

The software is suitable for the following hardware of SENSORE:

- EDAB Mx (driver- and analyzation board for SENSORE oxygen sensors)
- Oxymeter (tabletop unit)

Software EDAB consists of two parts:

### *EDAB-Configuration*

Program is used to set different parameters. For example: calibration concentration, switch thresholds, linearized output signal, ...

### *EDAB-DataRead*

Program displays the measured oxygen concentration on the PC alternatively to document measured data.

## General information

### System requirements

Operating system: Windows 98/ME, Windows 2000 or Windows XP

Hardware conditions: Pentium II, 32MB RAM, approx. 20MB free hard disc storage unit , graphics board minimum resolution 800\*600, CD-Rom drive, 1 free serial port

### Installation

For installation please put in the CD-Rom, start program „*Install*“ and follow the instructions.

Electronic software and LabView Run Time Engine are installed in the same time.

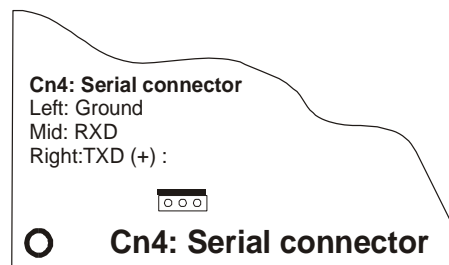
After occurred installation the abovementioned programs can be used.

### Connection to the PC

Connection with computer is provided by serial cable.

EDAB: Serial cable must be connected with plug strip Cn4.

Oxymeter: Serial cable must to be connected with 9-pole Sub-D connector



### Initial start software

Interface as well as the used sensor type must be set once by initial operation of software *EDAB-Configuration* and *EDAB-DataRead*.

### Interface setting

For initial operation used interface must be set . Please be careful that the used serial port is not used by other devices.

(See error message in the appendix)



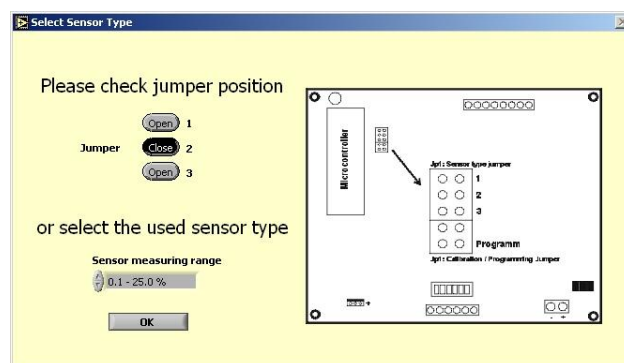
### Select sensor type

Setting of used sensor type by initial operation.

EDAB: Setting of Jumper-position according to sensor type.

Oxymeter: Selection of used sensor type according to sensor alternatively identification plate of the analyzer backside.

If no change is carried out within 20 seconds, the previously selected type will be set automatically.



### EDAB-Configuration

Before using program *EDAB-Configuration*, electronic board alternatively Oxymeter must be set on *Program* mode and serial port must be connected.

