

# Software Description SRCN\_9\_1\_02 for SRC-04-FTT and SRC-65-FTT



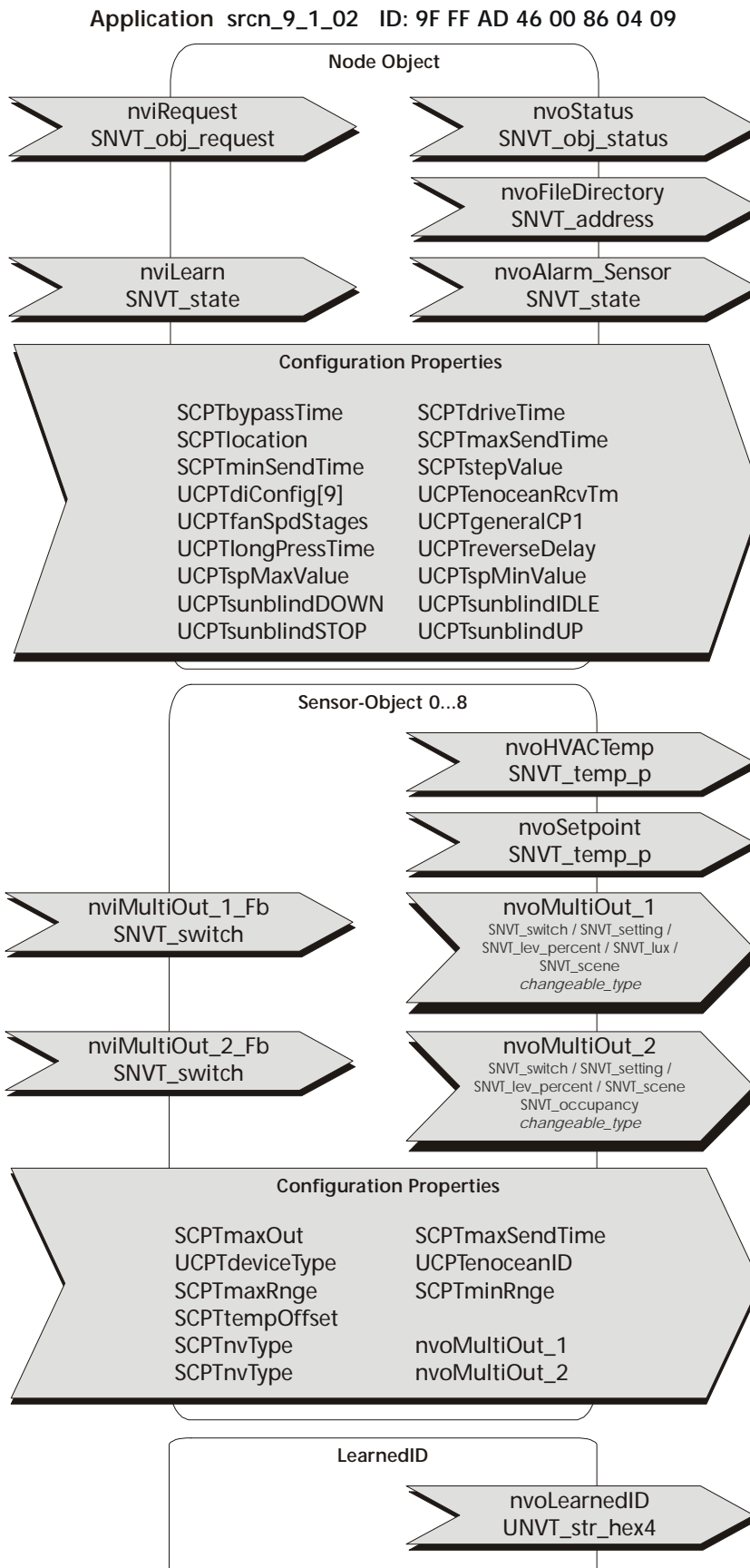
## 1 Overview

The application enables the receipt and evaluation of max. nine EnOcean wireless sensors. The following sensor types are supported:

- SR04, SR04PST, SR04PS MS: P – set point, S – fan stage, T – button, MS – slide switch
  - o temperature detection, set point adjustment, room occupancy, fan stage adjustment
- SR06, SR07P, SR07P MS, SR07 MS: P – set point, MS – slide switch
  - o temperature detection, set point adjustment, room occupancy
- SR04 rH, SR04P rH, SR04PT rH, SR04P MS rH: P – set point, T – button, MS – slide switch
  - o temperature detection, humidity detection, room occupancy
- SR65, SR65 TF, SR65 AKF, SR65 VFG
  - o temperature detection
- SR-LI Outdoor
  - o outdoor light sensor
- SR65-DI
  - o dry, digital contact
- SR PIR 360°
  - o room occupancy
- SR MDS - SensoLux
  - o room occupancy, light sensor
- SRW01
  - o window contact Opened/Closed
- SRG01 - SecuSignal®- Window Handle
  - o change of window position Opened/Tilted/Closed
- Wireless chair
  - o room occupancy
- EasyFit, EasySense Tactile Sensors
  - o switch function, dim function, blind, shutters, scene polling, automation

The application uses standard network variables (SNVT) and standard configuration properties (SCPT). For extended adjustment options, user-defined configuration properties (UCPT) are used. The UCPTs used are defined in the Thermokon Device Resource Files from Version 2.1 or higher and should be installed on the PC before making up the device defaults by the installation tool.

## 2 Overview of Network Variables



### 3 General Remarks for Installation:

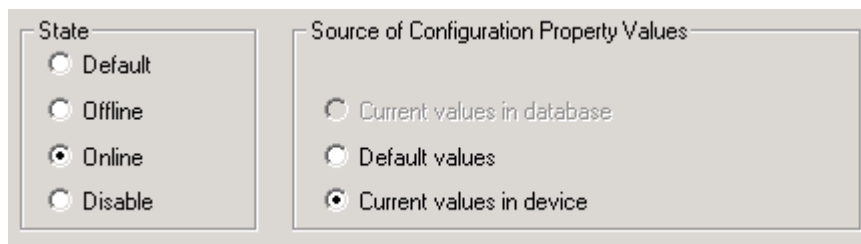
#### 3.1 Manual Input of Sensor Data

- Step 1: Register device type in UCPTdeviceType (7 = SR04/ SR65, 6 = SRW01...)  
 Step 2: Adjust the SNVT-type of nvoMultiOut (SNVT\_switch or SNVT\_lev\_percent), if required  
 Step 3: Check adjustments of SCPTnvType (see page 5)  
 Step 4: Register the 32-Bit Sensor-ID (see device label) in UCPTemoceanID, e.g. 00,00,A0,43

#### 3.2 Installation by Learning Button

- Step 1: Register device type in UCPTdeviceType  
 Step 2: Adjust the SNVT-type of nvoMultiOut (SNVT\_switch, SNVT\_setting, SNVT\_lux, SNVT\_lev\_percent, SNVT\_occupancy)  
 Step 3: Check adjustments of SCPTnvType  
 Step 4: Set the requested sensor object in the learning mode by means of nviLearn\_Sensor (see below, Node Object)  
 Step 5: Actuate learning button on the sensor. ==> All bits of nviLearn\_Sensor are set back to „0“.  
 Step 6: Contrary to the manual registration, where the ID is directly written into the device and the LNSdatabase, it is only possible to store the sensor ID in the SRC receiving module upon installation by the learning button. To check the ID there are two ways:
1. In order to take over the IDs into the database, the receiver must be recommissioned by the adjustment „Current Values in Device“ or
  2. The sensor ID which was latest learned in is stored in nvoLearnedID, so register nvoLearnedID in UCPTenoceanID

Example LonMaker:



#### 3.3 Installation by Plug-In

- Step 1: Register device type and apply.  
 Step 2: Learn-in the sensor with the learn-in function of the plug-in  
 Step 3: The new Sensor-ID is automatically registered in UCPTenoceanID. Please check the learned-in ID with the ID of the sensor.

