

# DATA SHEET

## Zirconia O<sub>2</sub> Sensors

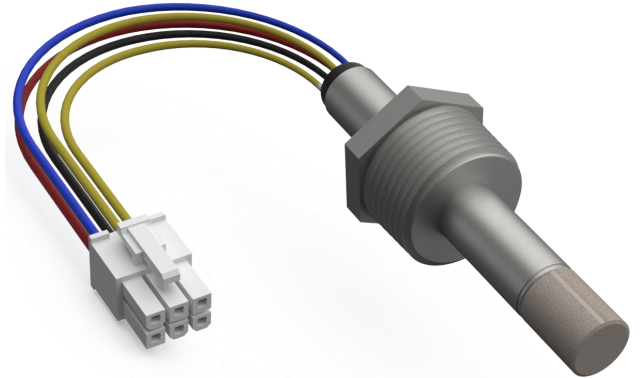
### NPT Probe Series—Screw Fit Housing



DESIGN • MANUFACTURE • CUSTOMISE • CONFIGURE

#### FEATURES

- Zirconium dioxide (ZrO<sub>2</sub>) sensing elements
- Long life, non-depleting technology
- Integral heating element
- High accuracy
- Requires an external interface board to operate<sup>a</sup>



#### Response Time



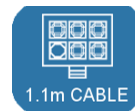
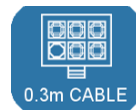
#### Heater Voltage



#### Gas Temp



#### Termination



#### BENEFITS

- No reference gas required
- No need for temperature stabilisation
- 3/4" NPT screw mounting

#### OUTPUT VALUES

Oxygen pressure range	2mbar—3bar max
Accuracy	5mbar max
Internal operational temp	700°C
Response time (10—90% step)	< 4s
Warm up time (prior to sensor operation)	60s
Warm up time (from standby)	20s
Output stabilisation time	~ 180s

#### TECHNICAL SPECIFICATIONS

Heater voltage <sup>b</sup>	
Operating	4.35V <sub>DC</sub> ± 0.1V <sub>DC</sub> (1.85A)
Standby	2V <sub>DC</sub> (0.85A)
Pump impedance at 700°C <sup>c</sup>	< 6kΩ
Permissible gas temperature	-100°C to +250°C
Gas flow rate	0—10 m/s
Repetitive permissible acceleration	5g
Incidental permissible acceleration	30g
Mounting thread	3/4" NPT

Other sensor options available on request, email:  
[technical@sstsensing.com](mailto:technical@sstsensing.com)

**Need help? Ask the expert**  
**Tel: + 44 (0)1236 459 020**  
**and ask for "Technical"**



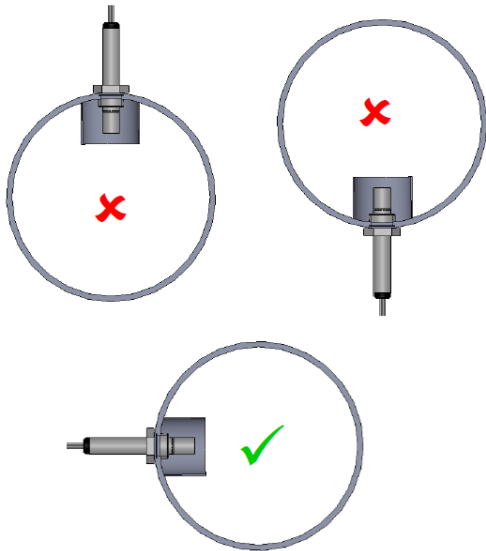
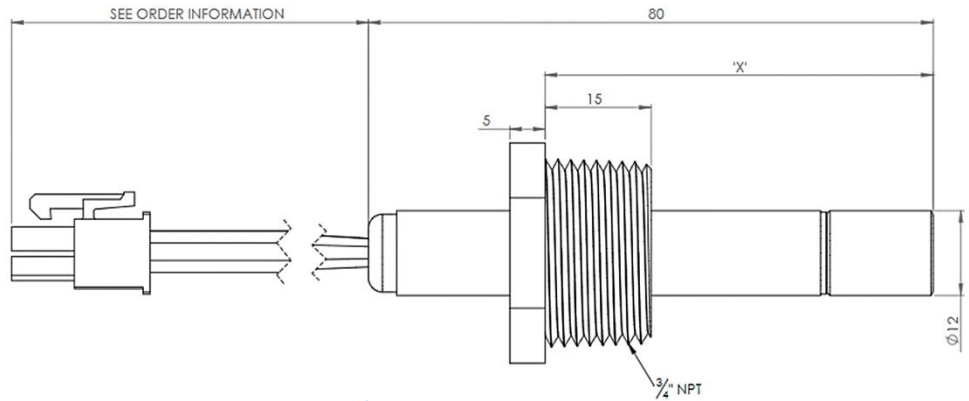
- Interface board sold separately; contact [technical@sstsensing.com](mailto:technical@sstsensing.com) for details.
- It is important to measure the heater voltage as close to the sensor as possible due to voltage drops in the supply cable.
- The constant current source used in the pump circuit should be designed to drive a load of up to 6kΩ.