#### Attention:

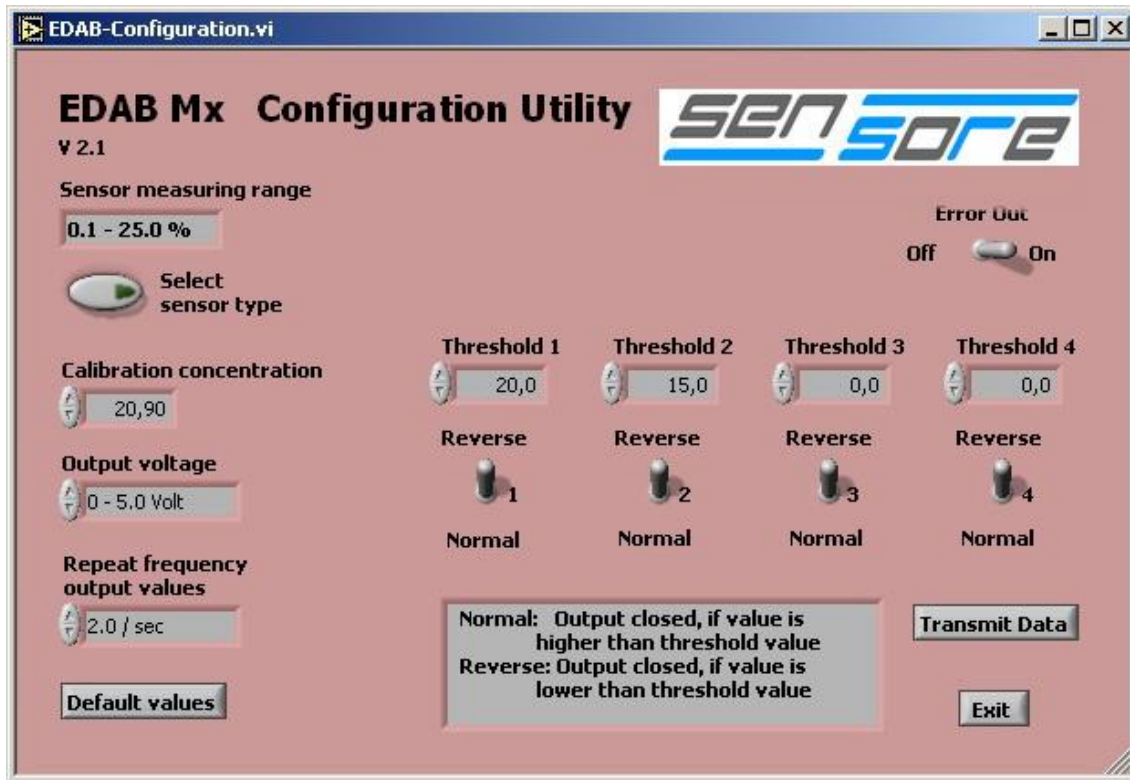
To get in program modus it is absolutely necessary to set Jumper *Prog* by EDAB electronic board alternatively switch of position *Prog* (backside) by Oxymeter before connecting power supply.

The Following instructions have to be performed:

- Interrupt power supply from EDAB electronic alternatively Oxymeter (if appliance was in operation)
- Set jumper *Prog* alternatively switch in position *Program*
- Connect power supply alternatively switch on Oxymeter.

(See error message in the appendix)

### Programming-window



### Possible settings

#### *Sensor measuring range*

Displays the measuring range of the selected sensor .

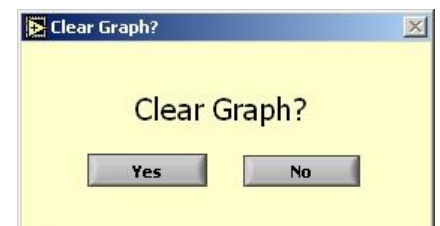
#### *Select sensor type*

If sensor type was changed, readjust it with the help of this button according the new one. Please have a look to „Select sensor type“ page 2.

#### **Attention:**

With this key “*Select sensor type*“ only an allocation according to software is carried out. The real setting of the used sensor type occurs directly through setting or removing of the suitable jumper on the electronics and is not changed by this button.

After changing sensor type the old sensor graph can be cleared.



### ***Calibration Concentration***

This value shows oxygen concentration where sensor should be calibrated. This value is set according to the concentration of the available calibration gas. According to the used sensor type set concentration in ppm or in %.

Possible settings:            10-1000 ppm            0.1 – 96.0 %

Normally the measuring range is adjusted by the final value of the sensor type. Exceptions are sensors which can be calibrated in surrounding air (20.9 %).

#### **Attention:**

Changing value causes no recalibration. This value will only be updated by calibrating with electronic operation.

EDAB: Set jumper Cal. at least for 2 seconds

Oxymeter: Push button Cal. for at least 2 second (backside)

### ***Output voltage***

Here output range of output voltage can be changed. Normally 0-5 volts are set.

Possible settings:            0-5.0 volts            0-2.5 volts            0-2.0 volts            0-1.0 volts

#### **Attention:**

If standard value is changed, resolution and accuracy is reduced.