#### 3.4 Clearing of a Sensor

If the 32-Bit Sensor-ID 0,0,0,0 is entered into UCPTenoceanID, the sensor can be cleared in the Sensor-Object.

### 3.5 Device Types UCPTdeviceType

The following devices are available:

- 7 = SR04 / SR06 / SR07 / SR65 - Temperature Sensor
- 701 = SR04 rH - Humidity Sensor
- 702 = SR65 – DI - Digital Input
- 703 = SR65 – LI - Outdoor Light Sensor
- 704 = SR PIR 360° - Motion Detector
- 705 = SR MDS - SensoLux - Motion Detector, light sensor
- 6 = SRW01 - Window Contact
- 5 = Tastsensor - Switch Function
- 501 = Radiochair - Room Occupancy
- 502 = SRG01 - SecuSignal® - Window Handle
- 503 = SRG01 - SecuSignal® - Window Handle; Window Handle with Tilting Position

### 3.6 Parameterisation of Button Functions with UCPTdiConfig

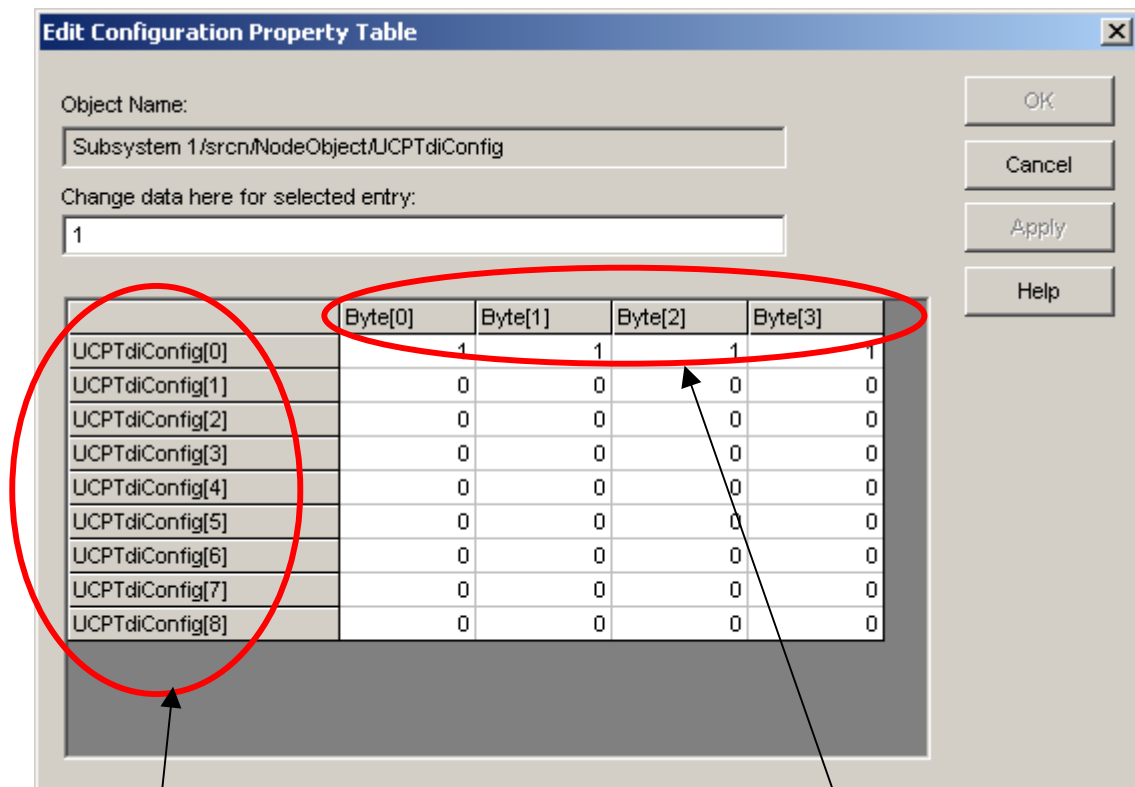
For parameterisation of the tactile sensors, the configuration property *UCPTdiConfig[0...8].Byte[0...3]* in the Node Object is used.

- UCPTdiConfig[0].Byte[0...3] parameterises the tactile sensor in the Sensor-Object 0
- UCPTdiConfig[1].Byte[0...3] parameterises the tactile sensor in the Sensor-Object 1
- :
- :
- UCPTdiConfig[8].Byte[0...3] parameterises the tactile sensor in the Sensor-Object 8

In UCPTdiConfig[0...8] the functions of the individual buttons are parameterised, whereas:

- UCPTdiConfig[0...8].Byte[0] defines the function of button 1
- UCPTdiConfig[0...8].Byte[1] defines the function of button 2
- UCPTdiConfig[0...8].Byte[2] defines the function of button 3
- UCPTdiConfig[0...8].Byte[3] defines the function of button 4

When using the LONMaker the configuration window shown below can be opened by a double click on the parameter.



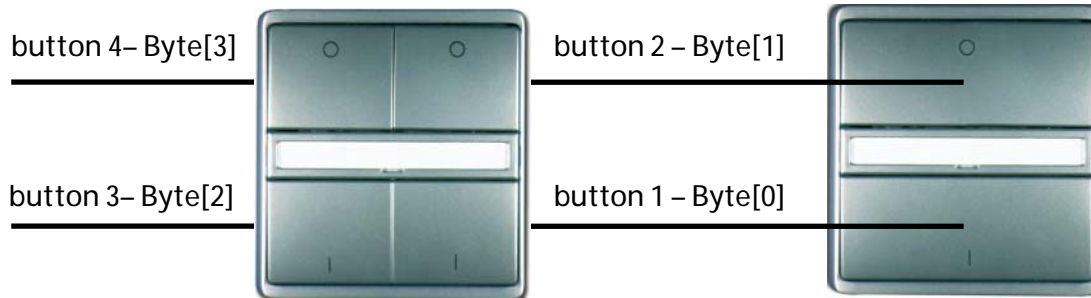
Picture 3-1: LONmaker

Sensor-Object of tactile sensor

Function of button

### 3.7 Tactile Sensor

A wireless switch / key can be allocated to each object. The button functions of a tactile sensor can be adjusted via the configuration property UCPTdiConfig[0...8] in the NodeObject. UCPTdiConfig[x].Byte[0...3] allocates a function to each button.



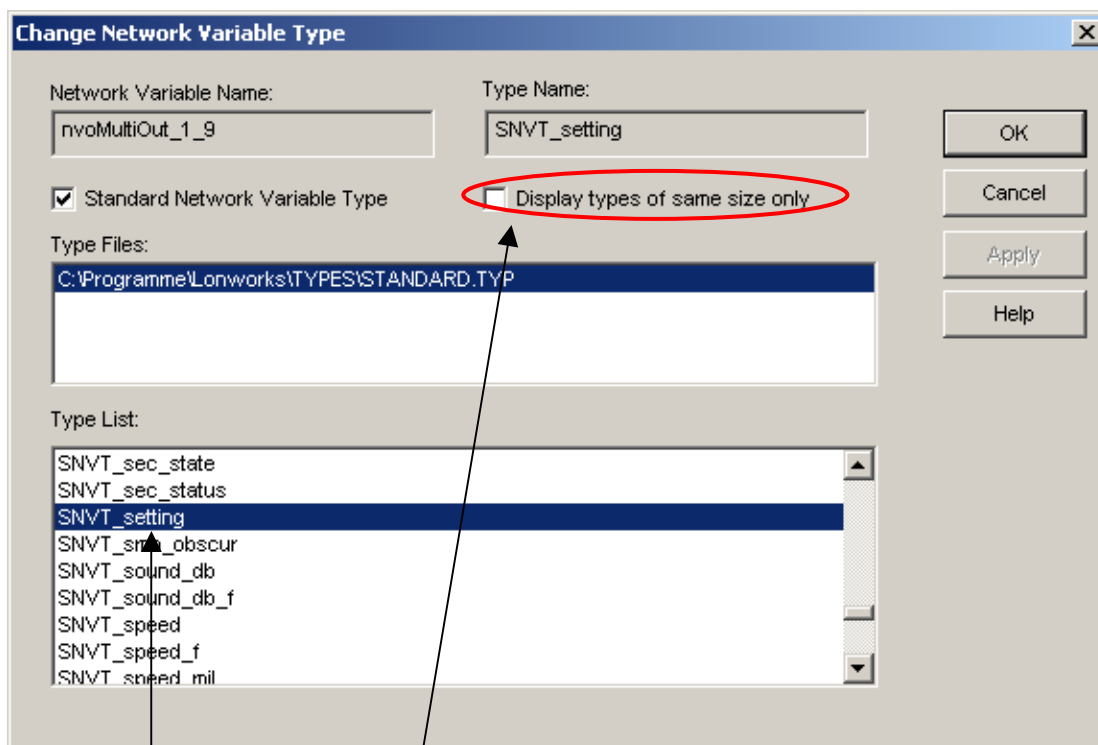
**Example:**

Tactile sensor in Sensor-Object 3:

