

# Smart Infrared Temperature Sensors

## OS35 Series



- ✓ Optics of 3:1 or 20:1
- ✓ Outputs of 0 to 5V, 0 to 10V, 4 to 20 mA, or RS232
- ✓ Ranges from -30 to 1000°C (-22 to 1832°F)
- ✓ Digital System with Auto Calibration
- ✓ Rugged Housing with Air Purge
- ✓ Automatic Emissivity Shift and Ambient Radiation Correction

The OMEGA® OS35 Series infrared temperature sensors offer intelligence in a rugged, easy-to-use package. The OS35 is centered around a high-speed microprocessor that continuously monitors and adjusts the complete system. While performing the complex algorithms determining the output, it calibrates itself about once every second, removing any concerns over drift or sudden changes. Other advanced features include emissivity shift compensation and ambient radiation error correction. The rugged housing withstands thermal and mechanical shocks. The built-in air purge prevents dust, dirt, or condensing vapors from depositing on sensor optics, assuring long-term accuracy under all environmental conditions. The integral heat exchanger eliminates drift by automatically warming (or cooling) supply air to match the optical aperture temperature.

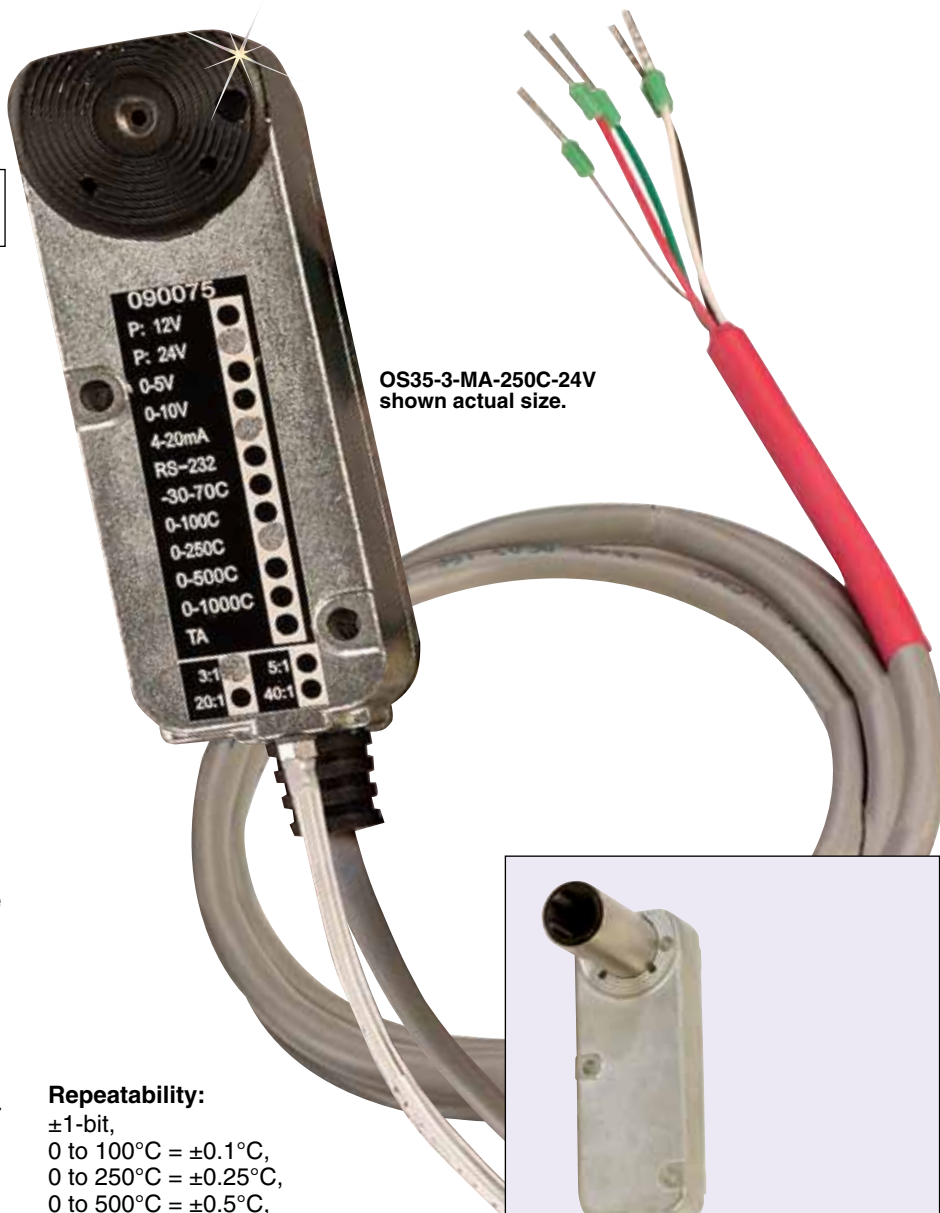
### Specifications

#### Ranges:

-30 to 70°C (-22 to 158°F)  
 0 to 100°C (32 to 212°F)  
 0 to 250°C (32 to 482°F)  
 0 to 500°C (32 to 932°F)  
 0 to 1000°C (32 to 1832°F)

#### Accuracy:

**OS35-3:** ±1°C or 1%  
**OS35-20:** ±1.5°C or ±1.5% (±2% for 0 to 1000°C range)



OS35-3-MA-250C-24V shown actual size.

#### Repeatability:

±1-bit,  
 0 to 100°C = ±0.1°C,  
 0 to 250°C = ±0.25°C,  
 0 to 500°C = ±0.5°C,  
 0 to 1000°C = ±1°C

**Output:** 0 to 5V, 0 to 10V (24 Vdc power only), 4 to 20 mA (50 Ω maximum), RS232 (12 Vdc power only)

**Update Time:** Approximately 250 ms

**Emissivity Setting:** 0.90

**Spectral Response:** 5.5 to 20 microns

**Minimum Spot Size:** 3.0 mm (0.12")  
 15.9 mm (0.625")

**Power:** 12 or 24 Vdc (10%); shuts off when voltage is functionally low

**Output Impedance:** 750 Ω on 0 to 5V and 0 to 10V models

**Minimum Load Impedance:** 100 kΩ

**Maximum Loop Impedance:** 50 Ω maximum

**Power Consumption:** <800 mW at 24 Vdc and <600 mW at 12 Vdc

**Ambient Temperature:** 0 to 70°C (32 to 158°F)

**Storage Temperature:** -10 to 70°C (14 to 158°F)



OS35-20-MA-500C-24V shown smaller than actual size.

