Software Description STCA_8_8_1_01

For STC-04-FTT and STC-65-FTT

1 Overview

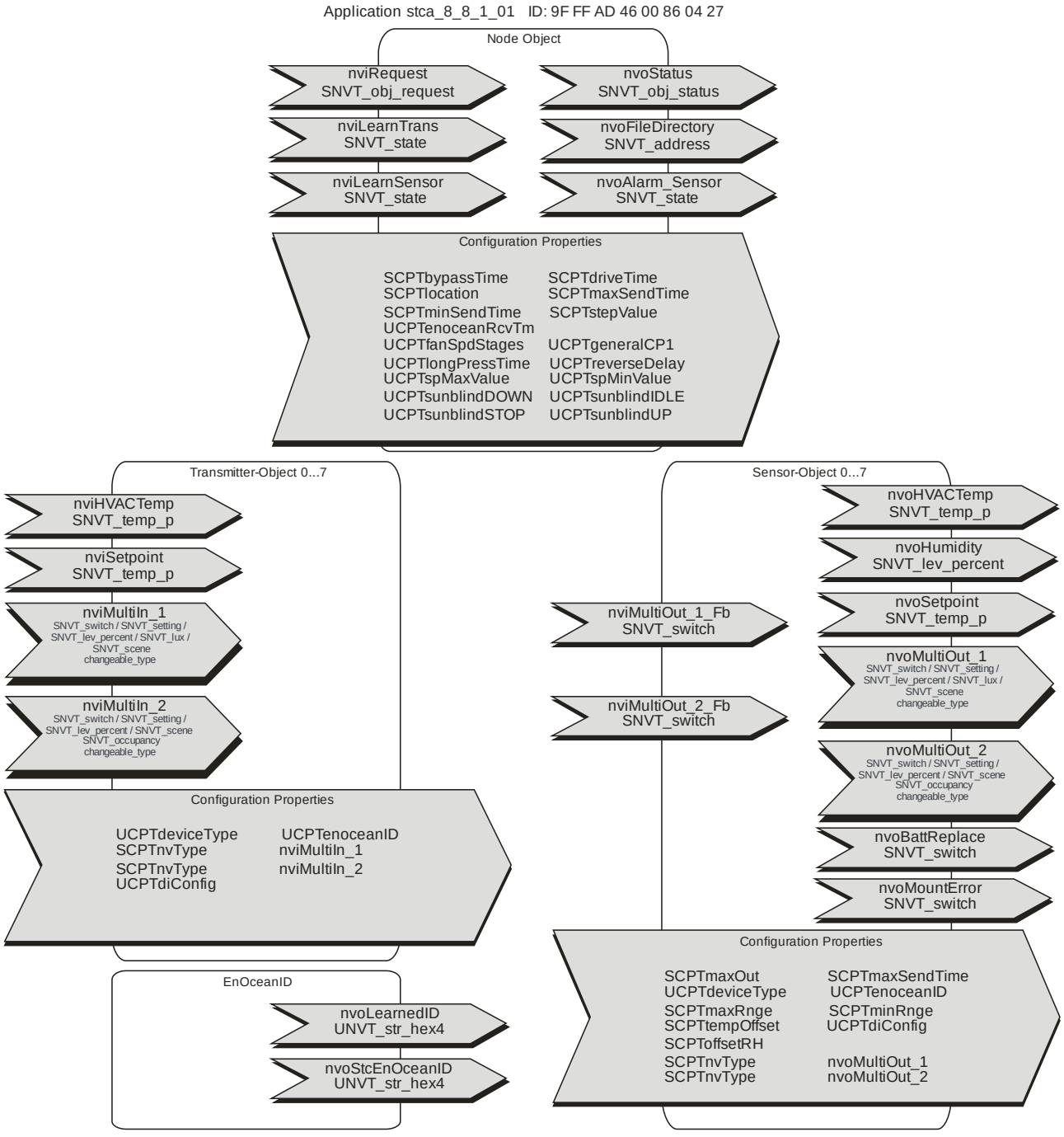
The application enables the receipt and evaluation of max. eight EnOcean wireless sensors. Additionally, eight EnOcean telegrams can be sent.