Button 1 Light ON -> UCPTdiConfig[3].Byte[0] = 0x05  
 Button 2 Light OFF -> UCPTdiConfig[3].Byte[1] = 0x07  
 For this a type change from nvoMultiOut\_1 to SNVT\_switch must be made.  
 Button 3 button Shutter UP -> UCPTdiConfig[3].Byte[2] = 0x32  
 Button 4 button Shutter DOWN -> UCPTdiConfig[3].Byte[3] = 0x33  
 For this a type change from nvoMultiOut\_2 to SNVT\_setting must be made.

### 3.8 Type Change from nvoMultiOut\_1 and nvoMultiOut\_2

Depending on the function of the sensor object a type change of the output variables is necessary. When using the LONMaker the network variable to be changed can be called by a right click on "Change Type". During a type change, it is recommendable to deactivate the "Monitoring" of the network variable.



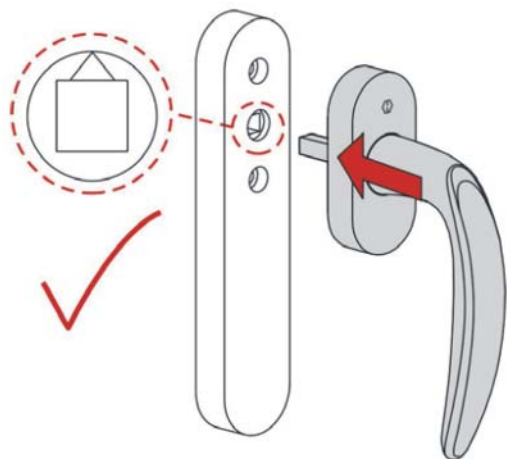
**Picture 3-2: Type Change**

Select SNVT Type

Deactivate the check mark

### 3.9 SecuSignal® Window Handle

As for the SecuSignal® window handle a proper and accurate installation is of paramount importance. (Please also see the SecuSignal® data sheet)



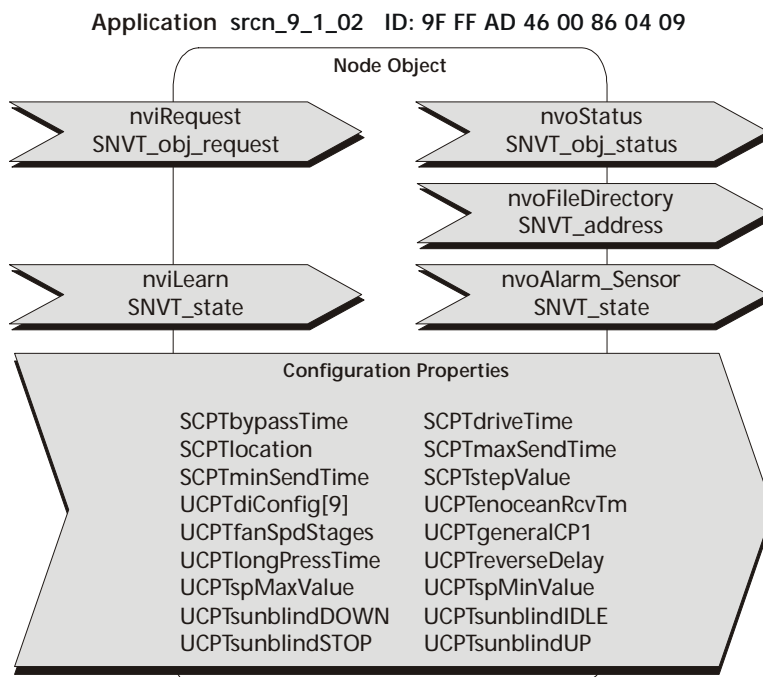
### 3.10 Sensors

For other device specific settings and parameters such as temperature range, jumper for transmission time etc., please see the corresponding data sheets.

## 4 Software Description

### 4.1 Node Object

The Node Object supervises and controls the functions of the individual objects in the device. The basic functions required by the LonMark® are supported, whereas general network variables and configuration parameters for control and parameterisation of the SR-Sensor-Objects can be added.



#### Sensor Monitoring / Alarm Message:

If no telegram is received for a time exceeding the monitor time UCPTenoceanRcvTm, an alarm message is generated, whereas each sensor is allocated to a bit of the SNVT\_state - variable nvoAlarm\_Sensor and can be identified, thus. The alarm bits are cleared automatically by receiving the next associated telegram. Telegrams, keys, wireless chairs, SecuSignal - window handle are not monitored.

#### Set Point Adjustment:

The properties UCPTspMinValue and UCPTspMaxValue determine the output values with left and right stop of the set point potentiometer (e.g. -3 °C to +3 °C or 19°C to 25 °C).

#### Fan Speed Adjustment:

The rotary switch for fan speed adjustment can be parametrised by

UCPTfanSpdStages for one, two or three- fan stages and is output by nvoMultiOut\_1.

#### Presence Key / Slide Switch:

The function of the after-running time for the wireless chair, presence key respectively the output of the slide switch is adjusted by SCPTbypassTime.

#### Button:

By UCPTdiConfig[0...8] the button functions of the wireless switch are set. Other properties for the configuration of switching, dimming, blinds, shutters and scene polling are available.

#### Installation:

If the sensors should be integrated by means of the learn button, each sensor object can be individually put into the learning mode by nviLearn\_Sensor. Alternatively, the sensor ID in each object can also be manually written into the parameter UCPTenoceanID. The different device types (SR04/SR65, SRW01, wireless switch) are selected by UCPTdeviceType.

#### 4.1.1 Input Variables Node Object:

##### nviRequest

SNVT Type: SNVT\_obj\_request, Index 92

Function: Input variable including the functions RQ\_NORMAL, RQ\_UPDATE\_STATUS and RQ\_REPORT\_MASK.



#### **nviLearn**

SNVT Type: SNVT\_state, Index 83

Function: Upon installation of the sensors the objects can be placed in the learning mode by means of nviLearn..., whereas each bit of a network variable is allocated to a SR-sensor object.

nviLearn.bit0 ==> SR-Sensor-Object[0]

nviLearn.bit1 ==> SR-Sensor-Object[1]

::

::

nviLearn.bit8 ==> SR-Sensor-Object[8]

Bit-value = 1, the object is switched to the learning mode. After having received a correct message, the ID is stored in the selected object and the learning modus is automatically left (Bit is set to 0).

### **4.1.2 Output Variables Node Object :**

#### **nvoStatus**

SNVT Type: SNVT\_obj\_status, Index 93

Function: Output variable with the required status bit „invalid\_id“ and „invalid\_request“.

#### **nvoFileDirectory**

SNVT Type: SNVT\_address, Index 114

Function: The output variable makes the address data of the configuration property in the device available to the LON integration tool.

