

Flame Tracker*

Flame Tracker improves performance and availability of your gas turbine

Designed for Peak Performance and Reliability

GE's Silicon Carbide (SiC) Flame Tracker dramatically improves gas turbine performance while significantly reducing maintenance requirements. Available on all new GE gas turbines, the Flame Tracker flame sensor's optical photodiode is designed for use with multiple fuels, low NO_x combustors and steam injection. Reliable turbine operations for steam injection applications require the sensitivity provided by Flame Tracker.

Advantages

High Sensitivity, Fast Response

Flame Tracker, with its SiC photodiode, has high sensitivity to the longer UV wavelengths that easily penetrate the fog of fuel and steam. This is advantageous over typical flame sensors that are sensitive to only the short UV wavelengths. In addition, the SiC sensor has an analog output with a very wide dynamic range and rapid response time. These features offer the ability to quickly—in less than 25 milliseconds—report flame status. This means interruption-free service and improved availability.

Reduced Maintenance

The Flame Tracker flame sensor is equipped with quick disconnect connectors, allowing sensor replacement time to be reduced from hours to minutes. Its improved sensor-cooling feature lowers the impact of surrounding heat and extends the life of electronics.

Customized Conversion Kits

GE supplies customized flame sensor conversion kits for all turbine configurations. These sensor enhancements are mechanically and electrically interchangeable with existing systems. The kit solution simplifies upgrading older, maintenance-intensive systems to the superior performance of GE's Flame Tracker.

Multiple Applications

Designed to replace existing sensors, the Flame Tracker is applicable to all GE land-based and marine-based gas turbines, regardless of size. In addition, it is ETL, ATEX, and IECEx certified.

Reliable, Low Voltage Operation

Providing a 4–20 mA industry-standard output signal, the Flame Tracker operates reliably with any fuel—with or without steam injection. Unlike older flame sensors that require high voltage for operation, the Flame Tracker requires low voltage, which eliminates special wiring and explosion-proof conduit requirements.

Performance Benefits

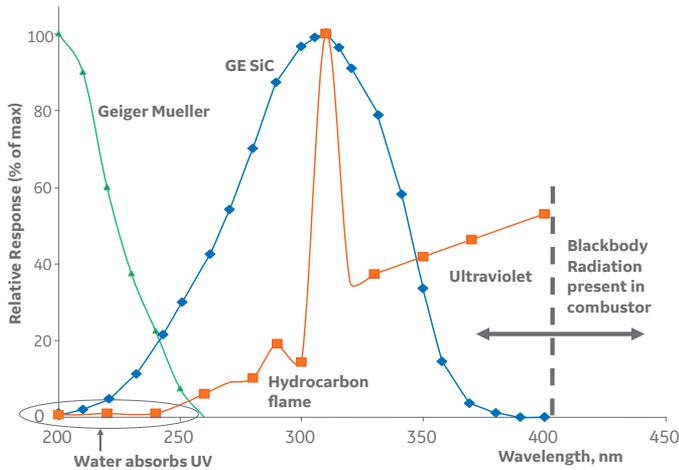
- Provides reliable operation when using any fuel
- Allows full operation during the water wash cycle
- Reduces maintenance time
- Operates on low voltage
- Provides rapid response to flameout
- Produces a wide dynamic range
- Customized conversion kits
- Meets all NFPA guidelines for flame detection on gas turbines
- Delivers 10 times the sensitivity of tube-style sensors



Specifications

Sensor Responsivity and Hydrocarbon Flame Emission Spectrum

Spectral Response



— Flame Emission

— Geiger Mueller

Sensitivity at shorter wavelengths is a poor match for the high intensity flame peak.

— GE SiC

Peak sensitivity closely matches the key flame peak at 310 nm.

Operating

Power Requirements	24 VDC nominal, 12-30 VDC @ 100 mA
Output	4-20 mA (a module to convert output to other controller inputs is available)
Response Time	< 25 milliseconds
Temperature Range	-20°F to +300°F (-30°C to +150°C) ⁽¹⁾ , 455°F (235°C) with specified water or air cooling
Process Pressure	To 400 psig (2.8 MPa)
Sensitivity	5 mA @ 1x10 ¹⁰ photons/in ² /sec. @ 310 nm

(1) Thermal shutdown of the cool end occurs at 150±10°C

Material

Body Mount	AISI 316 Stainless Steel
Housing	AISI 304 Stainless Steel (sealed and Argon filled)
Mechanical Interface	3/4" NPT female
Electrical Connector	MIL-C-38999 Series III size 15 (5pin)
Sensor	Silicon Carbide (SiC) photodiode



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