### ***Repeat frequency output values (Signal actualization rate of output value)***

This value displays the periodic updating of electronic output.

Possible settings: 0.5 value / sec.    1.0 value / sec.    2.0 value / sec.    5.0 value / sec.

Interval between the two recorded signals will be averaged. Low setting value means measured oxygen concentration will be averaged over a long interval.

#### **Example:**

2 values per second: averaging the concentration over a period of 0.5 seconds.

### ***Error out***

Button is used to set and read out status and errors over serial port.

Possible settings: On            Off

Switch position „ON“ : Error out on

Switch position “OFF” : Error out off

Possible error and status code:

Indication	Code
Sensor heating up	1010
Error sensor heater	1011
Overflow measuring range	1013

Program EDAB-Data Read displays error and status code in text.

### ***Threshold 1-4***

The electronic offers 4 programmable threshold outputs. Values and action can be programmed. Output values depend on the sensor type and it will be set just like the setting of calibration gas in ppm or in %.

Possible setting: 10-1000 by ppm                      0.1 – 96.0 by %

Every threshold output can be switched in 2 positions *Normal/Reverse* :

Possible setting:

Normal: Output closed, if value is higher than threshold value

Reverse: Output closed, if value is lower than threshold value

Outputs are Open Collector Outputs. They can switch maximal current of 50 mA.

### ***Transmit Data***

By activating this button adjusted values will be transmitted to the electronic. After transmission all values will be read in once more. If data are the same as you programmed you knew that transmission was successful.

### ***Default values***

With the exception of calibration data the electronic turns back to initial setting after operation. Necessary while undefined electronic fault.

### ***Exit***

Finished program EDAB-Configuration.

### **Attention:**

Program loses all implemented data. Data must be transmitted to electronic (*Transmit Data*)

## EDAB-DataRead

For using program EDAB-DataRead, electronic board alternatively Oxymeter must be set on *Operation* modus and serial port must be connected.

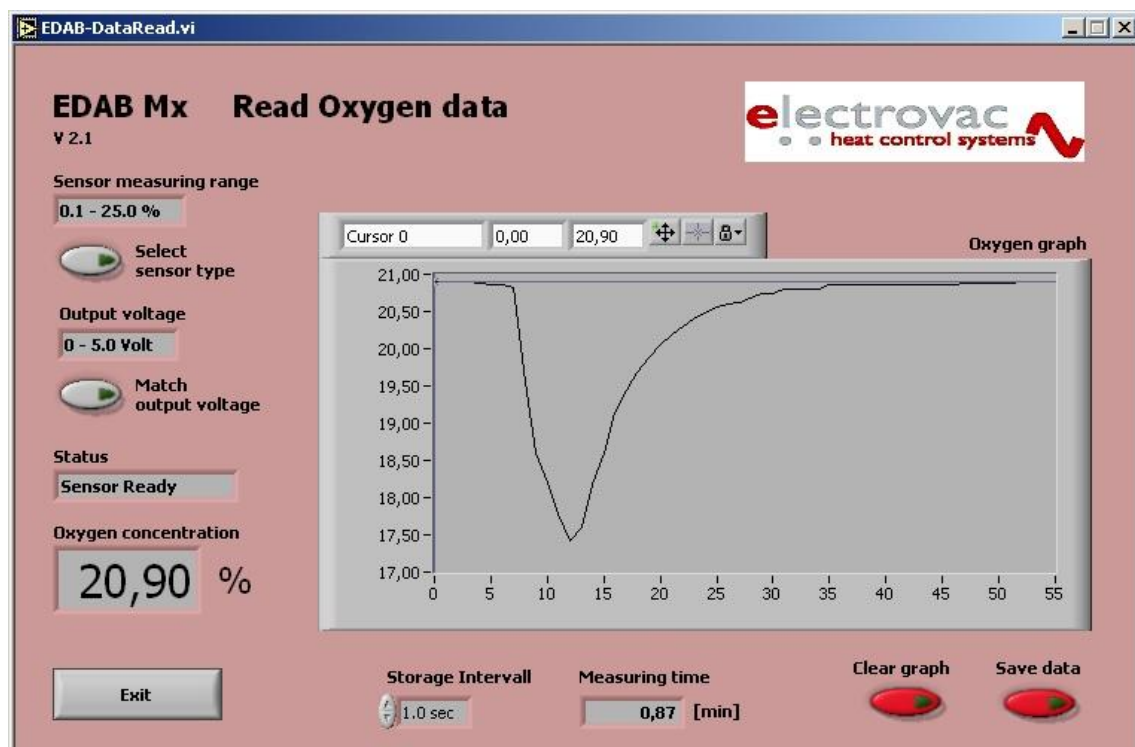
### Attention:

