

# Data Sheet

## O2S-XX-T3 Miniature Oxygen Sensor Family

### FEATURES

- Oxygen pressure range 2 mbar - 3bar
- Zirconium dioxide ( $\text{ZrO}_2$ ) sensing elements
- Non-consumption technology
- Integral heating element
- No need for temperature stabilisation
- No reference gas required
- High accuracy
- Linear output signal
- Operates with external interface boards
- PCB mountable



### SPECIFICATIONS

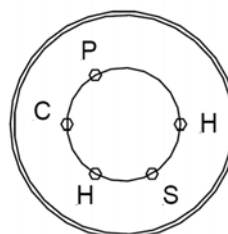
Heater Supply*	
Porous Lid Cap	$4V_{DC} \pm 0.1V_{DC}$ (1.7A)
Stand by	$1.65V_{DC}$ (0.7A)
Full Porous Cap	$4.35V_{DC} \pm 0.1V_{DC}$ (1.85A)
Stand by	$2V_{DC}$ (0.85A)
Pump resistance @ 700°C**	< 6k $\Omega$
Permissible gas temperature	-100 to 250°C
Gas flow rate	0 to 10 m/s
Repetitive permissible acceleration	5 g
Incidental permissible acceleration	30 g

\* It is important to measure the heater voltage as close to the sensor as possible due to voltage drops in the supply cable. Heater can also be operated with an equivalent a.c. Or PWM signals.

\*\* The constant current source used in the pump circuit should be designed to drive a load of up to 6k $\Omega$

### ELECTRICAL CONNECTION

#### O2S-T3 & O2S-FR-T3



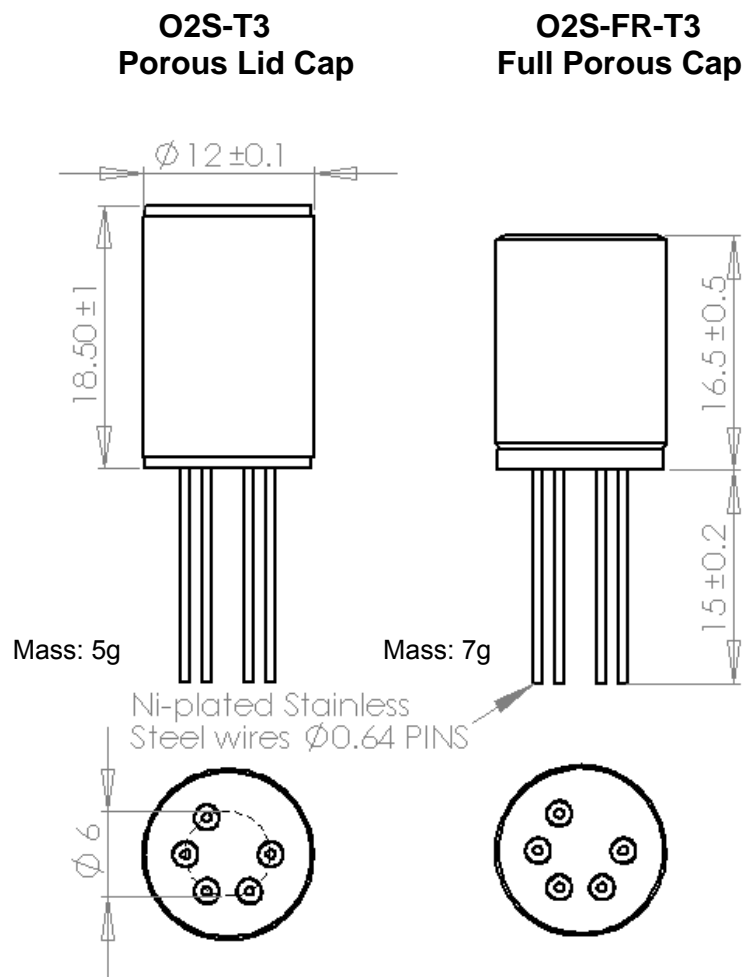
P: Pump  
C: Common  
H: Heater  
S: Sense

For detailed information on the sensor operation please refer to the following application note: AN0043 Operation Principle and Construction of Zirconium Dioxide Oxygen Sensor.

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### OUTLINE DRAWINGS



**NOTE:** Sensor pins are NOT designed to be solder too. Preferred method of connection is to crimp onto pins.  
All dimensions in mm.

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### PERFORMANCE CHARACTERISTIC

Characteristics	Min.	Typ.	Max.	Unit
Oxygen pressure range	2		3000	mbar
Accuracy			5	
Internal Operational temperature (O2S-T3)		700 (4.00V <sub>DC</sub> )		°C
Internal Operational temperature (O2S-FR-T3)		700 (4.35V <sub>DC</sub> )		
Response time (10 - 90% step, O2S-T3)			15	s
Response time (10 - 90% step, O2S-FR-T3)			4	
Warm up time (prior to sensor operation)			100	
Warm up time (from stand by)			20	
Output Stabilisation time		~ 180		

### ORDERING INFORMATION

Part number	Sensor Response	Housing Type	Termination
O2S-T3	< 15s	Miniaturised Sensor	Nickel plated stainless steel wire, 5 pin,
O2S-FR-T3	< 4s	Miniaturised Sensor	Nickle plated stainless steel wire, 5 pin

#### WARNING

##### Personal Injury

DO NOT USE these products as safety or Emergency Stop devices or in any other application Where failure of the product could result in Personal injury.

**Failure to comply with these instructions could Result in death or serious injury.**

#### CAUTION

Do not exceed maximum ratings and ensure sensor is operated in accordance with all requirements of AN0043 **Failure to comply with these instructions may result in product damage.**