

# Notice d'utilisation

## Récepteur radio

### SRC-ADO-BCS

Version 3.00, 19.02.2008

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# 1 Introduction

## 1.1 Présentation de produit

Le SRC-ADO-BCS est conçu pour recevoir et traiter les télégrammes de sondes radio Thermokon de EasySens aussi bien que d'autres dispositifs transmettant des valeurs de mesure selon la norme EnOcean. Les valeurs de mesure des sondes peuvent être assignées aux sorties analogiques (0-10V) et/ou numériques. (Exemples d'applications, voir image 1-1).

Un CD avec le logiciel de configuration pour PC est fourni avec le récepteur. Le logiciel fourni permet : La configuration des sorties, l'apprentissage des sondes aux récepteurs et la possibilité de diagnostic. La communication entre le PC et le récepteur est établie par l'intermédiaire d'une interface USB (1.1 et 2.0).

For the operation of the receiver, an external 868MHz antenna with a FME-female connection is needed, included in delivery. Different antenna extension cables with 10 and 20m length are available

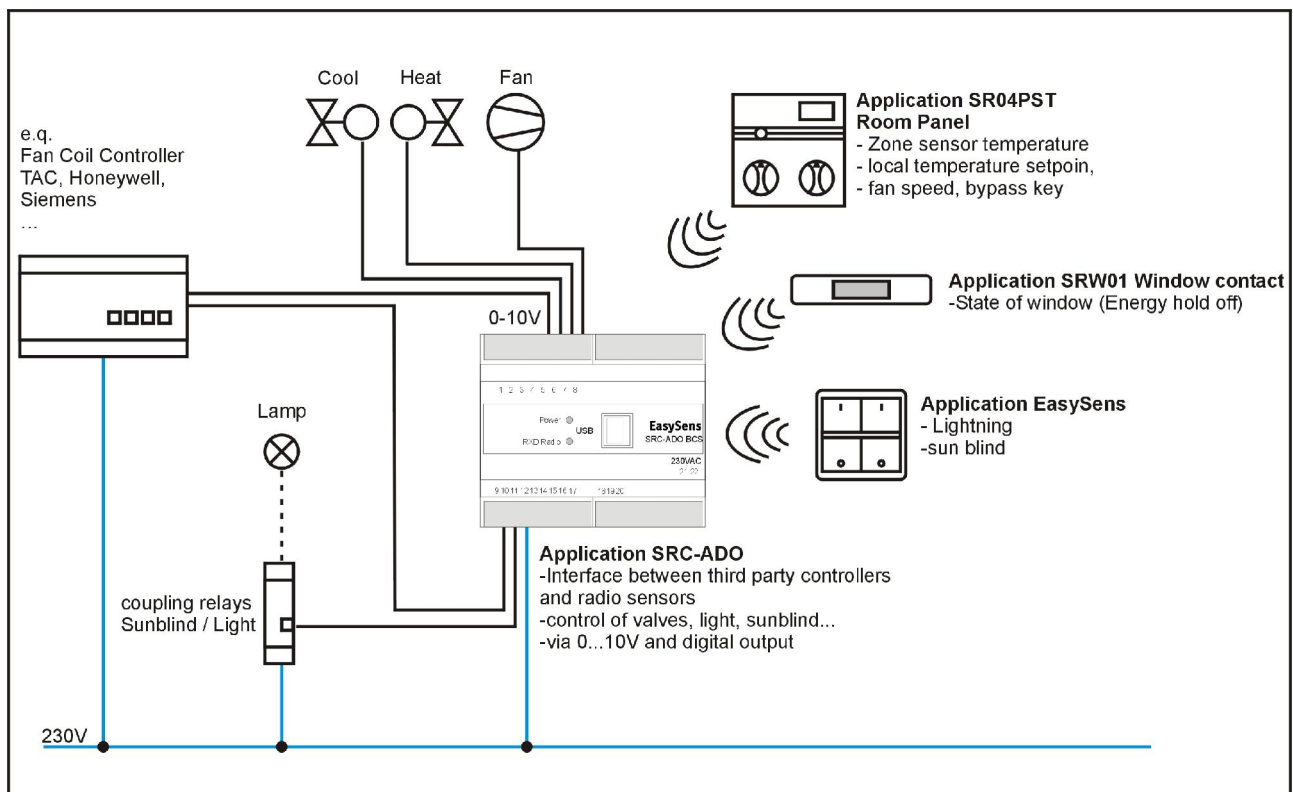


Image 1-1 : Schéma de l'architecture



## 1.3 Function Overview

By means of the SRC-ADO the following functions can be realized:

### Analogue Outputs (0-10 V)

- Sensor Evaluation
  - Temperature
  - Relative humidity
  - Set point
  - Brightness
  - Individual Settings
    - Linear evaluation or interpretation of measuring ranges
    - Selection of EnOcean data byte
- Control
  - Continuous heating (PI)
  - Continuous cooling (PI)
  - Continuous heating and cooling (PI) on 2 outputs
- Dimming
  - 1 button – operation
  - 2 button – operation

### 1.3.1 Digital Outputs (Relay On / Off)

- Sensor Evaluation
  - Individual settings
    - Interpretation of measuring range
    - Selection of EnOcean data byte
  - Pilot Contact
    - Window contact
    - SecuSignal
    - Wireless chair
    - Motion sensor
    - Digital contact
    - Presence button
- Control
  - Continuous heating (PI) with pulse width modulation
  - Continuous cooling (PI) with pulse width modulation
  - Continuous heating and cooling (PI) on 2 outputs with pulse width modulation
  - Two-point heating
  - Two-point cooling
  - Two-point heating and cooling on 2 outputs with
- Dimming
  - 1 button – operation
  - 2 button – operation
- Switching
  - 1 button – operation (toggle)
  - 2 button – operation
  - Blind
  - Shutter

## **2 Installation**

### **2.1 Installation physique**

Pour des informations détaillées sur l'installation et le montage, voir SVP la fiche technique du produit SRC-ADO-BCS.

### **2.2 Installation logiciel**

Pour l'installation du récepteur sans fil, le logiciel de configuration et le driver présent sur le CD joint, sont nécessaires. Note : Vous avez juste besoin d'être administrateur sur votre PC pour l'installation et le fonctionnement des programmes.

#### **2.2.1 Installation automatique des drivers**

Installer le logiciel SRC-ADO-BCS de configuration et suivre les instructions à l'écran. Le logiciel et le driver sont installés automatiquement. Connecter le SRC-ADO-BCS au PC par un câble USB. Suivre les instructions. Le SRC-ADO-BCS est maintenant prêt à fonctionner et peut être configuré par l'intermédiaire du logiciel.

Une fois que l'installation est réussie, vous pouvez lancer le logiciel de configuration par l'intermédiaire du menu démarrer\tous les programmes\Thermokon.

Systèmes d'exploitation supportés : Windows9x; WindowsNT; WindowsMe; Windows2000; WindowsXP; WindowsServer

#### **2.2.2 Installation manuelle des drivers**

Il est possible d'installer les drivers manuellement sans avoir préalablement installé le logiciel de configuration. Connecter le SRC-ADO-BCS au PC avec un câble USB. Quand la fenêtre "Recherche du nouveau matériel détecté" apparaît, choisissez "installez le logiciel depuis une liste ou spécifier une source".





Image 2-1: Assistant installation

Les drivers requis pour le SRC-ADO-BCS sont dans le répertoire USB-Driver du CD joint.



Image 2-2: Select Installation Source

Continuer l'installation SVP.



Image 2-3: Logo-Windows- Test



Image 2-4 : Installation physique terminée

### 3 Configuration du récepteur

#### 3.1 Spécification du logiciel

Le logiciel est conçu pour la configuration de sorties analogiques et numériques. De plus, on peut connaître en temps réel l'état de chaque sortie par l'intermédiaire des boutons info (i). L'image 3-1 montre la fenêtre qui apparaît au lancement du programme.

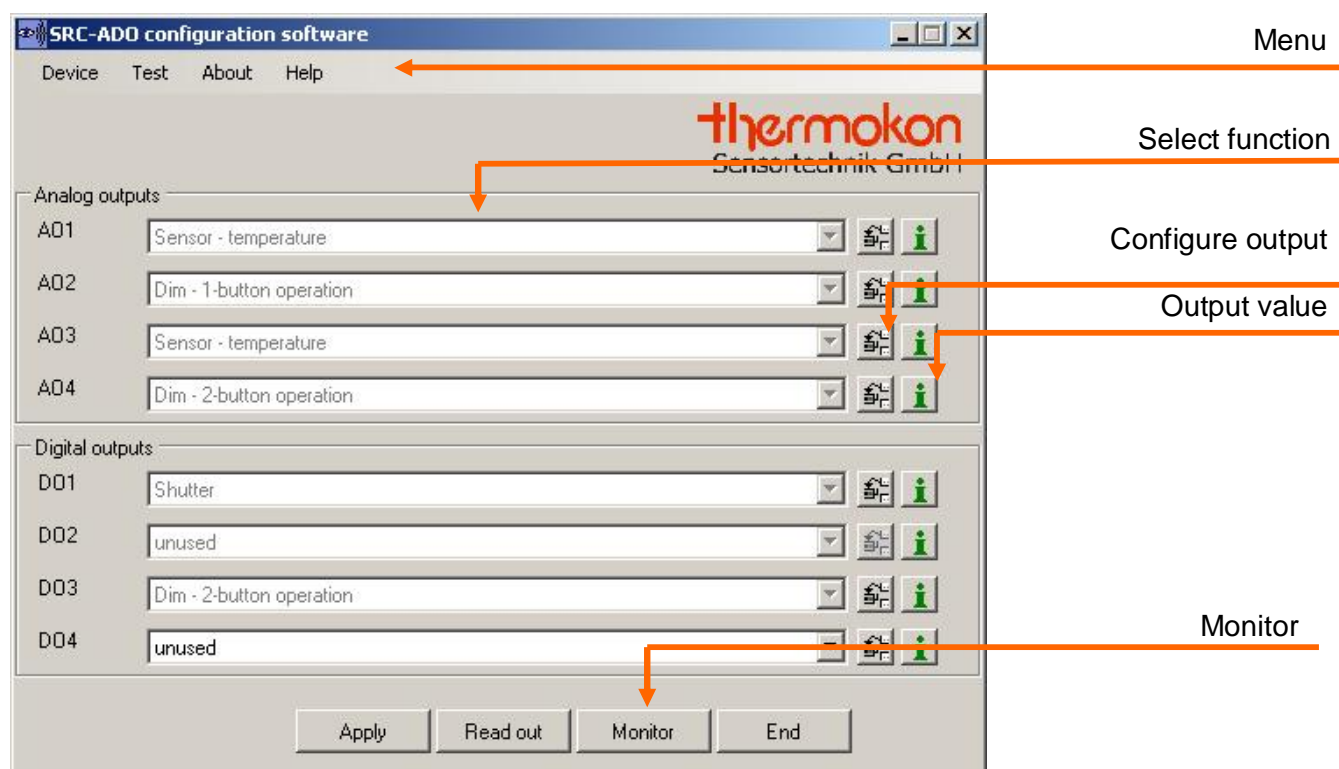


Image 3-1 : Fenêtre de démarrage

## 3.2 Function Overview

The following functions can be adjusted:

### 3.2.1 Analogue Outputs (0-10 V)

- Sensor Evaluation
  - Temperature
  - Relative humidity
  - Set point
  - Brighthness
  - Individual settings
    - Linear evaluation or interpretation of measuring ranges
    - Selection of EnOcean data byte
- Control
  - Continuous heating (PI)
  - Continuous cooling (PI)
  - Continuous heating and cooling (PI) on 2 outputs
- Dimming
  - 1 button – operation
  - 2 button - operation

### 3.2.2 Digital Outputs (Relay On / Off)

- Sensor evaluation
  - Individual settings
    - Interpretation of measuring range
    - Interpretation of EnOcean data byte
  - Pilot contact
    - Window contact
    - SecuSignal
    - Wireless chair
    - Motion detector
    - Digital contact
    - Presence button
- Control
  - Continuous heating (PI) with pulse width modulation
  - Continuous cooling (PI) with pulse width modulation
  - Continuous heating and cooling (PI) on 2 outputs with pulse width modulation
  - Two-point heating, Two-point cooling
  - Two-point heating and cooling on 2 outputs
- Dimming
  - 1 button – operation
  - 2 button – operation
- Switching
  - 1 button – operation (toggle)
  - 2 button – operation
- Blind
- Shutter

### 3.3 Menu

The menu consists of the points "Device", "Test", "Via" and "Help".

#### 3.3.1 Devices

The output properties and the sensors can be saved respectively loaded via the menu point "Devices". This function can be used for transmitting settings from one device to another. By means of the "Take over"- button on the start side the loaded data are taken over. Reset of device in delivery mode: Thereby all sensors and outputs are deleted. Furthermore, all sensors in the device can be deleted in the menu point.

#### 3.3.2 Test

In the menu "Test" values can be manually assigned to the outputs (0-10V level with analogue outputs and "On" or "Off"-status with digital outputs picture 3-1). By the buttons "Set", "On" and "Off" the outputs are set immediately. Sensors and settings learned-in already are ignored during the test mode. After completion of the test mode, the output remains in the same status until it is replaced by a radio telegram.



Picture 3-2: Test Window

#### 3.3.3 Help

In the menu "Via" there are information about the manufacturer and the product. A help for the programme can be polled via the menu "Help".

### 3.4 Menu

Le menu comprend les fonctions "test", "à propos" et "aide". Dans le menu "test" des commandes peuvent être manuellement assignées aux sorties (des valeurs 0-10 V pour les sorties analogiques et "Marche" "arrêt" pour les sorties numériques, image 3-2). Au moyen des boutons "Réglage", "Marche" et "Arrêt" les commandes sont lancées immédiatement. Les sondes déjà apprises et la configuration des sorties sont ignorées

pendant le mode test. Puis lorsque le mode test est terminé, les sorties reviennent à leur état initial jusqu'à ce qu'elles soient modifiées par un télégramme radio.

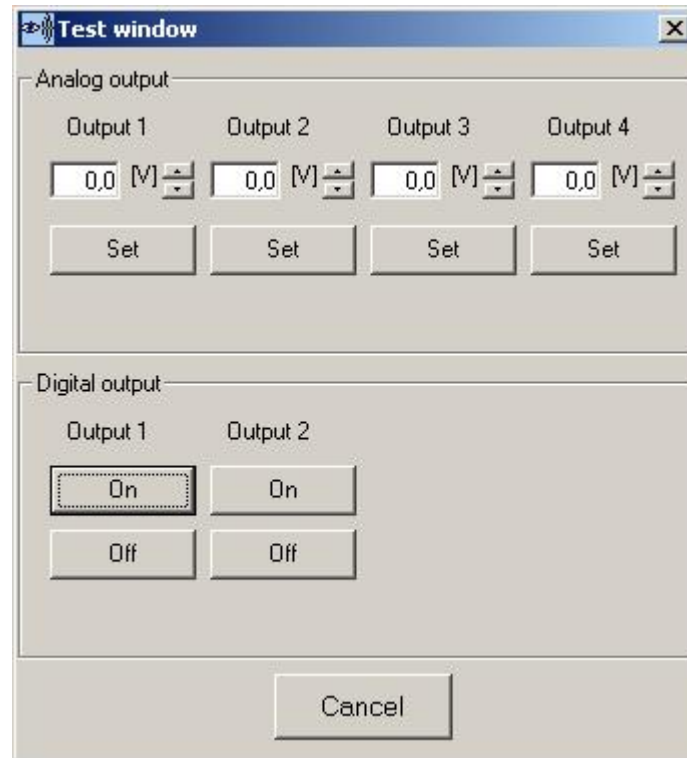


Image 3-3: Fenêtre de test

Dans le menu "à propos" le nom du fabricant et des informations sur le produit sont disponibles. Pour une aide au programme, cliquer sur le bouton "aide" dans le menu.

### 3.5 Fenêtre de démarrage


Dans la fenêtre de démarrage (image 3-1) les sorties déjà configurées sont affichées. Si des sondes spéciales sont assignées à une sortie, la sortie est grisée et ne peut pas être changée. Si aucune sonde n'est assignée à une sortie, la sortie peut être modifiée. Les différentes fonctions, telles que le "régulateur PI chaud/froid AO1/AO2" exigent deux sorties. Si une telle fonction est utilisée, la deuxième sortie est grisée et ne peut pas être changée.

À l'aide du bouton d'information  l'état actuel de la sortie est affiché.


Une vue d'ensemble des sondes connectées est possible par l'intermédiaire du bouton „Moniteur“.

En appuyant sur le bouton "Lire sortie" l'appareil lit une nouvelle fois la sortie.



