

# Flame Sensor Product Solutions

## Decades of Critical Solutions in Harsh Environments

For over 30 years, Reuter-Stokes has been a trusted supplier of Flame Sensors for harsh environment applications. Reuter-Stokes' Flame Sensors are designed for monitoring a wide range of industrial burners and equipment including gas turbines, industrial boilers, steam methane reformers, and many others. These sensors are relied on to improve safety and provide superior reliability for gas turbines to other fired process equipment and are ideal in situations requiring rugged construction and high temperature operation.

### Flame Tracker

Reuter-Stokes' Flame Tracker UV sensor monitors the presence of a flame using ultraviolet light in temperatures up to 150°C (302°F), or 235°C (455°F) with water cooling. The Silicon Carbide (SiC) Flame Tracker is vital for safe operation. Available for a variety of gas turbines, the Flame Tracker flame sensor's optical photodiode is designed for use with multiple fuels, low NOx combustors and steam injection. The Reuter-Stokes Flame Tracker 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. Fast sensor response prevents the possible buildup of unburned fuel.



Reliable and safe turbine operations for the harsh environments in power generation applications require the sensitivity and rugged construction provided by Flame Tracker. This means interruption-free service and improved availability.

Providing a 4–20 mA industry-standard output signal, the Flame Tracker operates reliably with any hydrocarbon fuel, with or without steam injection. Unlike older flame sensors that require high voltage for operation, the Flame Tracker operates on low power, which eliminates the need for explosion-proof conduit, reducing labor for assembly and disassembly.

#### Performance benefits

- Provides reliable operation when using any hydrocarbon fuel
- Allows full operation during the water wash cycle
- Operates on low power
- Provides rapid response to flameout
- Responds to a wide dynamic range
- Customized conversion kits
- High reliability



## FTD 325

The Flame Tracker Dry 325 (FTD 325) senses the ultraviolet (UV) light produced by a flame and signals whether a flame condition exists.

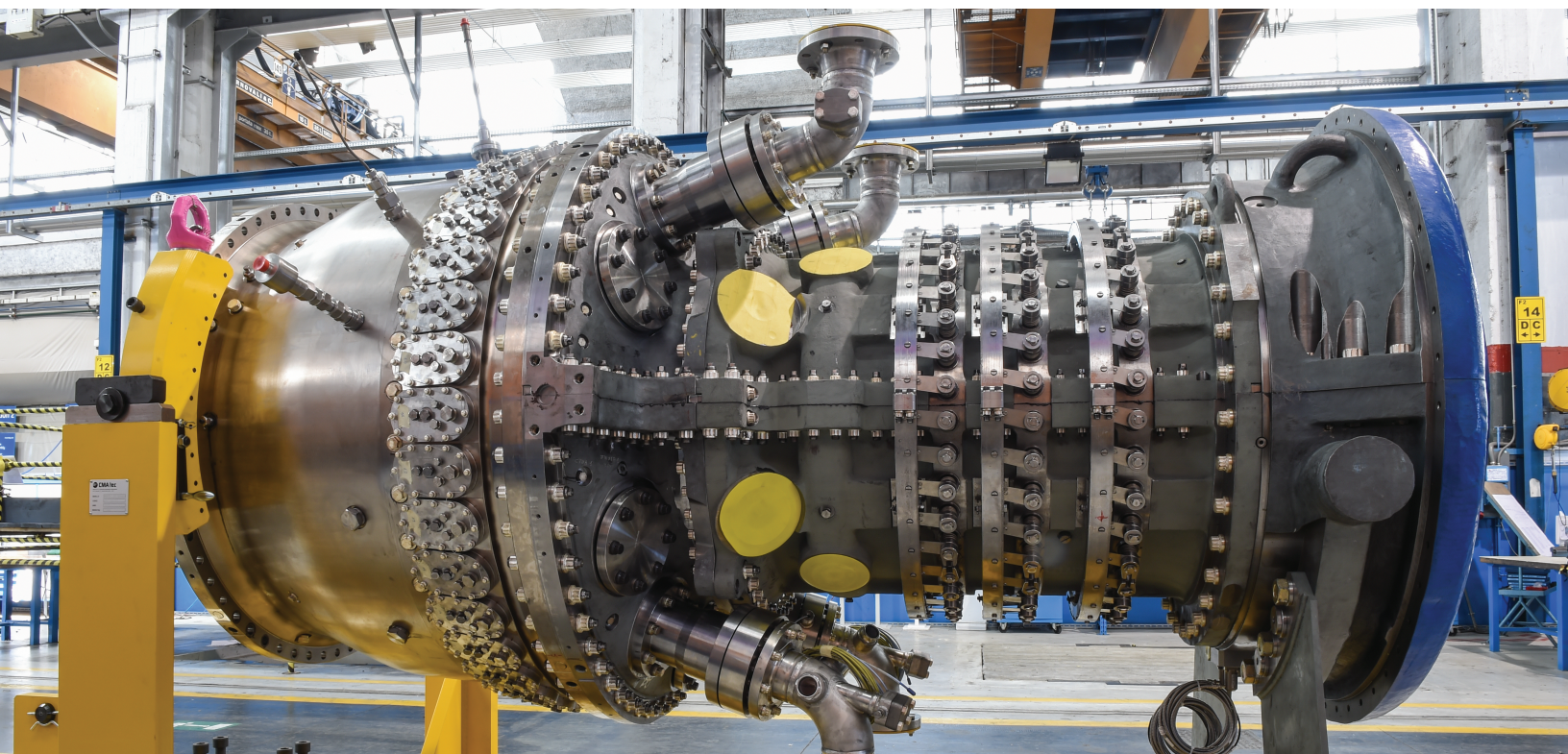
This rugged design reduces maintenance by moving sensitive electronics away from the heat, thereby eliminating the need for water cooling. The hot end has a maximum operating temperature of 325°C (617°F). The Silicon Carbide (SiC) optical photodiode is designed for use with multiple fuels, low NOx combustors and steam injection. The Flame Tracker Dry 325 is applicable to a variety of gas turbine models as well as burner applications with extreme operating temperatures.