Electronic board EDAM alternatively Oxymeter are in operation modus, if it was not started in this program modus.

Basically the program can be started if no electronic is connected, too. Choose offline modus after error message. In the case of serial port connection the program will detect the line and begin transmission automatically.

(See error message in the appendix)

## Programming window



### Possible adjustment

#### *Sensor measuring range*

It displays the measuring range of the previously selected sensor. Connected sensor and setting must be the same.

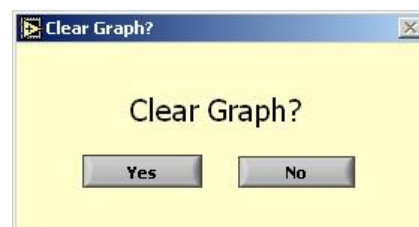
#### *Select sensor type*

If sensor type was changed, readjust it with the help of this button according to the new one. Please have a look to „Select sensor type“ page 2.

#### **Attention:**

With this key “*Select sensor type*“ only an allocation according to software is carried out. The real setting of the used sensor type occurs directly through setting or removing of the suitable jumper on the electronics and is not changed by this button.

After changing sensor type the old sensor graph can be cleared.

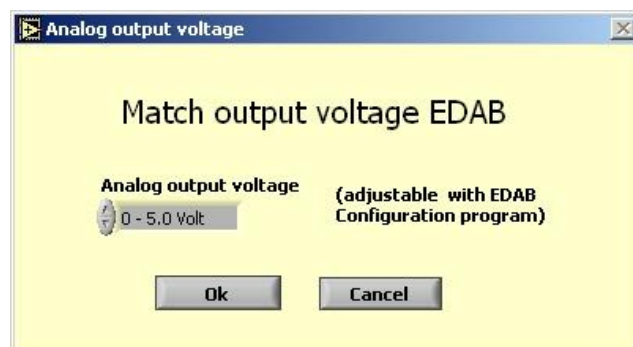


#### *Match output voltage*

Readjust analog output voltage if it was changed with the help of program EDAB-Configuration. Otherwise the displayed values are incorrect!

#### **Attention:**

With this key “*Select sensor type*“ only a allocation according to software is carried out. The real setting of the used output voltage occurs through the program EDAB-Configuration.



#### *Storage interval*

Choose storage interval. Afterwards it will be displayed in the oxygen graph.

Possible settings:            0.5 sec. 1.0 sec 10 sec. 1 min    10 min 30 min 60 min

### *Clear graph*

Delete recorded graph.

#### **Attention:**

Clear graph has no undo function!

### *Save data*

Store recorded data in a file.

Example

<b>Date</b>	<b>Time [min]</b>	<b>Oxygen [%]</b>	<b>Status</b>
14.07.04 17:47	0.1	20.9	OK
14.07.04 17:47	0.117	20.9	OK
14.07.04 17:47	0.133	18.975	OK
14.07.04 17:47	0.15	19.175	OK

## Display functions

### *Oxygen concentration*

According sensor type, actual measured oxygen concentration will be indicated in % or ppm.

### *Status*

Shows the actual *Status* of the sensor. Status window displays OK if sensor is in operation and measures oxygen into measuring range.

Furthermore messages:

Overflow	Overflow of measuring range
Heating up	Sensor in heating up modus
Heater Error	Defect heater element
No connection	Faulty connection to PC

#### **Attention:**

Due to measuring principle you can only detect faulty heater. Other faults cannot be detected!

