Lambda Sensor LSU 4.9

This sensor is designed to measure the oxygen content and Lambda value of exhaust gases in automotive engines (gasoline or Diesel).

The wide band lambda sensor LSU 4.9 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 capable of being used as an universal sensor for $\lambda = 1$ measurement as well as for other λ ranges. The connector module contains a trimming resistor, which defines the characteristic of the sensor. The LSU operates only in combination with a special LSU-IC, used in most Bosch Motorsport ECUs and Lambda control units like LT4.

The main benefit of the LSU is the robust design combined with the high Bosch production quality standard.

Application	
Application	0.65 λ ... ∞
Fuel compatibility	gasoline/Diesel/E85
Exhaust gas pressure	< 4 bar
Exhaust gas temperature range (operating)	< 930 °C
Exhaust gas temperature range (max.)	< 1,030 °C
Hexagon temperature	< 600 °C
Cable and protective sleeve temperature	< 250 °C
Connector temperature	< 140 °C
Storage temperature range	-40 ... 100 °C
Max. vibration (stochastic peak level)	< 1,000 m/s^2

Mechanical Data	
Weight w/o wire	120 g
Length	84 mm
Thread	M18x1.5
Wrench size	22 mm
Tightening torque	40 ... 60 Nm

Electrical Data	
Power supply H+ nominal	7.5 V
System supply voltage	10.8 V ... 16.5 V
Heater power steady state	7.5 W
Heater control frequency	≥ 100 Hz
Nominal resistance of Nernst cell	300 Ω
Max current load for Nernst cell	250 µA

Connectors and Wires

Connector	[1] 1 928 404 687 [2] AS 6-07-35PN
Mating connector	[1] D 261 205 356-01 [2] AS 0-07-35SN
Pin 1	IP / APE
Pin 2	VM / IPN
Pin 3	Uh- / H-
Pin 4	Uh+ / H
Pin 5	IA / RT
Pin 6	UN / RE
Sleeve	fiber glas / silicone coated
Wire size	AWG 24
Wire length L	32.5 cm
Various motorsport and automotive connectors are available on request.	
Please specify the required wire length with your order.	

Application Hint

The LSU 4.9 can be connected to most Bosch Motorsport ECUs and lambda control units like LT4.
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 (http://www.bosch-motorsport.com).

Characteristic

Signal output	Ip meas / Ua (AWS)
Accuracy @ λ = 1.016	1.016 ±0.007
Accuracy @ λ = 0.8	0.80 ±0.01
Accuracy @ λ = 1.7	1.70 ±0.05

IP	U_A [V]	Lambda [λ]
-1.243	0.192	0.750
-0.927	0.525	0.800
-0.800	0.658	0.822
-0.652	0.814	0.850
-0.405	1.074	0.900
-0.183	1.307	0.950
-0.106	1.388	0.970
-0.040	1.458	0.990
0	1.500	1.003
0.015	1.515	1.010
0.097	1.602	1.050
0.193	1.703	1.100
0.250	1.763	1.132
0.329	1.846	1.179
0.671	2.206	1.429
0.938	2.487	1.701
1.150	2.710	1.990
1.385	2.958	2.434
1.700	3.289	3.413
2.000	3.605	5.391
2.150	3.762	7.506
2.250	3.868	10.119

Part Number

LSU 4.9	[1] **0 258 017 025**
LSU 4.9	[2] **B 261 209 358-02**