
BC-LAF_Moto2-216 Engine-Interface with 1 channel λ and 8 analog inputs

**Key Features:**

- Engine Interface with 1ch LAF controller and 8 analog inputs to connect to 2D logger via CAN
- Module usable with BOSCH LSU probe 4.2
- High signal resolution and accuracy because of linear sensor range
- No temperature drift problem because of heater control
- Typical application: direct measurement of A/F ratio to optimize engine setting
- Pick up of analog signals from ECU

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Technical specifications

| | | | | | |
|-----------------------------------|-----|----------|---|----------------------|---------|
| Electrical characteristics | | | Mechanical characteristics | | |
| Supply voltage | V | 12-20 | Housing material | Aluminum | |
| Power supply heater | V | 10-14 | Dimensions | mm | 95x48x9 |
| Current consumption@12V | mA | 75 | Weight(with cables) | g | 140 |
| + Heater current | A | Max. 2 | | | |
| Channels | | | Cable & Connector & Length | | |
| A/F input channel | | 1 | CAN-Line | | |
| Resolution | A/F | 0.01 | cable | Metrofunk 4xAWG24 | |
| Sampling rate (predefined) | Hz | 100 | connector | Binder 712, 5PM | |
| Analog input channels | | 6 | length | mm | 300 |
| Sampling rate (predefined) | Hz | 100 | Power/ECU | | |
| Input voltage range | V | 0 -5 | cable | Metrofunk 12xAWG24 | |
| Input filter | | | connector | Deutsch ICM 200 12PM | |
| Cut-off frequency (-3dB) | Hz | 25 | length | mm | 300 |
| Damping (per decade) | dB | 6 | A/F | | |
| Hybrid channels | | 2 | cable | Metrofunk 6xAWG22 | |
| Reserved for future applications | | | connector | BOSCH, 6PF | |
| | | | length | mm | 800 |
| Environmental data | | | Vibration resistance | | |
| Protection class: | IP | 66 | Shock | G | 40 |
| Ambient operating range | °C | 0 to +70 | During time period of | ms | 10 |
| Humidity | % | 5 to 95 | Vibration tested @ | G | 12 |
| | | | Measured with | Hz | 1000 |
| | | | Ordering information | | |
| | | | Art.No. BC-LAF_MOTO2-216 | | |

Status messages

If the probe is not working correct, the channel shows a status message as follows:

| A/F(λ -Value) | Description |
|------------------------|---|
| 0.016 | The probe temperature is below 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 below 600°C after the heating period (approx. 20s) \Rightarrow measurement is not possible |
| 2.0 | The probe is heating during the start |
| 3.0 | In the automatic mode the A/F value measuring is off according to the switch value |
| 6.0-30.0 | Measurement range |

Calibration formula

If you don't use a 2D system please use the following formula to convert to physical values:

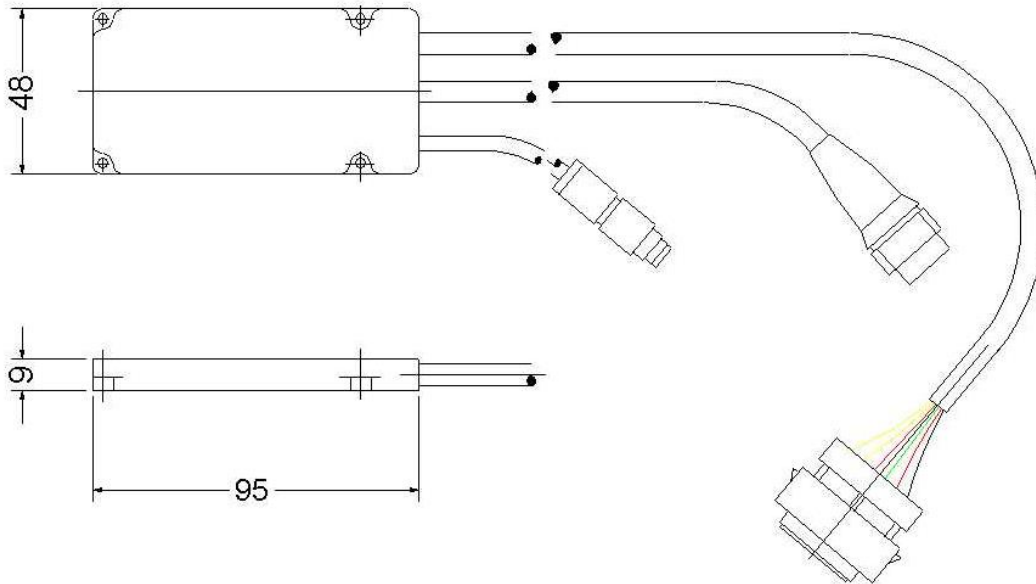
$$A/F_{\text{Value}} = 0.001 * A/F_x$$

$$\lambda_{\text{Value}} = A/F_{\text{Value}} / 14.57 \text{ or } A/F_x \text{Digits} / 14570 \text{ or } A/F_x \text{Digits} * 0.00006863418$$

$$\text{Heat-Temp} = \text{Temp} \times \text{Digits} * 2 + 539.4^\circ\text{C}$$

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Dimensions

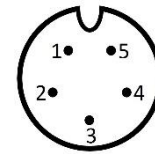


Connector layout

Connector type

CAN line, Binder 712 5PM

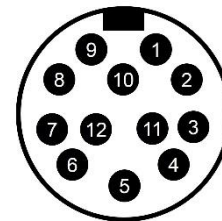
| Pin | Name | Description | Color |
|-----|-----------|---------------------|-------|
| 1 | CAN Hi | CAN High | white |
| 2 | CAN Lo | CAN Low | green |
| 3 | GND | Ground | black |
| 4 | n.c. | Not connected | |
| 5 | Vext/KL30 | Power supply 8- 16V | red |



front view

ECU IO, Deutsch IMC 200, 12PM

| Pin | Name | Description | Color |
|-----|-------|---------------------|-------------|
| 1 | Vext | Power supply | red |
| 2 | BGND | Ground | black |
| 3 | AIN 1 | Throttle | brown |
| 4 | AIN 2 | T_Water | orange |
| 5 | AIN 3 | IMAP | yellow |
| 6 | AIN 4 | T_Air | green |
| 7 | AIN 5 | EcuErr | white |
| 8 | AIN 6 | P_Fuel | grey |
| 9 | QS | Quickshift Sig. ECU | white/black |
| 10 | Vcoil | Power supply coils | white/brown |
| 11 | AIN7 | Shiftload | purple |
| 12 | AIN8 | Analog Input 8 | blue |



front view

LSU Probe, Bosch 6PF

| 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 heater | brown |
| 5 | Heater+ | Power heater | orange |
| 6 | IA | Non inverting input of pump current amplifier | yellow |
| | Shield | Shield | grey |



front view