

Convir OS1513 & OS1533 Fibre-Optic Temperature Sensors

Common Features

- ◆ $\pm 1.0\%$ Accuracy
- ◆ Unaffected by Electrical Noise
- ◆ Usable in Vacuum Chambers at up to 10^{-7} Torr

OS1513 General Purpose Sensor

- ◆ 10 msec Time Constant
- ◆ 160 to 1535°C Temperature Range
- ◆ 0.5mm at 152mm Minimum Spot Size Available

OS1533 High Speed Sensor

- ◆ 0.3 msec Time Constant
- ◆ 425 to 1370°C Temperature Range in Subranges of No More than 2:1 for example 400-800°
- ◆ 0.25mm at 76mm Minimum Spot Size Available

Temperature Monitors

- ◆ Precise Non-Contact Temperature Measurement
- ◆ 1 mV/Degree Output Standard
- ◆ Optional Second Output for Process Control or Recording
- ◆ Optional Signal Processing
- ◆ Digital Pushbutton Emissivity Control Assures Precise Setting of Target Emissivity (0.05 to 1.00 in 0.01 Steps)
- ◆ $3\frac{3}{4}$ Digit Display with Temperature Readout

The OS1513 and OS1533 fibre optic detectors are designed to be used specifically with the DP1511, DP1521 and DP1531 monitors and are appropriate for a variety of applications.

These fibre optic detectors are capable of temperature measurements from 160 to 1535°C.

These detectors are designed to be used with the appropriate monitor when conventional line of sight infrared measurements are not possible. The advantages of these fibre optic sensors include the ability to bypass opaque obstacles and to reach into closed areas for viewing. They can take measurements unattainable by conventional infrared pyrometers, as they are unaffected by media in the environment, such as smoke, water vapor, etc. The OS1513 and OS1533 are recommended for measurements in high energy fields or of small objects, down to 0.1mm in diameter. For remote mounting of the electronics out of hazardous environments, the fibre optic lens and cable may be remotely mounted up to 10m from the infrared detector head. They can also be used in vacuum chamber applications, where the fibre optic assembly can be placed in vacuums to 10^{-7} Torr. Also available is a back-lighting capability, where a beam of light illuminates the target, providing accurate indication of the target area.

Elektro-Trading sp. z o.o.

44-109 Gliwice, ul. Mechanikow 9
Fax: +48 (0-32) 734-55-70
Tel: +48 (0-32) 734-55-72
E-mail: et@elektro-trading.com.pl
<http://www.elektro-trading.com.pl>



DP1511 General Purpose Single Channel Monitor for Use with OS1513 Fibre Optic Sensors.

DP1521 General Purpose 4-Channel 19" Rackmount Monitor for Use with OS1513 Fibre Optic Sensors.

DP1531 High Speed Single Channel 19" Rackmount Monitor for Use with OS1533 Fibre Optic Sensors.

OS1513/1533 Fibre Optic Sensor

Important factors which determine the fibre optic assembly best suited for your application are: the distance from the fibre optic lens to the surface being measured; the size of the object being measured; the temperature range being measured; the ambient temperature around the fibre optic cable; the length of the fibre optic cable; how the surface is being heated; and the atmospheric conditions between the sensor and the product.

The DP1511, DP1521 and DP1531 non-contact infrared thermal monitoring systems represent a unique technological approach for monitoring and controlling process temperatures. These units combine fibre optics with advanced electronic technology into a system that continuously monitors infrared radiation (a function of temperature) in real time and without physically contacting the target material. The result is a highly reliable system offering outstanding accuracy and repeatability with high response speed.

Built-in synchronous demodulation circuitry helps to minimize or eliminate noise pickup from nearby sources such as motors, induction heating generators, etc.

The DP1511, DP1521 and DP1531 contain all of the electronics necessary to amplify, linearize and process the electronic signal received from the detector head. In addition, they provide a millivolt per degree linear output, as well as an optional second output of 0 to 10 Vdc or 4 to 20 mA, which can be used for process control or recording purposes.

On all three models, the front panel digital push-button emissivity control assures precise setting of the target emissivity. If process parameters are changed, this digital control enables the operator to accurately return to the previous settings.

A variety of signal processing options is available (one per unit) such as peak (or valley) sense and hold (when the process temperature sharply rises and falls), signal averaging (to smooth out unwanted variations in the temperature measurement), sample and hold (to sample a temperature and hold it for a specified time), and fast rise variable decay (which is similar to peak and hold, but has a variable decay time). These signal processing options are adjustable by a front panel variable control adjustment.

The DP1521 has four independent input channels with a front panel selector switch, each channel having its own 1 mV/degree output as well as its own emissivity adjustment.

