



# Software Description STCA\_11\_11\_1\_02 for STC-04-FTT and STC-65-FTT



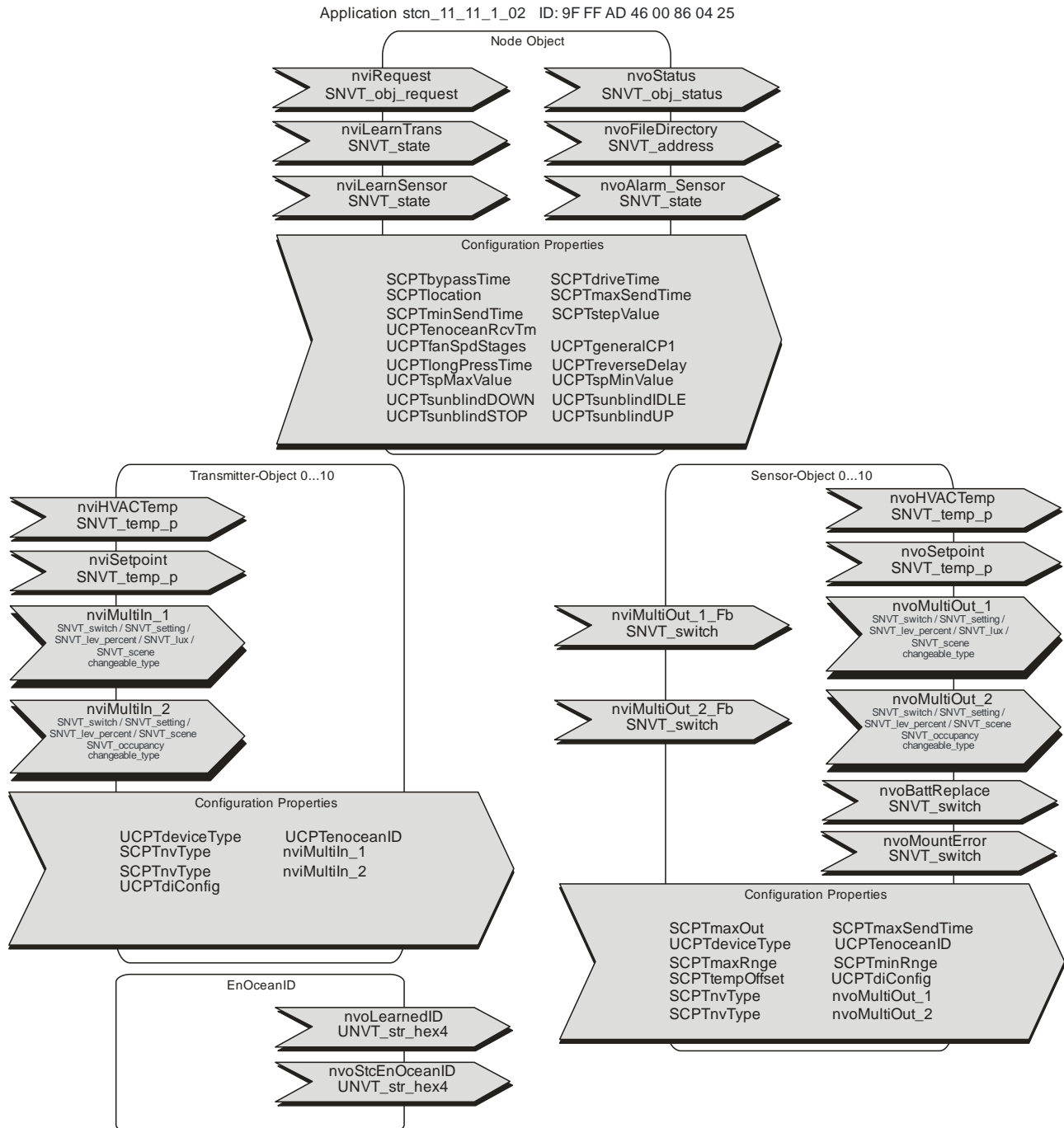
## 1 Overview

The application enables the receipt and evaluation of max. 11 EnOcean wireless sensors. Additionally, eleven EnOcean telegrams can be sent. The following sensor types are supported:

- Room operating panel
  - o temperature detection, set point adjustment, room occupancy, fan stage adjustment
  - o e.g. SR04/SR07, SR04PST, SR04PS MS: P – set point, S – fan stage, T – button, MS – slide switch
  - o with humidity e.g. SR04 rH, SR04P rH, SR04PT rH, SR04P MS rH: P – set point, T – button, MS – slide switch
- Temperature detection
  - o temperature detection
  - o e.g. SR65, SR65 TF, SR65 AKF, SR65 VFG
- Light sensor
  - o outdoor light sensor
  - o SR-LI Outdoor
- Digital contact
  - o dry, digital contact
  - o E.g. SR65-DI
- Movement detection
  - o room occupancy
  - o SR PIR 360°
- Movement and light detection
  - o room occupancy, light sensor
  - o SR MDS - SensoLux
- window contact
  - o SRW01
  - o Opened/Closed
  - o 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
- Wireless actuator
- CO2 detection
  - o CO2 detection
  - o e.g. SR04 CO2

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 learn mode by means of nviLearn\_Sensor (see below, Node Object)  
 Step 5: Actuate learn 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 learn 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

With plug-In device is configurable and sensors could be learnt-in.