One benefit of the Flame Tracker Dry 325 is that it reduces maintenance. For example, there are no water cooling lines, which reduces sensor replacement time and eliminates maintenance of water cooling systems. Similarly, the mineral insulated cable eliminates the need for electrical conduit over the gas turbine and simplifies outages. Another advantage of this product is that condensation is reduced on the secondaries of DLN1 combustion systems due to the high operating temperature. Reuter-Stokes provides this flame sensor as a ready to install, no programming necessary product.

### Performance benefits in sensitivity, response, and reliability

- Proven SiC technology has high sensitivity to longer UV wavelengths and is not susceptible to black body radiation.
- Rapid response time of less than 175 milliseconds. Similar products may take as long as 1.5 seconds to respond, which creates a potentially undesirable situation.
- Built with the same proven sensing technology that has worked in the Flame Tracker for more than 26 years.
- Analog output with a wide dynamic range.
- Patented circuitry
- Simplifies outages
- Eliminates cooling system maintenance



# Catalog Products

While the tables below list the Reuter-Stokes standard product offerings, our team is ready to discuss your specialized needs for any customer product offerings.

## Flame Sensors

Model Name	Part Number	Description
Flame Tracker	RS-FS-9001	Water cooled, max temperature 150°C, hazardous area Zone 2
Flame Tracker	RS-FS-9004	Water cooled, max temperature 150°C, hazardous area Zone 0
Flame Tracker	RS-FS-9006	For aeroderivative gas turbines, max temperature 150°C, hazardous area Zone 2
Flame Tracker Dry 325	RS-FS-9009-03	Remote electronics sensor, no cooling required, max temperature 325°C, hazardous area Zone 2
Flame Tracker Dry 325	RS-FS-9010-03	Remote electronics sensor, no cooling required, max temperature 325°C, hazardous area Zone 0
FTD 325 4.4 Meter	RS-FS-9009-03-173	Remote electronics sensor, no cooling required, max temperature 325°C, hazardous area Zone 2, shortened MI cable for NovalT gas turbines
FTD 325 ILG	RS-FS-9009-03-25X	Remote electronics sensor, no cooling required, max temperature 325°C, hazardous area Zone 2, increased low gain for low intensity light
FTD 325 ILG	RS-FS-9010-03-25X	Remote electronics sensor, no cooling required, max temperature 325°C, hazardous area Zone 0, increased low gain for low intensity light