Si une fonction est sélectionnée pour une sortie, celle-ci doit être configurée. Par conséquent, paramétrer SVP dans les fenêtres paramètre/sonde à l'aide du bouton "configuration sortie" .

### 3.6 Moniteur

Dans la fenêtre "moniteur" toutes les sondes connectées sont affichées. A l'aide du bouton d'information  l'état actuel de la sonde peut être affiché. Dans la partie "mise à l'échelle des bits de données" une mise à l'échelle des bits de données respectifs peut être saisie. Ceci permet un meilleur affichage des données de la sonde dans la fenêtre "moniteur".

Exemple : Par exemple pour une sonde SR04 de température ambiante, l'échelle de la plage de mesure est de 40°C à 0°C.

**La signification des bits de données simples et la plage de mesure de la sonde peuvent être trouvées dans la fiche technique produit du fabricant de la sonde.**

En appuyant sur "Reset" toutes les sondes connectées à l'appareil peuvent être supprimées.

Si la fonction "lire sondes" est cochée, toutes les sondes sont lues et les données sont affichées dans le logiciel de configuration. Si une mise à l'échelle est rentrée, les bits de données sont mis à l'échelle.


















**Monitor**

**thermokon**  
Sensortechnik GmbH

Scaling Data-Bytes

	Byte 0		Byte 1		Byte 2		Byte 3	
Byte-value:	0	255	0	255	0	255	0	255
Measuring range:	0	255	40	0	0	255	0	255

Sensors

Channel	Device	SensorID		Byte 0	Byte 1	Byte 2	Byte 3
1	Room temperature sensor SR04 x / SR07x	00000847		15	26.5	229	225
2	Room temperature sensor SR04 x / SR07x	00000847		15	26.5	229	225
3	Room temperature sensor SR04 x / SR07x	00000847		15	26.5	229	225
4	Room temperature sensor SR04 x / SR07x	00000847		15	26.5	229	225
5	Free	Free		0	40	0	0
6	Free	Free		0	40	0	0
7	Free	Free		0	40	0	0
8	Free	Free		0	40	0	0
9	Free	Free		0	40	0	0
10	Free	Free		0	40	0	0
11	Free	Free		0	40	0	0
12	Free	Free		0	40	0	0
13	Free	Free		0	40	0	0
14	Free	Free		0	40	0	0
15	Free	Free		0	40	0	0

Read sensors: ☒

Reset Cancel

Image 3-4 : Moniteur

## 4 Configuration des sorties

By actuating the button "Configure output"  the window for the configuration of the outputs is opened. It consists of the rider "Property" for adjusting different properties and the rider "Sensors" for learning-in and assigning sensors to the outputs (picture 4-1).

### 4.1 Feuille de paramétrage

The register card property is designed for the parameterizing of the output. Type and number of property is depending on the output functions selected. For instance, picture 4-1 shows the setting adjustments for the function "sensor-temperature". The detailed description of all properties is made later on.

Les paramètres modifiés sont transmis en appuyant sur le bouton „Ok“ ou à l'aide du bouton „appliquer“.

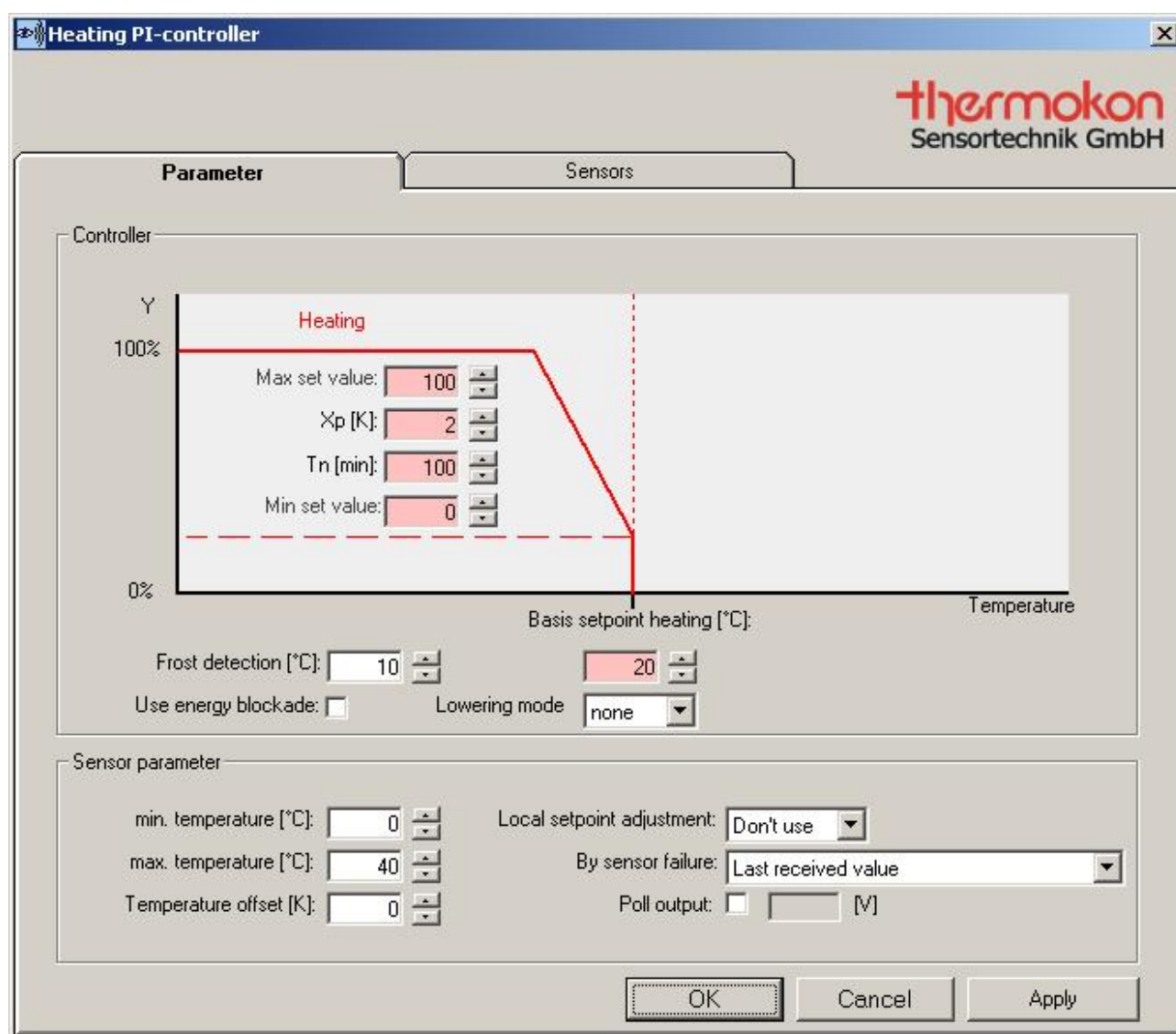


Image 4-1 : Régulateur PI chaud

Independ of the output function selected, the configuration window always disposes of the following setting options:

### 4.1.1 Sensor Monitoring

If a sensor fails, a defined value can be assigned to the output. The same is adjustable via the field **“upon sensor failure”**. The monitoring time of a sensor amounts to 90 min. If a sensor is transmitting again after a failure, the output is operating properly again.

### 4.1.2 Reading of Output

In the field **“Reading”** the current status of the output can be displayed by activating the hook mark.

### 4.1.3 Scaling of Output Quantity

The analogue output can be adjusted in the field **“lower and upper output voltage”** of 0-10 V.

## 4.2 Table d'enregistrement des sondes

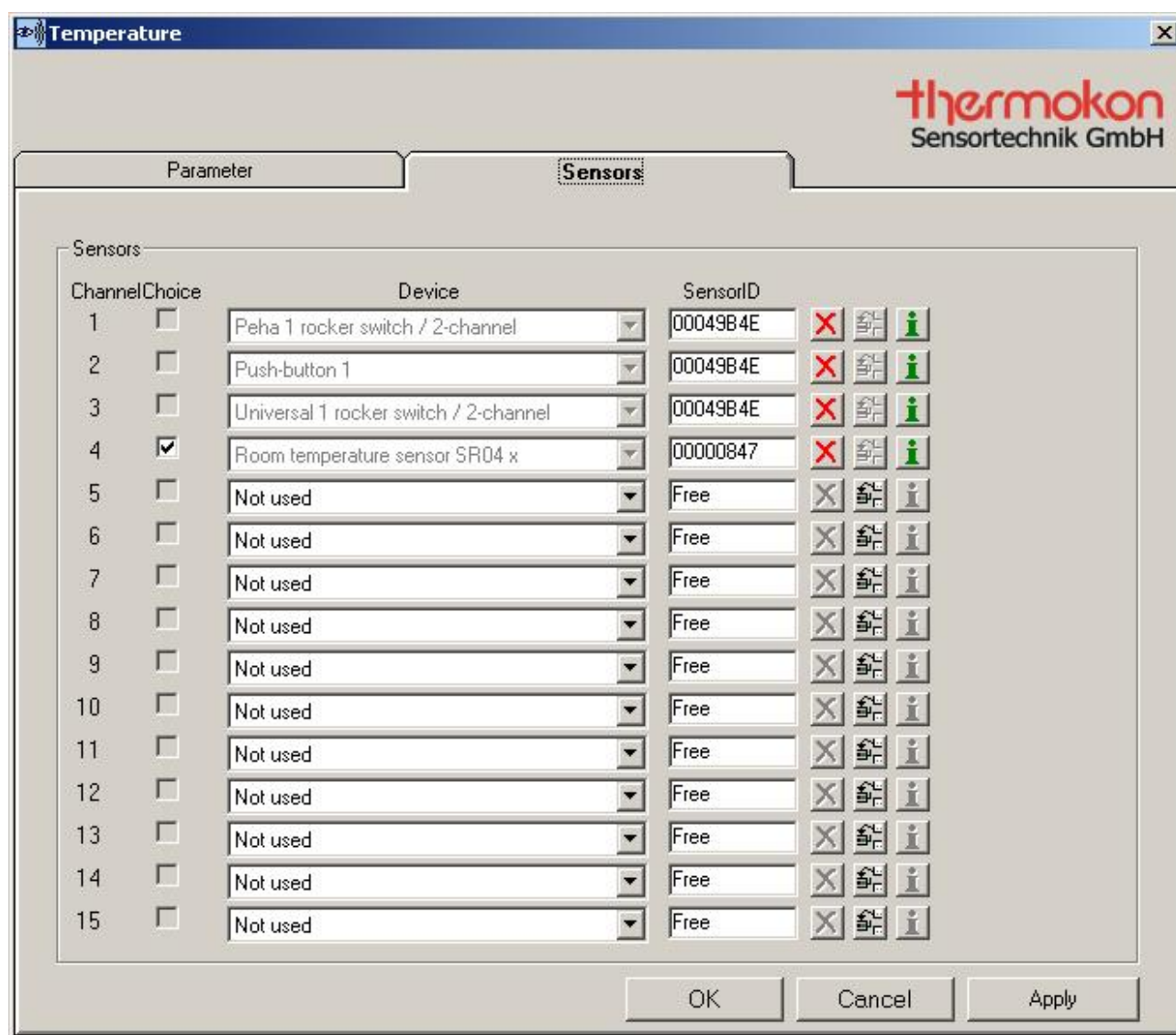
Dans la table d'enregistrement « sondes » des sondes peuvent être apprises et associées à une sortie. Un maximum de 15 sondes peuvent être apprises et associées à une sortie en cochant la case « choix ».

### Attention:

Quand on associe plusieurs sondes à une sortie, les sondes doivent avoir les mêmes plages de mesure.

### 4.2.1 Type d'appareil

En fonction des sorties, différents types d'appareils peuvent être appris. Par exemple, ce n'est pas possible d'apprendre un bouton pour une valeur analogique.



ChannelChoice	Device	SensorID			
<input type="checkbox"/>	Peha 1 rocker switch / 2-channel	00049B4E	X	SC	i
<input type="checkbox"/>	Push-button 1	00049B4E	X	SC	i
<input type="checkbox"/>	Universal 1 rocker switch / 2-channel	00049B4E	X	SC	i
<input checked="" type="checkbox"/>	Room temperature sensor SR04 x	00000847	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i
<input type="checkbox"/>	Not used	Free	X	SC	i

Image 4-2: Sondes

#### 4.2.2 Apprentissage

Pour apprendre une sonde, l'onglet « apprentissage de l'ID sonde » doit-être activé. La fenêtre d'apprentissage apparaît (image 4-24) quand un type d'appareil est sélectionné.

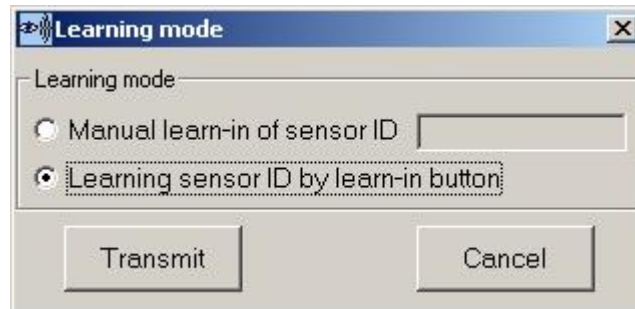



Image 4-3: Fenêtre d'apprentissage

Si l'ID de la sonde est connu, celui-ci peut-être rentré. Sinon une sonde peut-être apprise via le bouton apprentissage. L'apprentissage des interrupteurs doit se faire par l'appui d'un bouton de cet interrupteur. Une entrée manuelle de l'ID sonde pour les boutons n'est pas possible.

Pour le calcul de la valeur moyenne, plusieurs sondes peuvent être sélectionnées, ou bien une seule.

En cochant la case dans le champ de selection de la table d'enregistrement « sondes » une sonde peut être associée à une sortie. Si rien n'est coché, aucune sonde n'agit sur la sortie.

#### 4.2.3 Suppression d'une sonde

Pour supprimer une sonde, le bouton  « Supprimer ID sonde » doit être pressé. La fenêtre de suppression apparaît (image 4-25).

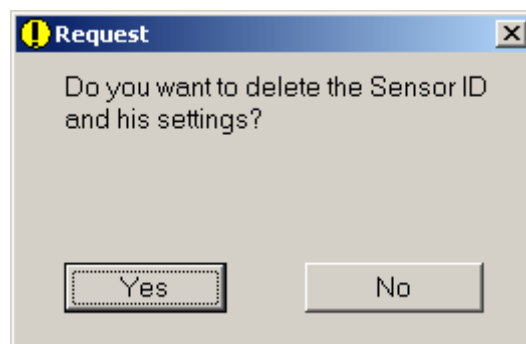



Image 4-4: Fenêtre de suppression

Si la demande est confirmée, la sonde sera supprimée.

Toutes les sondes peuvent être supprimées d'un coup dans la fenêtre « moniteur » (Doit être appelé OFF dans la fenêtre principale).

#### 4.2.4 Info

A l'aide du bouton info  (image 4-26) les bits de données d'une sonde peuvent être affichés.

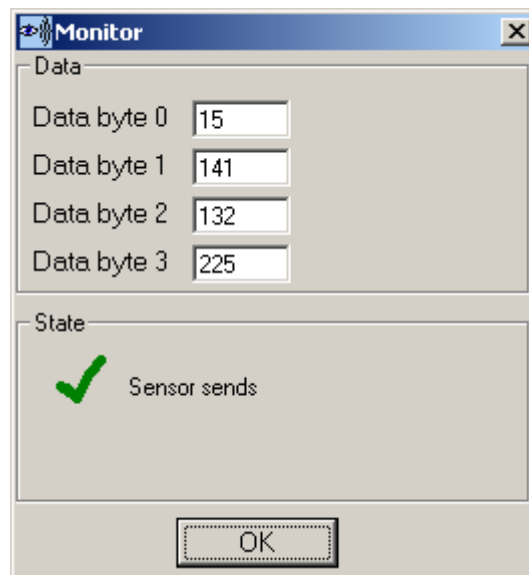


Image 4-5: Moniteur

Pour la signification précise de chaque bits de données, merci de consulter la fiche technique du fabricant de la sonde.