#### 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:

#### Universal Temperature sensor – Profile 63 Type xx ORG 7

Temperature range °C	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
Universal Temperature range via SCPTminRnge and SCPTmaxRnge	7		

#### Temperature Sensor without operating elements – Profile A5-02-xx

Temperature range in °C	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Temperature sensor measuring range 40 K</b>			
-40 – 0	2017	A5-02-01	
-30 – 10	2027	A5-02-02	
-20 – 20	2037	A5-02-03	
-10 – 30	2047	A5-02-04	
0 – 40	2057	A5-02-05	
10 – 50	2067	A5-02-06	
20 – 60	2077	A5-02-07	
30 – 70	2087	A5-02-08	
40 – 80	2097	A5-02-09	
50 – 90	2107	A5-02-0A	
60 – 100	2117	A5-02-0B	
<b>Temperature sensor measuring range 80 K</b>			
-60 – 20	2167	A5-02-10	
-50 – 30	2177	A5-02-11	
-40 – 40	2187	A5-02-12	
-30 – 50	2197	A5-02-13	
-20 – 60	2207	A5-02-14	
-10 – 70	2217	A5-02-15	
0 – 80	2227	A5-02-16	
10 – 90	2237	A5-02-17	
20 – 100	2247	A5-02-18	
30 – 110	2257	A5-02-19	
40 – 120	2267	A5-02-1A	
50 – 130	2277	A5-02-1B	

**Temperature Sensor with operating elements– Profile A5-10-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Room operating panel</b>			
Set point , fan, button (PST)	16017	A5-10-01	
Set point, fan, slide switch (PS MS)	16027	A5-10-02	
Set point(P)	16037	A5-10-03	
Set point , fan, (PS)	16047	A5-10-04	
Set point , button, (PT)	16057	A5-10-05	
Set point, slide switch (P MS)	16067	A5-10-06	
Fan (S)	16077	A5-10-07	
Fan, button (ST)	16087	A5-10-08	
Fan, slide switch (S MS)	16097	A5-10-09	
<b>Room operating panel with humidity</b>			
Set point, button (PT)	16167	A5-10-10	
Set point, slide switch (P MS)	16177	A5-10-11	
Set point (P)	16187	A5-10-12	
Button (T)	16197	A5-10-13	
Slide switch (MS)	16207	A5-10-14	

**Humidity Sensor without operating elements – Profile A5-04-xx**

Temperature range in °C	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Humidity and temperature sensor measuring range 40 K 0 – 40 °C</b>			
0 – 40	4017	A5-04-01	

**Digital Input – Profile A5-30-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Digital input</b>			
Digital input (SR65 DI)	48017	A5-30-01	
Digital input (MC)	48027	A5-30-02	

**Light Sensor– Profile A5-06-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>SR65 LI</b>			
Ligth sensor (SR65 LI)	6017	A5-06-01	
Ligth sensor (TAP)	6027	A5-06-02	

**Motion Sensor– Profile A5-07-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Motion sensor</b>			
Motion sensor (SR PIR 360°)	7017	A5-07-01	

**Light and Motion– Profile A5-08-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>Light and motion detector</b>			
Light and motion detector (SR MDS)	8017	A5-08-01	

**Gas– Profile A5-09-xx**

Device	UCPTdeviceType - Type	EnOcean Profiles (EEP)	Equipment
<b>CO2 detector</b>			
CO2 detector (SR04 CO2)	9047	A5-09-04	

**Wireless actuator – Profile A5-20-xx**

Device	UCPTdeviceType - Typ	EnOcean Profiles (EEP)	Equipment
Actuator	32017	A5-20-01	

**Window Contact – ORG 6**

Device	UCPTdeviceType - Type
<b>SRW01</b>	
Window contact (SRW01)	6

**Universal Switch – ORG 5**

Device	UCPTdeviceType - Type
Universal switch	5

**Wireless Chair – ORG 5**

Device	UCPTdeviceType - Type
Room occupancy	501

**Window Handle – ORG 5**

Device	UCPTdeviceType - Type
Window handle Opened/Closed (SRG01)	502
Window handle opened/tilted/closed (SRG01)	503

