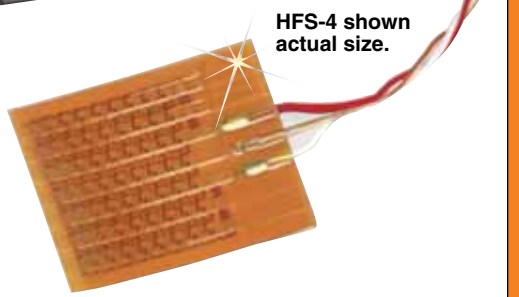
Thin-Film Heat Flux Sensors

Shown with OMEGA's DP41-E digital process indicator, shown smaller than actual size.

HFS Series

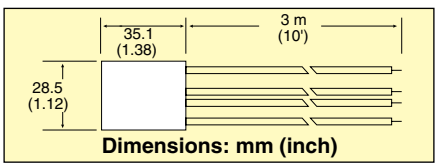


HFS-4 shown actual size.

- **Effective for Convection, Conduction and Radiation Heat Transfer**
- **Conveniently Interfaces with Voltmeters and Recorders**
- **Easily Attaches to Curved and Flat Surfaces**
- **Temperature Range from -200 to 150°C (-330 to 300°F)**

Each HFS series heat flux sensor functions as a self-generating thermopile transducer. It requires no special wiring, reference junctions or signal conditioning. A readout is accomplished by connecting a sensor to any direct reading DC microvoltmeter or recorder.

The HFS series sensor is designed for precise measurement of heat loss or gain on any surface. It can be mounted on flat or curved surfaces, and employs butt-bonded junctions with a very low thermal profile for efficient reading. The sensor is available with an integral thermocouple for discrete temperature measurement needed to describe the heat flux, and is available in two different sensitivity ranges. All models utilize a multi-junction thermopile construction. The carrier is a polyimide film which is bonded using a PFA lamination process.



Dimensions: mm (inch)

Specifications

Upper Temperature Limit: 150°C (300°F)

Number of Junctions:
HFS-3: 54
HFS-4: 112

Carrier: Polyimide film (Kapton®)

Nominal Sensor Resistance:
HFS-3: 140 Ω
HFS-4: 175 Ω

Lead Wires: #30 AWG solid copper, PFA insulated color coded, 3.1 m (10' long)

Weight: 28 g (1.0 oz)

For epoxies and cements compatible with HFS Series, see our OMEGABOND® epoxies online

Model No.	Nominal† Sensitivity (μ V/Btu/ Ft²-Hr)	*Max Rec'd Heat Flux (Btu/ Ft²Hr)	Built-in T/C Type K	Resp. Time (sec)	Thermal Capacitance (Btu per Ft² °F)	Thermal Resistance (°F per Btu/ Ft² Hr)	Nominal Thickness mm (inches)
HFS-3	3.0	30,000	YES	0.60	0.02	0.01	0.18 (0.007)
HFS-4	6.5	30,000	YES	0.60	0.02	0.01	0.18 (0.007)

** Exceeding the maximum recommended heat flux can result in a large enough temperature rise to cause delamination of the Kapton® bonding material. The given maximum values assume a 38°C (100°F) ambient.*

† Nominal sensitvity is ±10%. Sensitivity is supplied with unit.

To Order

Model Number**	Description
HFS-3	3.0 μV/BTU/Ft²Hr sensor with Type K thermocouple
HFS-4	6.5 μV/BTU/Ft²Hr sensor with Type K thermocouple

Comes with complete operator's manual and sensitivity calibration.

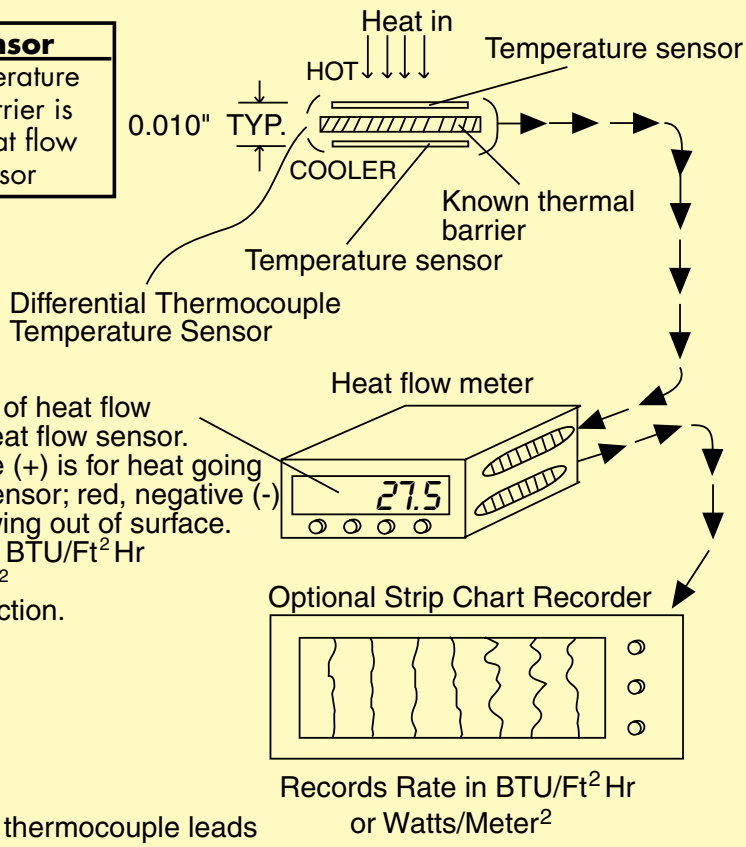
***Other sizes and styles available, consult Applications Engineering.*

***Ordering Example: HFS-4**, thin-film heat flux sensor.*

Ideal for Precise Heat Transfer Measurement

HEAT FLOW MEASUREMENT INSTALLATION AND HOW IT WORKS

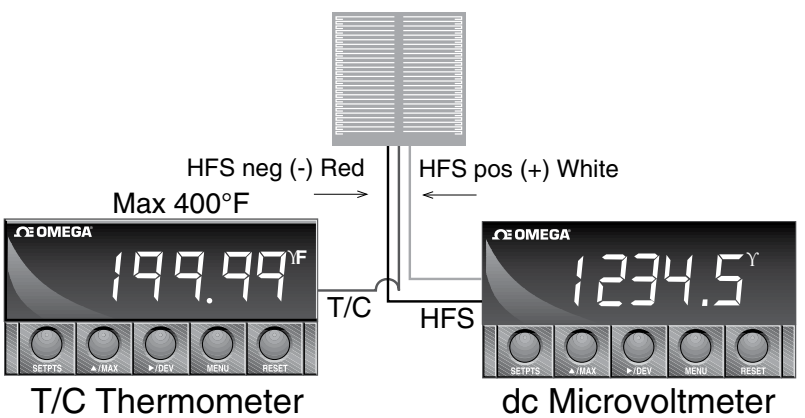
Heat Flow Sensor
Difference in temperature across thermal barrier is proportional to heat flow through the sensor



Note: Optional thermocouple leads are yellow (+) and red (-).

Specifications

Upper Temperature Limit: 150°C (300°F)
Number of Junctions:
HFS-3: 54
HFS-4: 112
Carrier: Polyimide Film (DuPont Kapton®)
Nominal Sensor Resistance:
HFS-3: 140 Ω
HFS-4: 175 Ω
Lead Wires: #30 AWG solid copper, PFA insulated color coded, 3.1 m (10' long)
Weight: 1.0 oz



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