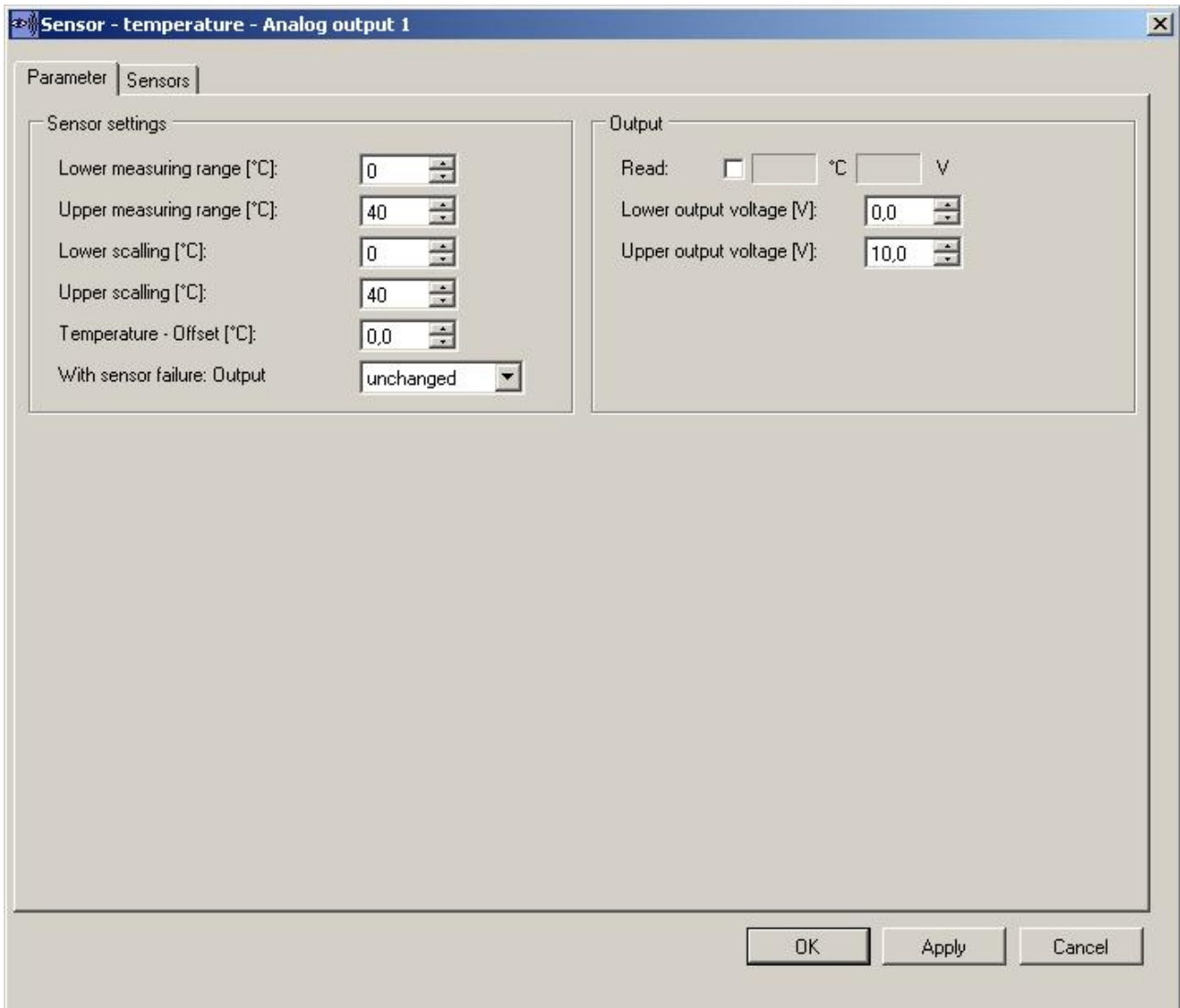
#### 4.2.5 Sélection

En cochant dans le champ « selection » la sonde est associée à la sortie. Si rien n'est coché, les sondes n'agissent pas sur la sortie.

## 4.3 Analogue Outputs

### 4.3.1 Sensor - Temperature

In the output function “Sensor Temperature” the measured temperature is output to an analogue output (0-10 V).



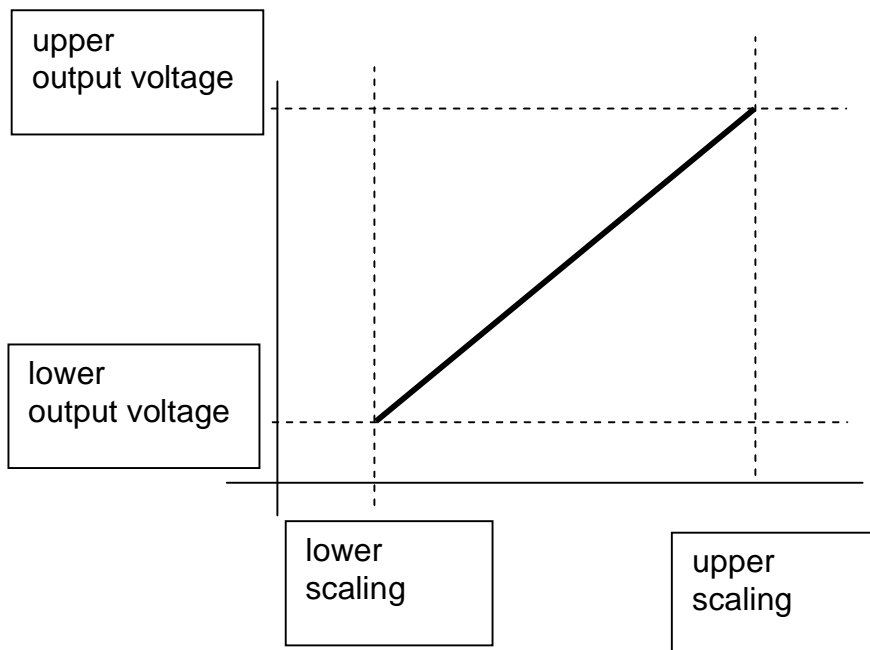
Picture 4-6: Sensor Temperature

#### 4.3.1.1 Register Card Property

- Lower sensor measuring range / Upper sensor measuring range
  - Enter measuring range of sensor
  - The measuring range can be found in the product data sheet of the sensor
- Scaling of output value
  - Fields “lower-“ and “upper scaling“:  
The input values must be within the measuring range of the sensor.

- Fields "lower-" and "upper output voltage"  
The input values must be within the 0-10V output range.





## Example SR65:

Lower sensor measuring range: -20°C

Upper sensor measuring range: 60°C

Lower scaling: 20°C

Upper scaling: 40°C

Temperature: 20°C -> output: 0V

Temperature: 30°C -> output: 5

Temperature: 40°C -> output: 10V

The analogue output can be adjusted between 0-10 V.

## Example:

Fix input range of controller 0-50 °C corresponds to 0-10 V, then the output of the temperature 0-40 °C can be assigned to 0-8 V.

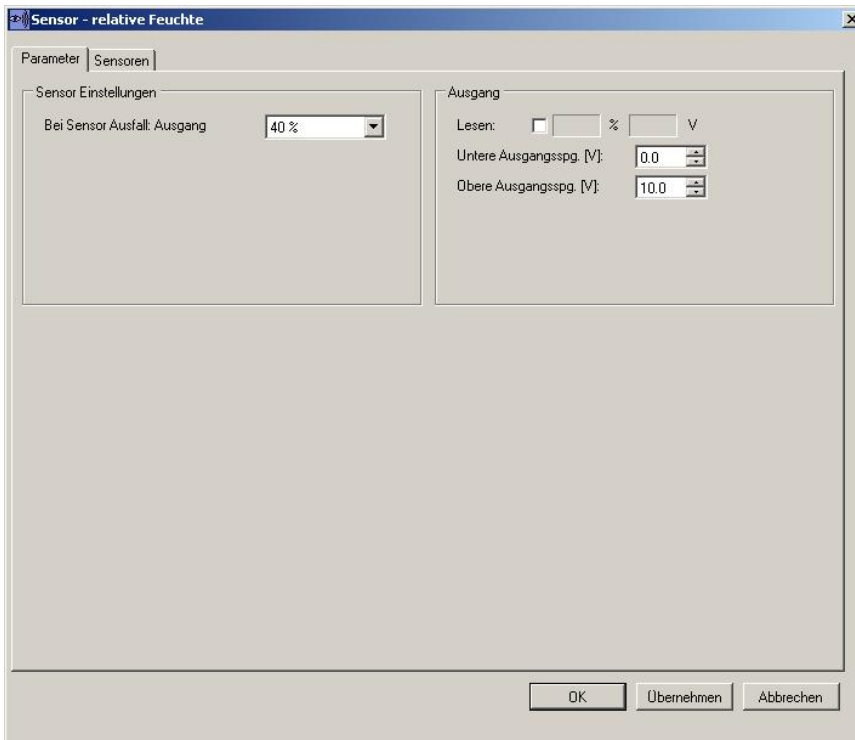
- Temperature-Offset
  - Adaption of temperature deviation to sensor
- Upon sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
- Output
  - In the field "Output" the current status of the output can be displayed by activating the hook mark.
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V

### 4.3.1.2 Register Cards Sensors

- Averaging
  - Averaging is made via all sensors which are marked by a hook on the register card "Sensors"
  - **Attention:** For an averaging all sensors must have the same measuring range
- Number of sensors
  - Up to 15 sensors can be selected for an averaging and can be assigned to the output.

### 4.3.2 Sensor - Relative Humidity

In the output function “Sensor relative humidity” the relative humidity measured is output for an analogue output (0-10 V).



Picture 4-7: Sensor Relative Humidity

#### 4.3.2.1 Register Card Property

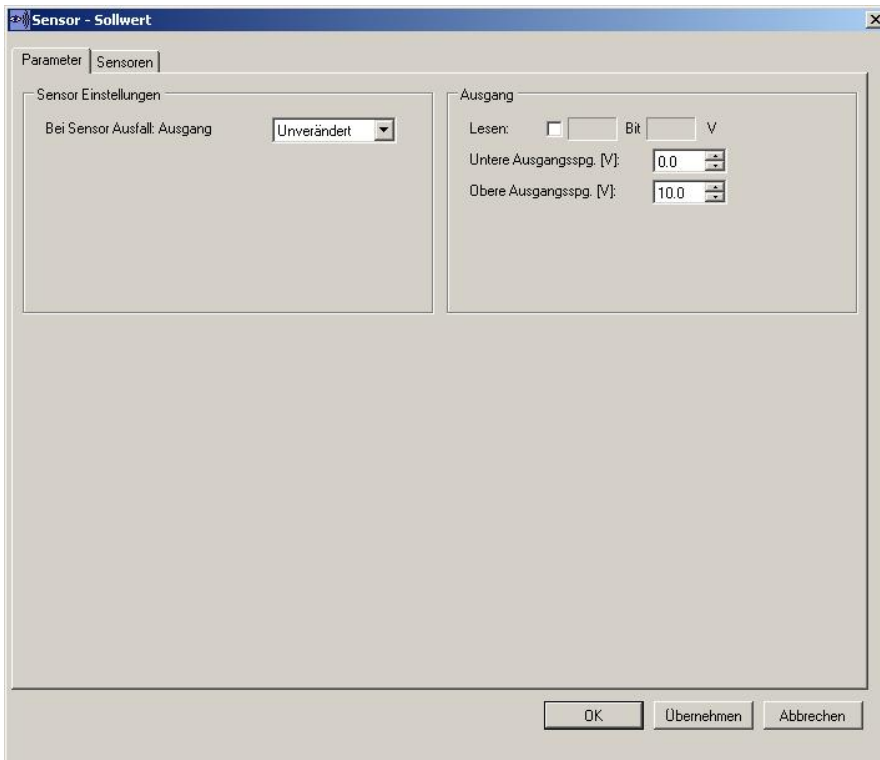
- Upon sensor failure
  - Assignment of a defined value upon sensor failure
  - Monitoring time amounts to 90 minutes
- Output
  - In the field “output” the current status of the output can be displayed by the activation of the hook mark.
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V

#### 4.3.2.2 Register Card Sensors

- Averaging
  - Averaging is made via all sensors which are marked by a hook on the register card “Sensors”.
- Number of Sensors
  - Up to 15 sensors can be selected for an averaging and can be assigned to the output.

### 4.3.3 Sensor – Set point

In the output function “Sensor set point“ the adjusted set point is output to an analogue output (0-10 V).



Picture 4-8: Sensor Set Point

#### 4.3.3.1 Register Card Property

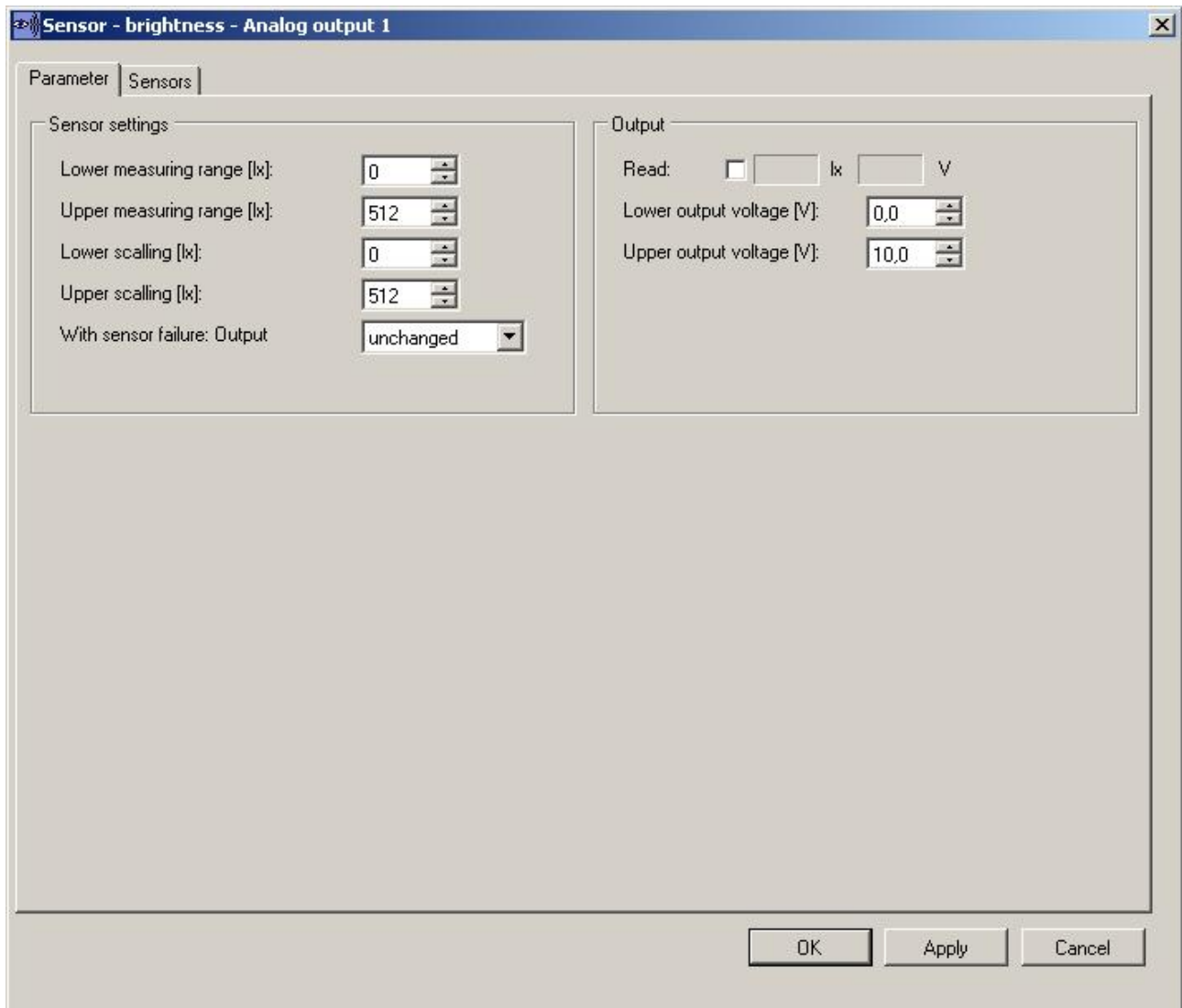
- Upon sensor failure
  - Assignment of a defined value upon sensor failure
  - The monitoring time amounts to 90 minutes
- Output
  - In the field “output“ the current status of the output can be displayed by activating the hook mark.
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V

#### 4.3.3.2 Register Card Sensors

- Averaging
  - The averaging is made via all sensors which are marked by a hook on the register card “Sensors“
- Number of sensors
  - Up to 15 sensors can be selected for an averaging and assigned to the output.