**Steute Switch – ORG 5**

Device	UCPTdeviceType - Type
Monitoring (SR-KCS)	504

**KeyCard – ORG 5**

Device	UCPTdeviceType - Typ
Room occupancy (SR-KCS)	505

### 3.6 Parameterization of Button Functions with UCPTdiConfig

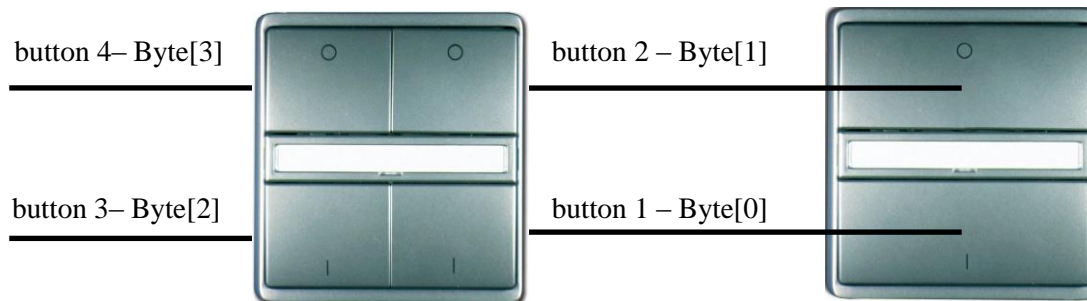
For parameterisation of the tactile sensors, the configuration property *UCPTdiConfig.Byte[0...3]* in the Objects is used.

In UCPTdiConfig the functions of the individual buttons are parameterised, whereas:

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

### 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 in the NodeObject. UCPTdiConfig.Byte[0....3] allocates a function to each button.



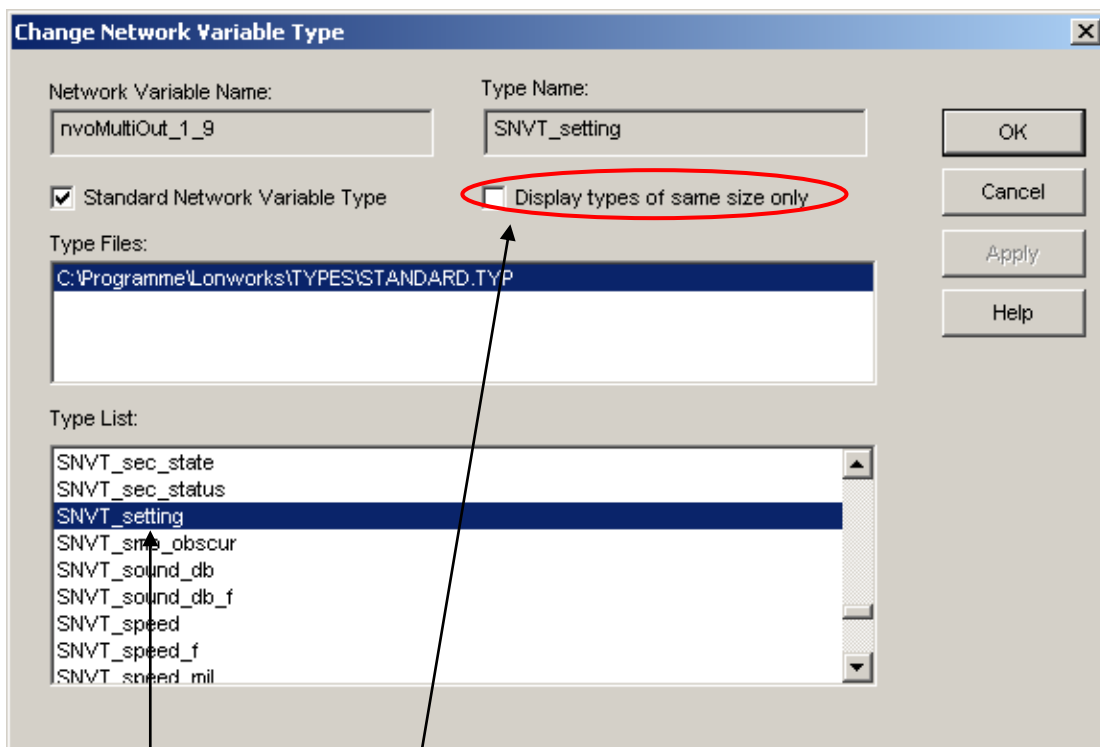
**Example:**

Tactile sensor in Sensor-Object 3:

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

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

Depending on the function of the sensor / transmitter 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.



