Electronic Sensor Board for oxygen sensors by SENSORE Electronic

**Main Features**

- Compatible with O₂-Sensor-types SO-zz-xxx
- Supply voltage 12Vdc
- Output signal 0-5Vor 4-20mA according to O₂-concentration
- Also available as calibrated package (sensor + electronic)
- Fixed heater voltage intended for ambient temperatures 0-40°C

**Characteristic Data**

**Sensor Compatibility**

Compatible with sensors: SO-zz-xxx (see sensor data sheet)

TO-8 standard types can be mounted directly on the PCB

Other types can be connected via 6-pol. interface

Based on the selected sensor type, the sensor board will be delivered with a fixed configuration for sensor and heater voltage

**Supply**

Supply voltage: 12V ± 1V

Typical current consumption: 200mA

**Measuring range**

Depending on selected sensor type

**Output characteristic:**

Standard: \( V_{\text{out}}(O_2) = 0-5V \)

Or alternative: \( I_{\text{out}}(O_2) = 4-20mA \) (maximal resistive load: 100Ω)

Linearization of the sensor characteristic is not provided:

\[
V_{\text{out}}(O_2) = -k_U \cdot \ln\left(1 - \frac{[O_2]}{100\%}\right) \quad \text{or} \quad I_{\text{out}}(O_2) = 4mA - k_I \cdot \ln\left(1 - \frac{[O_2]}{100\%}\right)
\]

\([O_2]\) Oxygen concentration in Vol.-%

\(k_U, k_I\) specific sensor type constant

**Standard coefficients after calibration:**

<table>
<thead>
<tr>
<th>sensor type</th>
<th>max. (O_2) [Vol.-%]</th>
<th>(k_U) [V]</th>
<th>(k_I) [mA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO-zz-010</td>
<td>1</td>
<td>497,50</td>
<td>1591,99</td>
</tr>
<tr>
<td>SO-zz-020</td>
<td>2</td>
<td>247,49</td>
<td>791,97</td>
</tr>
<tr>
<td>SO-zz-050</td>
<td>5</td>
<td>97,48</td>
<td>311,93</td>
</tr>
<tr>
<td>SO-zz-250</td>
<td>25</td>
<td>17,38</td>
<td>55,62</td>
</tr>
<tr>
<td>SO-zz-960</td>
<td>96</td>
<td>1,553</td>
<td>4,971</td>
</tr>
</tbody>
</table>

**Calibration**

Single point calibration via potentiometer

It is also possible to purchase an already calibrated system (electronic + sensor)

**Accuracy**

1% of measuring range \(\@ T_{\text{ambient}} = 25^\circ\text{C} \pm 10^\circ\text{C}\) (assuming a calibration at 25°C)

The information contained in this document is believed to be accurate and reliable but is presented without guarantee.
Data sheet
CSB - Compact Sensor Board

4pol interface X1

Power supply (12V) and Signal out
Compatible connector: JST EHR-4
Pin Assignment: depending on output type (0-5V or 4-20mA)

![Figure 1 4-20mA current interface](image1)

AGND and Power-GND are connected on the CSB, other configurations upon request.

6pol interface X2

Optional external sensor connection
Compatible Connector: Lumberg 3521 06
Pin Assignment:
1 (black) S-
2 (red) S+
3 (violet) H+
4 (violet) HS+
5 (white) HS-
6 (white) H-

Response time (t90)

<20 sec. (depends on sensor type)

Warm up time

Approx. 2 min.

Permissible ambient temperatures

$T_{\text{ambient}} = 0\ldots40^\circ\text{C}$ for sensor directly mounted on the CSB

Higher sensor ambient temperatures are possible if a connection via 6-pol interface is used. Such applications can be evaluated upon request.