#### 4.3.4 Sensor - brightness

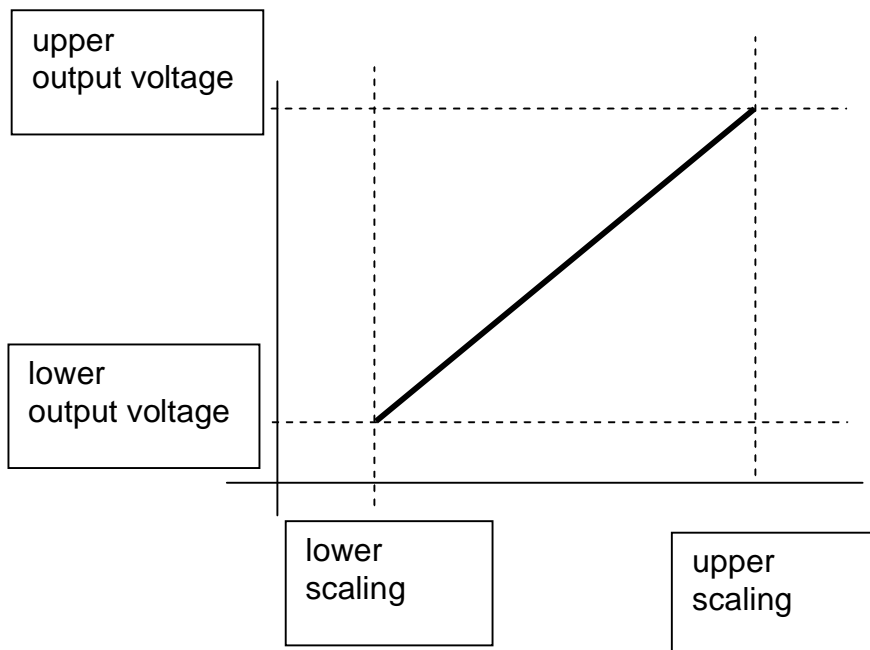
In the output function "Sensor brightness" the measured light value is output to an analogue output (0-10 V).



Picture 4-9: Sensor brightness

##### 4.3.4.1 Register Card Property

- Lower measuring range / Upper measuring range
  - Enter measuring range of sensor
  - The measuring range can be found in the product data sheet of the sensor
- Scaling of output value
  - Fields "lower-" and "upper scaling":  
The input values must be within the measuring range of the sensor.
  - Fields "lower-" and "upper output voltage"  
The input values must be within the 0-10V output range.



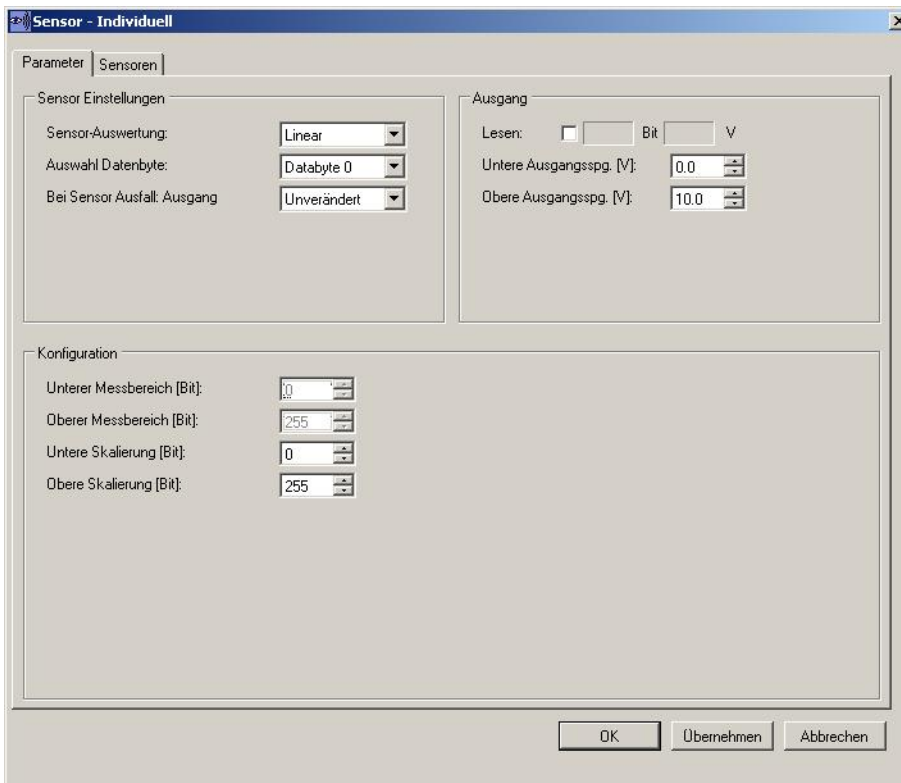
- Upon sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
- Output
  - In the field "Output" the current status of the output can be displayed by activating the hook mark.
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V

#### 4.3.4.2 Register Cards Sensors

- Averaging
  - Averaging is made via all sensors which are marked by a hook on the register card "Sensors"
  - **Attention:** For an averaging all sensors must have the same measuring range
- Number of sensors
  - Up to 15 sensors can be selected for an averaging and can be assigned to the output.

### 4.3.5 Sensor - Individual

In the output function “Sensor Individual” an EnOcean data byte of the sensor is output linear or also in levels to an analogue output (0-10V).

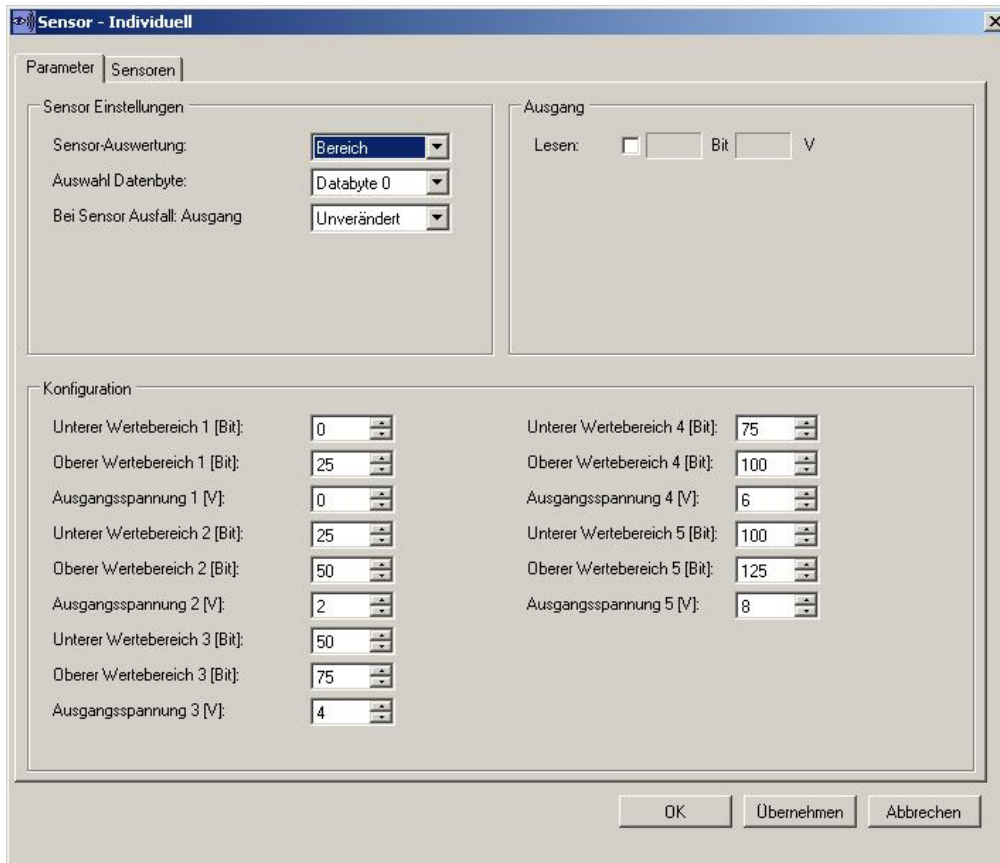


Picture 4-10: Sensor Individual

#### 4.3.5.1 Register Card Property

- With sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
- Output
  - In the field “Output“ the current status of the output can be displayed by activating the hook mark
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V
- Selection Data Byte
  - Selection of data byte that should be effective to the output
  - Function of data bytes can be found in the product data sheet of the manufacturer
- Sensor Evaluation Linear:
  - Lower scaling and upper scaling
    - Sensor can be scaled between 0-255 bit and is output to the output linear

- **Sensor-Evaluation Range**
  - 5 different ranges can be assigned to the output
  - A voltage can be assigned to these 5 ranges
  - e.g. for displaying the fan stage of an analogue output



**Picture 4-11: Sensor Evaluation Range**

## 4.3.5.2 Register Card Sensors

- **Number of Sensors**
  - Up to 15 sensors can be selected and assigned to the output.



### 4.3.6 Dimming

If a relay should be switched during the dimming, the function Dimming –1 – button operation respectively Dimming – 2- button operation must be selected on one digital output and the button from the analogue dimming function must be assigned.

#### Register Card Property

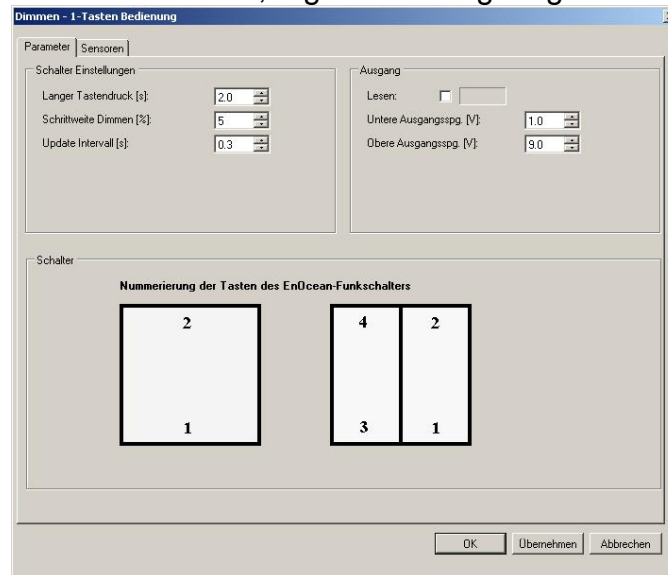
- Switch Adjustment
  - Long button actuation
  - Time from which the output shall dim
  - Step size dimming
    - Adjustable by how many percents the output shall be changed per interval
  - Update Interval
    - Adjustable in which timer interval it should be dimmed
- Output
  - In the field “Output“ the current status of the output can be displayed by activating the hook mark.
  - Lower output voltage and output voltage
    - Scaling of output voltage in the range 0-10V

#### 4.3.6.1 Register Card Sensors

- Number of Sensors
  - Up to 15 sensors can be selected and assigned to the output

#### 4.3.6.2 Dimming - 1 – Button Operation

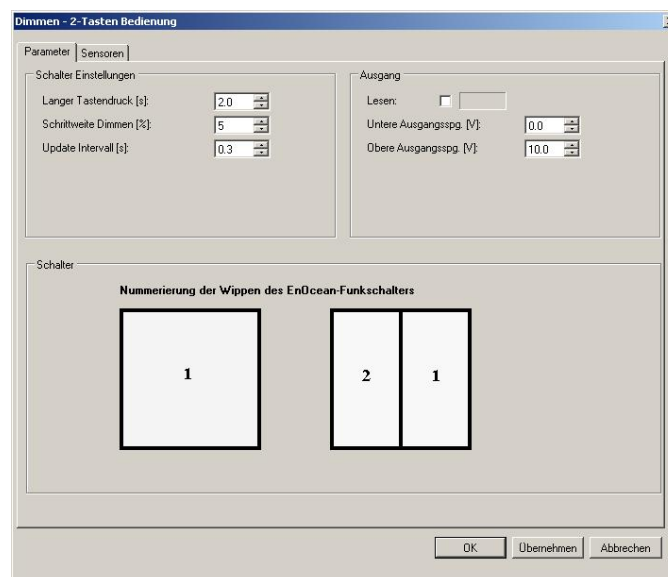
With 1 – button operation the output is dimmed by long button actuation (e.g. the output is changed by e.g. 5% all 0,3 s). With a renewed long button actuation the dimming direction is changed. By a short button actuation, e.g. < 2s the lighting can be switched-on or off.



Picture 4-12: Dimming - 1 –button operation

#### 4.3.6.3 Dimming - 2 – button operation

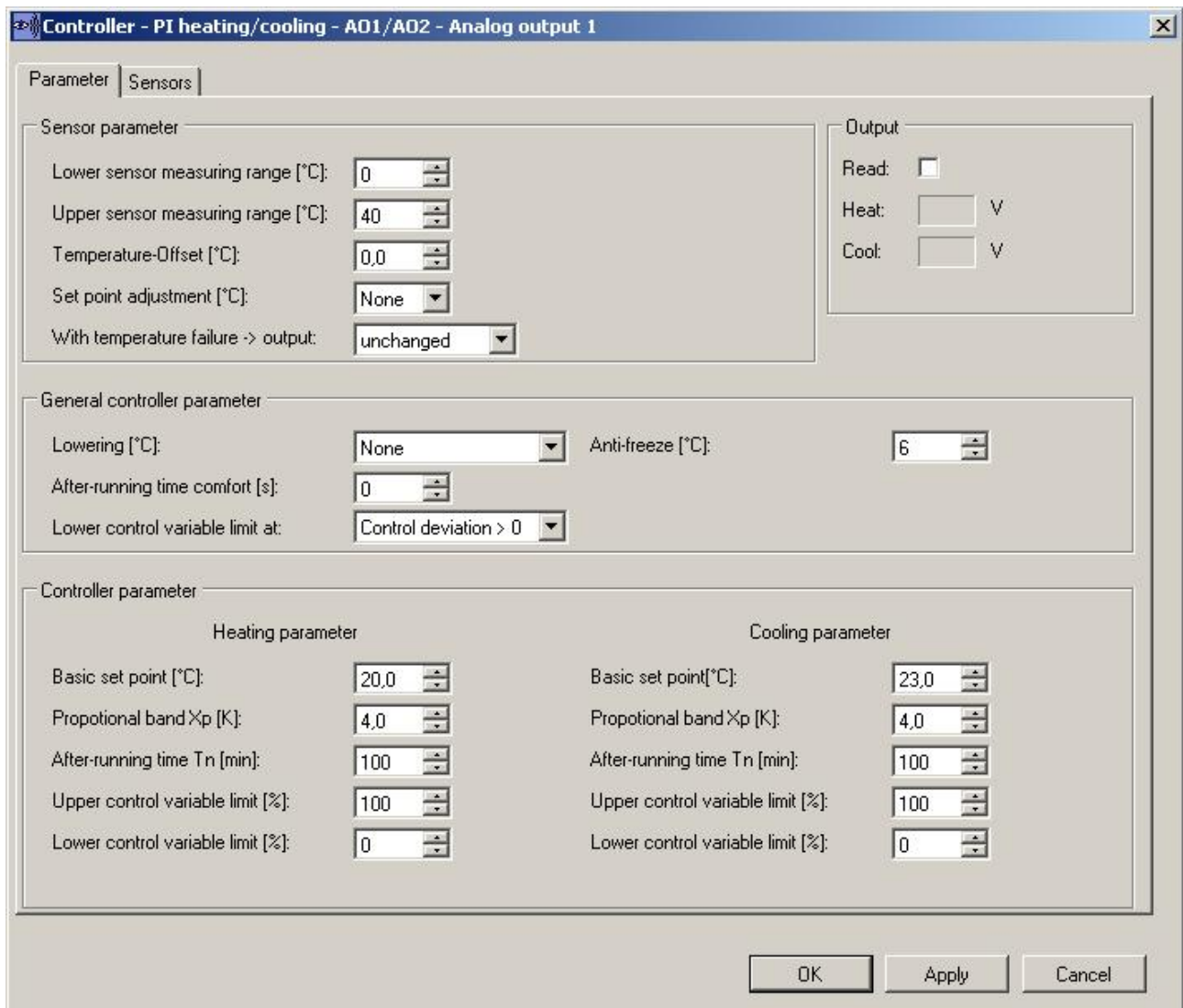
With 2 – button operation the output is dimmed darker by a long button actuation on the lower button. By actuating the upper button, the output is dimmed brighter (e.g. the output is changed by e.g. 5% all 0,3s). By a short button actuation e.g. < 2s the lighting can be switched-on or off.



Picture 4-13: Dimming - 2 – button operation

#### 4.3.7 Controller – PI Heating / Controller – PI Cooling / Controller – PI Heating / Cooling

With a continuous control the control can be ideally adapted to the room by adjusting the properties. With any new telegram received, the output quantity is recalculated. By using window contacts the energy-stop is activated if the window is opened. By the night lowering, the set point can be lowered. The night lowering can be realized by the use of a SR65 DI, a slide switch respectively by a motion sensor. The devices for night lowering are “OR” operating.



