XYA Series
Oxygen sensors

FEATURES
- Oxygen pressure range 2 mbar...3 bar
- Zirconium dioxide (ZrO₂) sensing elements
- Non-consumptive technology
- Integral heating element
- No need for temperature stabilisation
- No reference gas required
- Function testing and calibration in ambient air
- High accuracy
- Linear output signal
- Operates with external interface boards

SPECIFICATIONS
Maximum ratings
Heater supply voltage¹ 4.35 ±0.1 Vdc (1.85 A)
Stand by 2.0 Vdc (0.85 A)
Pump resistance @ 700 °C² 6 kΩ
Permissible gas temperature³
XYA1 -100...400 °C
all others -100...250 °C
Gas flow rate 0...10 m/s
Repetitive permissable acceleration 5 g
Incidental permissable acceleration 30 g

ELECTRICAL CONNECTION
Stainless steel wires (XYA1S)
- P: Pump
- C: Common
- S: Sense
- H: Heater

Molex connector (XYA...M)
- 1: Pump (Red)
- 2: Common (Black)
- 3: Heater (Yellow)
- 4: Sense (Blue)
- 5: Heater (Yellow)

Note:
1. It is important to measure the heater voltage as close to the sensor as possible due to voltage drops in the supply cable. The heater can also be operated with an equivalent AC or PWM signal.
2. The constant current source used in the pump circuit should be designed to drive a load of up to 6 kΩ.
3. For gas temperatures above 200 °C the heater supply voltage has to be decreased accordingly.
PERFORMANCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Oxygen pressure range</td>
<td>2</td>
<td></td>
<td>3000</td>
<td>mbar</td>
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<tr>
<td>Accuracy</td>
<td>5</td>
<td></td>
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<tr>
<td>Internal operational temperature</td>
<td>700</td>
<td></td>
<td></td>
<td>°C</td>
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<tr>
<td>Stand by temperature</td>
<td>500</td>
<td></td>
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<tr>
<td>Response time (10 to 90 %)</td>
<td></td>
<td>4</td>
<td></td>
<td>s</td>
</tr>
<tr>
<td>Warm up time (prior to sensor operation)</td>
<td></td>
<td>100</td>
<td></td>
<td>s</td>
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<tr>
<td>Warm up time (from stand by)</td>
<td></td>
<td>20</td>
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OUTLINE DRAWING

XYA1S

mass: 4 g

Ni-plated stainless steel wires

Note: Sensor pins are NOT designed to be soldered to. Preferred method of connection is to crimp onto pins.

dimensions in mm

XYA2M

mass: 24 g

dimensions in mm
OUTLINE DRAWING (cont.)
XYA5M, XYA6M, XYA7M

mass: 48 g

ORDERING INFORMATION

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<th>2M</th>
<th>5M</th>
<th>6M</th>
<th>7M</th>
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<tr>
<td></td>
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<td>cylinder</td>
<td>probe</td>
<td>screw fit probe, M18 x 1.5 (28 mm sensor header)</td>
<td>screw fit probe, M18 x 1.5 (45 mm sensor header)</td>
<td>screw fit probe, M18 x 1.5 (55 mm sensor header)</td>
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<td>stainless steel wires</td>
<td>Molex connector*</td>
<td>Molex connector*</td>
<td>Molex connector*</td>
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Example: XYA 2M

Note: Custom specific options are available. Please contact First Sensor for further information.

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