Software Description STCA_SA_8_4_1_01

For STC-65-FTT

1 Overview

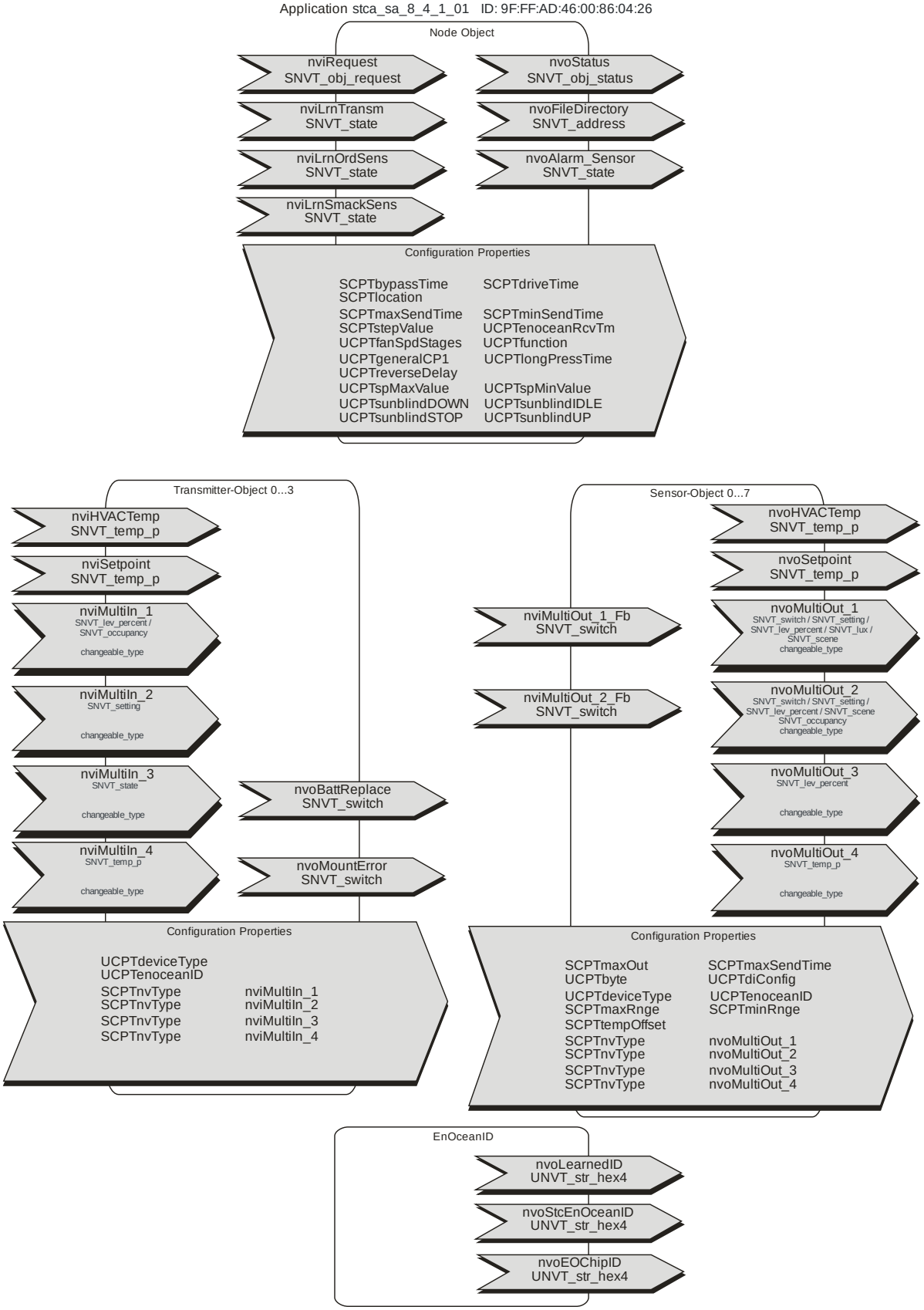
The application enables the radio reception and evaluation of maximum 8 EnOcean wireless sensors. Additionally, 4 EnOcean telegrams can be sent using the transmitter objects.
In addition to conventional sensors (Org-Byte = RPS, 4BS) even Smart-Ack devices (SAG) such as the SR06 LCD can be teached-in to the first 4 sensor objects. Be aware that a SAG occupies a sensor and a transmitter object! The allocation to a transmitter object is made automatically and depends on the index of the sensor object, i.e. teach-in of SAG to sensor object 1 automatically combines transmitter object 1 with SAG.

