

## Designed for Peak Performance and Reliability

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

### High Sensitivity, Fast Response

Flame Tracker, with its patented SiC photodiode, has high sensitivity to the longer UV wavelengths that easily penetrates 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 - track flame dynamics, including flameout. This means interruption-free service and improved availability.

### Minimal 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 minimizes 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 the upgrade of older, maintenance-intensive systems to the superior performance of GE Energy's Flame Tracker.

### Multiple Applications

Designed to replace existing sensors, the Flame Tracker is applicable to all land-based and marine-based gas turbines, regardless of size. In addition, it is internationally approved for UL and CE applications.

### 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.

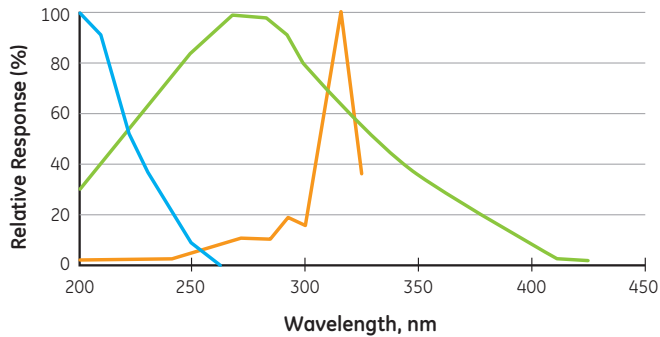
### Performance Benefits

- Provides reliable operation when using any fuel
- Eliminates signal flicker
- 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
- Offers easy, customized conversion option
- Customized conversion kits
- Meets all NFPA guidelines for flame detection on gas turbines
- Delivers 10 times the sensitivity of tube-style sensors



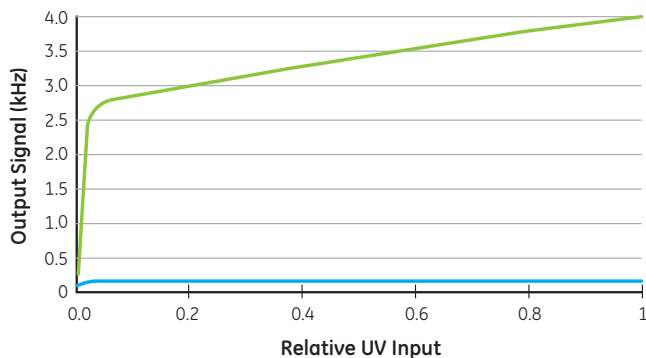
# fact sheet

## Sensor Responsivity and Hydrocarbon Flame Emission Spectrum



- **Flame Emission**
- **GE SiC Flame Detector**  
Optical & electrical characteristics closely match flame emissions UV
- **GM (Geiger-Muller) Tube**  
Peak sensitivity is at 190 nm, while flame intensity peak is 310 nm

## Instrument Response at 254 nm for GE SiC Sensor & GM (Geiger-Muller) Tube



- **GE SiC Sensor**  
Broad dynamic operating range permits measuring intensity and supports trending evaluation
- **GM (Geiger-Muller) Tube**  
Limited dynamic range  
Only provides on/off flame detection

## Specifications

### 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) 455°F (235°C) with specified water or air cooling |
| Process Pressure   | To 400 psig (2.8 MPa)   |
| Sensitive          | 5 mA @ 1x10 <sup>10</sup> photons/in <sup>2</sup> /sec. @ 310 nm                    |

### Material

|            |  |
|------------|--|
| Body Mount | AISI 316 Stainless Steel   |
| Housing    | AISI 304 Stainless Steel (sealed and Argon filled)   |
| Connector  | <ul style="list-style-type: none"> <li>- Process 3/4" NPT female</li> <li>- Electrical MIL-C-38999 Series III size 15 (5 pin)</li> </ul> |
| Sensor     | Silicon Carbide (SiC) photodiode   |



GE Energy  
8499 Darrow Road  
Twinsburg, OH 44087  
1 (330) 425-3755 or 1 (512) 251-4131

rsweb@ge.com

\* Flame Tracker is a registered trademark of General Electric Company.

GEA-13662 Rev B (04/2005)

