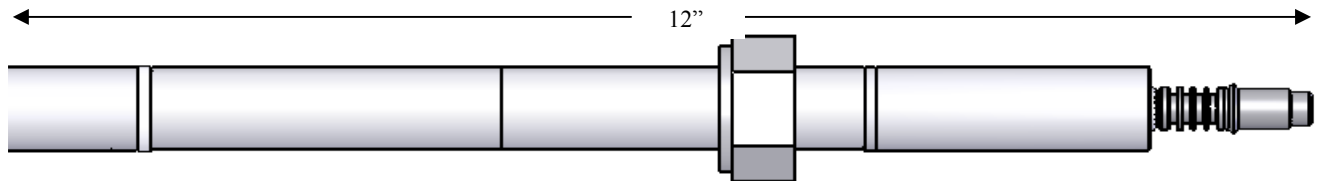


Model GT1400 Frame 9 Transducer Fiber Optic Combustion Dynamics Monitoring



DavidsonSensors™ provide the safest, most reliable and cost-effective instrumentation for harsh industrial applications.

This product data sheet describes Model GT1400 Frame 9 Transducer. This temperature-tolerant transducer has been designed for combustion dynamics monitoring use in GE 9E and 9F gas turbines and does not require any modification to the engine.

Performance Specifications

Frequency Response

2 Hz to 10 kHz +/- 0.4 dB

Pressure Sensitivity

100 mV per psi (nominal)

Pressure Range

+/-10 psi

Static Pressure Limit

1000 psi

Acceleration Sensitivity

< 0.001 psi per g

Thermal Stability

Calibrated for 800° F;
1% per 100° F variance

Thermal Sensitivity

Insensitive to Transient Thermal Events

Transducer Temperature Limit

1200° F

Cable Temperature Limit

550° F

Transducers - Davidson fiber optic pressure pulsation transducers are designed for installation through the turbine casing where the existing acoustic waveguides are installed. The transducer design allows the sensor to be positioned flush with the ferrule that is positioned on the outside diameter of the liner. The transducer housing is flexible to accommodate movement of the ferrule and liner relative to the casing.



Figure 1 – GT1200-9FA Transducer

The sensor is located at the tip of the transducer and has a superalloy diaphragm that functions as an optical interferometer. The diaphragm is protected by a thermal radiation shield and the sensing element is completely enclosed behind the diaphragm in the transducer housing.

The transducers have forty (40) feet of fiber optic cable rated for 550° F. The fiber optic cable is sheathed in ¼" diameter stainless steel armor for mechanical protection. The cables are terminated with ST connectors.

Calibration

Standard calibration includes the following:

Each transducer is calibrated at the factory at room temperature at dynamic pressure of 0.5 psi at 200 Hz.

The calibration factor is normally adjusted for 800° F service temperature.

Documentation

Calibration data sheets are provided for each transducer. A calibration sensitivity curve is provided with each transducer showing its sensitivity at temperatures from 72 to 1000° F

Safety (Transducer with Cable)

Intrinsically-safe and suitable for use in:

- Class I, Division 1, Groups B, C, and D
- Class II, Division 1, Groups E, F, and G
- Class III, Division 1

Other Applications

For information about other Davidson products, see www.davidson-instruments.com

Guide to Configuring a Fiber Optic Sensing System

For information to assist you in planning a fiber optic sensing system, see

www.davidson-instruments.com

U.S. Patents Pending

Davidson Instruments, Inc.
9391 Grogan's Mill Road; Suite A5
The Woodlands, TX 77380 USA

Telephone: 281-362-4900

sales@davidson-instruments.com
www.davidson-instruments.com

© 2012 Davidson Instruments, Inc.