

AWS LSU 4.9

The AWS LSU 4.9 is used in combination with the lambda sensor (Mini-)LSU 4.9. The box is able to supply two (Mini-)LSU 4.9 lambda sensors. It includes two heaters and converts each specific sensor signal into two separate lambda signals. Furthermore, the temperature of the sensor, the duty cycle of the heater and diagnosis of the probe is available. The signal output is via CAN-message.

Please note: Lambda sensors are not part of the AWS LSU 4.9.



Application	
Measuring range	0.6 ... 2.5 λ

Mechanical Data	
Weight	80 g
Size	38 x 43 x 16 mm
Cable length	150 mm
Operating temperature	10 ... 60 °C

Diagnosis	
$\lambda_{\text{Value}} = 0,0069$:	failed sensor (short cut or not connected)
$\lambda_{\text{Value}} = 0,0686$:	sensor did not reach 600 °C (up to 30 sec)
$\lambda_{\text{Value}} = 0,1373$:	heating periode

Electrical Data	
Power supply	5 ... 20 V
Power consumption	120 mA at 12 V + heater current (max. 2 A per probe)
Channels	2 A/F
Resolution	0,01
Sampling rate	100 Hz per channel

CAN-ID

For each sensor, the following CAN-IDs will receive the A/F value as **16-bit unsigned Integer** and the heating value and the temperature values as **8-bit unsigned byte** (Motorola-type):

CAN-ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x290	A/F1		A/F2		Temp1	Temp2	Heat1	Heat2

$$A/F_{\text{Value}} = 0,001 * A/F_x$$

$$\begin{aligned} \lambda_{\text{Value}} &= A/F_{\text{Value}} / 14,57 \\ &= A/F_{\text{Digits}} / 14570 \\ &= A/F_{\text{Digits}} * 0,00006863418 \end{aligned}$$

$$\text{Heat-Temp} = \text{Temp} \times \text{Digits} * 2 + 496,9 \text{ °C}$$



Pin assignment life connector		
Pin	Name	Description
1	GND	Ground
2	GND LSU 1/2	Ground LSU heater
3	Vext	External power supply 5 ... 20 V
4	LSU heater	External power supply for LSU 1/2 heater
9	CAN H	CAN Bus high
10	CAN L	CAN Bus low
11	TxD	TxD serial interface
12	RxD	RxD serial interface

Pin assignment LSU-1/2 in connector		
Pin	Name	Description
1	LSU1 IP	Inv. Input of pump current amp
2	LSU1 VM	Virtual ground
3	GND heater 1	Ground for heater 1
4	Vext heater 1	External power supply 5 ... 20 V LSU1
5	LSU1 IA	Non Inv. input of pump current amp
6	LSU1 UN	Inv. input of pump current control
7	LSU2 IP	Non Inv. input of pump current amp
8	LSU2 VM	Virtual ground
9	GND heater 2	Ground for heater 2
10	Vext heater 2	External power supply 5 ... 20 V LSU2
11	LSU2 IA	Non Inv. input of pump current amp
12	LSU2 UN	Inv. input of pump current control

Accessories
Lambda Sensor LSU 4.9
Lambda Sensor LSU 4.9D
Lambda Sensor Mini-LSU 4.9

Part Number	
AWS LSU 4.9	F 01E B01 622