This sensor is designed to measure the proportion of oxygen in exhaust gases of automotive engines (gasoline or Diesel). A version with a protection tube of Inconel for pre-turbo-(supercharger) mounting is available.

The wide band lambda sensor LSU ADV is a planar ZrO₂ dual cell limiting current sensor with integrated heater. Its monotonic output signal in the range of lambda 0.65 to air makes the LSU ADV capable of being used as a universal sensor for lambda 1 measurement as well as for other lambda ranges.

The LSU ADV has no trimming resistor inside the connector what results in just 5 connector pins. Compared to LSU 4.9, the LSU ADV has a wider working temperature range.

LSU ADV operates only in combination with a special evaluation unit used in lambda control unit LT4 ADV. You’ll find this unit and more on our homepage at Electronics/Sensor Interfaces.

### Application

<table>
<thead>
<tr>
<th>Application</th>
<th>lambda 0.65 to ∞</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel compatibility</td>
<td>gasoline/Diesel/E85</td>
</tr>
<tr>
<td>Exhaust gas pressure</td>
<td>≤ 2.5 bar (higher with decrease accuracy)</td>
</tr>
</tbody>
</table>

### Exhaust Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust gas temperature (operating)</td>
<td>≤ 930°C (≤ 980°C pre Turbo Version)</td>
</tr>
<tr>
<td>Max. exhaust gas temperature for short time</td>
<td>≤ 1,030°C</td>
</tr>
<tr>
<td>Hexagon temperature (operating)</td>
<td>≤ 650°C</td>
</tr>
<tr>
<td>Max. hexagon temperature for short time</td>
<td>≤ 700°C</td>
</tr>
<tr>
<td>Max. temperature at welding seam</td>
<td>≤ 820°C (pre Turbo Version)</td>
</tr>
<tr>
<td>Max. temperature difference between hexagon and welding seam</td>
<td>≤ 330°C</td>
</tr>
<tr>
<td>Wire and protective sleeve temperature</td>
<td>≤ 250°C</td>
</tr>
<tr>
<td>Connector temperature</td>
<td>≤ 140°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-40 to 100°C</td>
</tr>
<tr>
<td>Max. vibration (stochastic peak level)</td>
<td>300 m/s²</td>
</tr>
</tbody>
</table>
Technical Specifications

Variations

1.) LSU ADV with automotive connector
Connector 1 928 404 669
Mating connector F 02U B00 725-01
Pin 1 APE
Pin 2 IPN
Pin 3 H-
Pin 4 Uh+ / H+
Pin 5 RE
Pin 6 nc
Wire length L 95.0 cm

2.) LSU ADV pre Turbo with automotive connector
Connector 1 254 488 136
Mating connector on request
Pin 1 IP/APE
Pin 2 VM/IPN
Pin 3 Uh- / H-
Pin 4 Uh+ / H+
Pin 5 UN / RE
Pin 6 nc

3.) LSU ADV (pre Turbo) with motorsport connector
Connector AS 6-07-35PA
Mating connector AS 0-07-35SA
Pin 1 Uh+ / H
Pin 2 Uh- / H-
Pin 3 IP / APE
Pin 4 VM / IPN
Pin 5 UN / RE
Pin 6 nc

Please specify the required wire length with your order (ADV pre Turbo max. 33 cm/ADV max. 90 cm).

Mechanical Data

Weight w/o wire 120 g
Thread M18x1.5
Wrench size 22 mm
Tightening torque 40 to 60 Nm

Electrical Data

Power supply H+ nominal 7.5 V
System supply voltage 10.8 V to 16.5 V
Heater power steady state 8.7 W
Heater control frequency ≥ 100 Hz
Nominal resistance of Nernst cell 300 Ω
Max current load for Nernst cell ≤ 80 µA
Switch-on time ≤ 5 s

Characteristic

Signal output I meas
Accuracy at lambda 0.8 -0.652 ± 0.032 mA
Accuracy at lambda 1 -0.018 ± 0.008 mA
Accuracy at lambda 1.7 0.515 ± 0.022 mA

I meas [mA] lambda U [V], v=17 U [V], v=8
-1.38000 0,650 0,048 0,817
-1.11000 0,700 0,332 0,950
-0.88000 0,750 0,574 1,064
-0.65000 0,800 0,816 1,178
-0.47500 0,850 1,000 1,265
-0.37000 0,880 1,111 1,317
-0.30000 0,900 1,184 1,351
-0.16000 0,950 1,332 1,421
-0.07600 0,980 1,420 1,462
-0.04800 0,990 1,449 1,476
-0.02000 1,000 1,479 1,490
0.01167 1,030 1,512 1,506
0.03278 1,050 1,534 1,516
0.06444 1,080 1,568 1,532
0.08556 1,100 1,590 1,542
0.17000 1,180 1,679 1,584
0.23080 1,260 1,743 1,614
0.36000 1,430 1,879 1,678
0.40148 1,500 1,922 1,699
0.52000 1,700 2,047 1,758
0.54740 1,780 2,076 1,771
0.77000 2,430 2,310 1,881

2 | Lambda Sensor LSU ADV/ADV pre Turbo
**Installation Notes**

This lambda sensor operates only in combination with a special evaluation unit used in lambda control unit LT4 ADV. You’ll find this unit and more on our homepage at Accessories/Expansion Modules.

The lambda sensor should be installed at point which permits the measurement of a representative exhaust-gas mixture, which does not exceed the maximum permissible temperature.

Install at a point where the gas is as hot as possible.

Observe the maximum permissible temperature.

As far as possible install the sensor vertically (wire upwards).

The sensor is not to be painted, nor is wax to be applied or any other forms of treatment. Use only the recommended grease for lubricating the thread.

Please find further application hints in the offer drawing at our homepage.

**Safety Note**

The Sensor is not intended to be used for safety related applications without appropriate measures for signal validation in the application system.

**Ordering Information**

**Lambda Sensor LSU ADV**
Automotive connector, wire length 95 cm
Order number 0 258 027 010

**Lambda Sensor LSU ADV**
Motorsport connector, wire length customer specific (max. 90 cm)
Order number F 02U V01 861-01

**Lambda Sensor LSU ADV pre Turbo**
Automotive connector, wire length 37 cm
Order number 0 258 027 052

**Lambda Sensor LSU ADV pre Turbo**
Motorsport connector, wire length 33 cm
Order number F 02U V02 066-01

**Connectors and Wires**

<table>
<thead>
<tr>
<th>Connector</th>
<th>Please see variations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mating connector</td>
<td>Please see variations</td>
</tr>
<tr>
<td>Sleeve</td>
<td>fiber glass / silicone coated</td>
</tr>
<tr>
<td>Wire length</td>
<td>Please see variations</td>
</tr>
</tbody>
</table>

Various motorsport and automotive connectors are available on request.
Dimensions

Mounting recommendation

Recommended design of the mating thread in the exhaust pipe
*: THexagon > 600°C or TGas > 930°C