The following sensor types are supported:

- Room operating panel
  - o temperature detection, set point adjustment, room occupancy, fan stage adjustment
  - o e.g. SR04, SR06, SR06 LCD
- Room operating panel with humidity
  - o temperature detection, set point adjustment, room occupancy, fan stage adjustment
  - o e.g. SR04 rH, SR06 LCD
- Temperature sensors
  - o temperature detection
  - o SR04
- Movement and light detection
  - o room occupancy, light sensor
  - o e.g. SR MDS SensoLux, SR MDS Solar
- window contact
  - o SRW01 Opened/Closed
  - o SRG01 SecuSignal®-Window Handle Opened/Tilted/Closed
- EasyFit, EasySense Tactile Sensors
  - o switch function , dim function, blind, shutters, scene polling, automation
- Wireless actuator
  - o SAB05
- CO_2 detection
  - o Temperature detection, humidity detection, CO_2 detection
  - o SR04 CO_2

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 2.8 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

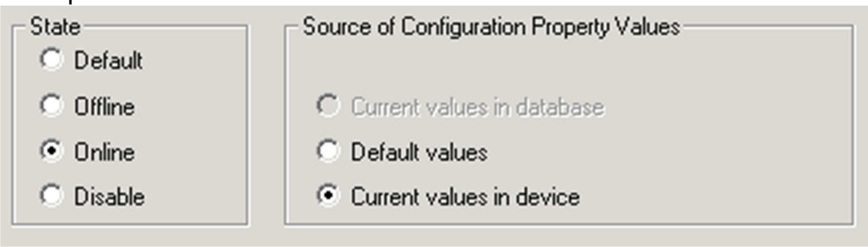
Step 1: Register device type in UCPTdeviceType
Step 2: Adjust the SNVT-type of nvoMultiOut (SNVT_switch or SNVT_lev_percent), if required
Step 3: Check adjustments of SCPTnvType
Step 4: Register the 32-Bit Sensor-ID (see device label) in UCPTenoceanID, e.g. 00,00,A0,43

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. ==> The sensor will be connected to the corresponded sensor-object. 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 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.

3.4 Supported Device Types

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

Temperature range in °C	UCPTdeviceType	EnOcean EEP Profile
Temperature sensor measuring range 40 K		
0 – 40	2057	A5-02-05

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

Device	UCPTdeviceType	EnOcean EEP Profiles
Room operating panel		
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
Room operating panel with humidity		
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
Set point , fan, (PS)	16347	A5-10-22
Set point, occupancy, fan (PST)	16357	A5-10-23

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

Temperature range in °C	UCPTdeviceType	EnOcean EEP Profile
Humidity sensor		
0 – 40°C	4017	A5-04-01

Light and Motion– Profile A5-08-xx

Device	UCPTdeviceType	EnOcean EEP Profile
Light and motion detector		
Light and motion detector (SR MDS, SR MDS Solar)	8017	A5-08-01

Gas– Profile A5-09-xx

Device	UCPTdeviceType	EnOcean EEP Profile
SR04 CO_2		
CO_2 detector (SR04 CO_2)	9047	A5-09-04