Reuter-Stokes makes no representations or warranties as to the accuracy of the information for any specific use

## Cables

Model Name	Part Number	Description
Interconnect Cable	RS-E2-0285P001	Right angle connector, 60 feet (18.3 m), 36 inch (0.9 m) armor
Interconnect Cable	RS-E2-0285P003	Right angle connector, 60 feet (18.3 m), 75 inch (1.9 m) armor
Interconnect Cable	RS-E2-0285P004	Right angle connector, 120 feet (36.6 m), 36 inch (0.9 m) armor
Interconnect Cable	RS-E2-0285P010	Straight connector, 60 feet (18.3 m), 120 inch (3 m) armor
Interconnect Cable	RS-E2-0285P011	Straight connector, 60 feet (18.3 m), 36 inch (0.9 m) armor
Interconnect Cable	RS-E2-0285P012	Straight connector, 120 feet (36.6 m), 36 inch (0.9 m) armor
Interconnect Cable	RS-E2-0285P013	Straight connector, 60 feet (18.3 m), 96 inch (2.4 m) armor
Interconnect Cable	RS-E2-0285P021	Right angle connector, 15 feet (4.6 m), 36 inch (0.9 m) armor, burner applications

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## General Kits

Model Name	Part Number	Description
Flame Tracker Kit	RS-E2-0266G006	RS-FS-9001, RS-E2-0285P011 cable, cable grip kit, UV pen
Flame Tracker Kit	RS-E2-0266G016	RS-FS-9001, RS-E2-0285P011 cable, cable grip kit, E1-0062P005 primary sight tube
Flame Tracker Kit	RS-E2-0266G025	RS-FS-9001, RS-E2-0285P011 cable, cable grip kit, cooling coil, UV pen
FTD 325 Kit	RS-E2-0266G088	FTD 325, RS-E2-0285P011 cable, UV pen
FTD 325 Kit	RS-E2-0266G090	FTD 325, RS-E2-0285P011 cable, clamp, lock nut, bolt, 4 each all items

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## Geiger Muller Upgrade Kits

Model Name	Part Number	Description
FTD 325 Upgrade Kit	RS-E2-0266G097	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For aeroderivative gas turbines.
FTD 325 Upgrade Kit	RS-E2-0266G098	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For aeroderivative gas turbines.
FTD 325 Upgrade Kit	RS-E2-0266G092	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For heavy duty gas turbines and non-DLNI combustion systems.
FTD 325 Upgrade Kit	RS-E2-0266G091	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For heavy duty gas turbines and non-DLNI combustion systems.
FTD 325 Upgrade Kit	RS-E2-0266G099	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For heavy duty gas turbines and DLNI combustion systems.
FTD 325 Upgrade Kit	RS-E2-0266G100	Kit to upgrade from Geiger Muller sensors to FTD 325 sensors. For heavy duty gas turbines and DLNI combustion systems.