**Controller - PI heating/cooling - AO1/AO2 - Analog output 1**

Parameter | Sensors

**Sensor parameter**

Lower sensor measuring range [°C]: 0

Upper sensor measuring range [°C]: 40

Temperature-Offset [°C]: 0,0

Set point adjustment [°C]: None

With temperature failure -> output: unchanged

**General controller parameter**

Lowering [°C]: None

Anti-freeze [°C]: 6

After-running time comfort [s]: 0

Lower control variable limit at: Control deviation > 0

**Controller parameter**

Heating parameter		Cooling parameter	
Basic set point [°C]:	20,0	Basic set point [°C]:	23,0
Proportional band Xp [K]:	4,0	Proportional band Xp [K]:	4,0
After-running time Tn [min]:	100	After-running time Tn [min]:	100
Upper control variable limit [%]:	100	Upper control variable limit [%]:	100
Lower control variable limit [%]:	0	Lower control variable limit [%]:	0

OK Apply Cancel

Picture 4-14: Property Continuous Control

### 4.3.7.1 Register Card Property

#### Sensor Property

- Lower sensor measuring range / upper sensor measuring range
  - Enter measuring range of sensor
  - Measuring range can be found in the data sheet of the sensor
- Temperature-Offset
  - Adaption of temperature deviation of the sensor
- Set point adjustment (with SR04P..., SR04rHP..., SR07P...)
  - Manual adjustment of set point on the sensor
  - Range -3/+3K and -5 / +5K and "None" adjustable
- Upon sensor failure
  - Assignment of defined value upon sensor failure
  - Monitoring time amounts to 90 minutes
  - Upon sensor failure, window contacts are ignored after 90 minutes
  - If a sensor transmits again, the output is working properly again
  - Buttons are not monitored

#### General Control Settings

- Night Lowering
  - Reduction of set point by none, 2 K, 4 K, 6 K, 8 K, 10 K, 12 K, antifreeze operation
  - For night lowering the following can be used (OR-operation):
    - Room operating panel SR0x with slide switch
    - Digital module SR65DI  
(lowering if contact is opened e.g. with time switch)
    - Motion sensor PIR 360°
    - Wireless chair
    - Wireless switch (PTM switch)
- Antifreeze protection (with activated energy-stop)
  - Adjustable between 0 and 10 °C
  - For energy-stop the following devices can be used:
    - Window contact SRW01
    - Window handle SecuSignal
- Lower limit of control variable
  - Selection whether the lower control variable limit shall be effective if no control deviation is existing
  - Control deviation > 0
    - Lower control variable limit is only effective if a control deviation is existing
  - Control deviation = 0
    - Lower control variable is always effective even if no control deviation is existing
- Comfort extension

- The toggle between comfort operation to lowering mode is made delayed by the adjusted time(s), e.g. when using the wireless chair or motion detector.  
Control Property
- Basic Set Point
  - Basic set point for control
- Proportional range Xp
  - adjustable between 0-10 K
- Running-after time „Tn“
  - Reset time of integral range, adjustable from 0-255 min
  - If the running-after time „Tn“ is set to 0, the same is deactivated
- Lower and upper control variable limit
  - Limit of control output

### Output

- In the field “Output“ the current status of the output can be displayed by activating the hook mark.

#### 4.3.7.2 Register Card Sensors

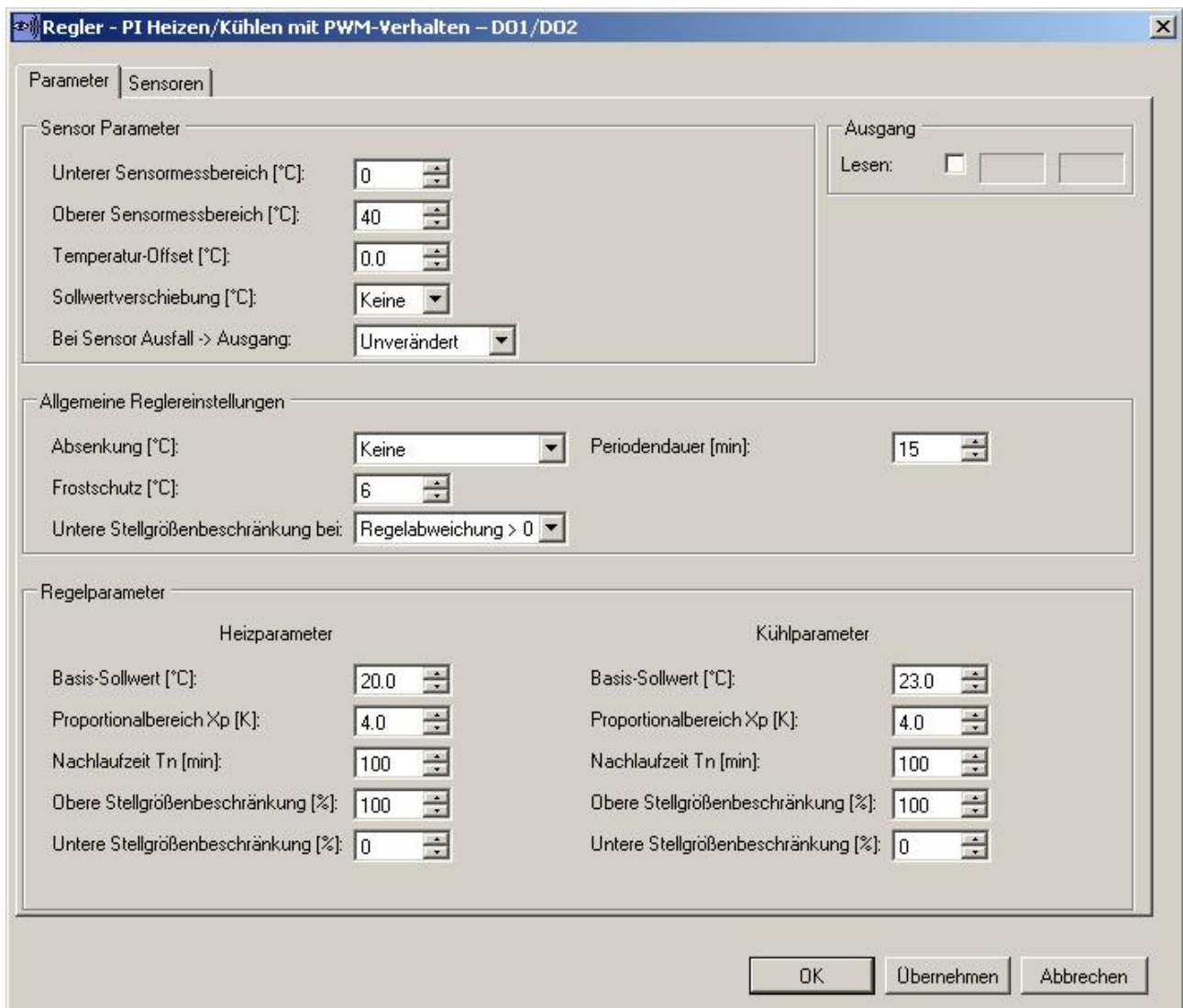
- 1 temperature sensor can be learned-in
- Windown contacts are “Or“-operated,i.e. all window contacts must be closed
- If the window is opened, the controller switches to 100% if the antifreeze temperature is fallen below.
- Devices for night lowering are “OR“-operated.

## 4.4 Digital Outputs

The functions of the digital outputs are described in the following:

### 4.4.1 Controller – PI Heating / Cooling by PWM - behaviour

With the continuous control the control can ideally be adapted to the room by the property setting. With each new telegram receipt, the output quantity is recalculated. By using window contacts the energy stop is activated if the window is opened. By the night lowering the set point can be lowered. The night lowering can be realized by the use of the SR65DI, a slide switch respectively by a motion sensor. For the night lowering, the devices are “Or” operated.



**Regler - PI Heizen/Kühlen mit PWM-Verhalten - D01/D02**

Parameter | Sensoren

**Sensor Parameter**

Unterer Sensormessbereich [°C]: 0

Oberer Sensormessbereich [°C]: 40

Temperatur-Offset [°C]: 0.0

Sollwertverschiebung [°C]: Keine

Bei Sensor Ausfall -> Ausgang: Unverändert

**Ausgang**

Lesen: ☐

**Allgemeine Reglereinstellungen**

Absenkung [°C]: Keine

Periodendauer [min]: 15

Frostschutz [°C]: 6

Untere Stellgrößenbeschränkung bei: Regelabweichung > 0

**Regelparameter**

Heizparameter		Kühlparameter	
Basis-Sollwert [°C]:	20.0	Basis-Sollwert [°C]:	23.0
Proportionalbereich Xp [K]:	4.0	Proportionalbereich Xp [K]:	4.0
Nachlaufzeit Tn [min]:	100	Nachlaufzeit Tn [min]:	100
Obere Stellgrößenbeschränkung [%]:	100	Obere Stellgrößenbeschränkung [%]:	100
Untere Stellgrößenbeschränkung [%]:	0	Untere Stellgrößenbeschränkung [%]:	0

OK Übernehmen Abbrechen

Picture 4-15: Property Continuous Control

### 4.4.1.1 Register Card Property

#### Sensor Property

- Lower sensor measuring range/ Upper sensor measuring range
  - Enter measuring range of sensor
  - The measuring range can be found in the product data sheet of the sensor
- Temperature-Offset
  - Adaption of temperature deviations of sensor
- Set point adjustment (with SR04P..., SR04rHP..., SR07P...)
  - Manual adjustment of set point on the sensor
  - Range of -3/+3K and -5 / +5K and "None" adjustable
- With sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
  - With sensor failures window contacts are ignored after 90 minutes
  - If a sensor is transmitting again, the output is working normally again
  - Buttons are not monitored

#### General Controller Settings

- Night lowering
  - Reduction of set point by none, 2 K, 4 K, 6 K, 8 K, 10 K, 12 K, antifreeze protection
  - For night lowering the following can be used (OR-operation):
    - Room operating panel SR0x with slide switch
    - Digital module SR65DI  
(lowering with opened contact e.g. with time switch)
    - Motion sensor PIR 360°
    - Wireless chair
    - Wireless switch (PTM switch)
- Antifreeze protection (with activated energy stop)
  - Adjustable between 0 and 10 °C
  - For energy stop the following can be used:
    - Window contact SRW01
    - Window handle SecuSignal
- Lower Control Variable Limit
  - Selection whether the lower control variable limit shall be effective , if no offset is existing.
  - Offset > 0
    - Lower control variable limit only becomes effective, if an offset is existing
  - Offset = 0
    - Lower control variable limit is always effective, even if no offset is existing.
- Comfort Extension

- The toggle between comfort operation into night lowering is made delayed by the adjusted time (s). For example with the use of a wireless chair or a motion sensor.
- Period
  - Time for pulse width modulation

### Control Property

- Basic-Set Point
  - Basic set point for control
- Proportional range Xp
  - between 0-10 K adjustable
- After-running time „Tn“
  - After-running time of integral range, adjustable from 0-255 min
  - If the after-running time „Tn“ is set to 0, the same is deactivated
- Lower and upper control variable limit
  - Limitation of control output

### Output

- In the field “Output“ the current status of the output can be adjusted by activating the hook mark

#### 4.4.1.2 Register Card Sensors

- 1 Temperature sensor can be learned-in
- Window contacts are “OR“- operated, i.e. all window contacts must be closed
- If the window is opened the controller switches to 100% if the antifreeze temperature was fallen below
- Devices for night lowering are “OR“- operated



#### 4.4.2 Controller – Two-Point Heating/Cooling

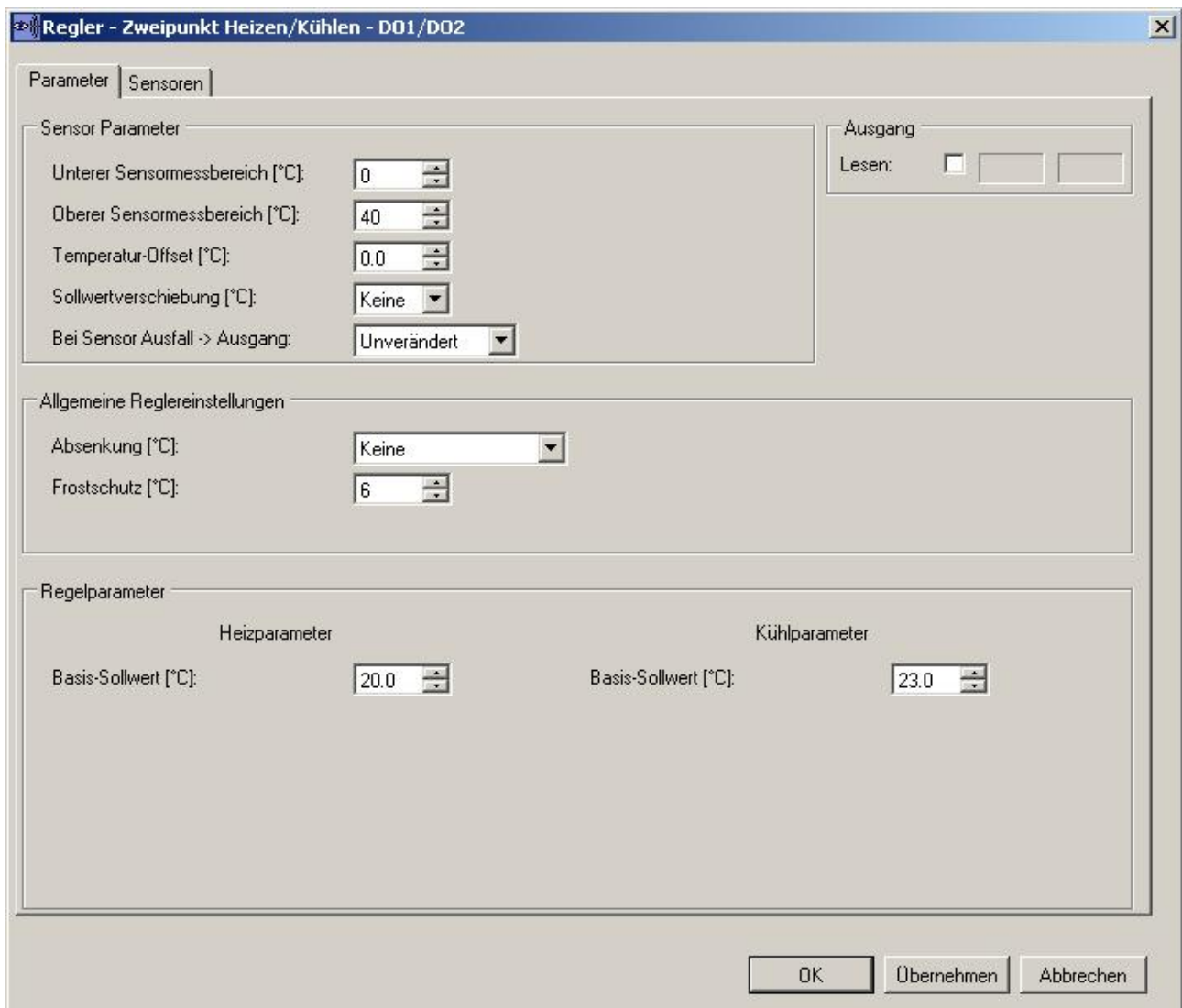
##### Heating

With the two-point control the relay is switched-on if the set point is fallen below. If the set point is exceeded, the relay is switched-off.

##### Cooling

With the two-point control the relay is switched-on if the set point is exceeded and switched-off if the set point is fallen below.

With each new telegram received, the output quantity is recalculated. By the use of window contacts the energy stop is activated if the window is opened. By the night lowering, the set point can be lowered. The night lowering can be realized by the use of SR65 DI, a slide switch respectively by a motion sensor. The devices for night lowering are "OR-operated".



Picture 4-16: Property Continuous Control

### 4.4.2.1 Register Card Property

#### Sensor Property

- Lower sensor measuring range / Upper sensor measuring range
  - Enter measuring range of sensor
  - Measuring range can be found in the product data sheet of the sensor
- Temperature-Offset
  - Adaption of temperature deviation of sensor
- Set point adjustment
  - Manual adjustment of set point on the sensor
  - Range adjustable from -3/+3K and -5 / +5K and „none“
- With sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
  - Window contacts are ignored with a sensor failure after 90 minutes
  - If a sensor is transmitting again, the output works normally again.
  - Buttons are not monitored.

#### General Controller Setting

- Night Lowering
  - Reduction of set point by none, 2 K, 4 K, 6 K, 8 K, 10 K, 12 K, antifreeze operation
  - For night lowering the following can be used:
    - Room operating panel SR0x with slide switch
    - Digital module SR65DI (e.g. with a time switch)
    - Motion detector Sensor PIR 360° (motion sensor are OR-operated)
    - Wireless chair
    - Rocker 1, Rocker 2 (PTM switch)
- Antifreeze
  - Adjustable between 0 and 10°C

#### Control Property

- Basic-Set Point
  - Basic set point for control

#### Output

- In the field “Output“ the current status of the output can be displayed by activating the hook mark.