Wireless Actuator – Profile A5-20-xx

Device	UCPTdeviceType	EnOcean EEP Profile
Actuator	32017	A5-20-01

Window Contact – ORG 6

Device	UCPTdeviceType
SRW01	
Window contact (SRW01)	6

Universal Switch – ORG 5

Device	UCPTdeviceType
Universal switch	5

Window Handle – ORG 5

Device	UCPTdeviceType
Window handle opened/tilted/closed (SRG01)	503

KeyCard – ORG 5

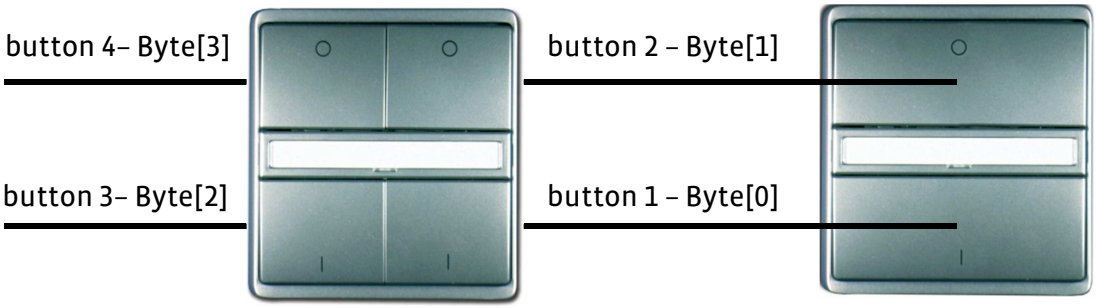
Device	UCPTdeviceType
Room occupancy (SR-KCS)	505

3.5 Parameterization of Button Functions with UCPTdiConfig

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.

In UCPTdiConfig the functions of the individual buttons are parameterized, 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



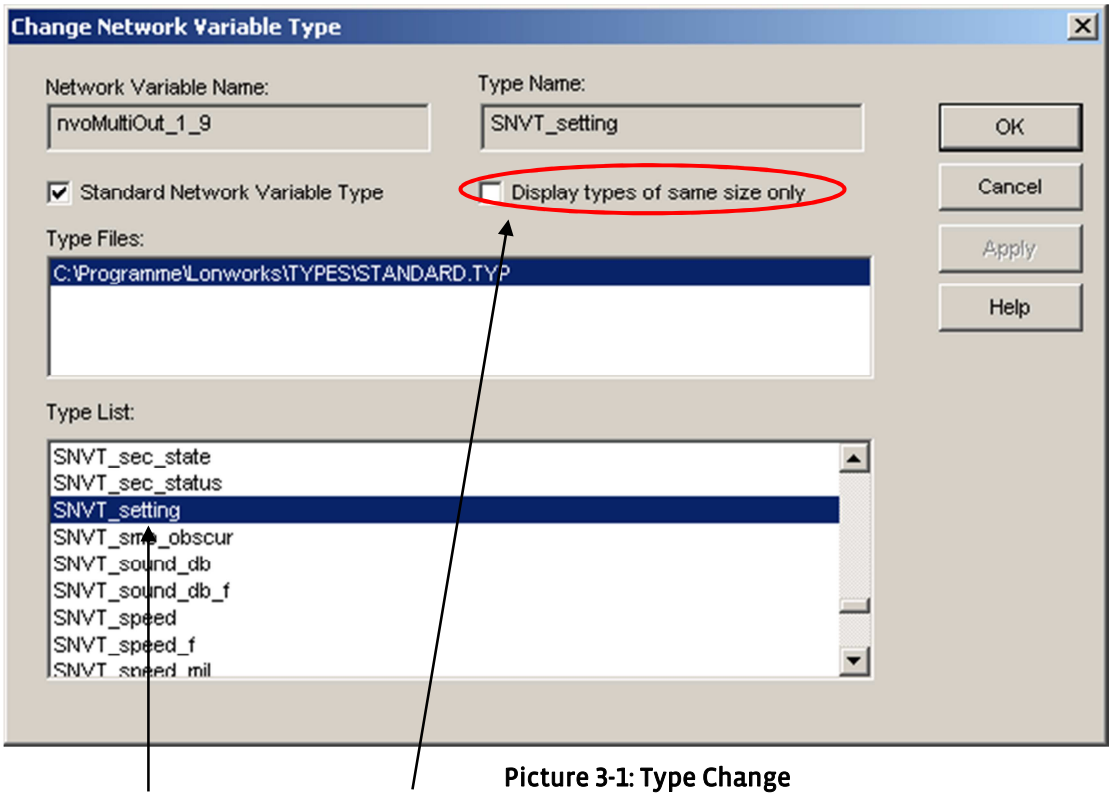
Example:
Tactile sensor in Sensor-Object 3:

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.

