Ground Detection System (GDS)

Continuous Generator/Motor Rotor Ground Fault Protection

Applications

- Continuous monitoring of rotor ground faults on generators and motors

Highlights

- Transmitter and pickup coil for non-intrusive end of shaft mounting
- Detection of a ground fault when insulation resistance drops below a fixed alarm threshold of 10k Ohm
- Continuous monitoring of faults while rotating or at standstill
- Built-in self diagnostics, malfunction alarm, and open wire detection enhance operator confidence in proper functioning of system

The Ground Detection System (GDS) provides reliable, continuous, wireless detection of insulation faults on the field windings of brushless generators and motors. Advanced ground fault measurement techniques combined with the latest innovations in digital telemetry detect field ground faults before a catastrophic failure occurs, reducing the risk of unscheduled outages and allowing predictive maintenance procedures to be performed.

Undetected field ground faults can result in severe damage to rotor insulation and forgings. Such faults can lead to costly rotor repairs and prolonged forced outages. The GDS provides operators with a valuable tool for early detection of these faults. With the GDS, maintenance can be performed at scheduled outages, allowing implementation of a back-up plan prior to shutdown.

The system connects to the field negative terminal and the shaft ground to measure the insulation resistance of the field winding. Unlike other ground detectors, the alarm threshold always represents a fixed level of fault severity and does not change with fault location or excitation voltage. LED diagnostic indicators and self-test capabilities enhance operator confidence in the proper functioning of the system.

The AT-8600 Ground Detection System gives operators of generators or synchronous motors with brushless exciters peace of mind and the assurance that a ground fault is not causing hidden damage that could lead to an unexpected and costly long-term outage.

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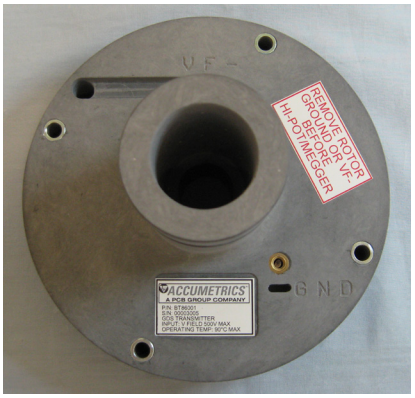
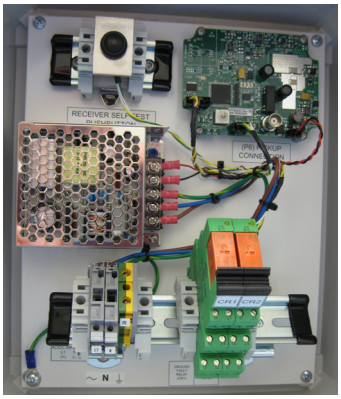
Pickup coil (supplied with 2 meter coaxial cable length)



Rotor-mounted transmitter



Receiver in NEMA 4 enclosure

AT-8600 Series Technical Specifications

Rotor Connections	Field Negative Terminal	
	Rotor Earth/Ground	
Field Voltage	Measurement Range	0 to 750 VDC
	Maximum Transient without Damage	1500 V for 5 seconds
Receiver Output Indicators	Alarms	Ground Fault and optional System Malfunction, 2 – Form C relay 6 A / 250 VAC contacts
	LEDs	LED indicators to aid in identifying a ground fault, malfunction, or self-diagnostic status
Environment	Ambient Temperature	-40 °F to 194 °F / -40 °C to 90 °C at Transmitter Module/Pickup Assembly -40 °F to 140 °F / -40 °C to 60 °C at Receiver Unit
	Axial Travel	+/- 6.5 mm (+/- 0.25 inch) from nominal operating position
	Rotor Speed	0 to 3600 RPM nominal; 4320 RPM Max
Power		100–200 VAC, 50/60 Hz, or 24 VDC
Receiver Alarm Outputs	Ground Detection	Alarms when insulation resistance falls below 10k Ohm (± 10%) User-adjustable alarm delay from 5 seconds to 22 seconds
	Malfunction	Alarms when there is a loss of power, failure of receiver, loss of data, open wire detection
	Alarm Interfaces	Form C relay 6 A / 250 VAC

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About Accumetrics

Accumetrics Inc., an MTS Systems Corporation, designs and assembles digital telemetry systems that transmit sensor data from rotating structures using wireless techniques, preserving the integrity of the data even in environments with high levels of electromagnetic interference.

We can provide a range of solutions from single channel products, such as strain gage torque measurements, to advanced multichannel systems that transmit data from hundreds of sensors.

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