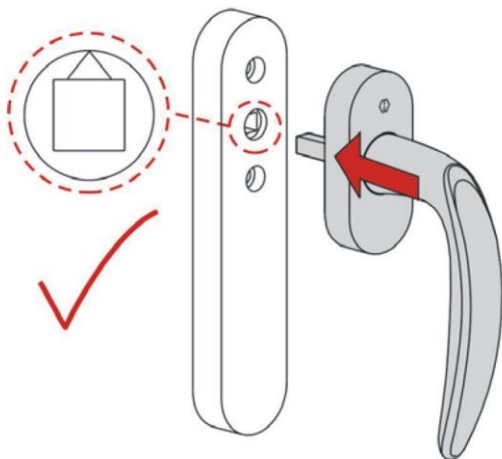
**Picture 3-1: Type Change**

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.

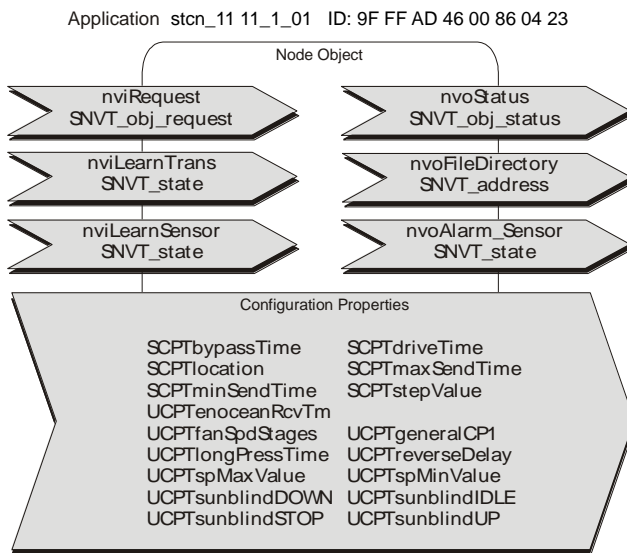
### 3.11 STC EnOceanID

The EnOcean ID of the device is stored in the object nvoStcEnOceanID.

## 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 derermine 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.

#### 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 nviLearnSensor. 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.

##### nviLearnSensor

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.bit10 ==> SR-Sensor-Object[10]

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).

#### **nviLearnTrans**

SNVT Type: SNVT\_state, Index 83

Function: When installing the transmitters, the objects can send a teach-in telegram by means of nviLearnTrans, whereas each bit of a network variable is assigned to a transmitter object.

nviLearnTrans.bit0 ==> Transmitter-Object[0]  
nviLearnTrans.bit1 ==> Transmitter -Object[1]  
:  
:  
nviLearnTrans.bit10 ==> SR- Transmitter -Object[10]

Bit-valuet = 1 switches and releases a teach-in telegram

### **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.bit10 = 1 ==> Alarm for SR-Sensor-Object[10]

### **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).

##### **UCPTgeneralCPI**

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

#### **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)

#### **4.1.3.2 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)

#### **4.1.3.3 Generale 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)

#### **4.1.3.4 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

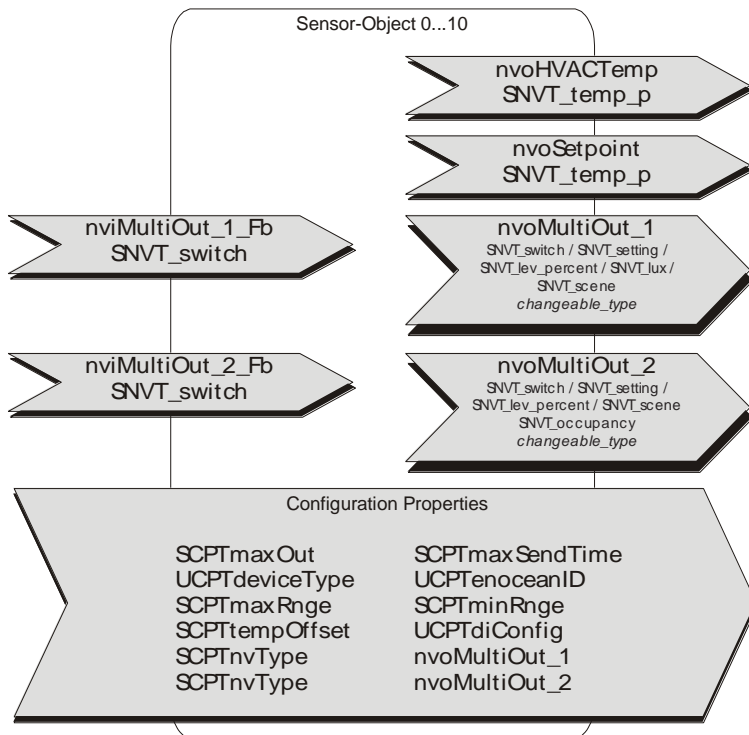
Function: By means of this configuration property it can be adjusted which SNVT\_setting value shall be sent when the blind/shutter is stopped. (Preset value: SET\_STOP 0.0 0.0)

##### **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)

## 5 Sensor-Objects



Eleven identical objects for the detection of EnOcean wireless sensors as well as for the detection of EnOcean wireless keys / switches and wireless actuator.

