

# Lambdatronic LT4



- ▶ Supply of up to 4 Bosch lambda sensors, type LSU 4.2, LSU 4.9 or Mini-LSU 4.9
- ▶ Integrated voltage compensation for sensor heater

The Lambdatronic LT4 provides controlled pumping current to supply up to 4 Bosch lambda sensors, type LSU 4.2, LSU 4.9 or Mini-LSU 4.9. The lambda value, the sensor temperature and diagnostics are available via CAN and analog signal.

The LSU contains a Nernst and a pump cell. The lambda in the Nernst cell is controlled to  $\lambda = 1.013$  independent of the oxygen contents on the emission side, through a current through the pump cell. The current proportional output voltage of the IC is a measure of the lambda value.

The main feature and benefit of this unit is the combination of the Bosch well known lambda IC and a very compact box size with motorsport specification. Furthermore the analog signal output can be configured freely.

## Application

|                              |                                |
|------------------------------|--------------------------------|
| Application                  | Lambda 0.75 to 10.12           |
| Compatible Bosch sensor type | LSU 4.2, LSU 4.9, Mini-LSU 4.9 |
| Channels                     | 4                              |
| Heater                       | Internal                       |

## Technical Specifications

### Mechanical Data

|                                 |                 |
|---------------------------------|-----------------|
| Weight with wire                | 98 g            |
| Sealing                         | 100 % humidity  |
| Mounting                        | Velcro          |
| Size w/o wire (w*h)             | 54 x 59 x 13 mm |
| Operating temp. range (housing) | -20 to 85°C     |

|                     |   |
|---------------------|---|
| Storage temp. range | -20 to 85°C   |
| Max. vibration      | Vibration Profile 1 (see Appendix or <a href="http://www.bosch-motorsport.com">www.bosch-motorsport.com</a> ) |

### Electrical Data

|                                |                  |
|--------------------------------|------------------|
| Power supply $U_s$             | (6.5) 10 to 14 V |
| Max power supply (1 min) $U_s$ | Max. 26 V        |
| Thermal dissipation loss       | 3 W at 14 V      |
| Current $I_s$                  | 5 A              |
| Current $I_s$ (Heating up)     | 26 A             |

### Software Tool (free download)

|  |
|--|
| System Configuration tool RaceCon 2.7.0.9 or later |
|--|

### Characteristic

|                      |                               |
|----------------------|-------------------------------|
| Signal output 1      | CAN                           |
| Signal output 2      | 4 x 0 to 5 V "analog"         |
| CAN- baud rate       | 500 kbaud or 1 Mbaud          |
| Signal resolution    | 2,5 * 10 <sup>-4</sup> lambda |
| Signal sampling rate | 100 Hz                        |
| CAN refresh rate     | 100 Hz                        |

### Connectors and Wires

|                |                 |
|----------------|-----------------|
| Connector      | AS614-35PN      |
| Connector loom | F02U.000.365-01 |
| AS114-35SN     |                 |
| Sleeve         | Viton           |
| Wire size      | 26              |
| Wire length L  | 20 cm           |

**Pin Assignment**

| Pin | Function                     |
|-----|------------------------------|
| 1   | + 12 V (Battery +)           |
| 2   | + 12 V (Battery +)           |
| 3   | Ground (Battery -)           |
| 4   | Ground (Battery -)           |
| 5   | K-Line diagnostic connection |
| 6   | CAN1 + (high)                |
| 7   | CAN1 - (low)                 |
| 8   | Analog out 1                 |
| 9   | Analog out 2                 |
| 10  | Analog out 3                 |
| 11  | Analog out 4                 |
| 12  | Reference GND for analog out |
| 13  | Shield                       |
| 14  | Pump current LSU 1 IP1       |
| 15  | Virtual GND LSU 1 VM1        |
| 16  | Heater PWM LSU 1 Uh-1        |
| 17  | Heater (Batt +) LSU 1 Uh+1   |
| 18  | Setup current LSU 1 IA1      |
| 19  | Nernst voltage LSU 1 UN1     |
| 20  | Pump current LSU 2 IP2       |
| 21  | Virtual GND LSU 2 VM2        |
| 22  | Heater PWM LSU 2 Uh-2        |
| 23  | Heater (Batt. +) LSU 2 Uh+2  |
| 24  | Setup current LSU 2 IA2      |
| 25  | Nernst voltage LSU 2 UN2     |
| 26  | Pump current LSU 3 IP3       |
| 27  | Virtual GND LSU 3 VM3        |
| 28  | Heater PWM LSU 3 Uh-3        |
| 29  | Heater (Batt +) LSU 3 Uh+3   |
| 30  | Setup current LSU 3 IA3      |
| 31  | Nernst voltage LSU 3 UN3     |
| 32  | Pump current LSU 4 IP4       |
| 33  | Virtual GND LSU 4 VM4        |
| 34  | Heater PWM LSU 4 Uh-4        |