#### **nvoAlarm\_Sensor**

SNVT Type: SNVT\_state, Index 83

Function: If no telegram is received for a time exceeding the monitor time **UCPTenoceanRcvTm**, an alarm message is generated by nvoAlarm, whereas each sensor is allocated to a bit. The alarm bits are cleared automatically by receiving the next associated telegram.

nvoAlarm\_Sensor.bit0 = 1 ==> Alarm for SR-Sensor-Object[0]

nvoAlarm\_Sensor.bit1 = 1 ==> Alarm for SR-Sensor-Object[1]

:

nvoAlarm\_Sensor.bit8 = 1 ==> Alarm for SR-Sensor-Object[8]

### **4.1.3 Configuration Properties Node Object :**

#### **4.1.3.1 General Settings**

##### **SCPTlocation**

SCPT Index: 17, SNVT\_str\_asc

Function: Additional input option to store information on position identification.

##### **SCPTmaxSendTime**

SCPT Index: 49, SNVT\_time\_sec

Function: Heartbeat function. Stipulates interval time after which all output variables of the device are sent independently of a value change. By means of the input values = 0, the heartbeat function is deactivated. (Preset value: 0, i.e. the output variables are only sent, if an output value has changed, e.g. with an alarm message or if a sensor telegram is received)

##### **UCPTenoceanRcvTm**

UCPT Index: 33, SNVT\_time\_min

Function: If no telegram is received for a time exceeding the monitor time **UCPTenoceanRcvTm**, an alarm message is generated, whereas each sensor of a bit is allocated to the SNVT\_state - variable nvoAlarm and can be identified, thus. The individual alarm bits are automatically cleared upon receipt of the next associated telegram. (Preset value: 60 min).

#### UCPTgeneralCP1

UCPT Index: 7, SNVT\_state

Function: Configuration of switching behaviour of receiving LED.

bit0	bit1	Receiving LED
0	0	No flashing
1	0	Flashing with each telegram received
0	1	Flashing with each learned-in sensor received

#### 4.1.3.2 General Button / Wireless Switch -Settings

##### UCPTdiConfig[0]...[8]

UCPT Index: 44, typedef struct {unsigned short Byte[4]} UNVT\_str\_hex4

Function: This configuration property determines the button function and their allocation to the output variables. UCPTdiConfig[0] is fix allocated to the tactile sensor in the Sensor-Object 0, UCPTdiConfig[1] to the tactile sensor in the Sensor-Object 1 ... UCPTdiConfig[8] to the tactile sensor in the Sensor-Object 8. For the keys/ wireless switches → the functions in the Sensor-Objects UCPTdeviceType must be set to 5.

UCPTdiConfig[0]	configured	Tactile sensor in Sensor-Object 0
UCPTdiConfig[1]	configured	Tactile sensor in Sensor-Object 1
:		
UCPTdiConfig[8]	configured	Tactile sensor in Sensor-Object 8
UCPTdiConfig[x].Byte[0]	configured	Function of button 1
UCPTdiConfig[x].Byte[1]	configured	Function of button 2
UCPTdiConfig[x].Byte[2]	configured	Function of button 3
UCPTdiConfig[x].Byte[3]	configured	Function of button 4

##### No function 0x00

UCPTdiConfig. Configuration of buttons	
Byte[0...3]	button 1...4 -function
<b>No Function</b>	
0x00	not used

##### Switching functions 0x01 – 0x08

UCPTdiConfig. Configuration of buttons		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
<b>Switch</b>		
0x01	pressed / not pressed / nvoMultiOut_1	SNVT_switch SNVT_setting
0x02	pressed / not pressed / nvoMultiOut_2	SNVT_switch SNVT_setting
0x03	Light Toggle / nvoMultiOut_1	SNVT_switch SNVT_setting
0x04	Light Toggle / nvoMultiOut_2	SNVT_switch SNVT_setting
0x05	Light only ON nvoMultiOut_1	SNVT_switch SNVT_setting
0x06	Light only ON nvoMultiOut_2	SNVT_switch SNVT_setting
0x07	Light only OFF nvoMultiOut_1	SNVT_switch SNVT_setting
0x08	Light only OFF nvoMultiOut_2	SNVT_switch SNVT_setting

#### 0x10 – 0x19 Dim Function

UCPTdiConfig, Configuration of Buttons		
Byte[0...3]	Buttons 1...4 - Function	SNVT-Type
Dimming		
0x10	Light Toggle by Dimming Switch-on value = Max-Wert / nvoMultiOut_1	SNVT_switch
0x11	Light Toggle by Dimming Switch-on value = Max-value / nvoMultiOut_2	SNVT_switch
0x12	Light Toggle by Dimming Switch-on value = last switch- on value nvoMultiOut_1	SNVT_switch
0x13	Light Toggle by Dimming Switch-on value = last switch-on value nvoMultiOut_2	SNVT_switch
0x14	Light only brighter by Dimming Switch-on value = Max-value nvoMultiOut_1	SNVT_switch SNVT_setting
0x15	Light only brighter by Dimming Switch-on value = Max-value nvoMultiOut_2	SNVT_switch SNVT_setting
0x16	Light only brighter by Dimming Switch-on value = last switch- on value nvoMultiOut_1	SNVT_switch SNVT_setting
0x17	Light only brighter by DimmingEinschaltwert = last switch-on value nvoMultiOut_2	SNVT_switch SNVT_setting
0x18	Light only darker by Dimming nvoMultiOut_1	SNVT_switch SNVT_setting
0x19	Light only darker by Dimming nvoMultiOut_2	SNVT_switch SNVT_setting

Short button actuations result in a switching- on-/off the lighting. By long button actuations, the light can be dimmed..

In theToggle-Mode the dimming direction (brighter or darker) is changed by a new button actuation.

#### 0x20 – 0x23 Blind

UCPTdiConfig, Configuration of buttons		
Byte[0...3]	Buttons 1...4 - Function	SNVT-Type
Blind		
0x20	Blind UP nvoMultiOut_1	SNVT_setting
0x21	Blind DOWN nvoMultiOut_1	SNVT_setting
0x22	Blind UP nvoMultiOut_2	SNVT_setting
0x23	Blind DOWN nvoMultiOut_2	SNVT_setting

Short button actuations result in a stop respectively change of the blind. By a long actuation the blind is set into the automatic run.

### 0x30 – 0x33 Shutters

UCPTdiConfig, Configuration of buttons		
Byte[0...3]	Buttons 1...4 -functions	SNVT-Type
<b>Shutters</b>		
0x30	Shutter UP nvoMultiOut_1	SNVT_setting
0x31	Shutter Down nvoMultiOut_1	SNVT_setting
0x32	Shutter UP nvoMultiOut_2	SNVT_setting
0x33	Shutter Down nvoMultiOut_2	SNVT_setting

The shutter is going down/up as long a button is pressed. By a short button actuation the shutter is set into the automatic run.

### 0x40 – 0x5F Scene Polling

UCPTdiConfig, Configuration of Buttons			
Byte[0...3]	Buttons 1...4 - Function		SNVT-Type
Scene Polling			
0x40	Scene 0	nvoMultiOut_1	SNVT_scene
0x41	Scene 1	nvoMultiOut_1	SNVT_scene
...			
0x4F	Scene 15	nvoMultiOut_1	SNVT_scene

By a short button actuation the scenes 1-15 can be polled. By a long button actuation a scene can be safed.

UCPTdiConfig, Configuration of Buttons			
Byte[0...3]	Buttons 1...4 - Function		SNVT-Type
Scene Polling			
0x50	Scene 0	nvoMultiOut_2	SNVT_scene
0x51	Scene 1	nvoMultiOut_2	SNVT_scene
...			
0x5F	Scene 15	nvoMultiOut_2	SNVT_scene

### 0x60 – 0x61 Automatic

UCPTdiConfig, Configuration of Buttons		
Byte[0...3]	Buttons 1...4 - Function	SNVT-Type
<b>Automatic</b>		
0x60	Command automatic (= 0.0 –1) nvoMultiOut_1	SNVT_switch
0x61	Command Automatic (= 0.0 –1) nvoMultiOut_2	SNVT_switch

By a short button actuation the output variable is set into the automatic mode.