The DP1531 is a high speed single channel monitor suitable for use on any high speed event application utilizing the 0.3 msec time constant (0 to 63.2%). This system utilizes an auto-zero circuit (with shutter built into the detector head) to zero out any system drift. The DP1511 or DP1521 thermal monitoring system consists of a fibre optic assembly and detector head, connecting cable, and meter. The DP1511 and DP1521 monitors are used with the OS1513 fibre optic sensors.

The DP1531 high speed monitor is used with the OS1533 fibre optic sensors.

GENERAL SPECIFICATIONS - SENSORS

Ambient Temperature	10 to 50°C
Accuracy	$\pm 1.0\%$ rdg
Repeatability	$\pm 0.5\%$ rdg
Spectral Range	0.91-2.3 microns
Time Constant	10 ms, OS1513; 0.3 ms, OS1533
Dimensions	6.4 H x 10 W x 13 cm L
Weight	1.8 kg
Fibre Optic Cable	Glass or quartz fibre with heavy duty stainless steel jacket standard, 0.020"/0.070 cable dia., 149°C ambient max.

GENERAL SPECIFICATIONS - MONITORS

Temperature Range	DP1511, DP1521: 50 to 3700°C; DP1531: 75 to 2300°C
Accuracy	±1% rdg
Repeatability	±0.5% rdg
Resolution	1°F/1°C
Output	1 mV/degree
Ambient Operating Range	10 to 50°C
Time Constant	DP1511, DP1521: 10 ms, (0 to 63.2%); DP1531: 0.3 ms
Power	115 VAC ±10% 50/60 Hz
Power Dissipation	DP1511: 25 W; DP1521, DP1531: 50 W
Display	3 ¾ digit, max. reading 3999
Emissivity	0.05 to 0.99, adjustable in 0.01 steps
Signal Processing Adjustment	0.5 to 10 sec hold/decay time
Dimensions	DP1511: 98 H x 300 W x 238 mm D DP1521, DP1531: 133 H x 483 W x 305 mm D
Weight	DP1511: 4.3 kg; DP1521: 6.35 kg; DP1531: 5.4 kg

TO ORDER - MONITORS

Model No.	Description	Compatible Fibre Optic Sensor
DP1511(*)	Single-Channel Benchtop Monitor 1 mV/Degree Output	OS1513
DP1521(*)	4-Channel 19" Rackmount Monitor 1 mV/Degree Output	OS1513
DP1531(*)	Single-Channel 19" Rackmount High Speed Monitor 1 mV/Degree Output	OS1533

* Specify display and analog output: "F" for Fahrenheit display and 1 mV/°F output, or "C" for Celsius display and 1 mV/°C output. Each unit supplied complete with 3m connecting cable for sensor and complete operator's manual.

Optional Second Output

Order Suffix	Description
-V	0 to 10 Vdc
-MA	4 to 20 mA

Signal Processing Outputs

Order Suffix	Description
-PS	Peak Sense and Hold
-SA	Signal Averaging
-VS	Valley Sense and Hold
-ST	Sample Timed Hold
-FR	Fast Rise Variable Decay

TO ORDER - SENSORS

Model No.	Temp. Range	Spot Size @ Target Dist.	Cable Length
OS1513-L1-R1-4	540-1090°C	0.5mm	
General Purpose	1000-2000°F	@152mm	1.2m
OS1513-L1-R2-1	160-340°C	1.9mm	
General Purpose	320-650°F	@ 152mm	300mm
OS1513-L1-R3-4	260-540°C	5.6mm	
General Purpose	500-1000°F	@ 200mm	1.2m
OS1513-L1-R4-10	760-1535°C	25.4mm	
General Purpose	1400-2800°F	@ 660mm	3m
OS1533-L1-R5-4	675-1370°C	2.5mm	
High Speed	1250-2500°F	@304mm	1.2m
OS1533-L1-R6-10	815-1370°C	1mm	
High Speed	1500-2500°F	@152mm	3m
OS1533-L1-R7-4	425-870°C	0.3mm	
High Speed	800-1600°F	@76mm	1.2m

Each sensor supplied complete with connection cable to a monitor and operator's manual. Consult Calnex for ordering and pricing on custom OS1513 or OS1533 fibre optic systems. Note: Other temperature ranges & Spot Size @ Target Distance available; consult factory



Available Probe Types

- L1 Lens probe (standard)
- L2 Ceramic/Metal Tip
- L3 Polymer Bolt
- L4 Ejector Pin Probe

Fibre Optic Probes sold separately. L2, L3 and L4 are custom assemblies, Consult Calnex for details