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.

### 5.1.1 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.

### 5.1.2 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 UCPTspMinValue. 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)

Type: SR04..rH CO2 (combi sensor with relative humidity)

- SNVT Type: SNVT\_lev\_percent
- 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

### Actual Value

Type: Actuator (07-20-01, A5-20-01)

- SNVT Type: SNVT\_lev\_percent
- UCPTdeviceType 32017
- nvoMultiOut\_1 = 0.0 ... 100.0 %

### 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\_ppm, Index 29; 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.

### CO2 Sensor

Type: SR04 CO2

- SNVT Type: SNVT\_ppm
- CO2: nvoMultiOut\_2

### Presence

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

- UCPTdeviceType 7

Type: Wireless chair

- SNVT Type: SNVT\_switch or SNVT\_occupancy
- UCPTdeviceType 501

Type: SR-PIR 360°

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

Type: SR-KCS (KeyCard)

- UCPTdeviceType 505

Type: SR MDS

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

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.

## 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.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.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.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.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.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.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.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.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.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.



### Shutter UP

**UCPTdiConfig.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 stoped 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.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.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.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

### nvoBattReplace

SNVT Typ: SNVT\_switch, Index 95

Funktion: Output variable for the Battery-State of a SAB. The Value 100,0 1 shows that a Battery change is required.

### nvoMountError

SNVT Typ: SNVT\_switch, Index 95

Funktion: The Value 100,0 1 shows that the SAB is not properly mounted. The problem could be that:

- the movement range is too small
- no final position was detected
- the „switch-press“ was not pressed after initial installation

### 5.1.3 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

nvoMultiOut = SNVT\_ppm

==> SCPTnvType = PID 0:0:0:0:0:0:0, Scope 0, Index 29, NVT\_CAT\_UNSIGNED\_LONG, 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

**ONLY necessary for universal sensor UCPTdeviceType 7! As for other types, the measuring range of the respective profile is used. See 3.5. device typeDevice Types UCPTdeviceType**

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

Function: The properties 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.  
See 3.5 device typeDevice Types UCPTdeviceType  
(Preset range: 7, i.e. universal sensor)

### 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

### UCPTdiConfig

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 is fix allocated to the tactile sensor in the Sensor-Object. For the keys/ wireless switches → the functions in the Sensor-Objects UCPTdeviceType must be set to 5.

UCPTdiConfig .Byte[0]	configured	<b>Function of button 1</b>
UCPTdiConfig .Byte[1]	configured	<b>Function of button 2</b>
UCPTdiConfig .Byte[2]	configured	<b>Function of button 3</b>
UCPTdiConfig .Byte[3]	configured	<b>Function of button 4</b>

#### 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
Shutters		
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
Automatic		
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.Byte[0] = 0x05

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

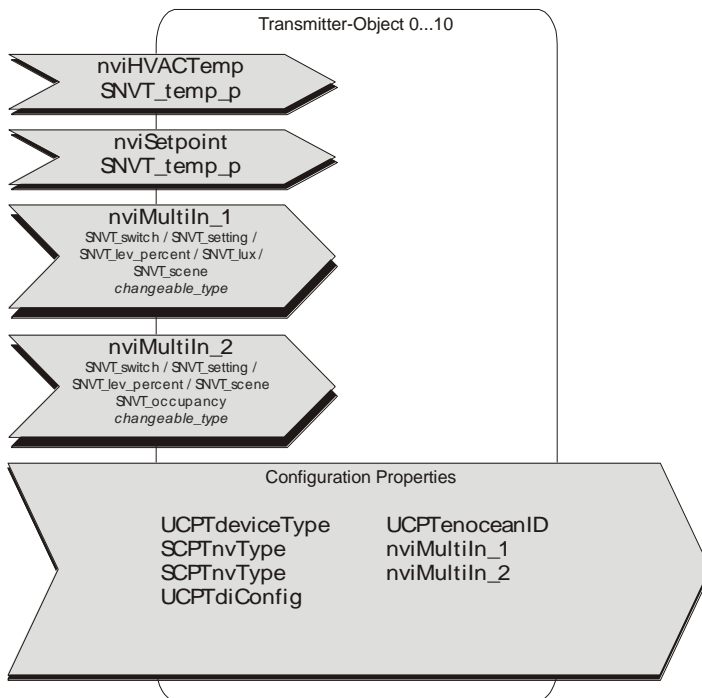
For this, a type change from nvoMultiOut\_1 to SNVT\_switch must be made .