|    |                             |
|----|-----------------------------|
| 35 | Heater (Batt. +) LSU 4 Uh+4 |
| 36 | Setup current LSU 4 IA4     |
| 37 | Nernst voltage LSU 4 UN4    |

**Communication**

|                    |              |
|--------------------|--------------|
| Communication link | K-Line / CAN |
|--------------------|--------------|

**Installation Notes**

Typical lifetime: max. 220 h / 2 years

For application with severe conditions and/or high volume, please contact your Bosch Motorsport counterpart in order to define the most appropriate validation program

The LT4 is designed to supply 4 Bosch lambda sensors, type LSU 4.2, LSU 4.9 or Mini-LSU 4.9

The LT4 is featured with voltage compensation for the heating profile

The unit can be connected to any CAN system (500 kbaud or 1 Mbaud) and analog measuring device.

To avoid signal errors, a cable length of maximum 1.5 m between sensor and box is recommended.

The unit is secure from miss-pinning.

The reference ground (GND\_REF) has to be connected either to the measuring device or to the system ground.

A ground offset of 2 V (max.) between GND and GND\_REF has not to be exceeded.

See the LT4 function sheet for software documentation (e.g. CAN protocol).

Please find further application hints in the offer drawing at our homepage.

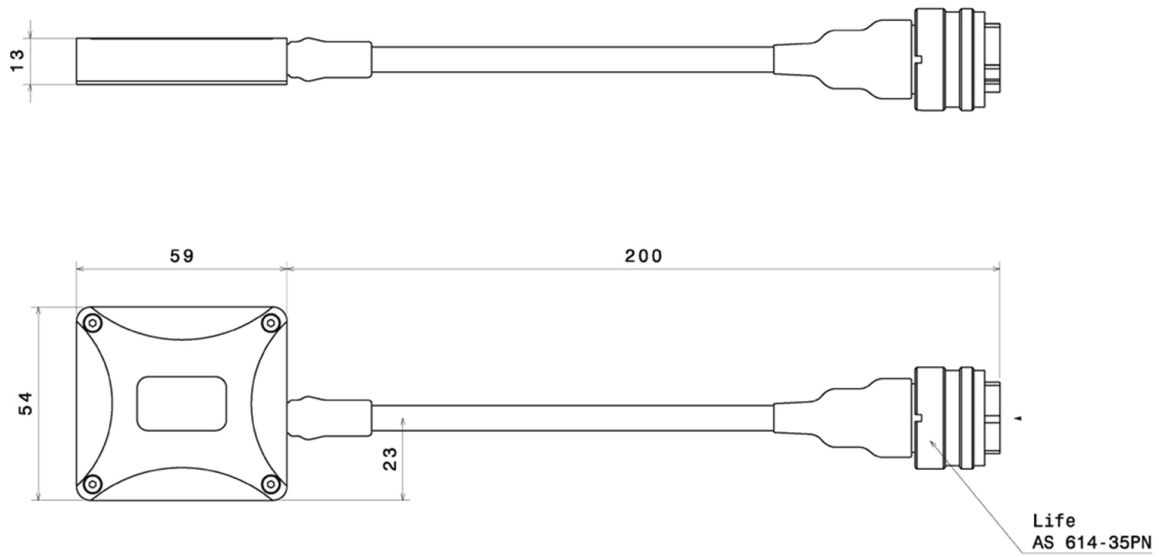
**Legal Restrictions**

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

**Ordering Information****Lambdatronic LT4**

Order number **F01T.A20.070-09**

**Dimensions**



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