Lambda Sensor LSU ADV/ADV pre Turbo

- Application: lambda 0.65 to ∞
- Exhaust gas temperature: 930°C (1,030 for a short time)
- Hexagon temperature: 820°C
- Thread: M18x1.5
- Weight w/o wire: 75 g

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 ZrO_2 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

Application	lambda 0.65 to ∞
Fuel compatibility	gasoline/Diesel/E85
Exhaust gas pressure	≤ 2.5 bar (higher with decrease accuracy)
Exhaust gas temperature (operating)	≤ 930°C (≤ 980°C pre Turbo Version)
Max. exhaust gas temperature for short time	≤ 1,030°C
Hexagon temperature (operating)	≤ 650°C
Max. hexagon temperature for short time	≤ 700°C
Max. temperature at welding seam	≤ 820°C (pre Turbo Version)
Max. temperature difference between hexagon and welding seam	≤ 330°C
Wire and protective sleeve temperature	≤ 250°C
Connector temperature	≤ 140°C
Storage temperature range	-40 to 100°C
Max. vibration (stochastic peak level)	300 m/s^2

Technical Specifications

Mechanical Data

Weight w/o wire	75 g
Thread	M18x1.5
Wrench size	22 mm
Tightening torque	40 to 60 Nm

Electrical Data

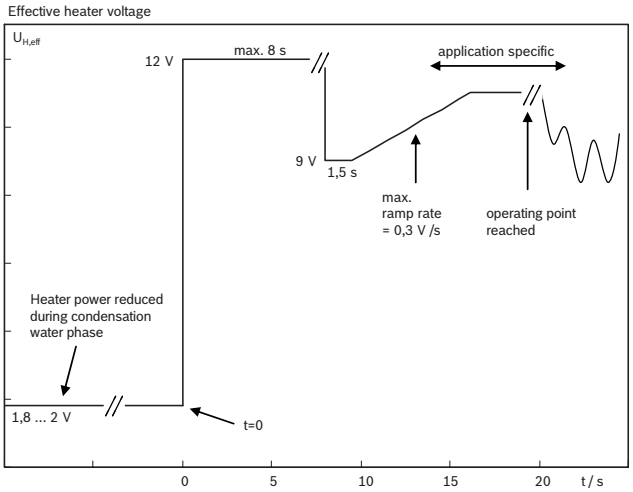
Power supply H+ nominal	7.5 V
System supply voltage	10.8 V to 16.5 V
Heater power steady state	8.7 W
Heater control frequency	≥ 100 Hz
Nominal resistance of Nernst cell	300 Ohm
Max current load for Nernst cell	≤ 80 µA
Switch-on time	≤ 5 s

Characteristic

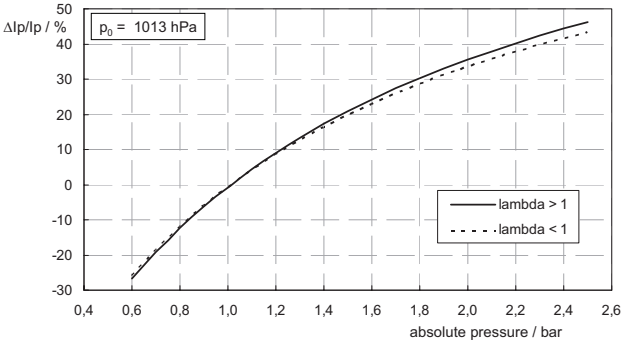
Signal output		I_P meas	
Accuracy at lambda 0.8		-0.652 ± 0.032 mA	
Accuracy at lambda 1		-0.018 ± 0.008 mA	
Accuracy at lambda 1.7		0.515 ± 0.022 mA	
I_P [mA]	**lambda**	**U_A [V], v=17**	**U_A [V], v=8**
-1,38000	0,650	0,048	0,817
-1.11000	0.700	0.332	0.950
-0.88000	0.750	0.574	1.064
-0.65000	0.800	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
1.40000	5.000	2.973	2.193

Please note: UA is not an output signal of the lambda sensor, but the output of the evaluation circuit. Only IP correlates with the oxygen content of the exhaust gas. Amplification factor v=17 is typically used for lean applications (lambda>1), amplification factor v=8 is typically used for rich applications (lambda<1).