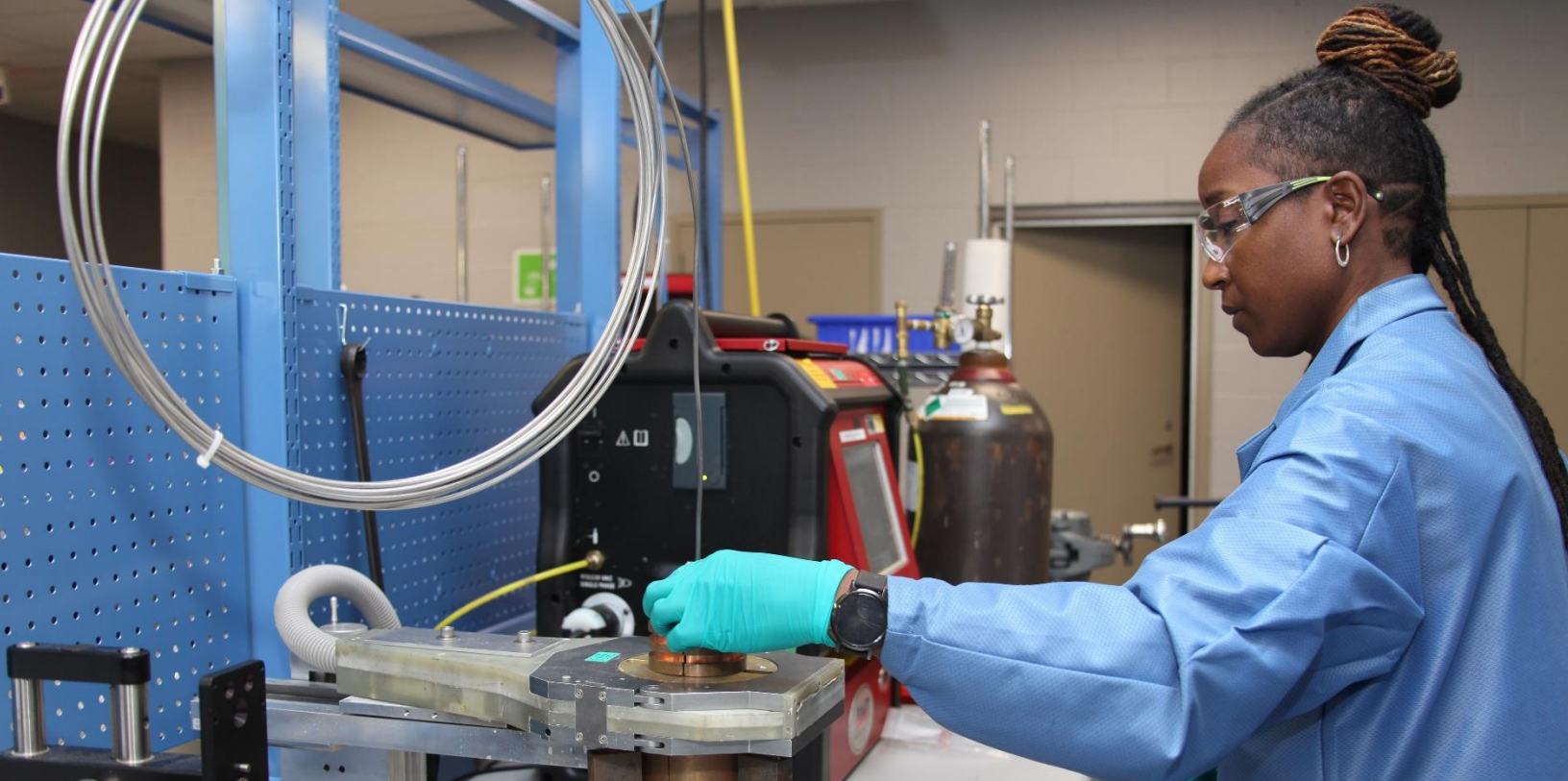
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## Accessories

Model Name	Part Number	Description
Relay Module	RS-FS-9100-RELAY	Converts 4-20 mA to relay output, DIN rail mounted, single channel
UV Pen Light	FS-9000-LP	UV pen light for sensor functional tests
Water Cooling Coil	SP-566	Water cooling coil for use with Flame Trackers
Air Cooling Can Assembly	RS-E2-0259	Air cooling can for use with pressurized air on aeroderivative gas turbines
Sight Tube	E1-0058P002	Sight tube, secondary position on DLNI combustion system, 2.2 inch (5.6 cm) length
Flame Sensor Module, Logic Output	RS-FSM-1002-001	Flame sensor module, converts 4-20 mA to open collector logic output, four channels
Flame Sensor Module, Frequency Output	RS-FSM-1002-002	Flame sensor module, converts 4-20 mA to frequency output, four channels
Cable Spool, 100 Foot	CB-37	18 gauge, shielded twisted pair. For connection of junction box to control system
High Temperature Cable Grip Kit	SP-653	Cable gland to seal the end of electrical conduit around the interconnect cables

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## Contact Us

Reuter-Stokes is dedicated to providing high quality, high reliability equipment to our customers. To support our products, we would be delighted to discuss your flame sensing needs and provide any support necessary.

Please [contact us](#) on our website or speak to a representative by calling +1 330 425 3755.



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