

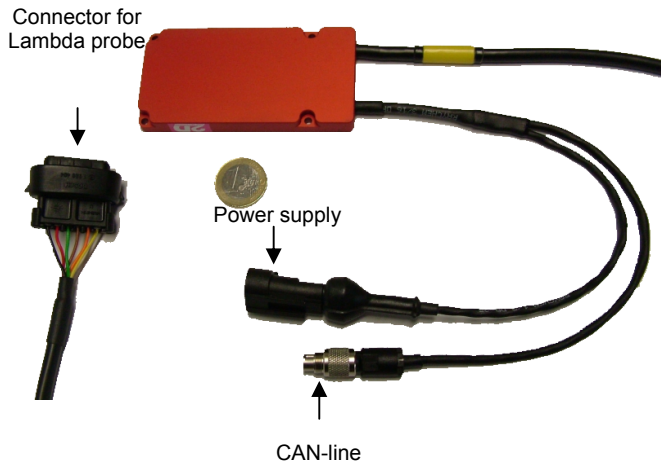
BC-KIT_LSU01/05-001 1 channel Lambda (A/F) to CAN interface for probe 4.2

Function

- Direct measurement of the A/F ratio to optimize the carburetor/engine setting
- Controller and sensor with CAN Bus data output, ready to connect to the 2D datalogger

Features

- Module usable with BOSCH LSU probe 4.2
- High signal resolution and accuracy because linear sensor range
- No temperature drift problem because heater control
- Long operating life (lambda sensor)



Technical specifications

Electrical characteristics

<i>A/F (Lambda) interface</i>	
Power supply.....	12 - 20 V
Power supply heater.....	10 - 14 V
Current consumption@12V..... + Heater current maximum	75 mA 2A
Channels.....	1 A/F
resolution.....	0.01 A/F
Sampling rate.....	400 Hz
Analogue output.....	0 - 5 V
<i>A/F (Lambda) sensor</i>	
LSU probe 4.2	+800 °C
Linear output Air/Fuel ratio.....	6 to 30 A/F
Connections	
CAN-line.....	Binder 712 5PM
Power supply.....	AMP SuperSeal 2PM
Lambda probe.....	Bosch 1 928 404 016 6PM

Mechanical characteristics

<i>A/F (Lambda) interface</i>	
Dimensions.....	95 x 48 x 9 mm ³
Weight (with cables).....	140 g
Raychem cable (power supply).....	2 x 0.56 mm ²
PUR-cable (CAN line).....	4 x 0.3175 mm ²
Cable length (CAN / power supply).....	300 mm
<i>A/F (Lambda) sensor</i>	
LSU probe 4.2.....	115 g
Raychem cable.....	6 x AWG22
Cable length.....	1050 mm

Vibration resistance

Shock.....	40 G
.....	10 ms
Vibration tested at.....	12 G
.....	1000 Hz

Environmental data

Ambient operating range.....	0 to +75 °C
Humidity.....	5 to 95 %
Sealing class.....	IP 66

Ordering information

Standard:.....BC-KIT_LSU01/05-001

Optional (+analog output).....BC-KIT_LSU01/05-002

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CAN ID overview

- For each probe, the following CAN-ID's will receive the A/F value as 16-bit unsigned Integer, the Heating value and the Temperature values as 8-bit unsigned Byte:

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



Use the following formula to convert to physical values, if you don't use a 2D-Module:

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

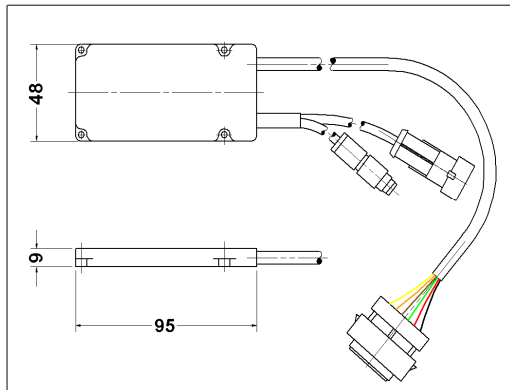
$$\lambda_{\text{Value}} = A/F_{\text{Value}} / 14.57 = A/Fx_{\text{Digits}} / 14570$$

or

$$A/Fx_{\text{Digits}} * 0.00006863418$$

$$\text{Heat- Temp} = \text{Temp}x_{\text{Digits}} * 2 + 539,4^{\circ}\text{C}$$

Dimensions



If the probe temperature is not reaching 600°C the channel shows the status as you can see in the following table.

A/F (λ-value)	Description
0.016	The probe temperature is under 600°C
0.100	Probe is not connected or short circuit to
0.110	Open load (probe is not connected)
0.120	Short circuit to Vbat.
0.3	In the automatic mode: "no CAN data"
1.0	The probe temperature is under 600°C after the heating phase (approx. 20sec) → measurement is not possible
2.0	The probe is heating during the start
3.0	In the automatic mode the A/F value measuring (λ-value measuring) is off according to the switch value
6.0-30.0	Measurement range

Connector layout

CAN-line (Standard)

CAN-line Binder 712, 5pin	Pin	Name	Description	Color (standard)
	1	CAN H	CAN Bus High	white
	2	CAN L	CAN Bus Low	green
	3	GND	Ground	black
	4	Aout	Analog Output 0-5V	blue
	5	Vext	Power IN (8-18V)	red

Power supply

Pin	Name	Description	Color
1	Vext	Power supply	Red
2	BGND	Ground	Black

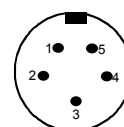


Do not connect CAN Ground and Battery Ground. The connection of a low current ground and a high current ground can cause signal noise.

Pin	Name	Description	Color
1	IP	Inverting input current amplifier	black
2	UN	Inverting input current control	red
3	VM	Virtual ground current control	green
4	Heater-	Ground for heater	brown
5	Heater+	Power for heater	orange
6	IA	Non inv. Input of pump current amplifier	yellow
-		Shield	grey

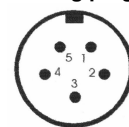
Connector type

Connector at module



Binder 712, 5 PM (front side)

Mating plug



Binder 712, 5 PF (front side)

Connector at module

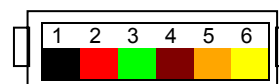


AMP SuperSeal, 2PM Lambda interface

Mating plug



AMP SuperSeal, 2PF Lambda probe



BOSCH 1 928 404 016 6PF



6PM