3.6 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

The information for the SCPTnvType has to be entered into the appropriate parameter, if no plugin can be used. For more information see chapter 4.2.3 and 4.3.3.

3.7 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)

3.8 Sensors

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

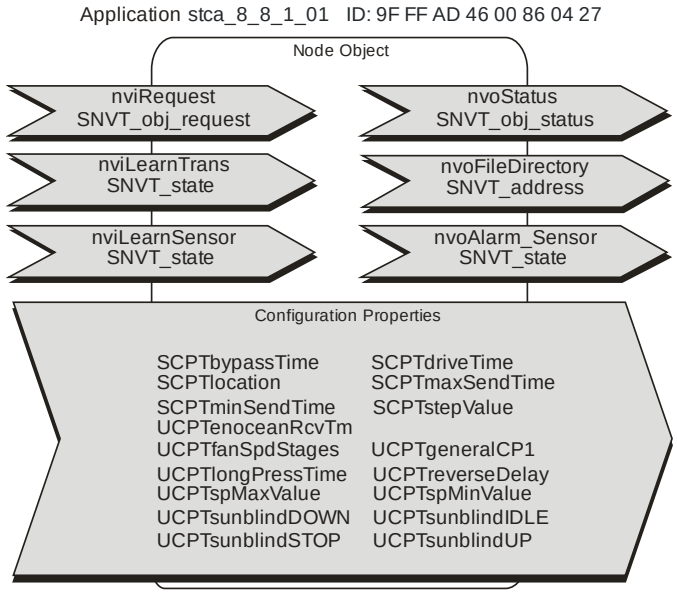
3.9 STC EnOceanID

The EnOcean ID of the device is stored in the object nvoStcEnOceanID. The sensor-object ID's result from the EnOcean ID added with the index of the Sensorobject.
Example:
nvoStcEnOceanID =1F FA 09 10
Sensorobject 0 =1F FA 09 10
:
Sensorobject 7 =1F FA 09 17

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 parameterization 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, SR06, SRW01, wireless switch etc.) 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.bit7 ==> SR-Sensor-Object[7]

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.

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.bit7 ==> SR- Transmitter-Object[7]

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.bit7 = 1 ==> Alarm for SR-Sensor-Object[7]

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 behavior 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 presence 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.
SCPTbypassTime = 2: Each button actuation leads to a toggling of the lighting 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 General 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 value = 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

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)

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)

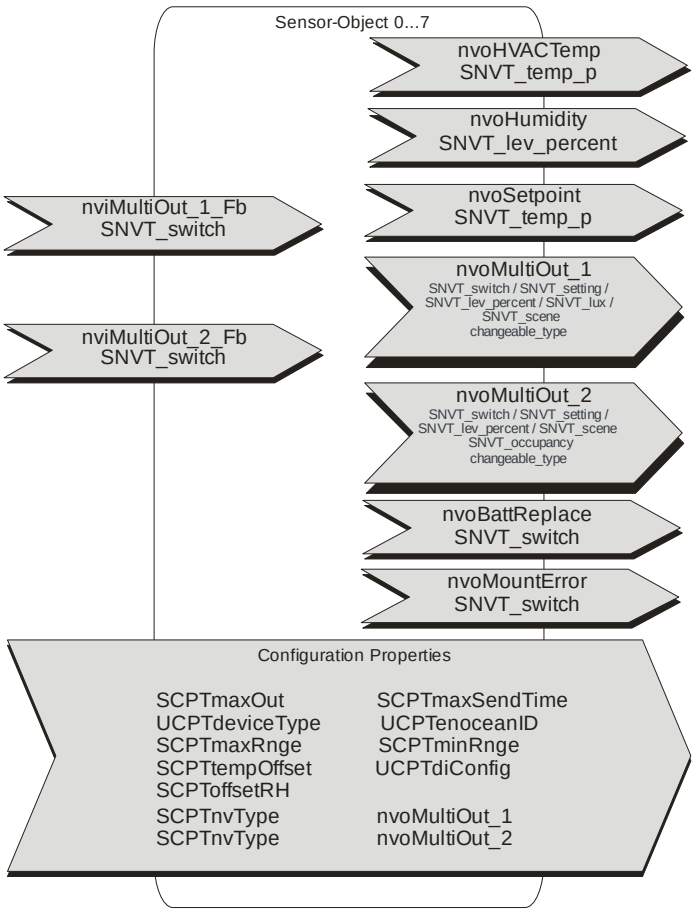
UCPTsunblindUP
UCPT Index: 72, SNVT_setting
Function: By means of this configuration property it can be adjusted which SNVT_setting value shall be sent when the blind/shutter is going up.
(Preset value: SET_UP 100.0 0.0)

