

# Temperature Sensors

## Air Temperature Sensors

McLaren Electronic Systems' air temperature sensors expose the sensor element tip directly to the air flow. Sensors with a flange mount body can be aligned in the air stream to exploit the planar symmetry of the sensor element. This is most important for low velocity air flows, for example if the sensor is located at the end of a manifold pipe.

With threaded devices the point at which the screw thread will tighten cannot be defined exactly. However, the design of the sensor housing ensures that errors due to misalignment of the element in the air flow are minimized.

- Mounting Torque:  
7.1 to 8Nm (M10)  
5.3 to 6Nm (M6)
- Spanner:  
14mm A/F (M10)  
10mm A/F (M6)

## Fluid Temperature Sensors

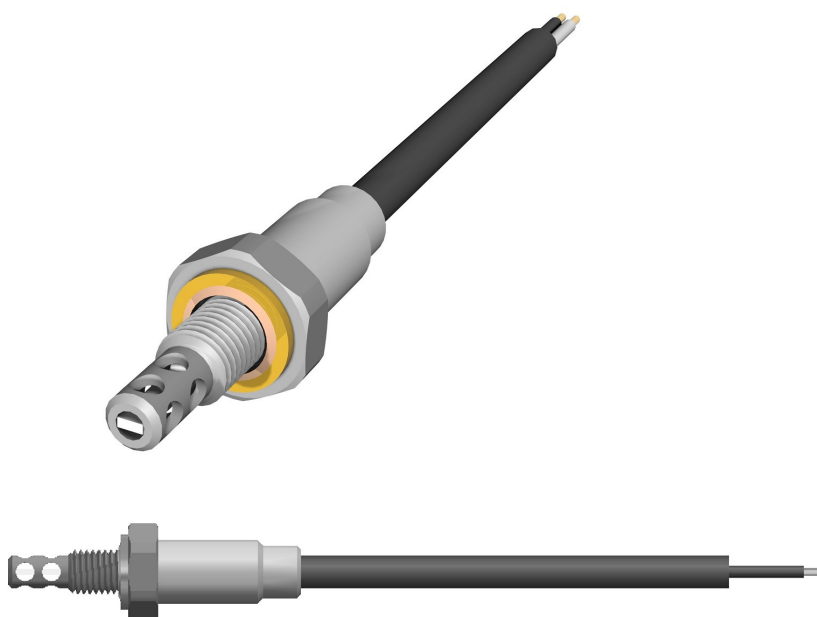
Fluids used in automotive applications are often aggressive and turbulent. The sensing element must be isolated from the medium, so the sensor element is encapsulated at the tip of a thermally conductive housing. This tip is made as small as possible to ensure minimal thermal mass – reducing error and response time. The rotational orientation of the sensor has no effect on the reading.

- Mounting Torque 5.3 to 6Nm
- Spanner 10mm A/F

Either type of sensor can form a seal in its installation port, if required. Use a new seal whenever the sensor is installed or reinstalled. The seals are available as accessories; please see the relevant Product Summary for the order code.

## Air and Fluid Installation

The following images illustrate a selection of housing styles and sealing methods. These can be designed to suit specific applications.



AIR TEMPERATURE SENSOR - BONDED SEAL

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## Temperature Sensors



AIR TEMPERATURE SENSOR - O RING SEAL



AIR TEMPERATURE SENSOR - PLUG-IN VARIANT

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AIR TEMPERATURE SENSOR - M6 THREADED VARIANT



FLUID TEMPERATURE SENSOR - M6 THREADED VARIANT

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## Exhaust Thermocouples

The sensing element is sealed in a stainless steel tube and is 1.5mm from the end of the tube. The length of the probe should be chosen to place the sensing element at the point in the gas flow where temperature is to be measured. The connection wires should be kept short and away from sources of electro magnetic radiation, such as ignition systems.

A soft copper washer may be used to provide a gas tight seal.

- Mounting Torque 12.5Nm max
- Spanner 11.3mm A/F (1/4BSF, 3/16BSW)



EXHAUST GAS TEMPERATURE SENSOR

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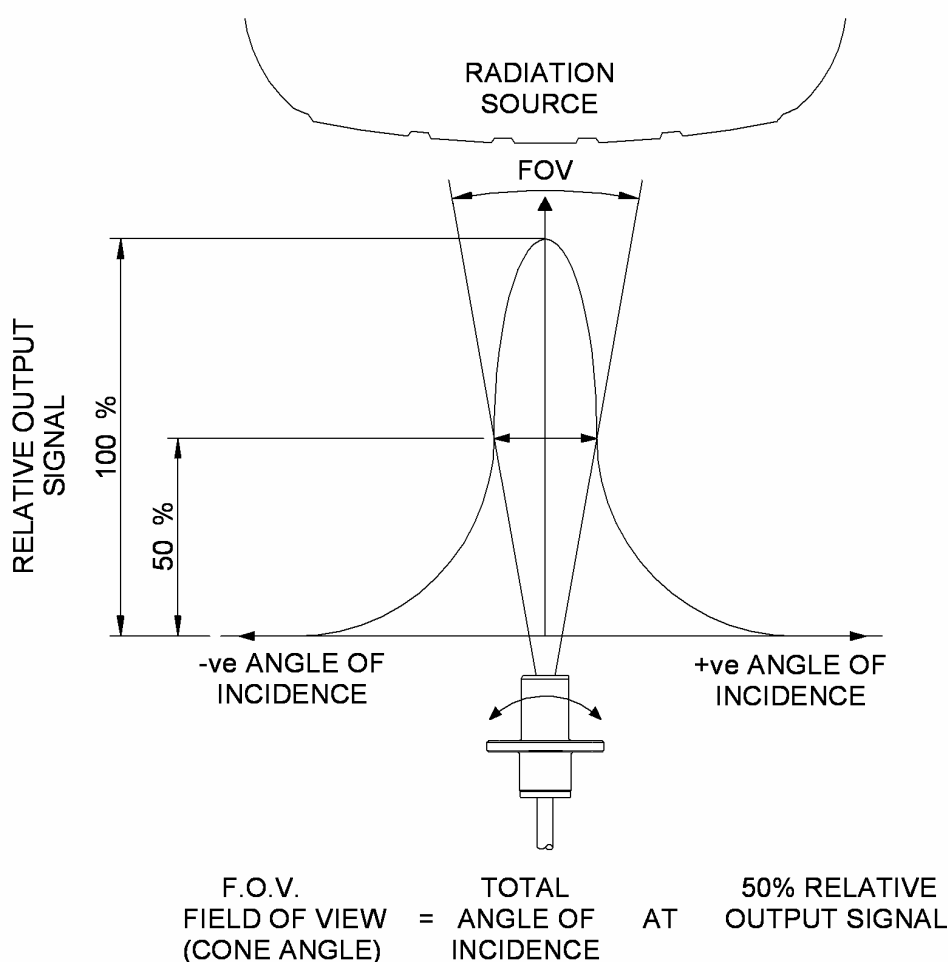
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## Infra Red

Infra-red sensors include lenses which focus the radiated energy onto the sensing element. For accurate measurement it is important to place the sensor so that its field of view is completely covered by the object to be measured. If the field of view includes objects outside the target area an error will be introduced.

The field of view of the sensor is 15° typ, 20° (max).

The sensor should be installed in such a way that the lens does not become dirty and the sensor is positioned far enough away from the target to ensure that the maximum operating temperature of the sensor is not exceeded.



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