**Example:**

Tactile sensor in Sensor-Object 1:

Button 1 Light ON -> UCPTdiConfig[1].Byte[0] = 0x05

Button 2 Light OFF -> UCPTdiConfig[1].Byte[1] = 0x07

For this, a type change from nvoMultiOut\_1 to SNVT\_switch must be made .

Button 3 Button blind UP -> UCPTdiConfig[1].Byte[2] = 0x22

Button 4 Button blind UP -> UCPTdiConfig[1].Byte[3] = 0x23

For this, a type change from nvoMultiOut\_1 to SNVT\_setting must be made .

**UCPTlongPressTime**

UCPT Index: 71, typedef struct { SNVT\_time\_sec dimming; SNVT\_time\_sec sunblind;  
SNVT\_time\_sec scene; SNVT\_time\_sec universal; }

Function: By means of this configuration property the time (in seconds) for dimming, blinds, scene and universal can be input by a long button actuation. (Preset value: 1.0;2.0;2.0;2.0)

**4.1.3.3 General Sensor Settings**

**SCPTbypassTime**

SCPT Index: 34, SNVT\_time\_min

Function: Configuration property for the output variable **nvoMultiOut\_2** of the presenence key / wireless chair /slide switch in the Sensor-Objects.

**SCPTbypassTime = 0:** Upon actuation nvoMultiOut\_2 only sends the value OC\_OCCUPIED / 100.0 1. A reset to the value OC\_UNOCCUPIED / 0.0 0 is not made.

**SCPTbypassTime = 1:** The status of the contact is output. The output variable nvoMultiOut\_2 sends with closed contact OC\_OCCUPIED / 100.0 1 and is reset to OC\_UNOCCUPIED / 0.0 0 without any time delay by opening the contact.

By **SCPTbypassTime = 2** each button actuation leads to a toggling of the lighting, i.e. between ON and OFF ( only with the network variable type: SNVT\_switch)

**SCPTbypassTime >= 3:** Herewith the overtime function is activated. By actuation, the output variable nvoMultiOut\_2 receives the value OC\_OCCUPIED / 100.0 1. After expiration of the delay time, it is reset to the value OC\_UNOCCUPIED / 0.0 0. Each actuation restarts the timer . (Range: < 1000, preset value : 90 min)

**UCPTspMinValue, UCPTspMaxValue**

UCPT Index: 40, 41, SNVT\_temp\_p

Function: The parameter determines the output values of **nvoSetpoint** with left and right stop of the set point potentiometer and defines the adjustment range. (Preset values: -3 °C and +3 °C)

**UCPTfanSpdStages**

UCPT Index: 13, SNVT\_count

Function: Configuration property for default of fan stages.

With switch position Auto Without switch position Auto

1 – 1 Stage with Auto 11 – 1 Stage without Auto

2 – 2 Stage with Auto 12 – 2 Stage without Auto

3– 3 Stage with Auto 13 – 3 Stage without Auto

(Preset value: 3 ==> OFF, 33,0 %, 66,5 %, 100,0 %, AUTO)

**4.1.3.4 Genereal Dimming Settings**

**SCPTminSendTime**

SCPT Index: 52, SNVT\_time\_sec

Function: This configuration property stipulates the sending interval of the output variable in the dimming mode. By input values = 0, the function is deactivated. (Preset value: 0,3 s)

**SCPTstepValue**

SCPT Index: 92, SNVT\_lev\_cont

Function: This configuration property defines the step size of the variable nvoSwitch.value in the dimming mode. (Preset value: 5.0)

#### **4.1.3.5 General Blind/Shutter Settings**

##### **UCPTreverseDelay**

UCPT Index: 14, SNVT\_count

Function: This configuration property defines the toggling delay with a rotation reversing of the blind motors. Thus, a change command from e.g. nvoSetting = SET\_UP to nvoSetting = SET\_DOWN is output delayed. (Preset value: 500 ms)

##### **SCPTdriveTime**

UCPT Index: 45, SNVT\_time\_sec

Function: This configuration property defines the maximum switch-on time of the blind motors in the automatic run. (Preset value: 100,0 s)

##### **UCPTsunblindUP**

UCPT Index: 72, SNVT\_setting

Function: By means of this configuration property it can be adjusted which SNVT\_setting value shall be sent when the blind/shutter is going up. (Preset value: SET\_UP 100.0 0.0)

##### **UCPTsunblindDOWN**

UCPT Index: 73, SNVT\_setting

Function: By means of this configuration property it can be adjusted which SNVT\_setting value shall be sent when the blind/shutter is going down. (Preset value: SET\_DOWN 100.0 0.0)

##### **UCPTsunblindSTOP**

UCPT Index: 74, SNVT\_setting

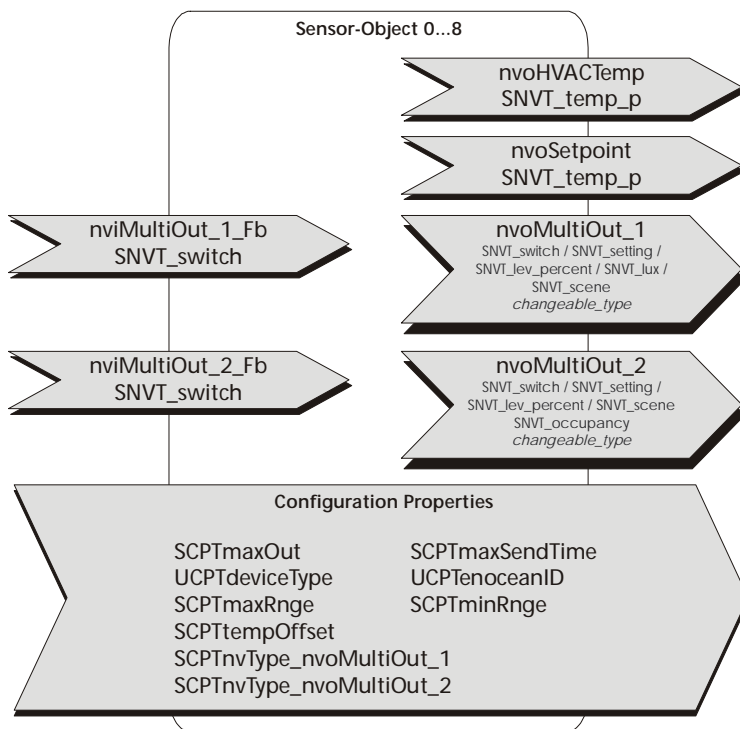
Function: By means of this configuration property it can be adjusted which SNVT\_setting value shall be sent when the blind/shutter is stopped. (Preset value: SET\_STOP 0.0 0.0)

##### **UCPTsunblindIDLE**

UCPT Index: 75, SNVT\_setting

Function: By means of this configuration property you it can be adjusted which SNVT\_setting value shall be sent for the stand-by mode of the blind/shutter. UCPTsunblindIDLE is sent 500ms after the stop of the blind/shutter, if UCPTsunblindIDLE is unequal UCPTsunblindSTOP. (Preset value: SET\_NUL 0.0 0.0)

## 4.2 Sensor-Objects



Nine identical objects for the detection of Thermokon wireless sensors types SR04 / SR07 / SR04 rH / SR65 / SRW01 as well as for the detection of wireless keys / switches.

The temperature is output via nvoHVACTemp and the set point by nvoSetpoint.

The network variables nvoMultiOut\_1 and nvoMultiOut\_2 are changeable and can be adapted to the respective function by a SNVT type change.

### 4.2.1 Input Variables Sensor-Object:

#### nviMultiOut\_1\_Fb, nviMultiOut\_2\_Fb

SNVT Type: SNVT\_switch, Index 95

Function: Input variable for the current status of the lighting groups controlled by nvoMultiOut\_1\_Fb respectively nvoMultiOut\_2\_Fb.

### 4.2.2 Output Variables Sensor-Object:

#### nvoHVACTemp

SNVT Type: SNVT\_temp\_p, Index 105

Function: Output variable for the measured temperature value (resolution 1/100 °C). Data output is made depending on the configuration property SCPTmaxSendTime and upon receipt of a new sensor telegram.

