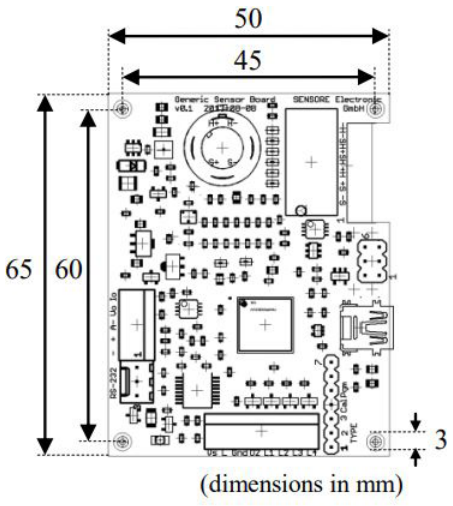
GSB - Generic Sensor Board

- Microcontroller based interface circuit
- Compatible O2-Sensor-types:
  - Standard: SO-zz-xxx (amperometric sensor type)
  - On request: SP-zz-xxx (ampero-potentiometric sensor type)
- External voltage supply: 12Vdc (possible range 6-25Vdc)
  - typical current consumption 200mA @ 12Vdc
- Sensor calibration
  - Single point calibration at specified O2-concentration
  - heater resistance calibration to ensure correct sensor temperature
  - Calibration values are stored in nonvolatile memory
  - possibility to purchase a factory calibrated set (GSB+sensor)
- Linear sensor output signal according to O2-concentration:
  - analog 0-5V (Vout)
  - analog 4-20mA (Iout)
  - digital via RS232
- Configurable sensor operation parameters
  - 6 preinstalled settings for different sensor types
  - optional: customized parameters, e.g. :
    - heatup time and heater operation mode
    - sensor voltage
    - Measurement range and corresponding output signals
- Heater temperature control:
  - 4-wire heater resistance measurement
  - constant heater resistance control for temperature compensation
  - optional: constant heater voltage or constant power control
- Sensor connection:
  - connection via 6pol RAST 2.5

Advanced options on request

- Configurable digital I/Os, e.g.:
  - Open collector outputs to switch external loads
  - based on programmable O2-concentration thresholds
  - programmable switching hysteresis
  - customized sensor status indication, e.g. error indicator
- Configuration via RS232
  - flexible configuration of sensor operation parameters
  - configuration interface for Windows-OS
- Customized GSBs
  - to implement customer specific digital or analog interfaces
  - customer specific terminals as replacement for screwed terminals
  - cost optimization for higher volumes
- Customized firmware



Basic Specification

Absolute maximum ratings

Values beyond these limits might cause permanent damage

Symbol	Parameter	Condition	min.	typ.	max	Unit
V_{cc}	External power supply voltage		6		25	V
T_{op}	GSB operating temperature range	Sensor not soldered onto board*	0		50	°C
R_{Iout}	Load on I_{out}	V_{cc} > 11V	0		270	Ω
I_{Vout}	Load current on V_{out}		0		1	mA
I_{oc}	Open collector sink current (each)		0		50	mA
V_{oc}	Open collector voltage		5		30	V
V_{in}R232	Input voltage range R232		-25		25	V

*Only tested at 25 °C with soldered sensor

Recommended operating conditions

For optimal measurement performance the GSB should be operated at recommended conditions.

Symbol	Parameter	Condition	min.	typ.	max	Unit
V_{cc}	External power supply voltage		11	12	13	V
T_{op}	GSB operating temperature range		15	25	35	°C
R_{Iout}	Load on I_{out}		0		270	Ω
I_{Vout}	Load current on V_{out}		0		1	mA
I_{ocsum}	Open collector sink current (sum)		0		100	mA

Remarks:

- T_{op} refers only to the GSB ambient temperatures, an external connected sensor is not affected by this limitation
- I_{out} refers to the 4-20mA analog output and V_{out} refers to the 0-5V analog output
- I_{oc} and V_{oc} are only of relevance, if the open collector outputs are used

Preinstalled sensor settings for SO-zz-xxx

The basic GSB configuration contains the following preinstalled sensor settings, to be selected via DIP switch.
SP-zz-xxx configurations on request

		Dip Switch Bit			Sensor Description	GSB full scale	O2 calibration concentration	Sensor voltage	Heater control
	Sensor type	1	2	3	-				
0	reserved	ON	ON	ON	-	-	-	-	
1	SO-zz-001	OFF	ON	ON	ppm	1000 vol. -ppm O2	1000 vol. -ppm O2	0,70 Volt	Rconst
2	SO-zz-010	ON	OFF	ON	1%	1 vol. -% O2	1 vol. -% O2	0,75 Volt	Rconst
3	SO-zz-020	OFF	OFF	ON	2%	2 vol. -% O2	2 vol. -% O2	0,75 Volt	Rconst
4	SO-zz-050	ON	ON	OFF	5%	5 vol. -% O2	5 vol. -% O2	0,80 Volt	Rconst
5	SO-zz-250	OFF	ON	OFF	25%	25 vol. -% O2	20,9 vol. -% O2	0,85 Volt	Rconst
6	SO-zz-960	ON	OFF	OFF	96%	100 vol. -% O2*	20,9 vol. -% O2	1,60 Volt	Rconst
7	reserved	OFF	OFF	OFF	-	-	-	-	

The specified sensor full scale concentration is 96%

Measurement accuracy - sensor characteristic

If operated at recommended conditions the measurement accuracy will be primarily limited by the sensor accuracy.
Also the dynamic sensor

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.
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