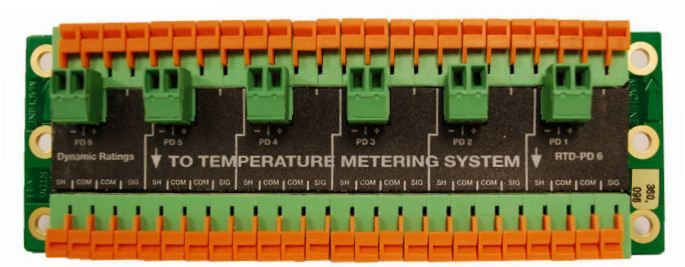
Vibro-Meter®

RTD partial discharge module

Model RTD 600



Key features

- Interface module for easy connection of RTD sensors as inputs to the PDM 150 monitoring system, from Meggitt Sensing Systems
- Up to 6 RTD sensor inputs per module
- Field mountable for installation close to existing RTD wiring access points

The RTD 600, from Meggitt's Vibro-Meter product line, is an interface module that enables existing RTDs (resistance temperature detectors) embedded in the windings of generators and motors to be used as additional partial discharge (PD) sensors to complement power coupling capacitors (CCs).

A partial discharge is a localized electrical discharge in an insulation system that does not completely bridge the electrodes. PDs usually occur in voids and gaps in high-voltage insulation and are a leading indicator of insulation breakdown and can lead to destruction, if not addressed.

Coupling capacitors installed at the line terminals of a machine have a limited visibility into the machine windings, with a typical coverage of only 10 to 15%. However, the use of RTD sensors embedded in the windings of generators and motors as additional PD sensors can allow a monitoring system to see much more of the machine's windings.

Using Meggitt's RTD 600, the existing RTD wiring essentially acts as an antenna for other signals in close proximity. As a PD pulse travels in the vicinity of the RTD wiring, the PD energy is coupled to the RTD wiring. The pulse then follows the RTD wiring out to the RTD in common mode (between the RTD wires and ground) where the PD pulses are detected in the wiring and transmitted to the PDM 150 monitoring system for additional signal processing.

The RTD 600 is a passive device, and is installed in series with the existing RTD wiring (see figure below). Installation and use of the RTD 600 does not affect the primary purpose of the RTDs as winding temperature monitors. Typically, the RTD 600 replaces the terminal strip in the machine junction box.

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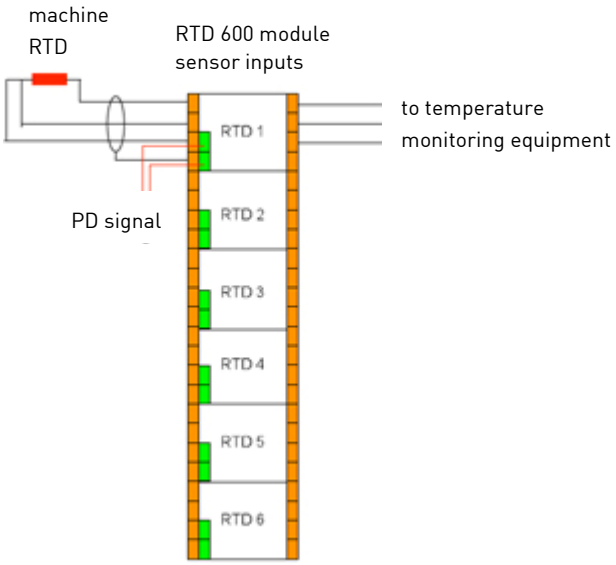

Specifications

Operating	**Power supply**	None required
Inputs	**Sensor inputs**	6 RTD inputs
Environmental	**Temperature range**	-22 to +158°F (-30 to +70°C)
Physical	**Mounting**	Holes are provided for direct mounting or a DIN rail mounting bracket (supplied) can be used for DIN rail mounting
Physical	**Mounting dimensions**	
	Height	6.0 in (152 mm)
	Width	3.0 in (76 mm)
	Depth	0.5 in (13 mm)

Ordering information

Item	Model	Ordering number
6-channel RTD partial discharge module	RTD 600	8001081

Contact

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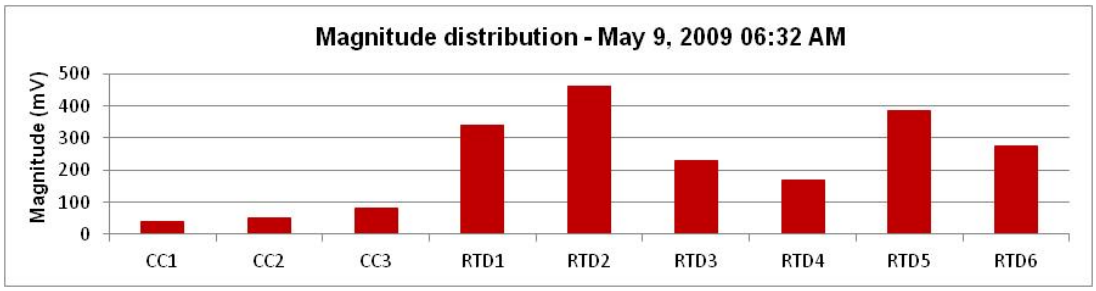
Installation

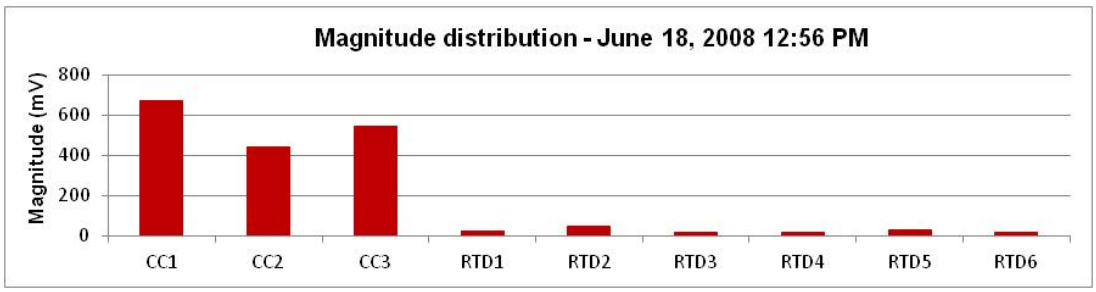
A typical generator will have anywhere from 6 to 12 RTDs, while larger turbine generators can have as many as 50 to 60. In most cases, 6 to 12 RTDs are sufficient for use as PD sensors. Typically, 60 to 70% of a winding can be covered utilizing RTDs in conjunction with CCs.

Meggitt Sensing Systems discourages using a sensing network of just RTDs or just CCs. Instead, it is strongly recommended that both are used to create a complementary network of sensors. In this way, CCs detect PD that may be occurring near the line terminals and the RTDs detect PD that may be occurring deeper in the windings. A combined sensor network provides the increased coverage necessary for an effective PD monitoring system and greatly increases the probability of early detection.

For example, industrial applications have shown many cases where the PD levels are found to be higher from the RTD sensors than from the CCs.



Similarly, there are many cases where PD levels are found to be higher from the CCs.



Applications information

Partial discharge monitoring is for generators and motors used in industrial power generation systems

In order to provide a complete PD analysis system, the RTD 600 is typically used in conjunction with the CC 3xx series of CCs and the PDM 150 monitoring system and software.

For specific applications, contact your Meggitt Sensing Systems representative.