# OUTLINE DRAWING AND MOUNTING INFORMATION

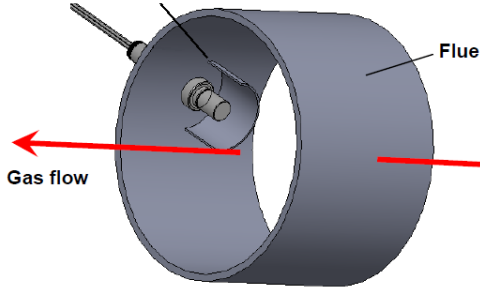
All dimensions shown in mm.

Molex mating connector  
39-01-2061 (plastic plug)  
39-00-0041 (pins)

X= 55mm for O2S-FR-T2-34NPTA

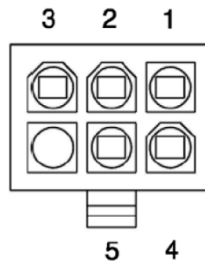


Baffle to protect sensor from direct gas flow and possible contamination



## ELECTRICAL INTERFACE

Molex Connector



Pin	Designation
1	Pump (Red)
2	Common (Black)
3	Heater (1) (Yellow)
4	Sense (Blue)
5	Heater (2) (Yellow)

## ORDER INFORMATION

Generate your specific part number using the convention shown below. Use only those letters and numbers that correspond to the sensor options you require — omit those you do not.

O 2 S - F R - T 2 - 3 4 N P T A - X X X

Termination
<b>Blank</b> 0.15m cable
<b>002</b> 0.3m cable
<b>003</b> 1.1m cable

### CAUTION

Do not exceed maximum ratings and ensure sensor(s) are operated in accordance with their requirements. Carefully follow all wiring instructions. Incorrect wiring can cause permanent damage to the device. Zirconium dioxide sensors are damaged by the presence of silicone. Vapours (organic silicone compounds) from RTV rubbers and sealants are known to poison oxygen sensors and MUST be avoided. Do NOT use chemical cleaning agents.

**Failure to comply with these instructions may result in product damage.**

### INFORMATION

As customer applications are outside of SST Sensing Ltd.'s control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure that the equipment is suitable for their intended application. For detailed information on the sensor operation refer to application note AN0043 Operating Principle and Construction of Zirconium Dioxide Oxygen Sensors.

**For technical assistance or advice, please email:**  
[technical@sstsensing.com](mailto:technical@sstsensing.com)

**General Note:** SST Sensing Ltd. reserves the right to make changes to product specifications without notice or liability. All information is subject to SST Sensing Ltd.'s own data and considered accurate at time of going to print.

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