#### nvoSetpoint

SNVT Type: SNVT\_temp\_p, Index 105

Function: Output variable for set point correction respectively set point temperature, that can be adjusted by the set point adjuster. As a standard, the value range is lying between -3 and +3 K and can be adjusted by UCPTspMinValue and UCPTspMaxValue. Data output is made analogue to nvoHVACTemp.

## nvoMultiOut\_1

SNVT Type: **changeable\_type**, i.e. the variable type can be set via a LON installation tool e.g. the LonMaker . (default: SNVT\_setting)

Valid values: SNVT\_switch, Index 95; SNVT\_setting, Index 117; SNVT\_lev\_percent, Index 81; SNVT\_lux, Index 79; SNVT\_occupancy, Index 109; SNVT\_scene, Index 115

Function: Depending on the configuration, the output variable can either transmit relative humidity, the position of the rotary switch for fan stage adjustment, the light intensity, the status of the digital input module, the status of a window (opened/closed) and functions for switching/dimming/blind.

## Fan Stage

Type: SR04..S (with rotary switch for fan stage adjustment)

- SNVT Type: SNVT\_switch
- UCPTdeviceType 7

UCPTfanSpdStages = 1

Fan Stage	nvoMultiOut_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	100 %	1

UCPTfanSpdStages = 2

Fan Stage	nvoMultiOut_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	50 %	1
2	100 %	1

UCPTfanSpdStages = 3

Fan Stage	nvoMultiOut_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	33,0 %	1
2	66,5 %	1
3	100 %	1

UCPTfanSpdStages = 11

Fan Stage	nvoMultiOut_1	
	.value	.state
0	0 %	0
1	100 %	1

UCPTfanSpdStages = 12

Fan Stage	nvoMultiOut_1	
	.value	.state
0	0 %	0
1	50 %	1
2	100 %	1

UCPTfanSpdStages = 13

Fan Stage	nvoMultiOut_1	
	.value	.state
0	0 %	0
1	33,0 %	1
2	66,5 %	1
3	100 %	1

## Humidity

Type: SR04..rH (combi sensor with relative humidity)

- SNVT Type: SNVT\_lev\_percent
- UCPTdeviceType 701
- nvoMultiOut\_1 = 0.0 ... 100.0 %

## Digital Switch Contact

Type: SR65-DI (digital input module)

- SNVT Type: SNVT\_switch
- UCPTdeviceType 702
- Contact closed: nvoMultiOut\_1 = 100.0 1
- Contact opened: nvoMultiOut\_1 = 0.0 0



### Light Sensor

Type: SR-LI Outdoor (outdoor light sensor)

- SNVT Type: SNVT\_lux
- UCPTdeviceType 703
- nvoMultiOut\_1 = 300 ... 30000 lx bzw. 600 ... 60000

Type: SR MDS (multi sensor, light sensor)

- SNVT Type: SNVT\_lux
- UCPTdeviceType 705
- nvoMultiOut\_1 = 0 ... 512 lx

### Motion Sensor

Type: SR-PIR 360°

- SNVT Type: SNVT\_switch
- UCPTdeviceType 704
- Motion: nvoMultiOut\_1 = 100.0 1
- No motion: nvoMultiOut\_1 = 0.0 0

### Window Contact

Type: SRW01

- SNVT Type: SNVT\_switch
- UCPTdeviceType 6
- Window OPENED ==> nvoMultiOut\_1 = 100.0 1
- Window CLOSED ==> nvoMultiOut\_1 = 0.0 0

Type: Secu-Signal – Window handle

- SNVT Type: SNVT\_switch
- UCPTdeviceType 502
- Window OPENED ==> nvoMultiOut\_1 = 100.0 1
- Window CLOSED ==> nvoMultiOut\_1 = 0.0 0
- UCPTdeviceType 503
- Window OPENED ==> nvoMultiOut\_1 = 100.0 1
- Window tilted ==> nvoMultiOut\_1 = 50.0 1
- Window CLOSED ==> nvoMultiOut\_1 = 0.0 0

### Switch

Type: Easyfit / EasySens

- SNVT Type: SNVT\_scene, SNVT\_switch or SNVT\_setting depending on function
- UCPTdeviceType 5

#### nvoMultiOut\_2

- SNVT Type: **changeable\_type**, i.e. the variable type can be set via a LON installation tool, e.g. the LonMaker.  
(default: SNVT\_setting)
- Valid values: SNVT\_switch, Index 95; SNVT\_setting, Index 117; SNVT\_occupancy, Index 109; ; SNVT\_scene, Index 115
- Function: Depending on the configuration, the output variable can either transmit the presence key or the functions for switching/dimming/blind.

#### Presence Key

Type: SR04..T (with button respectively slide switch)

- UCPTdeviceType 7

SNVT Typ: SNVT\_switch

- By **nviMultiOut\_2\_FB** the current status of the controlled lighting group can be transferred.
- By **SCPTbypassTime = 0** only the value 100.0 1 is sent with button actuation. A reset to the value 0.0 0 is not made.
- By **SCPTbypassTime = 1** the status of the contact is output. The output variable is reset to 0.0 0 without any time delay by opening the contact.
- By **SCPTbypassTime = 2** each button actuation leads to a switching-over of the lighting, i.e. between ON and OFF
- By **SCPTbypassTime >= 3** the overwork function is activated. By button actuation the output variable receives the value 100.0 1. After expiration of the delay time it is reset to the value 0.0 0. Each button actuation restarts the timer.

SNVT Type: SNVT\_occupancy

- By **SCPTbypassTime = 0** only the value OC\_OCCUPIED is sent with button actuation. A reset to the value OC\_UNOCCUPIED is not made.
- By **SCPTbypassTime = 1** the status of the contact is output. The output variable is reset to the value OC\_UNOCCUPIED without any time delay by opening the contact.
- By **SCPTbypassTime >= 2** the overwork function is activated. By button actuation the output variable receives the value OC\_OCCUPIED. After expiration of the delay time it is set back to the value OC\_UNOCCUPIED. Each button actuation restarts the timer.

#### Motion Sensor

Type: SR-PIR 360°

- SNVT Type: SNVT\_occupancy
- UCPTdeviceType 704
- Motion: nvoMultiOut\_2 = OC\_OCCUPIED
- No motion: nvoMultiOut\_2 = OC\_UNOCCUPIED

Type: SR MDS

- SNVT Type: SNVT\_occupancy
- UCPTdeviceType 705
- Motion: nvoMultiOut\_2 = OC\_OCCUPIED
- No motion: nvoMultiOut\_2 = OC\_UNOCCUPIED

#### Wireless Chair

Type: Wireless chair

- SNVT Type: SNVT\_switch or SNVT\_occupancy
- UCPTdeviceType 501
- By **SCPTbypassTime = 0** only the value 100.0 1 respectively OC\_OCCUPIED is sent with button actuation. A reset to the value 0.0 0 respectively OC\_UNOCCUPIED is not made.
- By **SCPTbypassTime = 1** the status of the contact is output. The output variable is reset without any time delay to 0.0 0 respectively OC\_UNOCCUPIED by opening the contact.
- By **SCPTbypassTime >= 2** the overwork function is activated. By button actuation the output variable receives the value 100.0 1 respectively OC\_OCCUPIED. After the opening of the contact

(stand up) the delay time is started. After expiration of the delay time, it is reset to the value 0.0 0 respectively OC\_UNOCCUPIED. Each button actuation restarts the timer.