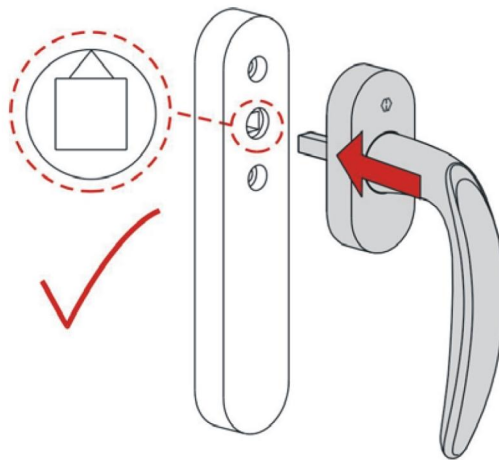
### 4.4.2.2 Register Card Sensors

- 1 Temperature sensor can be learned-in
- Window contacts are “OR“-operated, i.e. all window contacts must be closed
- If the window is opened, the controller switches to 100% if the antifreeze temperature was fallen below
- Devices for night lowering are “OR“-operated.

#### 4.4.3 Sensor – Pilot Contact

In the output function “Sensor – Pilot Contact“ the digital output can be switched ON and OFF by the sensors. The sensors that are assigned to the function are OR-operated. This function can be used for the following applications:

- Presence button, slide switch (SR04 T, SR04 MS)
- Motion sensor (SR-PIR 360°)
- Motion sensor, light on / off depending on the light value (SR-MDS)
- Digital Input (SR65DI)
  - For the seamlessly connection, the digital input must be opened
- Wireless chair
- Window contact (SRW01)
- Window handle (SecuSignal)
  - Closed / opened
    - Display if window is opened
  - Closed / tilted-opened
    - Display if window is tilted or opened
  - As for the SecuSignal® window handle a correct installation is very important. (Thus, also see SecuSignal® data sheet )



The relay is switched-on if :

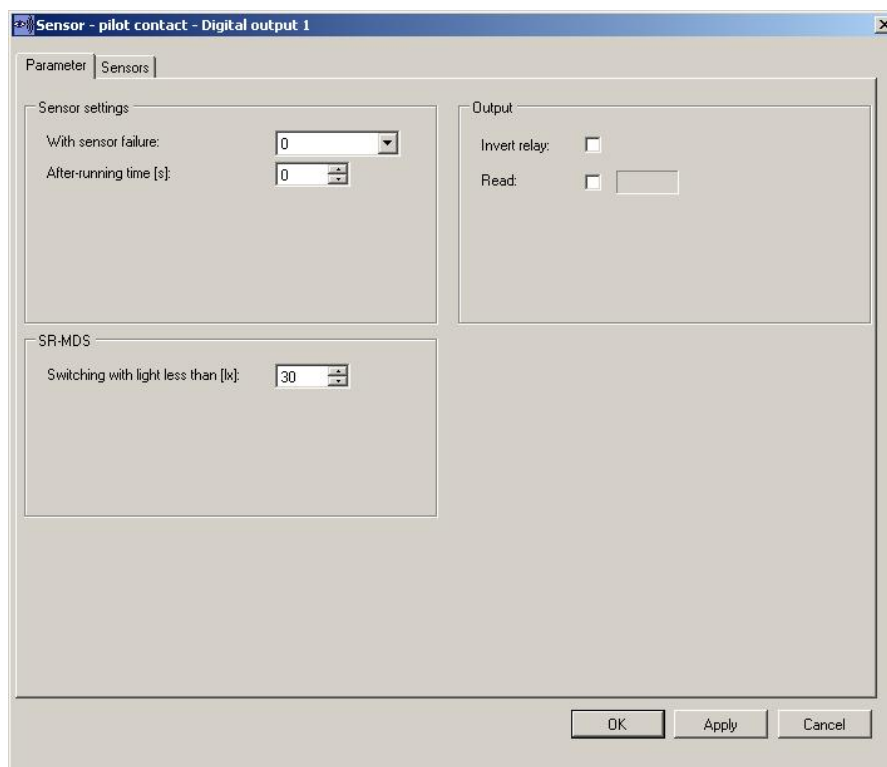
- the windows are opened
- motion was detected
- the digital contacts are closed
- the wireless chair is occupied
- the presence button is pressed
- slide switch is switched

### 4.4.3.1 Register Card Property

- With sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
- After-running time
  - adjustable from 0 –65000 seconds
- SR-MDS
  - Switches the light on if it is too dark and movement is detected
- Output
  - Relays is invertible
  - In the field "Output" the current status of the output can be displayed by activating the hook mark

### 4.4.3.2 Register Card Sensors

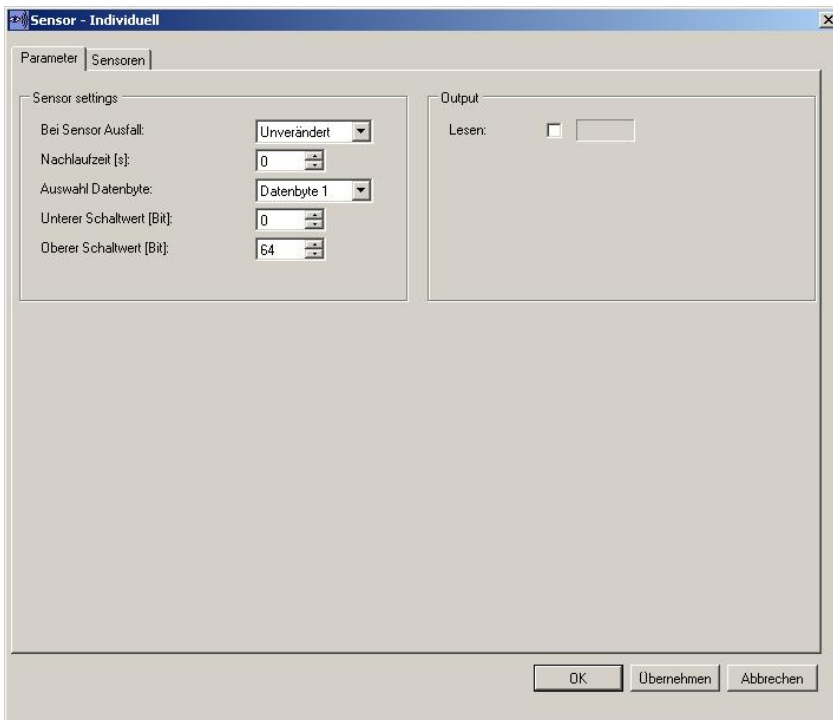
- Number of Sensors
  - Up to 15 sensors can be selected and assigned to an output



Picture 4-17: Pilot Relay

## 4.4.4 Sensor - Individual

In the output function “Sensor – Individual” an EnOcean data byte of a sensor can switch a digital output (On–Off).



Picture 4-18: Individual

### 4.4.4.1 Register Card Property

- With sensor failure
  - Assignment of a defined value with sensor failure
  - Monitoring time amounts to 90 minutes
- After-running time
  - Adjustable from 0 –65000 seconds
- Selection data byte
  - Selection of data byte which should be effective on the output
  - Function of data byte can be found in the product data sheet of the manufacturer
- Lower switch value and upper switch value
  - In the range between the lower and upper switch value, the relay is switched-on.

Example:

Temperature limiting value, sensor 0-40°C over 30°C, switch relay on:

Temperature of SR04 is inverted -> 0 °C = 255 bit and 40 °C = 0 bit

Selection data byte: data byte 1

Lower switch value: 0 bit

Upper switch value: 255 bit – (30 °C / 40 °C \* 255 bit) = 64 bit

Rotary switch: With the 1. fan stage – switch relay on

Lower switch value: 165 bit

Upper switch value: 195 bit

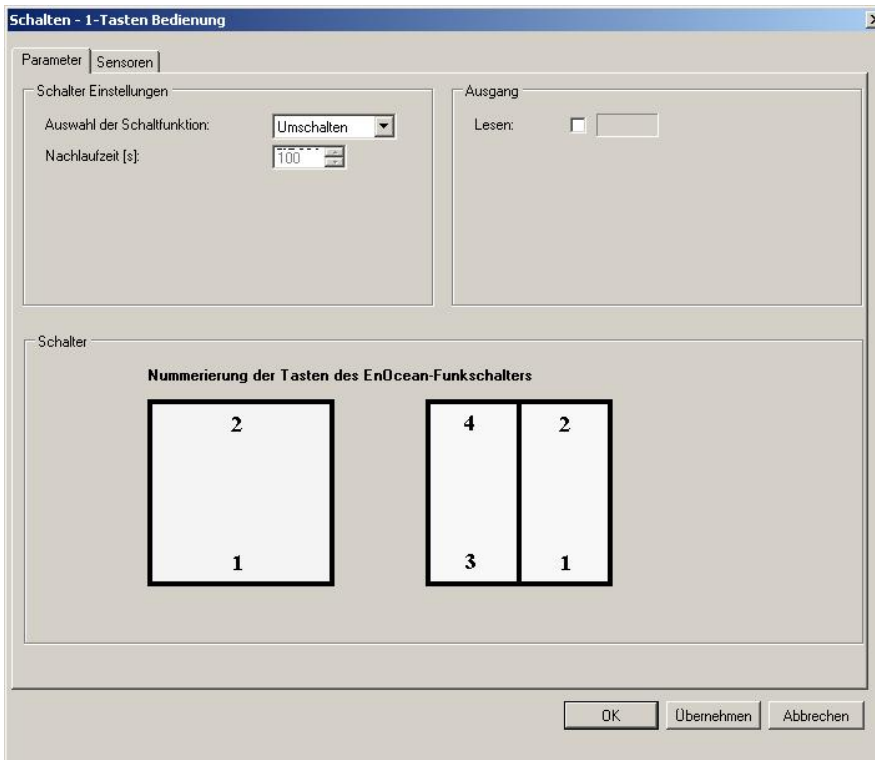
- Output
  - Relays is invertible
  - In the field "Output" the current status of the output can be displayed by activating the hook mark.

#### **4.4.4.2 Register Card Sensors**

- Number of sensors
  - Up to 15 sensors can be selected and assigned to the output

#### 4.4.5 Switching - 1 – Button Operation

In the output function “Switching – 1 - button operation” a button of a switch can switch the digital output (On – Off).



Picture 4-19: Switching – 1- Button operation

##### 4.4.5.1 Register Card Property

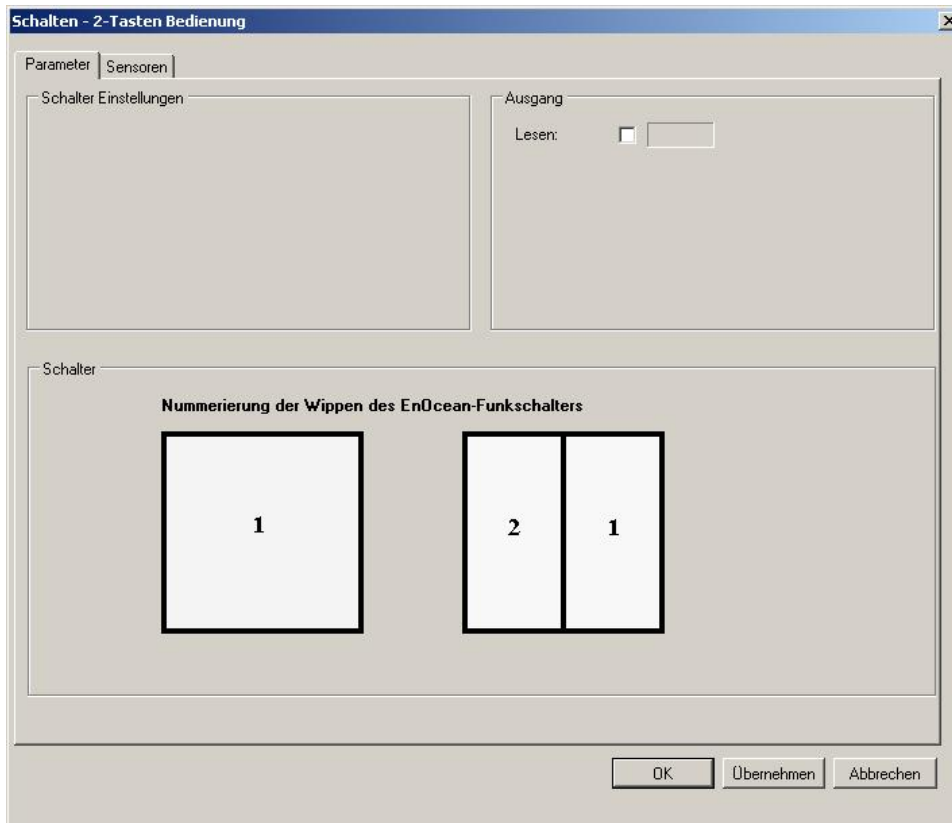
- Selection of switch function
  - Toggle
    - Relay is toggled with each button actuation
  - Buttons
    - Relay reswitchs after a button actuation and after expiration of the after-running time.
- Output
  - In the field “Output“ the current status of the output can be displayed by activating the hook mark.

##### 4.4.5.2 Register Card Sensors

- Number of sensors
  - Up to 15 buttons can be selected and assigned to the output.

#### 4.4.6 Switching - 2 – Button Operation

In output function “Switching - 2 – button operation” a rocker of a switch is switching the digital output on and off.



Picture 4-20: Switching - 2 – button operation

##### 4.4.6.1 Register Card Property

- Output
  - In the field “Output” the current status of the output is displayed by activating the hook mark.

##### 4.4.6.2 Register Card Sensors

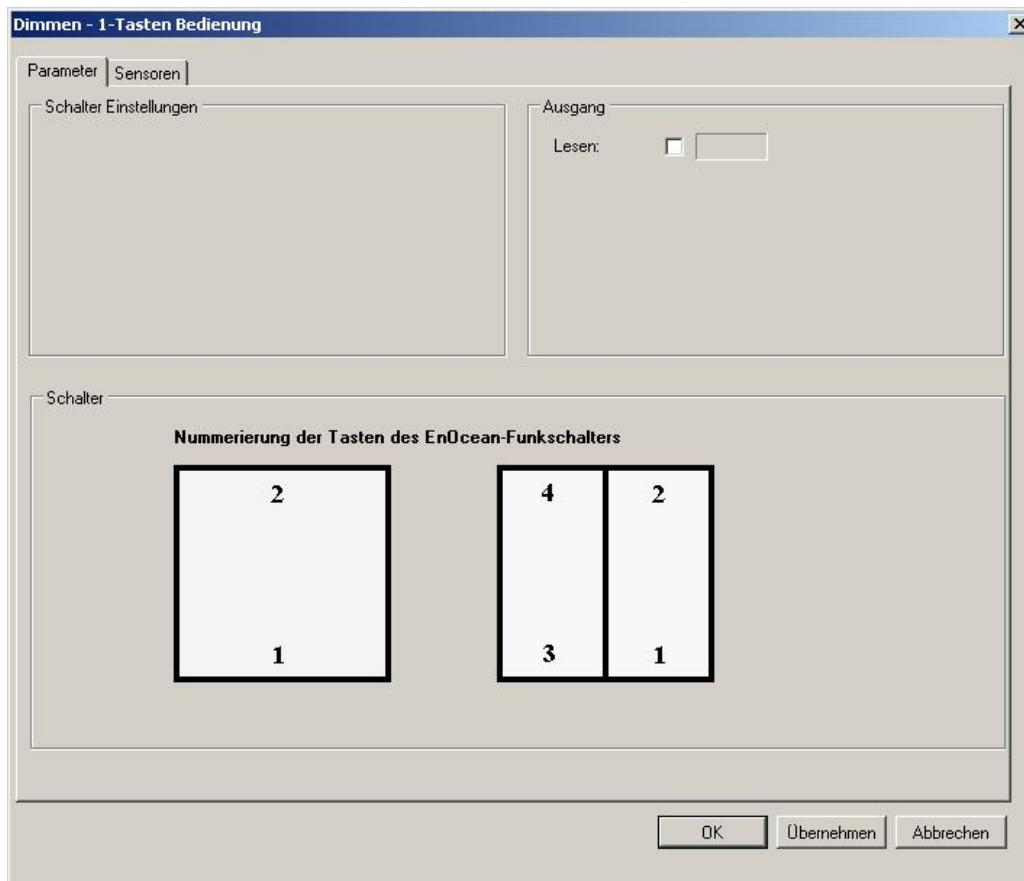
- Number of sensors
  - Up to 15 buttons can be selected and assigned to the output



#### 4.4.7 Dimming – 1 – Button Operation

Bei means of this function, a button can be assigned for dimming to a relay for switching-on /-off. A button is automatically combined with the dimming function of the analogue output if the button is assigned to the analogue and digital output.

Settings must be made on the analogue output. The configuration of the dimming function is made when selecting the analogue output.