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

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

For this, a type change from nvoMultiOut\_2 to SNVT\_setting must be made .

## 6 Transmitter-Objects



Eleven identic objects for transmission of EnOcean telegrams.

After update of an input network variable the telegram is sent as EnOcean telegram without delay.

If the update is done too fast and if too many receivers are updated a tone time, radio telegrams might get lost.

The basic EnOcean ID is saved in the output variable nvoStcEnOceanID in the object EnOcean ID. Each transmitter object has its own address.  
:

EnOceanID of obejects:

Transmitter Objekt0 = nvoStcEnOceanID + 0

Transmitter Objekt1 = nvoStcEnOceanID + 1

Transmitter Objekt2 = nvoStcEnOceanID + 2

Transmitter Objekt3 = nvoStcEnOceanID + 3

:

Transmitter Objekt10 = nvoStcEnOceanID + 10

### 6.1.1 Input Variable Transmitter-Object:

#### nviHVACTemp

SNVT Type: SNVT\_temp\_p, Index 105

Function: Input variable fort the measured temperature value (resolution 1/100 °C).

#### nviSetpoint

SNVT Type: SNVT\_temp\_p, Index 105

Function: Input variable for set point correction or correction of temperature that can be adjusted with the set point. The standard range is between -3 and +3 K and can be set by means of **UCPTspMinValue** and **UCPTspMinValue** .

### nviMultiIn\_1

SNVT Type: **changeable\_type**, i.e. the variable type can be adjusted via a LON installation tool, e.g. 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 input variable can either transmit the relative humidity, the position of the rotary switch for fan stage adjustment, light intensity, status of digital input module, status of a window (openend/closed) and functions for switching/dimming/blind as EnOcean telegram.

### Fan stage

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

- UCPTdeviceType 16017...16157, 7
- SNVT Type: SNVT\_switch

UCPTfanSpdStages = 1

Fan stage	nviMultiIn_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	100 %	1

UCPTfanSpdStages = 2

Fan stage	nviMultiIn_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	50 %	1
2	100 %	1

UCPTfanSpdStages = 3

Fan stage	nviMultiIn_1	
	.value	.state
AUTO	0 %	-1
0	0 %	0
1	33,0 %	1
2	66,5 %	1
3	100 %	1

UCPTfanSpdStages = 11

Fan stage	nviMultiIn_1	
	.value	.state
0	0 %	0
1	100 %	1

UCPTfanSpdStages = 12

Fan stage	nviMultiIn_1	
	.value	.state
0	0 %	0
1	50 %	1
2	100 %	1

UCPTfanSpdStages = 13

Fan stage	nviMultiIn_1	
	.value	.state
0	0 %	0
1	33,0 %	1
2	66,5 %	1
3	100 %	1

### Humidity

Typ: SR04..rH (Combined sensor with relative humidity)

- SNVT Type: SNVT\_lev\_percent
- UCPTdeviceType 4017 and 16167...16317
- nviMultiIn\_1 = 0.0 ... 100.0 %

### Digital Switch Contact

Type: SR65-DI (Digital input module)

- SNVT Typ: SNVT\_switch
- UCPTdeviceType 48017
- Contact closed: nviMultiIn\_1 = 100.0 1
- Contact opened: nviMultiIn\_1 = 0.0 0

### Light Sensor

Type: SR-LI Outdoor (Outdoor light sensor)

- SNVT Type: SNVT\_lux
- UCPTdeviceType 6017
- nviMultiIn\_1 = 300 ... 30000 lx bzw. 600 ... 60000

Type: SR MDS (wireless mulit sensor) - SensoLux

- SNVT Type: SNVT\_lux
- UCPTdeviceType 8017
- nviMultiIn\_1 = 0 ... 512 lx

### Window Contact / Window Handle

Type: SRW01

- SNVT Type: SNVT\_switch
- UCPTdeviceType 6
- Window opened ==> nviMultiIn \_1 = 100.0 1
- Window closed ==> nviMultiIn \_1 = 0.0 0

Type: SRG01 - Secu-Signal – window handle

- SNVT Type: SNVT\_switch
- UCPTdeviceType 502
- Window opened ==> nviMultiIn \_1 = 100.0 1
- Window closed ==> nviMultiIn \_1 = 0.0 0
- UCPTdeviceType 503
- Window opened ==> nviMultiIn \_1 = 100.0 1
- Window tilted ==> nviMultiIn \_1 = 50.0 1
- Window closed ==> nviMultiIn \_1 = 0.0 0