## Switch

Type: Easyfit / EasySens

- SNVT Typ: SNVT\_scene, SNVT\_switch or SNVT\_setting depending on the function
- UCPTdeviceType 5

## Button Evaluation nvoMultiOut\_1 / nvoMultiOut\_2

### Switch/ Button

#### Button pressed/ not pressed

UCPTdiConfig[x].Byte[0...3] = 01<sub>hex</sub> / 02<sub>hex</sub>

SNVT Type: SNVT\_switch

Button pressed	nvoMultiOut_1/2.value	= SCPTmaxOut
	nvoMultiOut_1/2.state	= 1
Button not pressed	nvoMultiOut_1/2.value	= 0
	nvoMultiOut_1/2.state	= 0

SNVT Type: SNVT\_setting

Button pressed	nvoMultiOut_1/2.function	= SET_ON;
	nvoMultiOut_1/2.setting	= SCPTmaxOut;
Button not pressed	nvoMultiOut_1/2.function	= SET_OFF;
	nvoMultiOut_1/2.setting	= 0;

### Lighting Toggle

UCPTdiConfig[x].Byte[0...3] = 03<sub>hex</sub> / 04<sub>hex</sub>

Each button actuation results in a toggling of the lighting, i.e. between ON and OFF

SNVT Type: SNVT\_switch

Lighting ON	nvoMultiOut_1/2.value	= SCPTmaxOut
	nvoMultiOut_1/2.state	= 1
Lighting OFF	nvoMultiOut_1/2.value	= 0
	nvoMultiOut_1/2.state	= 0

SNVT Type: SNVT\_setting

Lighting ON	nvoMultiOut_1/2.function	= SET_ON;
	nvoMultiOut_1/2.setting	= SCPTmaxOut;
Lighting OFF	nvoMultiOut_1/2.function	= SET_OFF;
	nvoMultiOut_1/2.setting	= 0;

### Lighting ON

UCPTdiConfig[x].Byte[0...3] = 05<sub>hex</sub> / 06<sub>hex</sub>

Each button actuation results in a toggling of the lighting

SNVT Type: SNVT\_switch

Lighting ON	nvoMultiOut_1/2.value	= SCPTmaxOut
	nvoMultiOut_1/2.state	= 1

SNVT Type: SNVT\_setting

Lighting ON	nvoMultiOut_1/2.function	= SET_ON;
	nvoMultiOut_1/2.setting	= SCPTmaxOut;

### Lighting OFF

UCPTdiConfig[x].Byte[0...3] = 07<sub>hex</sub> / 08<sub>hex</sub>

Each button actuation results in a switching-off of the lighting

SNVT Type: SNVT\_switch

Lighting OFF	nvoMultiOut_1/2.value	= 0
	nvoMultiOut_1/2.state	= 0

SNVT Type: SNVT\_setting

Lighting OFF	nvoMultiOut_1/2.function	= SET_OFF;
	nvoMultiOut_1/2.setting	= 0;

## Dimming

### Lighting: Toggle by Dimming, Switch-On Value = max. Value

UCPTdiConfig[x].Byte[0...3] = 10<sub>hex</sub> / 11<sub>hex</sub>

Short button actuations result in a toggling of the current lighting status, whereas the .value –turn-on value always is SCPTmaxOut. By longer button actuations the dimming function is activated, i.e. based on the current lighting status, the .value-value of the switch variables is raised or lowered in percent steps of UCPTstepValue as long as the button is pressed. A renewed long time button actuation results in a reversal of the dimming direction.

SNVT Type: SNVT\_switch

Lighting on maximum value      nvoMultiOut\_1/2.value = SCPTmaxOut

nvoMultiOut\_1/2.state = 1

Lighting on 50%      nvoMultiOut\_1/2.value = 50,0

nvoMultiOut\_1/2.state = 1

Lighting OFF      nvoMultiOut\_1/2.value = 0

nvoMultiOut\_1/2.state = 0

### Lighting: Toggle by Dimming, Switch-ON Value = Last Switch-ON Value

UCPTdiConfig[x].Byte[0...3] = 12<sub>hex</sub> / 13<sub>hex</sub>

Function as with 10<sub>hex</sub> / 11<sub>hex</sub>, but with the difference, that not the value SCPTmaxOut but the last turn-on value is taken over. The smallest turn-on value is limited to 20%.

### Lighting ON by Brighter-Dimmeing, Switch-ON Value = max. Value

UCPTdiConfig[x].Byte[0...3] = 14<sub>hex</sub> / 15<sub>hex</sub>

If the lighting is switched-off, a button actuation results in an immediate switching-on of the lighting. By longer button actuations the function "dim brighter" is activated, i.e. based on the current light status the .value – value of the switch variable is reduced in percent steps of UCPTstepValue as long as the maximum value SCPTmaxOut is reached. The sending interval in the mode dimming is adjusted by SCPTminSendTime and is preadjusted to approx. 300ms.

SNVT Type: SNVT\_switch

Switching-on of lighting      nvoMultiOut\_1/2.value = SCPTmaxOut

nvoMultiOut\_1/2.state = 1

Brighter dimming of lighting      nvoMultiOut\_1/2.value = last value + UCPTstepValue

nvoMultiOut\_1/2.state = 1

SNVT Type: SNVT\_setting

Switching-on of lighting      nvoMultiOut\_1/2.function = SET\_ON;

nvoMultiOut\_1/2.setting = SCPTmaxOut;

Brighter dimming of lighting      nvoMultiOut\_1/2.function = SET\_UP;

nvoMultiOut\_1/2.setting = UCPTstepValue;

### Lighting ON by Brighter Dimming, Switch-ON Value = last ON-value

UCPTdiConfig[x].Byte[0...3] = 16<sub>hex</sub> / 17<sub>hex</sub>

Function as with 16<sub>hex</sub>, 17<sub>hex</sub>, but with the difference, that not the value SCPTmaxOut is taken over when switching-on the light, but the last turn-on value. The smallest turn-on value is limited to 20%.

### Lighting OFF by Darker Dimming

UCPTdiConfig[x].Byte[0...3] = 18<sub>hex</sub> / 19<sub>hex</sub>

If the lighting is turned-on, a short button actuation leads to an immediate switching-off of the lighting. By longer button actuations the function "dim darker" is activated, i.e. based on the current lighting status the .value –value of the switch variables is reduced in percent steps of UCPTstepValue as long as the value 0 is reached. The sending interval in the mode dimming is adjusted by SCPTminSendTime and amounts to approx. 300ms preset.

SNVT Type: SNVT_switch		
Switching-off of lighting	nvoMultiOut_1/2.value	= 0
	nvoMultiOut_1/2.state	= 0
Darker dimming of lighting	nvoMultiOut_1/2.value= last value - UCPTstepValue	
	nvoMultiOut_1/2.state	= 1

SNVT Type: SNVT_setting		
Switching-off of lightning	nvoMultiOut_1/2.function	= SET_OFF;
	nvoMultiOut_1/2.setting	= 0;
Darker dimming of lightning	nvoMultiOut_1/2.function	= SET_DOWN;
	nvoMultiOut_1/2.setting	= UCPTstepValue;

## Blind

### Blind UP

**UCPTdiConfig[x].Byte[0...3] = 20<sub>hex</sub> / 22<sub>hex</sub>**

In the configuration mode "blind UP" only the nvoSetting variables are changed and sent. Short button actuations are used for a fine adjustment of the lamellas. A long button actuation starts the automatic run and drives the blind continuously in the direction open for the time SCPTdriveTime. The automatic run can be stopped by a renewed button actuation.

SNVT Type: SNVT_setting		
Open blind	nvoMultiOut_1/2.function	= UCPTsunblindUP;
Stop blind	nvoMultiOut_1/2.function	= UCPTsunblindSTOP;

With a delay of 500ms the command UCPTsunblindIDLE for idle mode is sent after the command UCPTsunblindSTOP if UCPTsunblindIDLE is unequal to UCPTsunblindSTOP.

### Blind DOWN

**UCPTdiConfig[x].Byte[0...3] = 21<sub>hex</sub> / 23<sub>hex</sub>**

In the configuration mode "blind DOWN" only the nvoSetting variables are changed and sent. Short button actuations are for the fine adjustment of the lamellas. A long button actuation starts the automatic run and drives the blind for the time SCPTdriveTime continuously into the direction close. The automatic run can be stopped by a renewed button actuation.

