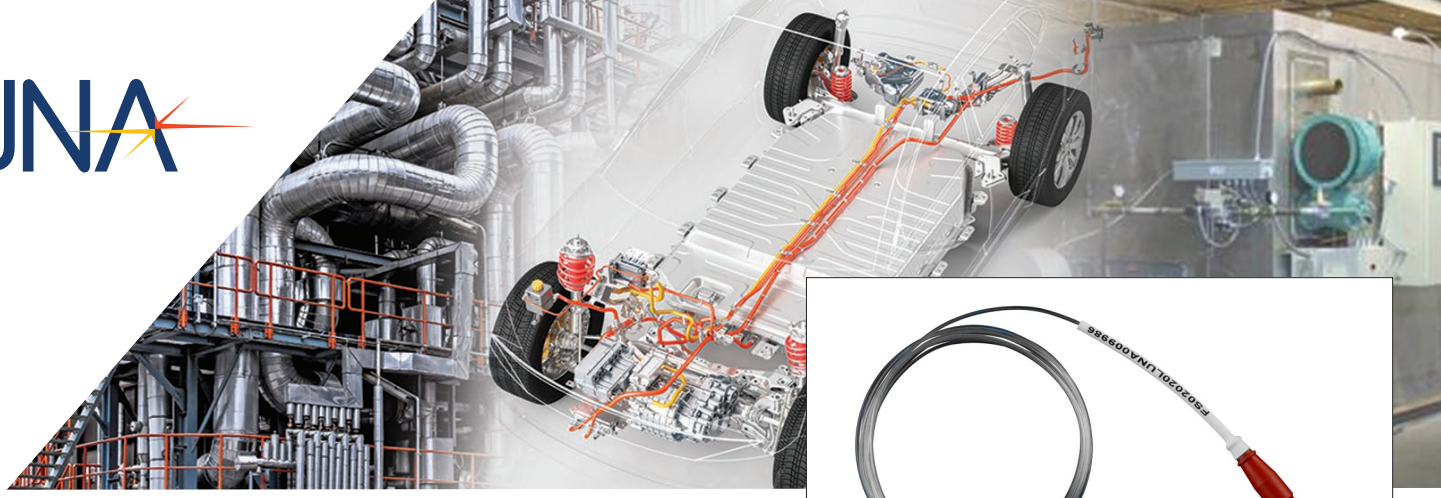


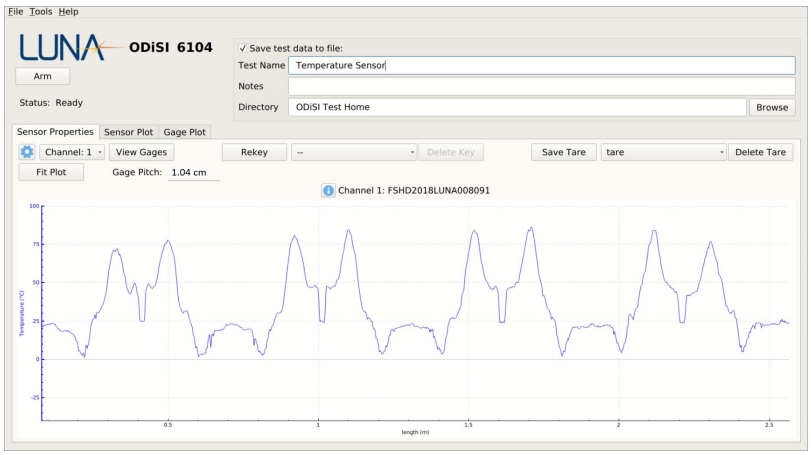
HD-SC Temperature Sensors

Distributed Fiber Optic Temperature Sensors with Strain Compensation

High-definition strain-compensated (HD-SC) temperature sensors are low-profile, flexible sensors incorporating advanced strain compensation technology to deliver more accurate temperature data when surface-mounted or embedded.

When used with the ODiSI system, the HD-SC temperature sensor measures temperature along the sensor with a spatial resolution, or gage pitch, of 1 cm, providing the high-density data needed for more precise characterization and control of thermal processes. Combined with its low profile and weight, the strain-compensating capability of the HD-SC sensor make it ideal for embedding into composite materials for thermal mapping during manufacturing or operation.