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 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



Eight 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 output is nvoHVACTemp, the humidity output is nvoHumidity and the set point is 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.

nvoHumidity
SNVT Type: SNVT_lev_percent, Index 81
Function: Output variable for the measured humidity value in percent. 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: The type of this network variable has to be set depending on the EEP-Profiles. See chapter 5.

Fan Stage

Type: SR04..S (with rotary switch for fan stage adjustment)
- SNVT Type: SNVT_switch
- UCPTdeviceType 7, 1607 ... 16157, 16347, 16357

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

Light Sensor

Type: SR MDS (multi sensor) – SensoLux, SR MDS Solar
- SNVT Type: SNVT_lux
- UCPTdeviceType 8017
- nvoMultiOut_1 = 0 ... 512 lx

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: SRG01 - SecuSignal® Window handle
- SNVT Type: SNVT_switch
- 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 (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: The type of this network variable has to be set depending on the EEP-Profiles. See chapter 5.

CO_2

Type: SR04 CO2 (A5-09-04)
- SNVT Type: SNVT_ppm
- UCPTdeviceType 9047

Presence

Type: SR04..T (with button respectively slide switch)
- UCPTdeviceType 7, 16017 ... 16207, 16357

Typ: SR-KCS (KeyCard)
- UCPTdeviceType 505

SNVT Type: 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 detection

Type: SR MDS (multi sensor) – SensoLux, SR MDS Solar
- SNVT Type: SNVT_occupancy
- UCPTdeviceType 8017
- Motion: nvoMultiOut_2 = OC_OCCUPIED
- No motion: nvoMultiOut_2 = OC_UNOCCUPIED

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_{hex} / 02_{hex}

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_{hex} / 04_{hex}

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_{hex} / 06_{hex}
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_{hex} / 08_{hex}
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 with Dimming, Switch-On Value = max. Value

UCPTdiConfig.Byte[0...3] = 10_{hex} / 11_{hex}
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 with Dimming, Switch-ON Value = Last Switch-ON Value

UCPTdiConfig.Byte[0...3] = 12_{hex} / 13_{hex}
Function as with 10_{hex} / 11_{hex}, 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 with Brighter-Dimming, Switch-ON Value = max. Value

UCPTdiConfig.Byte[0...3] = 14_{hex} / 15_{hex}
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 pre adjusted to approx. 300ms.

SNVT Type: SNVT_switch

Switching-on the 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 the 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 with Brighter Dimming, Switch-ON Value = last ON-value

UCPTdiConfig.Byte[0...3] = 16_{hex} / 17_{hex}

Function as with 14_{hex} / 15_{hex}, 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 with Darker Dimming

UCPTdiConfig.Byte[0...3] = 18_{hex} / 19_{hex}

If the lighting is turned-on, a short button actuation leads to an immediate switching-off the lighting. By longer button actuations the function “dimming 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 the 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 the 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.Byte[0...3] = 20_{hex} / 22_{hex}

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.Byte[0...3] = 21_{hex} / 23_{hex}

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.Byte[0...3] = 30_{hex} / 32_{hex}

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 DOWN

UCPTdiConfig.Byte[0...3] = 31_{hex} / 33_{hex}

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.Byte[0...3] = 40_{hex} ... $4F_{hex}$

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_{hex} ... $5F_{hex}$

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_{hex} / 61_{hex}

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 Type: SNVT_switch, Index 95
Function: Output variable for the Battery-State of a SAB. The Value 100,0 1 shows that a Battery change is required.

nvoMountError

SNVT Type: SNVT_switch, Index 95
Function: 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.

