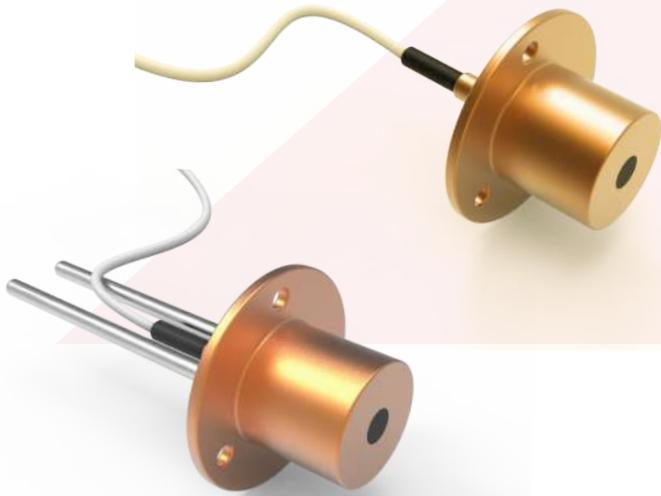


# Heat Flux Sensor



A heat flux sensor is a transducer that generates an electrical signal proportional to the total heat rate applied to the surface of the sensor. The measured heat rate is divided by the surface area of the sensor to determine the heat flux. Careful design, rugged quality construction and versatile mounting configurations. Each transducer will provide a self-generated 10-millivolts (nominal) output at the design heat flux level. Heat Flux gauge absorb heat in a thin metallic circular foil and transfer the heat radially (parallel to the absorbing surface) to the heat sink welded around the periphery of the foil. The emf output is generated by a single differential thermocouple between the foil center temperature and foil edge temperature.

## Technical Parameters

Parameters	Cooled	Uncooled
Heat Flux (maximum)	10, 30 W/cm <sup>2</sup>	10, 30 W/cm <sup>2</sup>
Sensor Output	Linear output, 10mv nominal at full range	Linear output, 10mv nominal at full range
Over Range	25% of Rated Heat Flux	25% of Rated Heat Flux
Accuracy	±5% or Better	±5% or Better
Repeatability	1%	1%
Measurement Duration	60s for 10 W/cm <sup>2</sup>	60s for 10 W/cm <sup>2</sup>
Sensor	Differential Thermocouple	Differential Thermocouple
Dimension	Diameter 25mm, Length 25mm	Diameter 25mm, Length 25mm
Mounting	Flange	Flange

## Standard Features

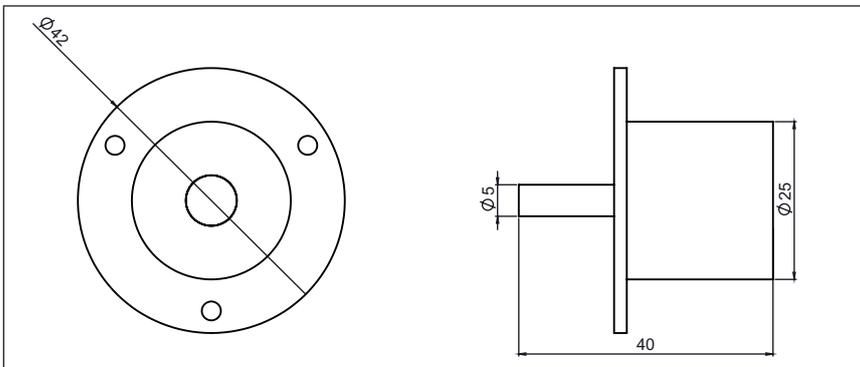
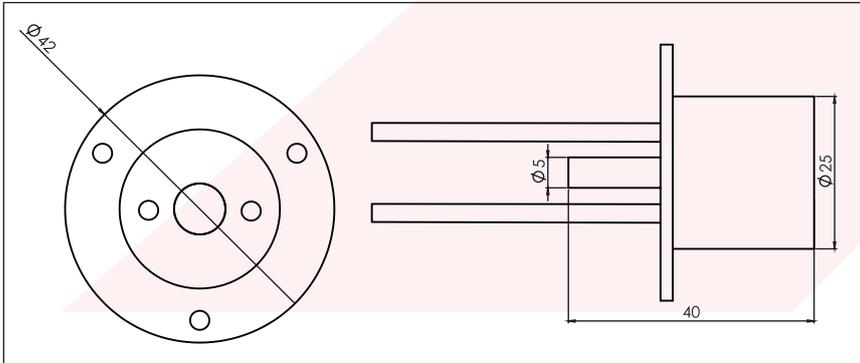
- Linear Output
- Output Proportional to Heat Transfer Rate
- Accurate, Rugged, Reliable
- Convenient Mounting
- Measure Total Heat Flux
- Measure Radiant Heat Flux



# Heat Flux Sensor



## Standard configuration of cooled/uncooled models



- The sensor is provided with or without provision for water cooling of transducer body.
- Basic uncool sensor nominal temperature will be 200°C.
- Water cooled should be specified if cooled sensor expected to achieve above 400°F or 200°C.

## Applications

- Main application is like in ground and flight aerospace testing
- Fire testing, flammability testing
- Heat transfer research
- Material development and furnace development

## Heat Flux Sensor Calibration Method

- It works on the principle of axial one-dimensional heat flow.
- It measures the temperature difference across a thin, thermally insulating layer to determine the incident heat flux. Due to the axial flow of heat, the temperature distribution across the sensing surface is uniform.
- The maximum body temperature is limited to about 200°C when the sensor is not water-cooled.
- All of the calibrations show a linear response of the sensor, with regression factors close to unity.