Heater Strategy



Pressure Compensation



Connectors and Wires

LSU ADV with automotive connector	
Connector	1 928 404 669 (Series production type, not available from Bosch Motorsport)
Mating connector	F02U.B00.725-01
Pin 1	IP/APE
Pin 2	VM/IPN
Pin 3	Uh-/H-
Pin 4	Uh+ / H+
Pin 5	nc
Pin 6	UN/RE
Wire length L	95.0 cm
LSU ADV pre Turbo with automotive connector	
Connector	1254.488.136 (Series production type, not available from Bosch Motorsport)
Mating connector	F02U.B00.937-01
Pin 1	IP/APE
Pin 2	VM/IPN
Pin 3	Uh- / H-
Pin 4	Uh+ / H+
Pin 5	UN / RE

LSU ADV pre Turbo with motorsport connector	
Connector	AS607-35PA
Mating connector	AS007-35SA
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.	
Sleeve	fiber glass / silicone coated
Various motorsport and automotive connectors are available on request.	

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 fitted near to the exhaust pipe outlet, so that the influence of the outside air can be ruled out.

The exhaust-gas passage opposite the sensor must be free of leaks in order to avoid the effects of leak-air.

Protect the sensor against condensation water.

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.

Legal Restrictions

Due to embargo restrictions, sale of this product in Russia, Belarus, Iran, Syria, and North Korea is prohibited.

Ordering Information

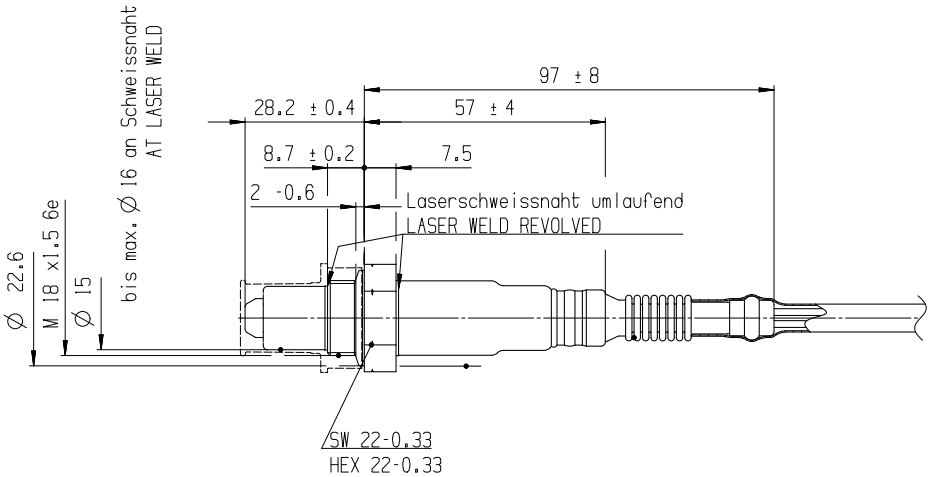
Lambda Sensor LSU ADV
Automotive connector, wire length 95 cm
Order number **0258.027.010**

Lambda Sensor LSU ADV
Motorsport connector, wire length customer specific (max. 90 cm)
Order number **F02U.V01.861-01**

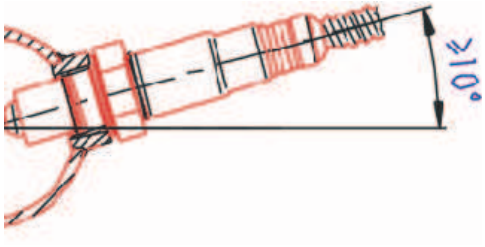
Lambda Sensor LSU ADV pre Turbo
Automotive connector, wire length 65 cm
Order number **0258.027.00F**

Lambda Sensor LSU ADV pre Turbo
Motorsport connector, wire length 33 cm
Order number **F02U.V02.908-02**

Dimensions

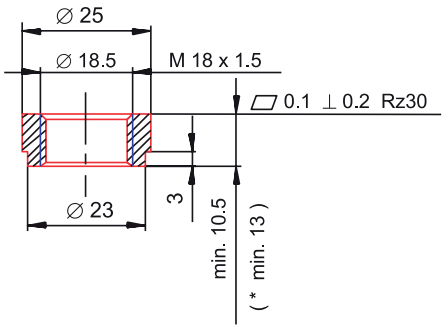


Mounting recommendation



Recommended design of the mating thread in the exhaust pipe

*: THexagon > 600°C or
TGas > 930°C



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51946891 | en, V, 02. Feb 2024