4.2.3 Configuration Properties 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 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
nvoMultiOut = SNVT_setting
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 117, NVT_CAT_STRUCT, 4 bytes, A=1, B=0, C=0
nvoMultiOut = SNVT_lev_percent
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 81, NVT_CAT_SIGNED_LONG, 2 bytes, A=5, B=-3, C=0
nvoMultiOut = SNVT_lux
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 79, NVT_CAT_UNSIGNED_LONG, 2 bytes, A=1, B=0, C=0
nvoMultiOut = SNVT_occupancy
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 109, NVT_CAT_ENUM, 1 bytes, A=1, B=0, C=0
nvoMultiOut = SNVT_scene
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 115, NVT_CAT_ STRUCT, 2 bytes, A=1, B=0, C=0
nvoMultiOut = SNVT_temp
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 105, NVT_CAT_SIGNED_LONG, 2 bytes, A=1, B=-2, C=0
nvoMultiOut = SNVT_ppm
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, 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.

SCPToffsetRH
SCPT Index: 69, SNVT_lev_percent
Function: Offset for the humidity 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 3.4. *Supported Device Types*
SCPT Index: 23, 20, SNVT_temp_p
Function: The properties are for the adjustment of different temperature ranges.
- Standard measuring range SR04: 0 to +40 °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 3.4 *Supported Device Types*
(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-Byte0, ID-Byte1, ID-Byte2, ID-Byte3

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	**Function of button 1**
UCPTdiConfig .*Byte[1]*	configured	**Function of button 2**
UCPTdiConfig .*Byte[2]*	configured	**Function of button 3**
UCPTdiConfig .*Byte[3]*	configured	**Function of button 4**

No function 0x00

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

Switching functions 0x01 – 0x08

UCPTdiConfig, Configuration of buttons		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
Switch		
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 Dimming 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 the Toggle-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 saved.

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 in set into the automatic mode.

Example:
Tactile sensor in Sensor-Object 1:

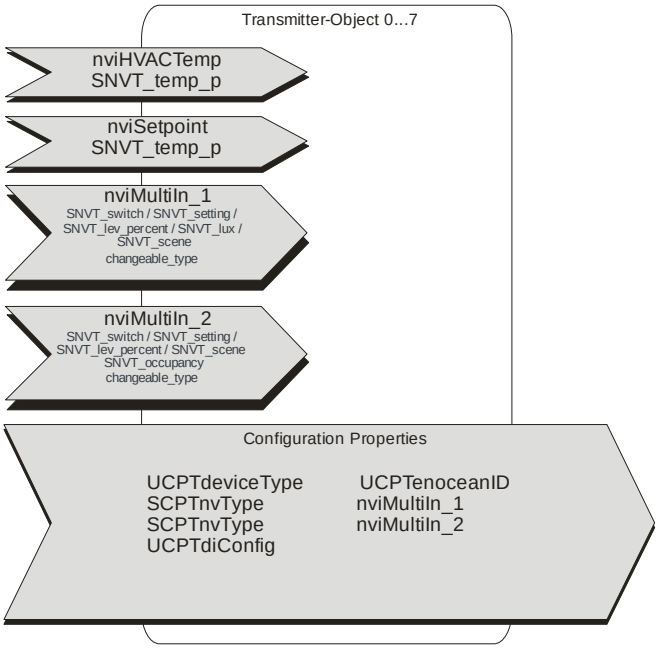
Button 1	Light ON	->	UCPTdiConfig.Byte[0] = 0x05
Button 2	Light OFF	->	UCPTdiConfig.Byte[1] = 0x07

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.