#### Relative Humidity:

95% non-condensing

**Construction:** Heavy-duty alloy casting

**Air Purge:** Built-in with small aperture and heat exchanger that minimizes drift for superb accuracy

**Air Tubing:** 0.9 m (3') of polyurethane tubing 1/8" OD x 0.031" wall

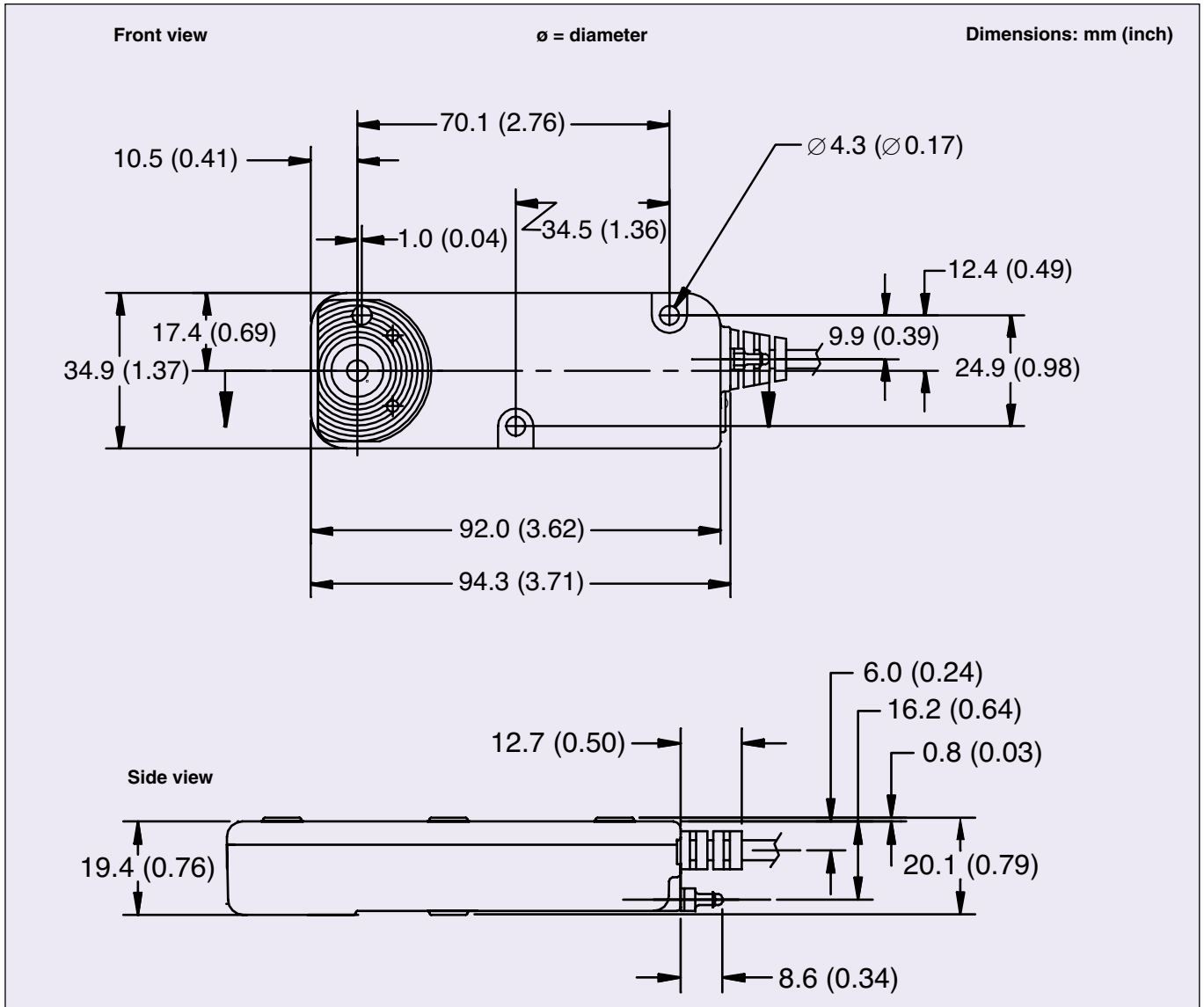
**Cable:** 0.9 m (3") of 5-conductor, tinned copper, twisted pair polypropylene, insulated with shielded wire

**Rating:** IP54 (with air on)

#### Dimensions:

94.3 H x 34.9 W x 19.4 mm D (3.71 x 1.37 x 0.76"); OS35-20 models include a 41.3 x 19 mm (1.63 x 0.75") diameter snout

**Weight:** Approximately 227 g (8 oz)



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

**To Order Visit [omega.com/os35](http://omega.com/os35) for Pricing and Details**

Model No.	Description
OS35-3-MA-100C-24V	Infrared temperature sensor, 3:1 optics, 0 to 100°C (32 to 212°F) range
OS35-3-MA-250C-24V	Infrared temperature sensor, 3:1 optics, 0 to 250°C (32 to 482°F) range
OS35-3-MA-70C-24V	Infrared temperature sensor, 3:1 optics, -30 to 70°C (-22 to 158°F) range
OS35-20-MA-100C-24V	Infrared temperature sensor, 20:1 optics, 0 to 100°C (32 to 212°F) range
OS35-20-MA-250C-24V	Infrared temperature sensor, 20:1 optics, 0 to 250°C (32 to 482°F) range
OS35-20-MA-500C-24V	Infrared temperature sensor, 20:1 optics, 0 to 500°C (32 to 932°F) range
OS35-20-MA-1000C-24V	Infrared temperature sensor, 20:1 optics, 0 to 1000°C (32 to 1832°F) range

**Note:** For 12V power requirement, change “-24V” in model number to “-12V”, no additional cost.  
 For 5V output, change “-MA” in model number to “-5V”, no additional cost.  
 For 10V output, which is available only on 24V power models, change “-MA” in model number to “-10V”, no additional cost.  
 For RS232 output, which is available only in 0 to 250°C range with 12V power, change “-MA” in model number to “-RS”, no additional cost.  
 Comes complete with air tubing and operator’s manual.

**Ordering Examples:** OS35-3-5V-100C-24V, infrared temperature sensor, 3:1 optics, 0 to 100°C range, 0 to 5V output.  
 OCW-2, OMEGACARE extends standard 2-year warranty to a total of 4 years.  
 OS35-20-MA-100C-24V, infrared temperature sensor, 20:1 optics, 0 to 100°C (32 to 212°F) range, 0 to 10V output.