The strain that is applied to a fiber optic sensor during normal installation and operation of surface-mounted and embedded sensors can cause very significant measurement offsets in non-compensated temperature sensors. The HD-SC temperature sensor, on the other hand, compensates for the effects of strain and delivers more accurate and reliable temperature data.



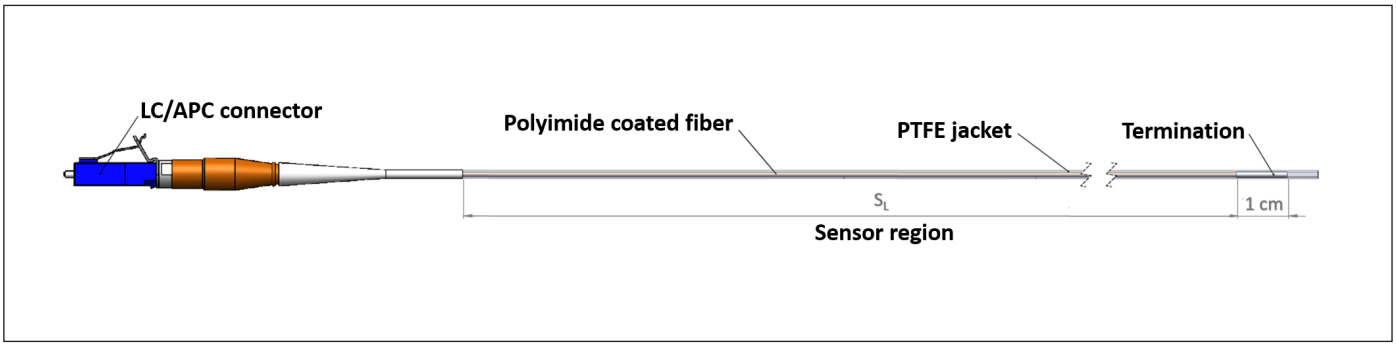
Temperature profile data measured with a strain-compensated HD-SC sensor is displayed in the ODiSI software.

KEY FEATURES

- Distributed temperature measurements along flexible fiber
- Strain compensation for higher accuracy temperature measurements in embedded and suface applications
- Flexible, polyimide coated sensing fiber housed in a PTFE tube
- Included sensor key enables plug-and-play operation with ODiSI system

APPLICATIONS

- High-resolution thermal profiling and mapping
- Precision process control
- In-situ monitoring of thermoplastic welding and bonding
- Thermal monitoring of battery and electrical components



PERFORMANCE

PARAMETER	SPECIFICATIONS
Fiber type	Polyimide coated fiber
Fiber jacket	Polytetrafluoroethylene (PTFE) tube
Connector	High-temperature LC/APC
Sensor outer diameter	0.89 mm
Sensor bend radius	1 cm
Sensor termination	1 cm, 304 stainless steel
Sensor length	1, 2 or 5 m
Temperature measurement range	-40 to 200 °C
Temperature operating range for sensor connector	-60 to 150 °C
Gage pitch with ODiSI 6000 Series interrogator	1.04 cm (96 measurement points per meter)
Measurement uncertainty[2]	0.9 °C
Measurement accuracy with applied strain[3]	± 2.8 °C (over range of 0 - 1800 με applied strain)

NOTES

1. Gage pitch is the distance between centerpoints of consecutive temperature measurement points.
2. Measurement uncertainty is equal to twice the standard deviation calculated from a set of 1000 measurements and includes effects of the ODiSI interrogator.
3. Measurement accuracy is the RMS error with the sensor subjected to up to 1800 με of strain. Error includes effects of the ODiSI interrogator.

ORDERING

Part Number	Description
HD6SCT01LC200P	High-definition strain-compensated temperature sensor, 1 m sensor length; includes reference key files on USB
HD6SCT02LC200P	High-definition strain-compensated temperature sensor, 2 m sensor length; includes reference key files on USB
HD6SCT05LC200P	High-definition strain-compensated temperature sensor, 5 m sensor length; includes reference key files on USB

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