4.3 Transmitter-Objects



Eight identical 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 objects:
Transmitter Object0 = nvoStcEnOceanID + 0
Transmitter Object1 = nvoStcEnOceanID + 1
Transmitter Object2 = nvoStcEnOceanID + 2
:
Transmitter Object7 = nvoStcEnOceanID + 7

4.3.1 Input Variable Transmitter-Object:

nviHVACTemp
SNVT Type: SNVT_temp_p, Index 105
Function: Input variable for 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: The type of this network variable has to be set depending on the EEP-Profiles. See chapter 5.

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

Light Sensor

Type: SR MDS (wireless mulit sensor) – SensoLux, SR MDS Solar
- 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 - SecuSignal® window handle
- SNVT Type: SNVT_switch
- 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 (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: The type of this network variable has to be set depending on the EEP-Profiles. See chapter 5.

Presence

Type: SR MDS (wireless motion sensor) – SensoLux, SR MDS Solar
- UCPTdeviceType 8017

Type: SR04..T (with button or slide switch)
- UCPTdeviceType 7 und 16017...16317

Type: SR-KCS (KeyCard)
- UCPTdeviceType 505

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.

UCPTdiConfig.Byte[0]	EnOcean Telegram:	button 1
UCPTdiConfig.Byte[1]	EnOcean Telegram:	button 2
UCPTdiConfig.Byte[2]	EnOcean Telegram:	button 3
UCPTdiConfig.Byte[3]	EnOcean Telegram:	button 4

Button pressed / not pressed

For transmission of gating pulses.

UCPTdiConfig.Byte[0...3] = 01_{hex} / 02_{hex}

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

Lighting Toggle

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

UCPTdiConfig.Byte[0...3] = 03_{hex} / 04_{hex}

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

Switching ON

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

UCPTdiConfig.Byte[0...3] = 05_{hex} / 06_{hex}

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

Switching OFF

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

UCPTdiConfig.Byte[0...3] = 07_{hex} / 08_{hex}

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_{hex} / 22_{hex}

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_{hex} / 23_{hex}

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

4.3.2 Configuration Properties Transmitter-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 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
nviMultIn= SNVT_setting
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 117, NVT_CAT_STRUCT, 4 bytes, A=1, B=0, C=0
nviMultIn= SNVT_lev_percent
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 81, NVT_CAT_SIGNED_LONG, 2 bytes, A=5, B=-3, C=0
nviMultIn= SNVT_lux
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 79, NVT_CAT_UNSIGNED_LONG, 2 bytes, A=1, B=0, C=0
nviMultIn= SNVT_occupancy
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, 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 3.4 *Supported Device Types*
SCPT Index: 23, 20, SNVT_temp_p
Function: The parameters are for the adjustment of different temperature ranges.
- Standard measuring range SR04: 0 to +40 °C
(Preset value: SCPTminRnge = 0,00 °C and SCPTmaxRnge = 40,00 °C)

UCPTdeviceType
UCPT Index: 42, SNVT_count
Function: By UCPTdeviceType all different device are selected.
See 3.4 *Supported Device Types*
(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]* configures **Function of button 4**

No Function 0x00

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

Switch Funcktions 0x01 – 0x08

UCPTdiConfig, Configuration of Buttons		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
Switching		
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

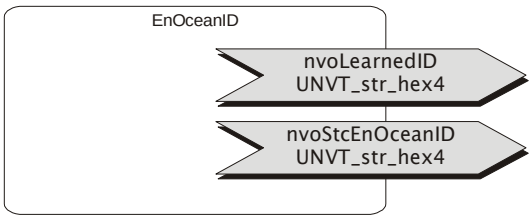
UCPTdiConfig, Configuration of Buttons		
Byte[0...3]	Button 1...4 - Function	SNVT-Type
Shutter		
0x20	Shutter UP nviMultiIn _1	SNVT_setting
0x21	Shutter DOWN nviMultiIn _1	SNVT_setting
0x22	Shutter UP nviMultiIn _2	SNVT_setting
0x23	Shutter DOWN nviMultiIn _2	SNVT_setting

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 made.

