Building on more than three decades of proven field experience, and incorporating international requirements for hazardous area locations, the Generator Condition Monitor—Explosion-Proof Design (GCM-X) assures a new level in performance, reliability, and safety.

**HOW THE GCM-X WORKS.**

High concentrations of submicron particles (pyrolytic products) are produced whenever any materials within the generator are heated sufficiently to produce thermal decomposition, due to arcing or other failure modes. These “hotspots” can lead to catastrophic failure if not detected in a timely manner. When they are present in hydrogen, pyrolytic products are quickly detected by the sensitive ion chamber of the GCM-X. In fact, the GCM-X offers a wider range of coverage and warns of impending failure faster and more reliably than temperature sensors such as RTDs or thermocouples, which need to be physically near the hotspot, or wait until overheating progresses to the point that the temperature near the RTD or thermocouple rises sufficiently for the sensor to detect it. This results in a significantly larger “fault,” possibly a catastrophic one.

Upon the detection of hotspots, the GCM-X microprocessor initiates and monitors an automatic alarm sequence, activating the solenoid valve in the filter/solenoid valve assembly. Hydrogen passes through the filter, which removes the submicron particles allowing the ion chamber detector to return to its normal level, confirming the presence of the pyrolytic particles and the existence of overheating. Once the alarm is confirmed, a verified alarm indication is given; alarm contacts are switched; and a fixed amount of the hydrogen flow automatically passes through the sampling system. Particles are then collected for laboratory analysis to determine their source.

**FEATURES AND BENEFITS**

- Microprocessor-based with self-diagnostics
- Flameproof, intrinsically safe design
- Differential pressure transmitter for stable flow control
- Dual bar graphs for flow and output
- Separate warning and trouble indicators
- Automatic alarm verification
- Optional remote control/display and communication
- Easy installation
- Maintenance-free operation

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