### Button

Type: Easyfit / EasySens

- SNVT Typ: SNVT\_switch oder SNVT\_setting depending on function
- UCPTdeviceType 5

### Actual Value

Type: Actuator (07-20-01, A5-20-01)

- SNVT Type: SNVT\_lev\_percent
- UCPTdeviceType 32017
- nviMultiIn\_1 = 0.0 ... 100.0 %

### **nviMultiIn\_2**

- SNVT Type: **changeable\_type**, i.e. 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 input variable can either transmit the presence key or functions for switching/dimming/blind

### **Presence**

- Type: SR-PIR 360°  
- UCPTdeviceType 7017
- Type: SR MDS (wireless motion sensor) - SensoLux  
- UCPTdeviceType 8017
- Type: SR04..T (with button or slide switch)  
- UCPTdeviceType 7 und 16017...16317
- Type: SR-KCS (KeyCard)  
- UCPTdeviceType 505
- Type: Wireless chair  
- UCPTdeviceType 501
- SNVT Type: SNVT\_switch
  - Movement: nviMultiIn\_1 = 100.0 1
  - No movement: nviMultiIn\_1 = 0.0 0
  - Or SNVT Type: SNVT\_occupancy
  - Occupancy: nviMultiIn\_2 = OC\_OCCUPIED
  - No occupancy: nviMultiIn\_2 = OC\_UNOCCUPIED

### **Buttons**

- Type: Easyfit / EasySens
- SNVT Typ: SNVT\_scene, SNVT\_switch or SNVT\_setting depending on function
  - UCPTdeviceType 5

### **Button evaluation nviMultiIn\_1 / nviMultiIn\_2**

**For transmission of switch pulses to EnOcean actuators.**

Also see : chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**

<b>UCPTdiConfig.Byte[0]</b>	EnOcean Telegram:	button 1
<b>UCPTdiConfig.Byte[1]</b>	EnOcean Telegram:	button 2
<b>UCPTdiConfig.Byte[2]</b>	EnOcean Telegram:	button 3
<b>UCPTdiConfig.Byte[3]</b>	EnOcean Telegram:	button 4

### **Button pressed/not actuated**

For transmission of gating pulses.

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

nviMultiIn_1/2.value = 100	EnOcean Telegram:	button pressed
nviMultiIn_1/2.value = 0	EnOcean Telegram:	button released
nviMultiIn_1/2.function = SET_ON	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_OFF	EnOcean Telegram:	button released

### **Ligthing Toggle**

For switching on/off the lighting. A telegram "No button pressed" is automatically sent after 300 ms.

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

nviMultiIn_1/2.value = 100	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_ON	EnOcean Telegram:	button pressed
nviMultiIn_1/2.value = 0	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_OFF	EnOcean Telegram:	button pressed

### **Switch ON**

For switching on/off the lighting. A telegram "No button pressed" is automatically sent after 300 ms.

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

nviMultiIn_1/2.value = 100	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_ON	EnOcean Telegram:	button pressed

### **Switching OFF**

For switching on/off the lighting. A telegram "No button pressed" is automatically sent after 300 ms.

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

nviMultiIn_1/2.value = 0	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_OFF	EnOcean Telegram:	button pressed

## **Blind**

### **Blind UP**

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

nviMultiIn_1/2.function = SET_UP	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_STOP	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_NUL	EnOcean Telegram:	button released

### **Blind Down**

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

nviMultiIn_1/2.function = SET_DOWN	EnOcean Telegram:	button pressed
nviMultiIn_1/2.function = SET_STOP	EnOcean Telegram:	button released
nviMultiIn_1/2.function = SET_NUL	EnOcean Telegram:	button released

### 6.1.2 Configuration Property Sensor-Object:

#### SCPTnvType

SCPT Index: 254, SNVT\_nv\_type

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

nviMultIn= 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

nviMultIn= 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

nviMultIn= 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

nviMultIn= 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

nviMultIn= 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

#### SCPTminRnge, SCPTmaxRnge

**ONLY necessary for Universal Sensor UCPTdeviceType 7! As for the other types, measuring range of the respective profile is used. Please see device types 3.5 Device Types UCPTdeviceType**

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)

#### UCPTdeviceType

UCPT Index: 42, SNVT\_count

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

See 3.5 device types Device Types UCPTdeviceType

(Preset value: 7, i.e.. Universal Sensor)

#### UCPTdiConfig

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

Function: This configuration property determines the button functions and their assignment to the input variables. UCPTdiConfig is fix assigned to the tactile sensor in the transmitter object. For the tactile sensors/wireless switches the UCPTdeviceType must be set to 5 in the transmitter objects. .

