CSB - Compact Sensor Board

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: Vout (O2) = 0-5V
Or alternative: Iout (O2) = 4-20mA (maximal resistive load: 100Ω)
Linearization of the sensor characteristic is not provided:

(dimensions in mm)

$V_{out}(O_2)$ Oxygen concentration in Vol. -%
k_u, k_i Specific sensor type constant

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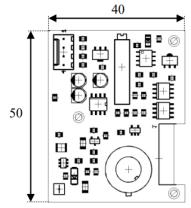
Basic Specification

Absolute maximum ratings

Values beyond these limits might cause permanent damage

Sensor Type	max. O_2 [Vol.-%]	k_u [V]	k_1 [mA]
SO-zz-010	1	497,50	1591,99
SO-zz-020	2	247,49	791,97
SO-zz-050	5	97,48	311,93
SO-zz-250	25	17,38	55,62

Calibration

Single point calibration via potentiometer
It is also possible to purchase an already calibrated system (electronic + sensor)

Accuracy

1% of measuring range @ $T_{ambient}$ =25°C ±10°C (assuming a calibration at 25°C)

4pol interface X1

Power supply (12V) and Signal out
Compatible connector: JST EHR-4
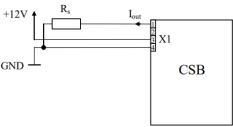Pin Assignment: depending on output type (0-5V or 4-20mA)
AGND and Power-GND are connected on the CSB, other configurations upon request.

6pol interface X2
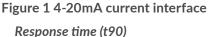Optional external sensor connection
Compatible Connector: Lumberg 3521 06
Pin Assignment: 1 (black) S-
                         2 (red) S+
                         3 (violet) H+
                         4 (violet) HS+
                         5 (white) HS-
                         6 (white) H-

Figure 1 4-20mA current interface

Figure 2 0-5V voltage interface

Response time (t90)
<20 sec. (depends on sensor type)

Warm up time
Approx. 2min.

Permissible ambient temperatures
$T_{ambient}$=0...40°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.

⚠ CAUTION

SENSORE Electronic GmbH is part of the Process Sensing Technologies Group (PST).

As customer applications are outside of PST control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure the equipment is suitable for the intended application(s).

We adopt a continuous development program which sometimes necessitates specification changes without notice.
For technical assistance or enquiries about other options, please contact us here:
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