### *Oxygen graph*

The measured *Oxygen concentration* will be demonstrated in the *Oxygen graph*. Data of oxygen concentration and time will be stored. Please have a look at *Save data*.

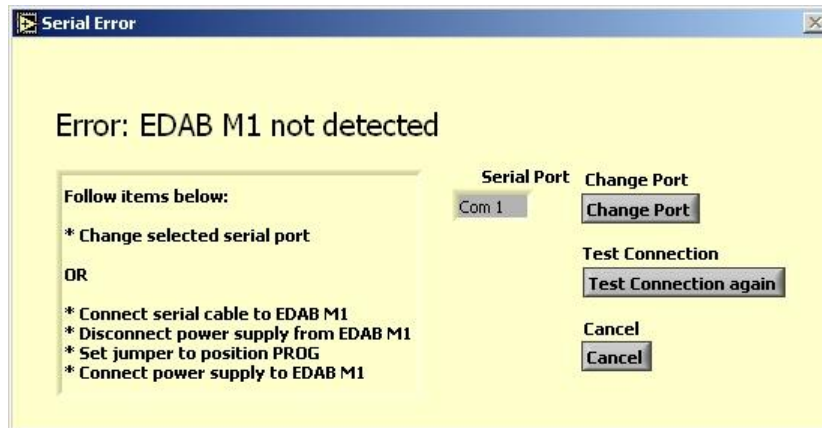
### *Measuring time*

This field shows the period of data chronicle. Button *Clear graph* implements the loss of data.



## Appendix

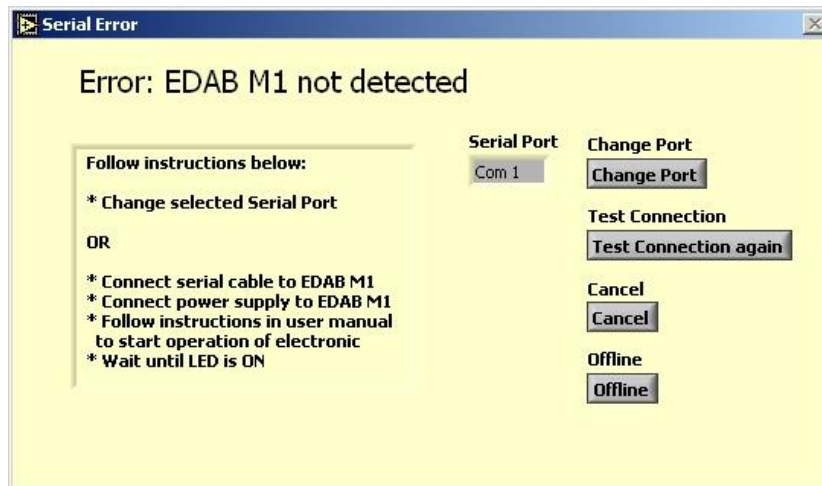
### Error message EDAB-Configuration



If above error message appears when starting program EDAB-Configuration the following points must be checked:

- Is electronic and PC connected with the provided serial cable?  
No:
  - Connect serial cable with electronic and PC
- Is there a correspondence with the used and the well-chosen interface?  
No:
  - Set correct interface
- Has electronics been started in operation mode?  
Start programming mode
  - Separate electronics or switch off measuring instrument from power supply
  - Set jumper Prog alternatively switch to Programming Mode
  - Connect alternatively switch on power supply again
- Is the selected interface covered by another program?  
Yes:
  - Close or uninstall the running program or use another interface.

### Error message EDAB Data Read



If above error message appears when starting program EDAB-Data Read the following points must be checked:

- Is electronic and PC connected with the provided serial cable?  
No:
  - Connect serial cable with electronic and PC
- Is there a correspondence with the used and the well-chosen interface?  
No:
  - Set correct interface
- Has electronics been started in programming mode?  
Start operation mode
  - Separate electronics or switch off measuring instrument from power supply
  - Remove jumper Prog alternatively switch to Operation Mode
  - Connect alternatively switch on power supply again
- Is the selected interface covered by another program?  
Yes:
  - Close or uninstall the running program or use another interface.