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.

4.4 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 UCPTenOceanID 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.

5 Overview Profiles Network Variable assignment

5.1 Wireless Actuator – Profile A5-20-01

5.1.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Temperature	nvoHVACTemp	SNVT_temp_p	fixed
Setpoint offset	nvoSetpoint	SNVT_temp_p	fixed
Actual value	nvoMultiOut_1	SNVT_lev_percent	PID 0:0:0:0:0:0:0:0, Scope 0, Index 81, NVT_CAT_SIGNED_LONG, 2 bytes, A=5, B=-3, C=0

5.1.2 Transmitterobject

Process data	LON-Variable	NV-Type	SCPTnvType
Actual value	nvoMultiIn_1	SNVT_lev_percent	PID 0:0:0:0:0:0:0:0, Scope 0, Index 81, NVT_CAT_SIGNED_LONG, 2 bytes, A=5, B=-3, C=0

5.2 Temperature sensor with operating elements – Profile A5-10-xx

5.2.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Temperature	nvoHVACTemp	SNVT_temp_p	fixed
Setpoint offset	nvoSetpoint	SNVT_temp_p	fixed
Fan coil	nvoMultiOut_1	SNVT_switch	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
Occupancy	nvoMultiOut_2	SNVT_occupancy	PID 0:0:0:0:0:0:0:0, Scope 0, Index 109, NVT_CAT_ENUM, 1 bytes, A=1, B=0, C=0

5.3 Humidity sensor without operating elements – Profile A5-04-01

5.3.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Temperature	nvoHVACTemp	SNVT_temp_p	fixed

5.4 Lighting and Motion – Profile A5-08-01

5.4.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Lighting	nvoMultiOut_1	SNVT_lux	PID 0:0:0:0:0:0:0:0, Scope 0, Index 79, NVT_CAT_UNSIGNED_LONG, 2 bytes, A=1, B=0, C=0
Occupancy	nvoMultiOut_2	SNVT_occupancy	PID 0:0:0:0:0:0:0:0, Scope 0, Index 109, NVT_CAT_ENUM, 1 bytes, A=1, B=0, C=0

5.5 Gas – Profile A5-09-04

5.5.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Temperature	nvoHVACTemp	SNVT_temp_p	FIX
Humidity	nvoMultiOut_1	SNVT_lev_percent	PID 0:0:0:0:0:0:0:0, Scope 0, Index 81, NVT_CAT_SIGNED_LONG, 2 bytes, A=5, B=-3, C=0
CO_2	nvoMultiOut_2	SNVT_ppm	PID 0:0:0:0:0:0:0:0, Scope 0, Index 29, NVT_CAT_UNSIGNED_LONG, 2 bytes, A=1, B=0, C=0

5.6 Window contact – ORG 6

5.6.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
open/closed	nvoMultiOut_1	SNVT_switch	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0

5.7 Window handle – ORG 5

5.7.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
open/tilted/closed	nvoMultiOut_1	SNVT_switch	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0

5.8 KeyCard – ORG 5

5.8.1 Sensorobject

Process data	LON-Variable	NV-Type	SCPTnvType
Occupancy	nvoMultiOut_2	SNVT_occupancy	PID 0:0:0:0:0:0:0:0, Scope 0, Index 109, NVT_CAT_ENUM, 1 bytes, A=1, B=0, C=0
Occupancy	nvoMultiOut_2	SNVT_switch	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0

5.9 Wireless switch – Profile F6-xx-xx (ORG 5)

See description about button configuration!

Important note

After configuration of the device the configuration parameters (CP) inside the device have to be synchronized with the LNS database. Otherwise the LNS database will keep default values of the CP's and starting an application update will overwrite CP's inside the device with the default values!