SNVT Type: SNVT_setting		
Close blind	nvoMultiOut_1/2.function	= UCPTsunblindDOWN;
stop blind	nvoMultiOut_1/2.function	= UCPTsunblindSTOP;

With a delay of 500ms the command UCPTsunblindIDLE for idle mode is sent after the command UCPTsunblindSTOP if UCPTsunblindIDLE is unequal to UCPTsunblindSTOP.

## Shutter

### Shutter UP

**UCPTdiConfig[x].Byte[0...3] = 30<sub>hex</sub> / 32<sub>hex</sub>**

In the configuration mode "Shutter UP" only the nvoSetting variables are changed and sent. Short button actuation starts the automatic run and drives the shutter continuously in the direction open for the time SCPTdriveTime. The automatic run can be stopped by a renewed button actuation. By a long button actuation the position of the shutter can be individually adjusted.

SNVT Type: SNVT_setting		
Open blind	nvoMultiOut_1/2.function	= UCPTsunblindUP;
Stop blind	nvoMultiOut_1/2.function	= UCPTsunblindSTOP;

With a delay of 500ms the command UCPTsunblindIDLE for idle mode is sent after the command UCPTsunblindSTOP if UCPTsunblindIDLE is unequal to UCPTsunblindSTOP.

**Shutter UP****UCPTdiConfig[x].Byte[0...3] = 31<sub>hex</sub> / 33<sub>hex</sub>**

In the configuration mode "shutter DOWN" only the nvoSetting variables are changed and sent. Short button actuation starts the automatic run and drives the shutter continuously into the direction close for the time SCPTdriveTime. The automatic run can be stopped by a renewed button actuation. By a long button actuation the position of the shutter can be adjusted individually.

SNVT Type: SNVT\_setting

Close shutter            nvoMultiOut\_1/2.function        = UCPTsunblindDOWN;

Stop shutter            nvoMultiOut\_1/2.function        = UCPTsunblindSTOP;

With a delay of 500ms the command UCPTsunblindIDLE for idle mode is sent after the command UCPTsunblindSTOP if UCPTsunblindIDLE is unequal to UCPTsunblindSTOP.

**Scene****UCPTdiConfig[x].Byte[0...3] = 40<sub>hex</sub> ... 4F<sub>hex</sub>**

Output variable for control of a scene controller. The scene numbers 0-15 can be allocated to the button. With short button actuations the scene is called by SC\_RECALL. With long button actuations the scene is learned-in again by SC\_LEARN. Output is made to nvoMultiOut\_1.

SNVT Type: SNVT\_scene

**UCPTdiConfig[x].Byte[0...3] = 50<sub>hex</sub> ... 5F<sub>hex</sub>**

Output variable for control of a scene controller. The scene numbers 0-15 can be allocated to a button. With short button actuations the scene is called by SC\_RECALL. With long button actuations, the scene is learned-in again by SC\_LEARN. The output is made to nvoMultiOut\_2.

SNVT Type: SNVT\_scene

**Automatic****UCPTdiConfig[x].Byte[0...3] = 60<sub>hex</sub> / 61<sub>hex</sub>**

The actuation of an "Automatic-Button" switches the variable nvoMultiOut\_1/2 to the value 0,0-1. Thus, e.g. a light controller can be reset in the automatic mode after external override.

SNVT Type: SNVT\_switch

#### 4.2.3 Configuration Property Sensor-Object:

##### **SCPTnvType**

SCPT Index: 254, SNVT\_nv\_type

There is one SCPTnvType for nvoMultiOut\_1 and nvoMultiOut\_2 each. The configuration property specifies the type of the network variable nvoMultiOut\_1 respectively nvoMultiOut\_2. If SCPTnvType is not adapted automatically to the new variable type of nvoMultiOut\_1 / nvoMultiOut\_2 by the installation tool, the following settings must be entered:

nvoMultiOut = SNVT\_switch

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 95, NVT\_CAT\_STRUCT, 2 bytes, A=1, B=0, C=0

nvoMultiOut = SNVT\_setting

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 117, NVT\_CAT\_STRUCT, 4 bytes, A=1, B=0, C=0

nvoMultiOut = SNVT\_lev\_percent

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 81, NVT\_CAT\_SIGNED\_LONG, 2 bytes, A=5, B=-3, C=0

nvoMultiOut = SNVT\_lux

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 79, NVT\_CAT\_UNSIGNED\_LONG, 2 bytes, A=1, B=0, C=0

nvoMultiOut = SNVT\_occupancy

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 109, NVT\_CAT\_ENUM, 1 bytes, A=1, B=0, C=0

nvoMultiOut = SNVT\_scene

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 115, NVT\_CAT\_STRUCT, 2 bytes, A=1, B=0, C=0

##### **SCPTtempOffset**

SCPT Index: 227, SNVT\_temp\_p

Function: Offset for the temperature value. By means of this parameter a software calibration is possible.

##### **SCPTminRnge, SCPTmaxRnge**

SCPT Index: 23, 20, SNVT\_temp\_p

Function: The parameters are for the adjustment of different temperature ranges of SR04..- and SR65..- sensors. The measuring range is found in the respective data sheet.

- Standard measuring range SR04: 0 to +40 °C

- Standard measuring range SR65: -20 to +60 °C

- Standard measuring range SR65 TF: -20 to +60 °C

- Standard measuring range SR65 AKF: +10 to +90 °C

- Standard measuring range SR65 VFG: +10 to +90 °C

(Preset value: SCPTminRnge = 0,00 °C and SCPTmaxRnge = 40,00 °C)

##### **SCPTmaxOut**

SCPT Index: 93, SNVT\_lev\_cont

Function: This configuration property determines the maximum output value of the variable nvoMultiOut.value. (Preset value: 100.0)

##### **SCPTmaxSendTime**

SCPT Index: 49, SNVT\_time\_sec

Function: Heartbeat function. This configuration property stipulates the interval time after which the output variable is sent. By input values = 0, the heartbeat function is deactivated. (Preset value: 0,0 s)



#### UCPTdeviceType

UCPT Index: 42, SNVT\_count

Function: By UCPTdeviceType the different device types (SR04.../SR65... and SRW01) are selected.

- 7 = SR04 / SR07 / SR65 - Temperature sensor
  - 701 = SR04 rH - Humidity sensor
  - 702 = SR65 – DI - Digital input
  - 703 = SR65 – LI - Outdoor light sensor
  - 704 = SR PIR 360° - Motion sensor
  - 705 = SR MDS - SensoLux - Multi sensor, motion sensor, light sensor
  - 6 = SRW01 - Window contact
  - 5 = Tactile sensor - Switching functions
  - 501 = Wireless chair - Room occupancy
  - 502 = SRG01 - SecuSignal® - Window handle (Opened / Closed)
  - 503 = SRG01 - SecuSignal® - Window handle (Opened / Tilted / Closed)
- (Preset value: 7, i.e. SR04/SR65)

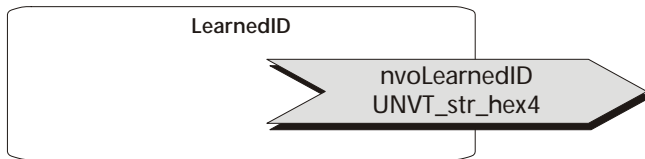
#### UCPTenoceanID

UCPT Index: 39, UNVT\_str\_hex4

Function: The parameter UCPTenoceanID allocates a special sensor to each object, whereas the sensor ID can either be entered manually or read automatically via the learn button on the sensor. Display format of 32-Bit Sensor-ID in the browser in hex: ID-Byte3, ID-Byte2, ID-Byte1, ID-Byte0



### 4.3 LearnedID



When seamlessly connecting a sensor by means of the learn-button, the sensor ID is saved in the device. There are two options to take over the ID into the LNS-database:

1. To take over the sensor ID into the LNS-database, the device must be recommissioned by means of "Current values in device".
2. The sensor ID of the sensor learned-in last is indicated in the variable nvoLearnedID. It can be entered directly into the corresponding UCPTenOcean ID and can thus be taken over into the LNS-database.

#### **nvoLearnedID**

SNVT Type: UNVT\_str\_hex4

Function: Display of sensor ID learned-in last