UCPTdiConfig .Byte[0] configures

**Function of button 1**

UCPTdiConfig .Byte[1] configures

**Function of button 2**

UCPTdiConfig .Byte[2] configures

**Function of button 3**

UCPTdiConfig .Byte[3] configurest

**Function of button 4**

#### No Function 0x00

UCPTdiConfig, Configuration of buttons	
Byte[0...3]	Button 1...4 - Function
<b>No function</b>	
0x00	unoccupied

**Switch Functions 0x01 – 0x08**

<b>UCPTdiConfig, Configuration of Buttons</b>		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
<b>Switching</b>		
0x01	pressed / not pressed / nviMultiIn_1	SNVT_switch SNVT_setting
0x02	pressed / not pressed / nviMultiIn_2	SNVT_switch SNVT_setting
0x03	Light Toggle / nviMultiIn_1	SNVT_switch SNVT_setting
0x04	Light Toggle / nviMultiIn_2	SNVT_switch SNVT_setting
0x05	Light only ON nviMultiIn_1	SNVT_switch SNVT_setting
0x06	Light only ON nviMultiIn_2	SNVT_switch SNVT_setting
0x07	Light only OFF nviMultiIn_1	SNVT_switch SNVT_setting
0x08	Light only OFF nviMultiIn_2	SNVT_switch SNVT_setting

**0x20 – 0x23 Blind**

<b>UCPTdiConfig, Configuration of Buttons</b>		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
<b>Shutter</b>		
0x20	Shutter UP nviMultiIn_1	SNVT_setting
0x21	Shutter DOWN nviMultiIn_1	SNVT_setting
0x22	Shutter UP nviMultiIn_2	SNVT_setting
0x23	Shutter DOWN nviMultiIn_2	SNVT_setting

**Example:**

Tactile sensor in transmitter object 1:

Button 1 Light ON

-> UCPTdiConfig.Byte[0] = 0x05

Button 2 Light OFF

-> UCPTdiConfig.Byte[1] = 0x07

Therefore a type change from nviMultiIn\_1 to SNVT\_switch must be effected.

Button 3 Blind UP

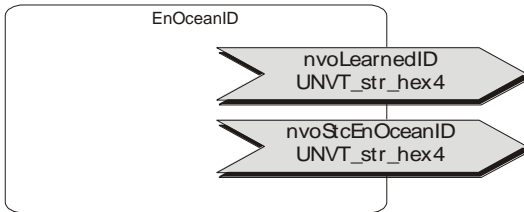
-> UCPTdiConfig.Byte[2] = 0x22

Button 4 Blind DOWN

-> UCPTdiConfig.Byte[3] = 0x23

Therefore a type change from nviMultiIn\_2 to SNVT\_setting must be made.

## 7 EnOceanID



### **nvoLearnedID**

SNVT Type: UNVT\_str\_hex4

Function: Display of sensor ID learned-in last

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.

### **nvoStcEnOceanID**

SNVT Type: UNVT\_str\_hex4

Function: Display of EnOcean ID of transmitter (STC)-Module.

## 8 Examples

### 8.1 Configuration SAB05

By means of an example it shall be made clear how the SAB01 is learned-in (seamlessly connected) to a wireless gateway.

The example uses the Function Blocks *Sensor[0]* and the *Transmitter[0]*. In the Functional Block *Sensor[0]* the sensor values of the SAB01 are received. Via the *Transmitter[0]* a default for the SAB01 set point respectively the position of the valve actuator in % can be defined as a default.

#### **Procedure:**

(1) Prepare SAB01 as sensor

- Select the following from the list "Device":
    1. Valve actuator - function 0x20
    2. Valve actuator - type: 0x01
  - *Sensor[0]*: set type of nvoMultiOut\_1 to SNVT\_lev\_percent
  - Write parameter
    - File -> write parameter
- (DO NOT YET LEARN IN!!)

(2) Prepare *Transmitter[0]*

#### **In the Plugin:**

- *Transmitter[0]*: set type of nviMultiIn\_1 to SNVT\_lev\_percent
- Write parameter
  - File -> write parameter

#### **In Browser (Lonmaker, Alex, ...)**

- Open Functional block *Transmitter[0]* and insert the value 32017 under UCPTdeviceType
- Set the bit corresponding to the transmitter channel (in this case Bit 0) in the Functional Block *Node Object* in the network variable nviLearnTrans to 1

#### **Further in the Plugin:**

- (3) Put *Sensor[0]* in the learning mode
  - Push button „Learn“
- (4) Push the learn button at the SAB01 = learning-in process finished

#### **Control:**

The best is to set the nviMultiIn\_1 from *Sensor[0]* to 50% before starting with point (3). Approx. 15s after a successful learning-in the actuator is driving to the this position.

The reaction of the valve actuator is made depending on the wake-up timers. (Factory setting: 10min)