mount
Power supply	100 – 240 VAC, 50/60 Hz
Operating temperature	-30°C - +70°C
Partial Discharge module (PDM) Inputs/Interfaces	
PD sensor inputs	15 (EDI offers variety of PD sensors))
External synchronization input	1
Hardware noise filters flexibly configurable	By Amplitude, by Polarity, by Time Of Arrival
Interface	USB, RS-485
Internal data memory	8 MB (over one year of data)
Display/Keypad	Optional over DB25 connector
PDM Modules total	Up to six
Communication protocol	MODBUS RTU and proprietary
Main CPU module Inputs/Outputs/Interfaces	
Temperature inputs	7 from RTD 100Pt
Ambient humidity input, RH%	1 (EDI sensor required)
Vibration inputs	4 (EDI sensor required)
4-20mA Inputs	6 (can be flexibly used for smart sensors)
Current input	3 (EDI 5 Amps current sensor required)
Voltage input	3 (120 VAC)
4-20mA output (passive)	1
C-form relay output	4
Ethernet, USB, RS485 (isolated)	One of each interface
Display/Keypad	Optional over DB25 connector
On board data memory	8 MB
Communication protocol	MODBUS RTU and proprietary
Signal cable length (RG-58)	Up to 100 m
EDI PD sensors for rotating equipment	
80 pF Coupling Capacitor	5kV, 7.2kV, 16kV, 27kV
Solid core radio-frequency current transformer	0.9" ID
Split core radio-frequency current transformer	Split-core 2.6" ID, clamp-on 0.95" ID
PD-RTD module	Three or six RTD inputs per module

Electrical Diagnostic Innovations, Inc
 14109 54th Ave North - Plymouth, MN 55446
 www.elec-di.com e-mail: edi@elec-di.com
 612-963-0974

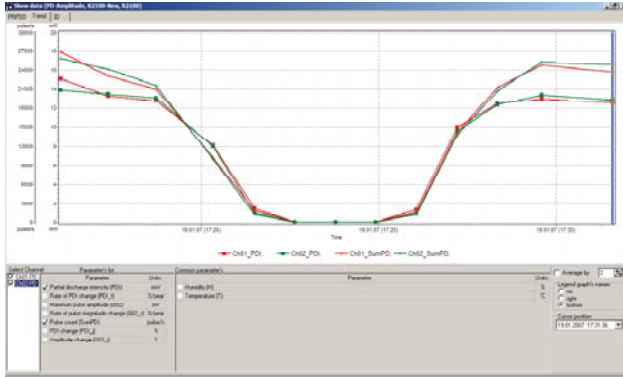
*Improving Plant and Equipment Reliability
 Through Innovation and Service*



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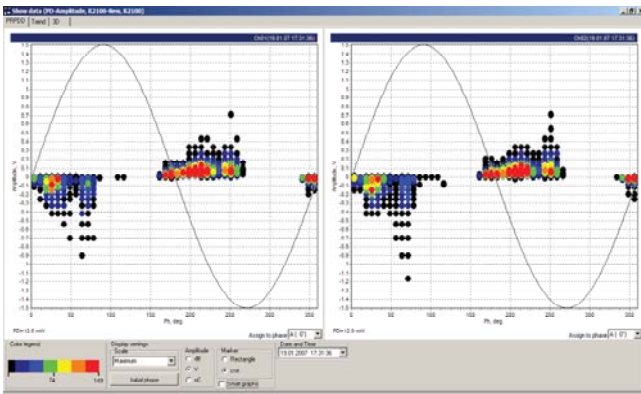
IHM Software for RMM

The IHM (Insulation Health Monitoring) is a versatile software product supporting all EDI Inc. portable instruments and continuous insulation condition monitoring systems that may be found on HV transformers, MV motors, switchgear, cables and other. IHM allows configuring instrumentation, downloading and storing the data into PC memory and data presentation and analysis.



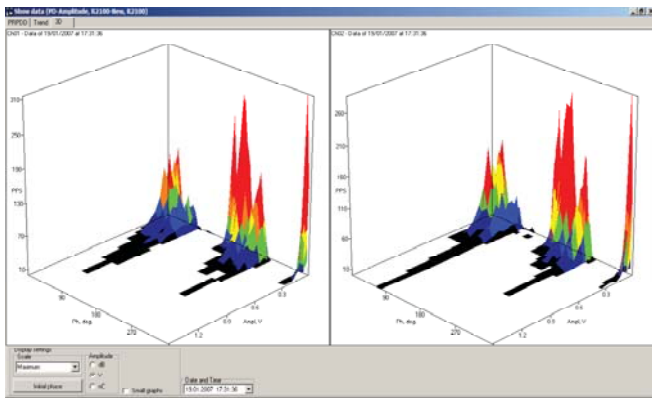
Screenshot of the trending plot for the RMM

Multiple additional parameters may be recorded and stored by RMM along with partial discharges. Trending display allows for viewing historical data and correlation between various measured characteristics.



Screenshot of the PRPDD plot for the RMM

PRPDD plot is an effective way to analyze a type of partial discharge, PD assignment in three-phase voltage system and other PD characteristics.



Screenshot of the 3-D plot for the RMM

This is a common way to present phase-resolved partial discharge data and investigate its structure.