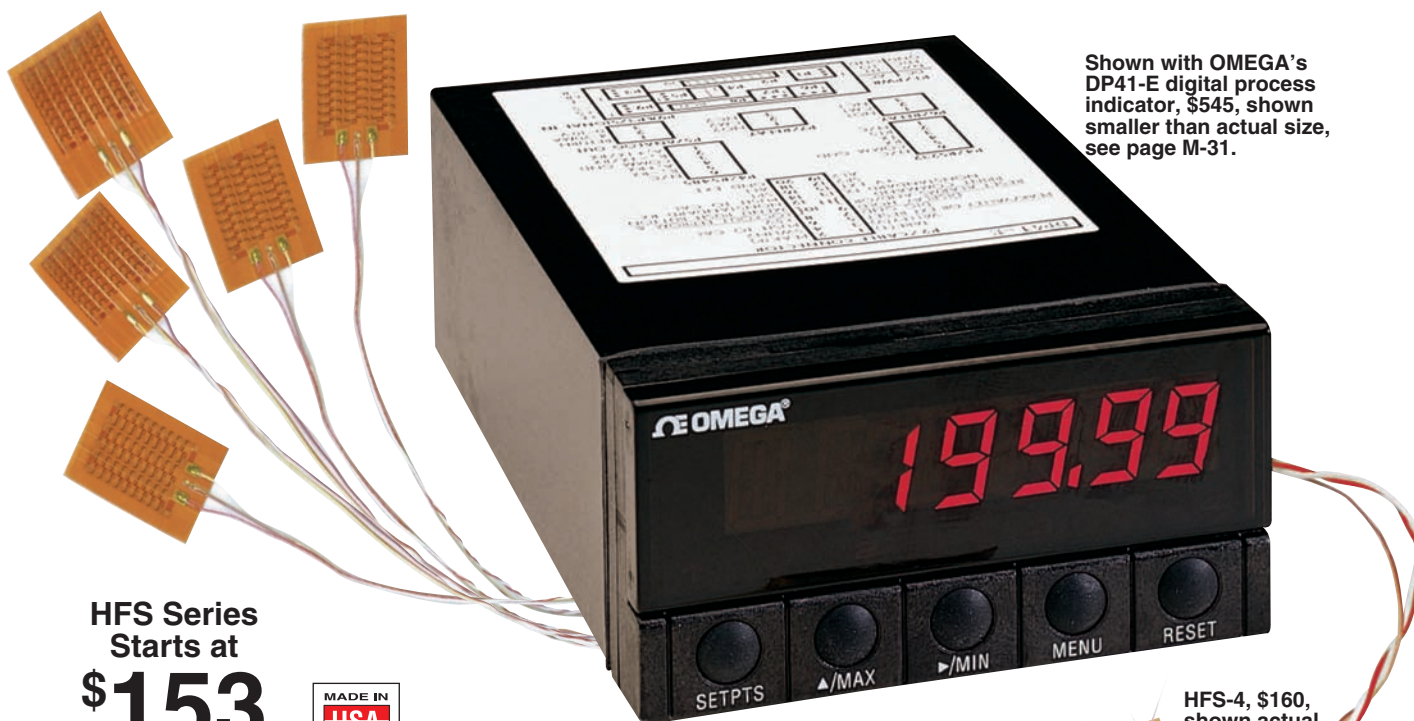


Thin-Film Heat Flux Sensors

Shown with OMEGA's DP41-E digital process indicator, \$545, shown smaller than actual size, see page M-31.



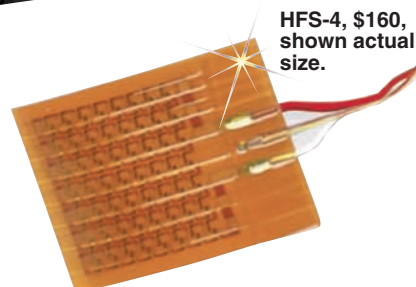
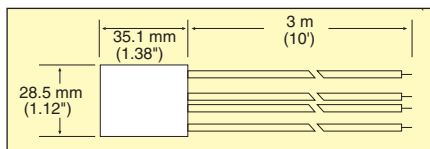
HFS Series Starts at **\$153**



- ✓ 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.



HFS-4, \$160, shown actual size.

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 OMEGABOND® epoxies on page F-21.

Model No.	Nominal Sensitivity (μV/Btu/Ft ² -Hr)	*Max Rec'd Heat Flux (Btu/Ft ² Hr)	Built-in T/C Type K	Resp. Time (sec)	Thermal Capacitance (Btu per Ft ² °F)	Thermal Resistance (°F per Btu/Ft ² 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 sensitivity is ±10%. Sensitivity is supplied with unit.

MOST POPULAR MODEL HIGHLIGHTED!

To Order (Specify Model Number)		
Model Number**	Price	Description
HFS-3	\$153	3.0 μV/BTU/Ft ² Hr sensor w/Type K TC
HFS-4	160	6.5 μV/BTU/Ft ² Hr sensor w/Type K TC

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, \$160.



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• Flow and Level

Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

• pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

• Data Acquisition

Auto-Dialers and Alarm Monitoring Systems, Communication Products and Converters, Data Acquisition and Analysis Software, Data Loggers Plug-in Cards, Signal Conditioners, USB, RS232, RS485 and Parallel Port Data Acquisition Systems, Wireless Transmitters and Receivers

• Pressure, Strain and Force

Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Strain Gages, Torque Transducers, Valves

• Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters