

# Infrared Temperature Sensor

## With High Speed Sensor, Small Measured Spot and Continuous LED Sighting

OS-PC Series



- ✓ High Speed Cube Sensor with Optional Touch Screen Display
- ✓ Response Time 0.001 Seconds (-PCF Models)—the Fastest in the World
- ✓ Measures from 0 to 500°C (32 to 932°F)
- ✓ Ideal for Small Targets—Measurement Area as Small as 1.6 mm Diameter
- ✓ Continuous Red LED Sighting on all Models—Shows the Position and Size of the Measurement Spot While Readings are Being Taken
- ✓ Multilingual Touch Screen Interface (Optional) for Temperature Display, Data Logging, Sensor Configuration and Alarms
- ✓ Measures Surface Temperature of Paper, Thick Plastics, Food, Rubber, Electronic Components, Cable, Ceramics, Textiles, Painted Surfaces and Some Metals, as Well as Many Other Materials

The OS-PC cube is an infrared pyrometer with an extremely fast response time and a very small measurement area size. It is available with or without the OS-PC-TSD touch screen interface. The sensor is designed for applications where an extremely fast response time is required, or where the object to be measured is very small. It is an ideal temperature sensor for blow molding preform measurement, as well as applications in the food industry, laboratories, and many others.



OS-PC-TSD touch screen display, sold separately.



OS-PC16-2M cube sensor, shown smaller than actual size.

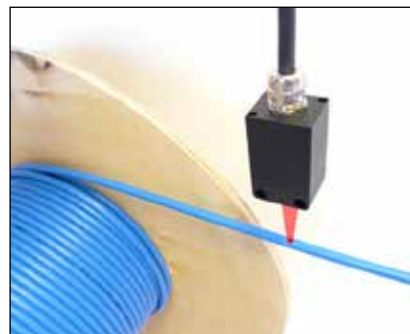
### Typical Applications Include:

#### Cable Manufacturing

It is now possible to monitor the temperature of insulation and sheathing as they are applied to very narrow cables, avoiding manufacturing defects and ensuring highly repeatable product quality.

#### Plastics

Extrusion of plastic tubing and profiles requires temperature control to ensure consistent quality. The tube or profile can be narrow, so the very small measured spot of the OS-PC cube sensor is ideal. If the die is changed, the aiming angle of the sensor must often be adjusted, and the continuous LED sighting makes this easy.



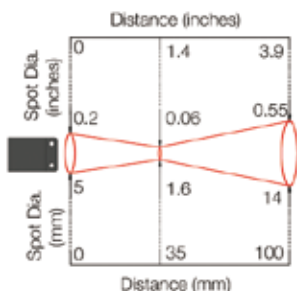
#### Electronics: PCB Testing

When testing the function of circuit boards, small components can heat up very quickly. The OS-PC cube sensor can monitor the temperature of very small components and read their surface temperature instantaneously.

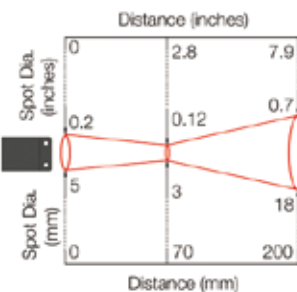


#### Food

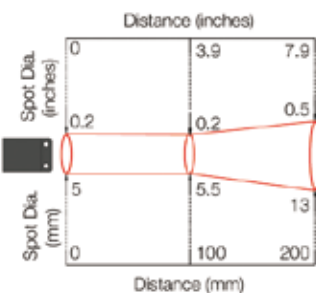
The OS-PC cube sensors advanced peak hold functionality is ideal for fast-moving conveyors, especially in food production. With the OS-PC cube sensor, it is now possible to measure the temperature of thousands of individual items every minute.



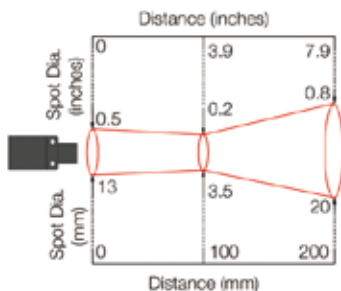
OS-PC16



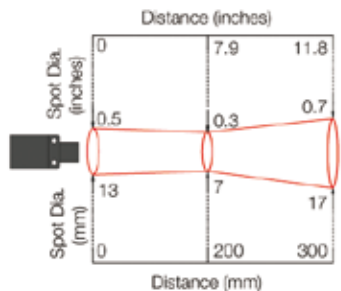
OS-PC30



OS-PC55



OS-PCF35



OS-PCF70

## Sensor Specifications

**Temperature Range:** 0 to 500°C  
(0 to 932°F)

**Response Time:** 95%

“F” Models: 1 ms

Standard Models: 10 ms

**Averaging Function:** Adjustable up to 5s

**Target Sighting:** Red LED built-in as standard on all models, shows the position and size of the measurement area; switchable on/off\*

\*LED sighting and alarms

**Accuracy of Measurement:**  $\pm 3^\circ\text{C}$   
( $\pm 5.4^\circ\text{F}$ ) or 1%, whichever is greater

**Ambient Temperature:**  $23 \pm 5^\circ\text{C}$ ,  
emissivity 1.0, averaging time 50 ms

**Repeatability:**  $\pm 0.5^\circ\text{C}$  ( $0.9^\circ\text{F}$ )

**Ambient Temperature:**  $23 \pm 5^\circ\text{C}$ ,  
emissivity 1.0, averaging time 50 ms

**Temperature Resolution:**  $< 0.5^\circ\text{C}$   
( $0.9^\circ\text{F}$ )

**Emissivity Setting:** Adjustable, 0.3 to 1.0, via RS232C or optional touch screen interface

## ENVIRONMENTAL

**Weight:** 85 g (3 oz), without cable

**Environmental Rating:** IP67

**Operating Ambient Temperature:** 0 to 50°C (32 to 122°F)

**Storage Temperature:** -15 to 70°C  
(5 to 158°F)

**Operating Ambient Humidity:** 30 to 85% RH non-condensing

**Sensor Only:** These functions are selectable via RS232C and share a common connection, which is configurable either as an input to switch the LED sighting on/off, or an open drain alarm output, but not both at once

**Sensor with OS-PC-TSD:** These functions may be configured via the OS-PC-TSD interface; two alarm relay output

## OS-PC-TSD Specifications

**Touch Screen Display Format:**

72 mm (2.83") resistive touch TFT, 320 x 240 pixels, backlit

**Configurable Parameters:** Language (English, Chinese, Japanese), temperature units  $^\circ\text{C}/^\circ\text{F}$ , displayed temperature, LED sighting on/off, password, date and time (for data logging time stamps), peak hold period, decay level, averaging period, correction (gain/offset), emissivity setting (with teach function), reflected energy compensation (with teach function), output type, output temperature range, polarity on error, alarm mode, levels, hysteresis

## OS-PC-TSD Data Logging Specifications

Optional wall-mounted display, data logging, configuration and alarm unit for OS-PC sensor

**Temperature Reading:** Large, bright backlit temperature display turns red in alarm condition

**Temperature Recording History:**

Graphs of measured temperature, log more than a year of data to a single MicroSD card; data is stored in a simple text format easily imported into Excel®

**Sensor Configuration:** Configuration settings can be adjusted via the intuitive touch screen interface

**Temperature Alarm Triggers:** Two alarms are individually configurable as high, low, band or error; red screen to signal alarm condition, built-in 24V, 1 A relay outputs can be connected directly to alarm

**Measurement Accuracy:** Accurate, even with reflections of hot objects; measure the temperature of objects using Reflected Energy Compensation feature

## Outputs (From Touch Screen Module):

Retransmitted analog output from sensor, plus 2 relays, rated 24 Vdc, 1 A

| Output Type          | Effective Minimum Output | Output Accuracy (Additional to Measurement Accuracy) |
|----------------------|--------------------------|------------------------------------------------------|
| 0 to 1 Vdc           | 30 mV                    | $\pm 1.5$ mV                                         |
| mV/ $^\circ\text{C}$ | 30 mV                    | $\pm 1.5$ mV                                         |
| 0 to 20 mA           | 0.2 mA                   | $\pm 0.02$ mA                                        |
| 4 to 20 mA           | 4.0 mA                   | $\pm 0.02$ mA                                        |

**Storage:** MicroSD card (optional), max 32 GB, equal to 16 years of data at the fastest sample rate of 1 per second

**Data Logging Interval:** 1 second to 1 day (configurable)

**Internal Clock Battery:** One BR 1225 3V (not included)

**Variables Logged:** Instant target and hold temperatures, alarm events

**File Format:** .csv

**Configurable Parameters**

**(Data Logging):** Sample period, number of samples, scheduled start

**Configurable Parameters**

**(Alarm Logging):** Log times when triggered, acknowledged, reset; log data while triggered

## Electrical Specifications

**Outputs:** 1 analog output and 1 alarm output

**Analog Output:** 4 to 20 mA (set by default), 0 to 20 mA, mV/°C or voltage, selectable via optional OS-PC-TSD touch screen interface

**Alarm Output:** 1 open drain alarm output, rated 27 Vdc, 0.2 A\*

**Supply Voltage:** 5 to 27 Vdc, 100 mA max

**Digital Communications:** RS232C MODBUS® RTU, non-isolated

## To Order

### OS-PC{Response Time & Optics}-{Cable Length}-{Voltage Analog Output Option}

|                                      |            |                                      |
|--------------------------------------|------------|--------------------------------------|
| <b>Response Time &amp; Optics</b>    | <b>16</b>  | 10 mS response, 1.6 mm spot @ 35 mm  |
|                                      | <b>30</b>  | 10 mS response, 3.0 mm spot @ 70 mm  |
|                                      | <b>55</b>  | 10 mS response, 5.5 mm spot @ 120 mm |
|                                      | <b>F35</b> | 1 mS response, 3.5 mm spot @ 100 mm  |
|                                      | <b>F70</b> | 1 mS response, 7.0 mm spot @ 200 mm  |
| <b>Cable Length</b>                  | <b>2M</b>  | 2 m (6.6')                           |
|                                      | <b>5M</b>  | 5 m (16.4')                          |
|                                      | <b>10M</b> | 10 m (32.8')                         |
| <b>Voltage Analog Output* Option</b> | <b>1V</b>  | 0 to 1 Vdc                           |
|                                      | <b>5V</b>  | 0 to 5 Vdc                           |
|                                      | <b>10V</b> | 0 to 10 Vdc                          |

\*Note: All units include as standard 0 to 20 mA, 4 to 20 mA and mV/°C outputs.

## Ordering Examples

| Model No.              | Description                                                                            |
|------------------------|----------------------------------------------------------------------------------------|
| <b>OS-PC16-2M-(*)</b>  | High speed cube sensor with 10 mS response, 1.6 mm spot @ 35 mm with 2 m (6.6') cable  |
| <b>OS-PC30-2M-(*)</b>  | High speed cube sensor with 10 mS response, 3.0 mm spot @ 70 mm with 2 m (6.6') cable  |
| <b>OS-PC55-2M-(*)</b>  | High speed cube sensor with 10 mS response, 5.5 mm spot @ 120 mm with 2 m (6.6') cable |
| <b>OS-PCF35-2M-(*)</b> | Very fast cube sensor with 1 mS response, 3.5 mm spot @ 100 mm with 2 m (6.6') cable   |
| <b>OS-PCF70-2M-(*)</b> | Very fast cube sensor with 1 mS response, 7.0 mm spot @ 200 mm with 2 m (6.6') cable   |

\* Voltage analog output option, see below.



**OS-PC-FBN**  
Fixed mounting bracket



**OS-PC-PWC**  
Protective lens cover



**OS-PC-APC**  
Air purge collar



**OS-PC-ADP**  
Airless dust protector

## Options/Accessories

| Model No.        | Description                                    |
|------------------|------------------------------------------------|
| <b>OS-PC-TSD</b> | Touch screen display (°C/°F) with data logging |
| <b>OS-PC-FBN</b> | Fixed mounting bracket (1-axis)                |
| <b>OS-PC-PWC</b> | Protective lens cover                          |
| <b>OS-PC-APC</b> | Air purge collar                               |
| <b>OS-PC-ADP</b> | Airless dust protector                         |

Comes complete with operator's instructions.

**Ordering Examples:** **OS-PC16-2M-1V**, high speed cube sensor with 10 mS response, 1.6 mm spot @ 35 mm with 2 m (6.6') cable and optional 0 to 1 Vdc analog output.

**OS-PCF35-5M-5V**, very fast cube sensor with 1 mS response, 3.5 mm spot @ 100 mm with 5 m (16.4') cable and optional 0 to 5 Vdc analog output.

## Pyrometers for Special Applications

| Type                              | S                                                                                                                                                                                                                        |                                                                                          |                                                                                            | F                                                                                          |                                                                                          | G                                                                                                                                                                                                                                                                                                       |                                                                                             |                                                                                              |                                                                                              |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Application                       | General purpose                                                                                                                                                                                                          |                                                                                          |                                                                                            | Fast response                                                                              |                                                                                          | Glass                                                                                                                                                                                                                                                                                                   |                                                                                             |                                                                                              |                                                                                              |
|                                   |                                                                                                                                         |                                                                                          |                                                                                            |           |                                                                                          |                                                                                                                                                                                                                       |                                                                                             |           |                                                                                              |
| Description                       | The general-purpose S is suitable for measuring most non-reflective non-metals<br><br>Advantages over other general purpose sensors are the built-in LED aiming light, fast response time, and small measured spot size. |                                                                                          |                                                                                            | The F has a lightning-fast response time of 0.001 seconds.                                 |                                                                                          | Glass-specific measurement wavelength for improved accuracy when measuring glass surface temperature.<br><br>G models are ideal for annealing, e.g. light bulb and fluorescent lamp manufacturing.<br><br>GH models are suitable for high-temperature glass melting, such as in glass-to-metal sealing. |                                                                                             |                                                                                              |                                                                                              |
| Wavelength                        | 2 to 7 μm                                                                                                                                                                                                                |                                                                                          |                                                                                            | 2 to 7 μm                                                                                  |                                                                                          | 5 μm                                                                                                                                                                                                                                                                                                    |                                                                                             |                                                                                              |                                                                                              |
| Temperature Range                 | 0 to 500°C (0 to 932°F)                                                                                                                                                                                                  |                                                                                          |                                                                                            |                                                                                            |                                                                                          | 50 to 1200°C (122 to 2192°F)                                                                                                                                                                                                                                                                            |                                                                                             | 50 to 2400°C (122 to 4352°F)                                                                 |                                                                                              |
| Response Time                     | 10 ms                                                                                                                                                                                                                    |                                                                                          |                                                                                            | 1 ms                                                                                       |                                                                                          | 50 ms                                                                                                                                                                                                                                                                                                   |                                                                                             | 10 ms                                                                                        |                                                                                              |
| Model No. OS-PC                   | 16                                                                                                                                                                                                                       | 30                                                                                       | 55                                                                                         | F35                                                                                        | F70                                                                                      | G70                                                                                                                                                                                                                                                                                                     | G200                                                                                        | GH22                                                                                         | GH45                                                                                         |
| Focal Spot Diameter (mm)          | 1.6<br>                                                                                                                               | 3<br> | 5.5<br> | 3.5<br> | 7<br> | 7<br>                                                                                                                                                                                                                | 20<br> | 2.2<br> | 4.5<br> |
| Focal Distance (mm)               | 35                                                                                                                                                                                                                       | 70                                                                                       | 120                                                                                        | 100                                                                                        | 200                                                                                      | 180                                                                                                                                                                                                                                                                                                     | 500                                                                                         | 150                                                                                          | 300                                                                                          |
| Maximum Measurement Distance (mm) | 150                                                                                                                                                                                                                      | 200                                                                                      | 300                                                                                        | 300                                                                                        | 500                                                                                      | 500                                                                                                                                                                                                                                                                                                     | 1000                                                                                        | 300                                                                                          | 500                                                                                          |

## Pyrometers for Special Applications

| Type                              | P                                                                                                                                                                                                                                                       | XS                                                                                                                                                                                     |                                                                                          | M                                                                                                                                                           |                                                                                            |                                                                                              |                                                                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Application                       | Thin film plastics                                                                                                                                                                                                                                      | Very small targets                                                                                                                                                                     |                                                                                          | Metals, low temperature                                                                                                                                     |                                                                                            |                                                                                              |                                                                                             |
|                                   |                                                                                                                                                                        |                                                                                                       |         |                                                                           |                                                                                            |                                                                                              |          |
| Description                       | Accurately measures the temperature of thin film plastics that cannot be measured with general-purpose sensors. Materials include polyolefin, polyamide, polyethylene, polypropylene, polystyrene, nylon, PVC, acrylic, polyurethane and polycarbonate. | Extremely small measured spot size. Applications include measuring individual electronic component temperatures on a circuit board, and plastic welding where the seam is very narrow. |                                                                                          | Short-wavelength sensors for measuring metals as cool as 50°C (122°F), with a very fast response time of 0.001 seconds and a very small measured spot size. |                                                                                            |                                                                                              |                                                                                             |
| Wavelength                        | 3.4 μm                                                                                                                                                                                                                                                  | 5 to 7 μm                                                                                                                                                                              |                                                                                          | 2.2 μm                                                                                                                                                      |                                                                                            |                                                                                              |                                                                                             |
| Temperature Range                 | 80 to 350°C (176 to 662°F)                                                                                                                                                                                                                              | 0 to 500°C (0 to 932°F)                                                                                                                                                                |                                                                                          | 50 to 600°C (122 to 1112°F)                                                                                                                                 |                                                                                            |                                                                                              |                                                                                             |
| Response Time                     | 10 ms                                                                                                                                                                                                                                                   | 10 ms                                                                                                                                                                                  | 50 ms                                                                                    | 1 ms                                                                                                                                                        |                                                                                            |                                                                                              |                                                                                             |
| Model No. OS-PC                   | P120                                                                                                                                                                                                                                                    | XA7                                                                                                                                                                                    | XB10                                                                                     | MA10                                                                                                                                                        | MA20                                                                                       | MA35                                                                                         | MB110                                                                                       |
| Focal Spot Diameter (mm)          | 12<br>                                                                                                                                                               | 0.7<br>                                                                                             | 1<br> | 1<br>                                                                    | 2<br> | 3.5<br> | 11<br> |
| Focal Distance (mm)               | 200                                                                                                                                                                                                                                                     | 40                                                                                                                                                                                     | 100                                                                                      | 50                                                                                                                                                          | 100                                                                                        | 200                                                                                          | 200                                                                                         |
| Maximum Measurement Distance (mm) | 500                                                                                                                                                                                                                                                     | 100                                                                                                                                                                                    | 300                                                                                      | 100                                                                                                                                                         | 200                                                                                        | 400                                                                                          | 500                                                                                         |