Picture 4-21: Dimming - 1 – Button Operation

##### 4.4.7.1 Register Card Property

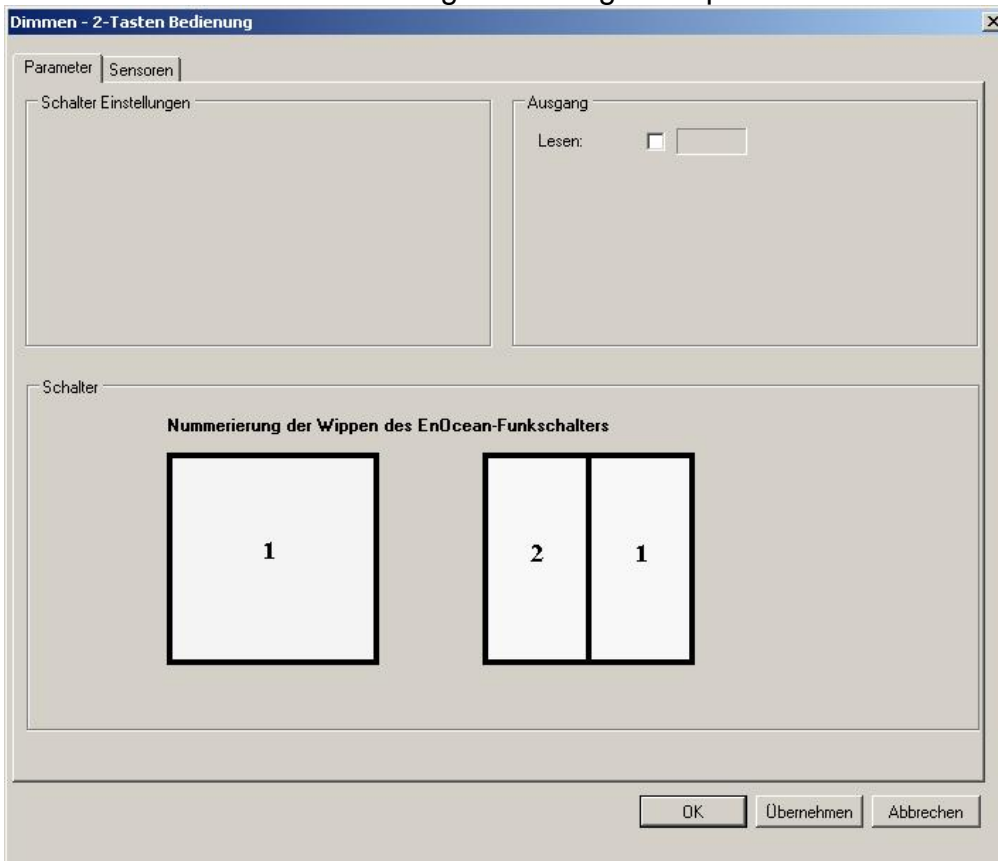
- Output
  - In the field “Output“ the current status of the output is displayed by activating the hook mark.

##### 4.4.7.2 Register Card Sensors

- Number of sensors
  - Up to 15 buttons can be selected and assigned to the output.

#### 4.4.8 Dimming – 2 – Button Operation

By means of this function a rocker can be assigned for dimming to a relay for switching-on /off. A rocker is automatically combined with the dimming function of an analogue output if the rocker is assigned to the analogue and digital output. The configuration of the dimming function is made when selecting the analogue output.



Picture 4-22: Dimming - 2 – Button Operation

##### 4.4.8.1 Register Card Property

- Output
  - In the field “Output” the current status of the output can be displayed by activating the hook mark.

##### 4.4.8.2 Register Card Sensors

- Number of sensors
  - Up to 15 buttons can be selected and assigned to the output

#### 4.4.9 Blind

In the output function “Blind” a rocker can control a blind up and down. The function for the blinds can only be selected on the outputs DO1 respectively DO3 in the main menu. The outputs DO2 respectively DO4 are automatically be used for the blind function.

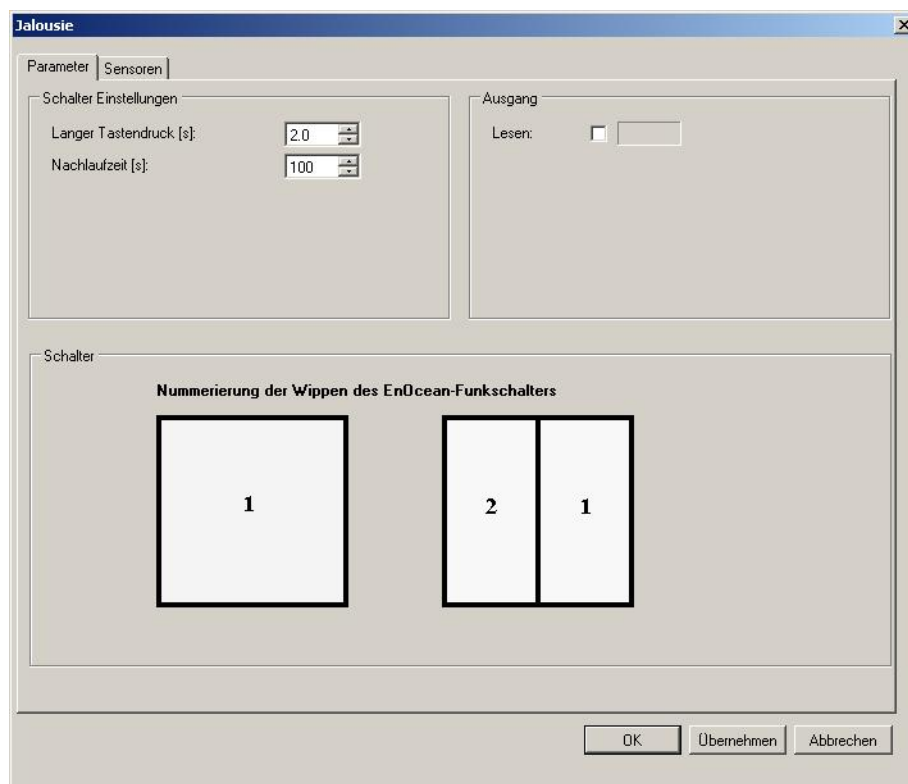
A rocker is effecting 2 relay outputs. The button ( $\Delta$ ) affects output DO1 respectively DO3. The button ( $\nabla$ ) affects output DO2 respectively DO4. The outputs are locked against each other by the software, so that always only one relay is switched.

##### 4.4.9.1 Register Card Property

- Long button actuation
  - Short button actuations are for the fine adjustment of the lamellas
  - A long button actuation starts the automatic run and controls the blind for the running-after time continuously in the direction open respectively close.
  - The automatic run can be stopped by a renewed button actuation.
- Output
  - In the field “Output” the current status of the output can be displayed by activating the hook mark.

##### 4.4.9.2 Register Card Sensors

- Number of sensors
  - Up to 15 butons can be selected and assigned to the output



Picture 4-23: Blind

#### 4.4.10 Shutter

In the output function “Shutter“ a rocker can control a shutter up and down. The shutter function can only be selected on the outputs DO1 respectively DO3 in the main menu. The outputs DO2 respectively DO4 are automatically used for the shutter function.

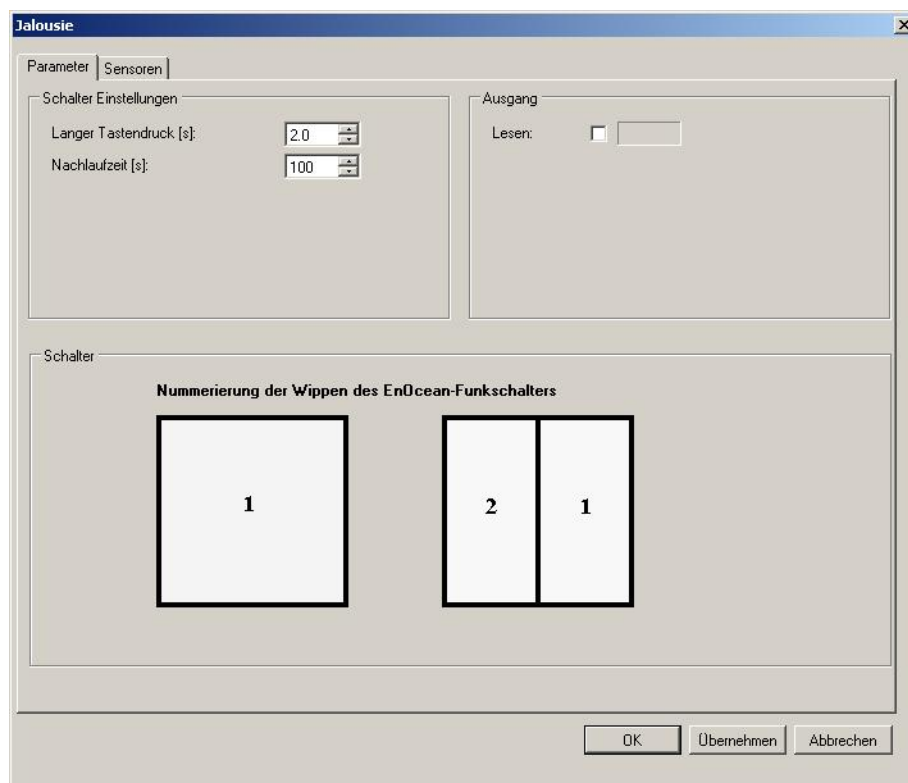
A rocker is effecting on 2 relay outputs. The button ( $\Delta$ ) affects output DO1 respectively DO3. The button ( $\nabla$ ) affects output DO2 respectively DO4. The outputs are locked against each other by the software, so that always only one relay is switched.

##### 4.4.10.1 Register Card Property

- Long button actuation
  - A short button actuation starts the automatic run and controls the shutters for the running-after time continuously in the direction open respectively close.
  - The automatic run can be stopped by a renewed button actuation
  - A long button actuation is designed for the manual adjustment of the shutter
- Output
  - In the field “Output“ the current status of the output is displayed by activating the hook mark.

##### 4.4.10.2 Register Card Sensors

- Number of sensors
  - Up to 15 buttons can be selected and assigned to the output



Picture 4-24: Shutter

## 4.5 Supprimer une sortie

Pour la suppression d'une sortie aucune sonde ne doit être associée à cette sortie. Dans la table d'enregistrement des sondes aucune case ne doit-être cochée. Pour supprimer une sortie, choisir dans le menu « non utilisé » (1). Puis utiliser le bouton « configuration sonde » (2). (Image 4-25: Suppression d'une sortie).

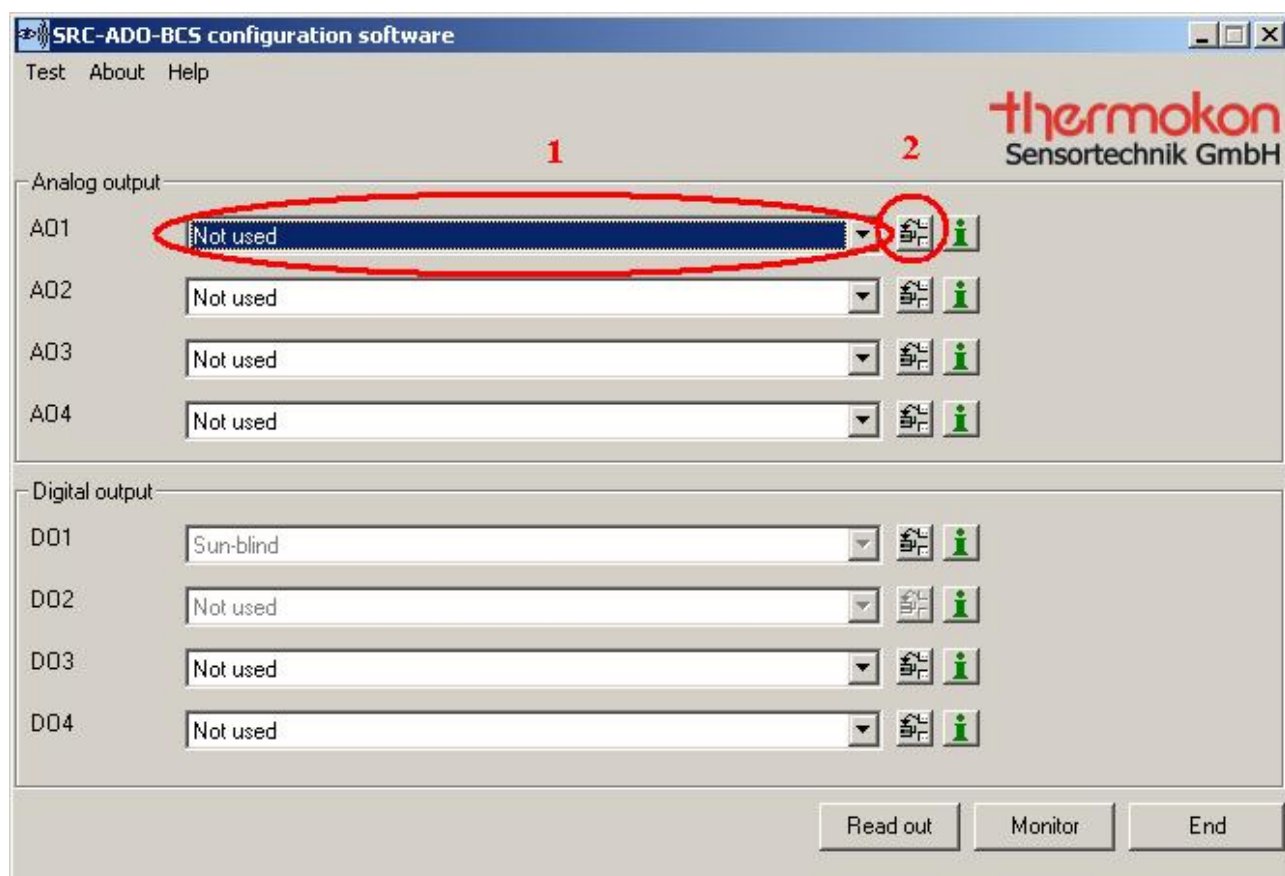


Image 4-25: Suppression d'une sortie

## 5 Exemples de configuration

### 5.1 Sonde de température sur AO1

Sélectionner la fonction, ici « sonde température AO1 » dans la liste des fonctions de la sortie (1).

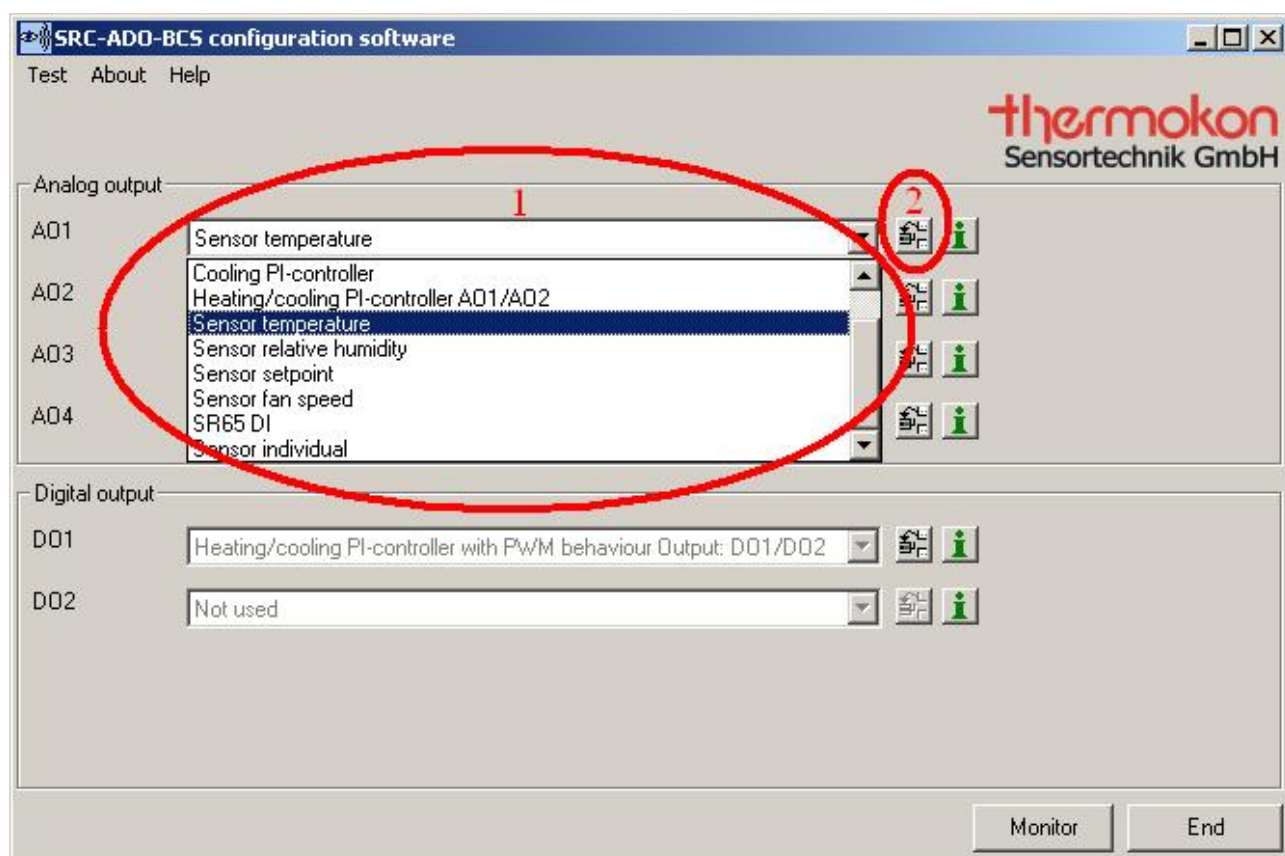
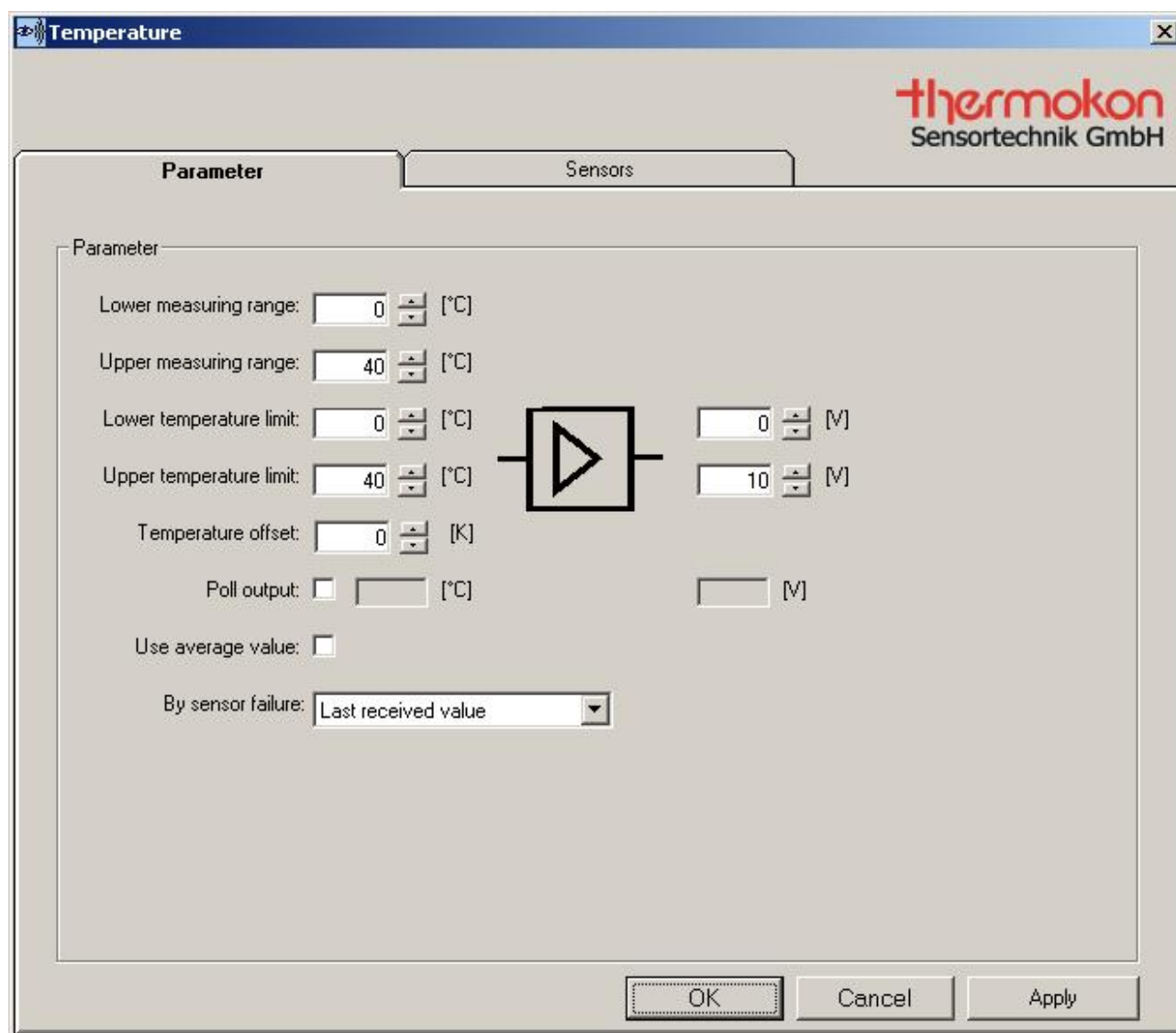


Image 5-1: Sélection sonde température AO1

La sortie doit être configurée et la sonde doit être associée à la sortie. agir ensuite sur le bouton « configurer sortie » (2).

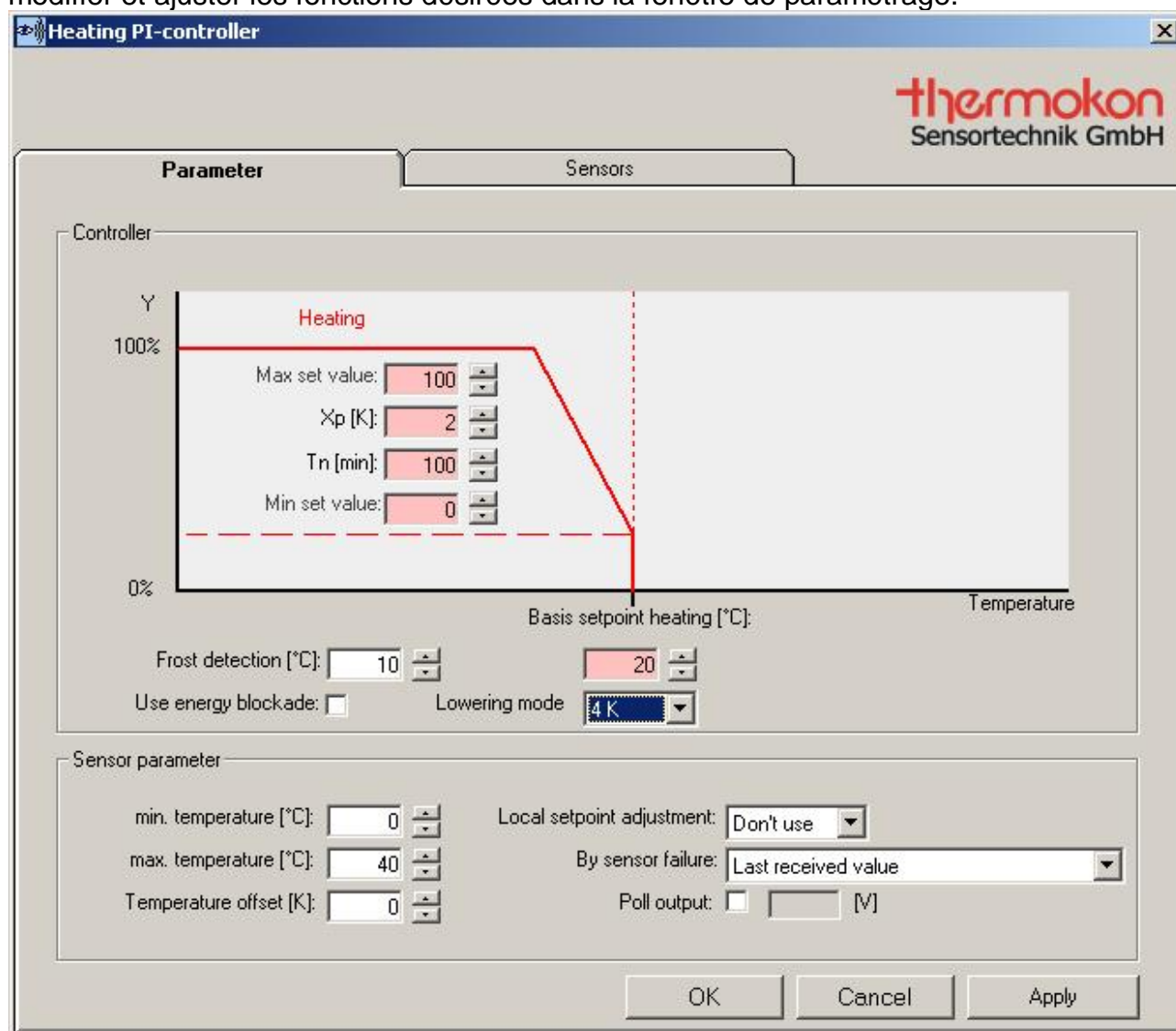
**Image5-2: Paramètres**

Dans les paramètres “rider” une mise à l’échelle de la sonde est possible.

Si un paramètre doit être modifié, Il peut être changé dans le rider « sondes ».

## 5.2 Régulation: Chaud-PI sur AO2

Pour une régulation de circuit, la fonction demandée doit être associée à la sortie. Puis, modifier et ajuster les fonctions désirées dans la fenêtre de paramétrage.



**Image 5-3: Chauffage PI sur AO2**

Un décalage de consigne local de +/-3K a été sélectionné. Cela signifie, que la consigne peut être ajustée de 17 à 23°C. Pour la fonction énergie stop, des contacts de feuillure peuvent être associés à la sortie. Si une fenêtre est ouverte, la variable de régulation passe à 0% jusqu'à ce que l'antigel se déclenche.

Si il y a antigel, la variable de régulation passe à 100%. Pour l'abaissement de température la nuit, une valeur de 4K a été choisie.



### 5.3 Apprentissage des sondes

Après le paramétrage de la sortie, les sondes doivent être associées à la sortie. Une sonde est associée à la sortie en cochant le champ « choix ». Il est possible d'associer un ensemble de capteurs à une sortie. Mais il n'est pas possible d'associer un bouton à une sortie température.

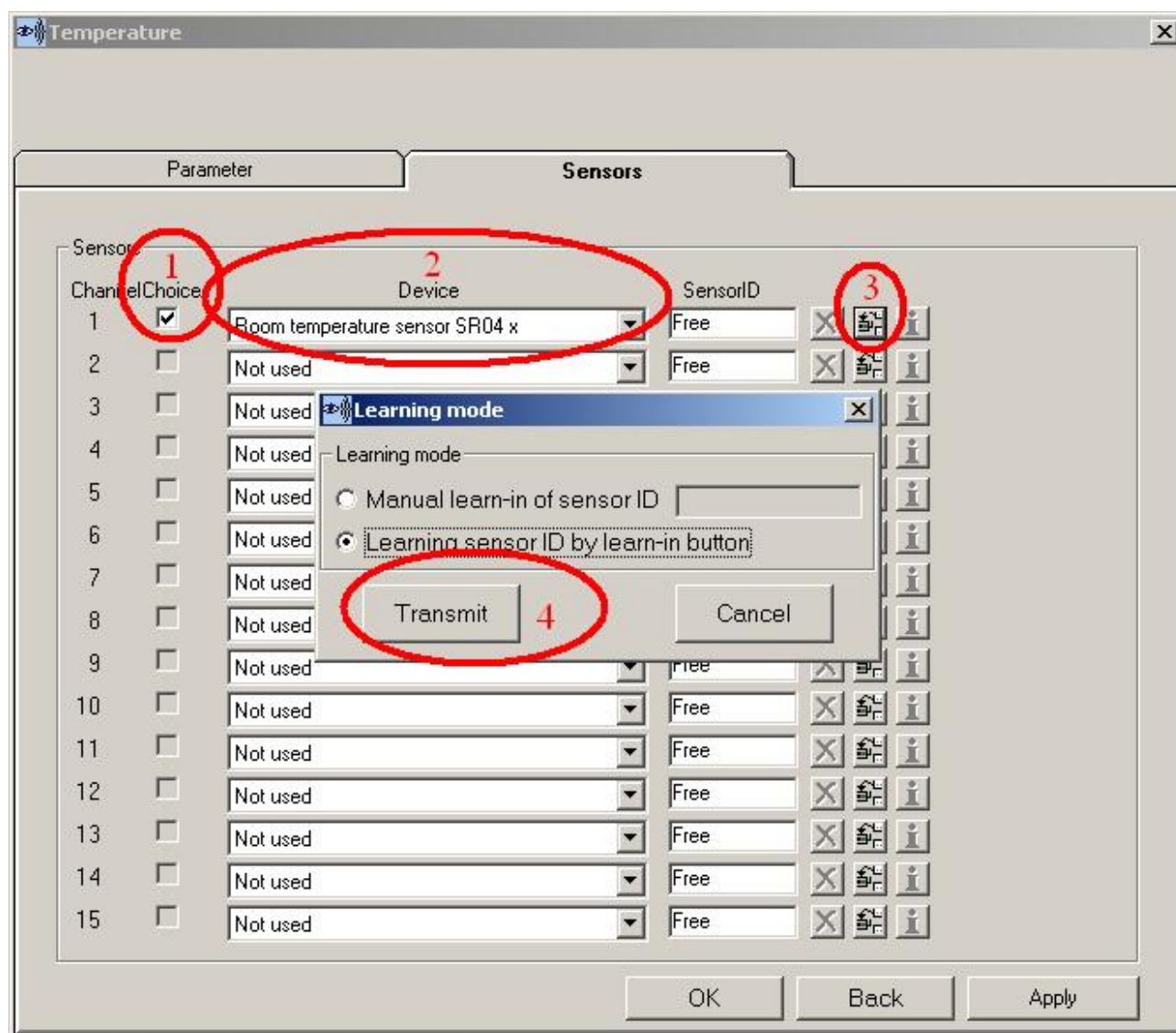


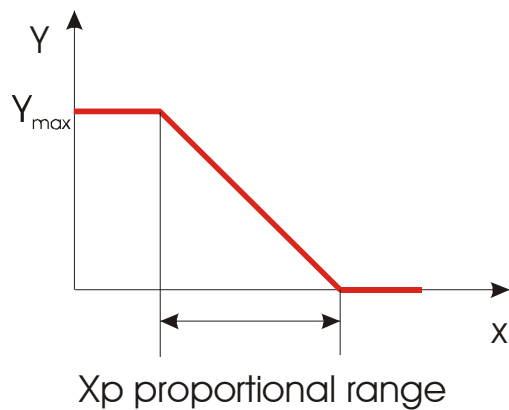
Image 5-4: Apprentissage des sondes

Sélectionner le type d'appareil (2) et appuyer sur le bouton « apprentissage sonde » (3). Maintenant la fenêtre apprentissage sonde apparaît et la sonde peut être apprise (4).

## 6 Ajustement du régulateur

Dans ce chapitre quelques régulateurs sont listés

### 6.1 Bande proportionnelle $X_p$



$X_p$  est la différence entre la valeur mesurée et le point de consigne.

Conversion pour un gain  $X_p$  sur une constante proportionnelle  $k_r$ :

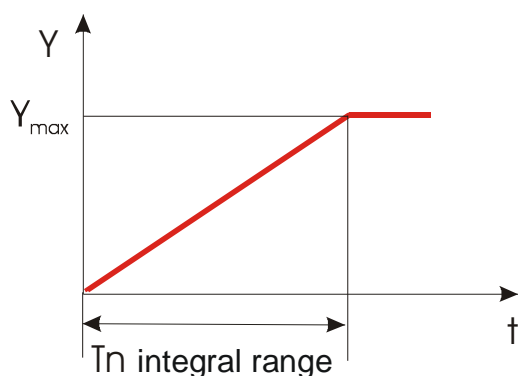
$$k_r = \frac{Y_h}{X_p} \quad \text{Exemple: } X_p = 2K; k_r = \frac{100\%}{2K}; k_r = 50 \frac{\%}{K}$$

x Température

Yh Valeur régulateur

kr Constante proportionnelle

## 6.2 Temps d'intégrale Tn



Tn est la plage de l'intégrale. La plage de l'intégrale est le temps qu'un régulateur-PI a besoin, pour réaliser le même changement sur la variable de régulation et qui est effectué immédiatement par régulateur-PI grâce à sa partie-P

## 6.3 Réglage typique des régulateurs

Eau chaude :  $X_p=5K$  /  $T_n=150\text{min}$   
Plancher chauffant :  $X_p=5K$  /  $T_n=240\text{min}$   
Chauffage électrique :  $X_p=4K$  /  $T_n=90\text{min}$   
Chauffage par ventilation :  $X_p=4K$  /  $T_n=90\text{min}$

## 7 Modifications des versions

Version 3.0

- Devices including hardware version 1 and 2 cannot be configured by the software version 3.0. Please use software version 2.