The following sensor types are supported:

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

3.1 Manual Input of Sensor Data

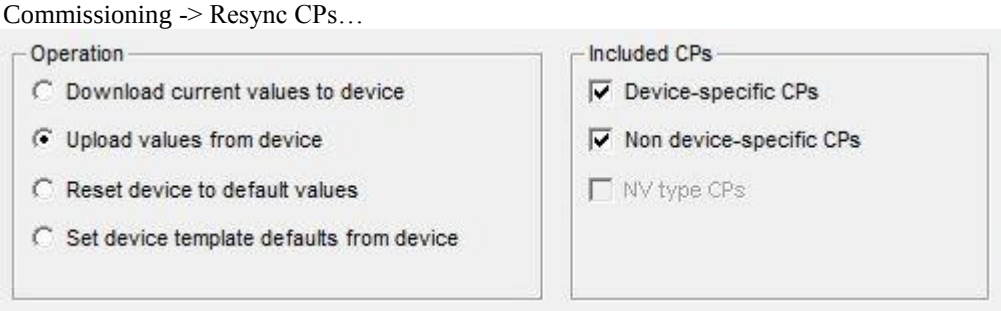
Step 1:	Register device type in UCPTdeviceType (also in transmitter-object)
Step 2 only Smart-Ack:	Set UCPTbyte to 1
Step 3:	Adjust the SNVT-type of nvoMultiOut (for SA-Devices also the nviMultiIn in the transmitter-object) (see chapter 4.2.2, 4.2.3 and 4.3.1)
Step 4:	Enter 32-Bit Sensor-ID (see device label) in UCPTenoceanID, e.g. 00,00,A0,43
Step 5 only Smart-Ack:	Set requested sensor-object in “manually-teach-in” mode by means of nviLrnSmackSens (see chapter 4.1.1). Bit will be reset automatically if operation was successful.

3.2 Installation by Learn button

Step 1:	Enter device type manually in UCPTdeviceType in the sensor object (for bidirectionality, e.g. Smart-Ack sensor or wireless actuator, you have to enter the device type also in the corresponding transmitter object).
Step 2:	If required, adjust SNVT-type of nvoMultiOut (SNVT_switch, SNVT_setting, SNVT_lux, SNVT_lev_percent, SNVT_occupancy,…) in accordance to the EEP of used Sensor!
Step 3 Smart Ack:	Set requested sensor object in teach-in mode by means of nviLrnSmackSens (see below, Node Object)
Step 3 conventional:	Set requested sensor object in teach-in mode by means of nviLrnOrdSens (see below, Node Object)
Step 4:	Press learn button on the sensor. ==> The sensor is linked to the sensor object. All bits of nviLrn… are set back to ‘0’ and the teached-in ID is shown in nvoLearnedID.
Step 5:	Contrary to the manual registration, where the ID is directly written into device **and** the LNS-database, it is only possible to store the sensor ID in device (and not LNS-database!) upon installation by teach-in button**.** To synchronize device and LNS database there are two ways:

1. Automatically synchronization

   Example LonMaker:
   - Right mouse click on the Device block
   - Commissioning -> Resync CPs…



2. The sensor ID which was latest teached-in is stored in nvoLearnedID, so copy the content of nvoLearnedID in UCPTenoceanID.

For more information please take a look at the corresponding variable description.

3.3 Teach-out of a Sensor

If the 32-Bit Sensor-ID 0,0,0,0 is entered into UCPTenoceanID, the sensor can be teached-out in Sensor-Object.
If a SAG is teached-in, it takes about 10 to 40s until it is deleted in the EnOcean transmitting module!

3.4 Supported Device Types

Room operating panel – Profile D2-00-10, D2-11-xx

Device	UCPTdeviceType	EnOcean EEP Profile
Room operating panel		
SR06 LCD	1613	D2-00-10 D2-11-01 : D2-11-08

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 Profile
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 and temperature sensor measuring range 40 k – 40°C		
0 - 40	4017	A5-04-01

Light and motion – Profile A5-08-xx

Device	UCPTdeviceType	EnOcean EEP Profile
SR-MDS, SR-MDS Solar		
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 detector		
CO_2 detector (SR04 CO_2)	9047	A5-09-04

Wireless actuator – ORG 7

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	EnOcean EEP Profile
Universal switch	5	F6-00-01

Window handle – ORG 5

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

KeyCard – ORG 5

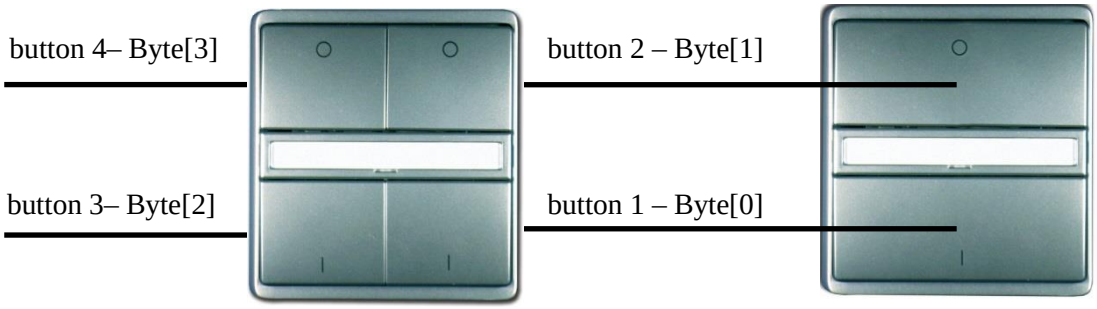
Device	UCPTdeviceType
Room occupancy (SR-KCS)	505

3.5 Parameterisation of switch button functions with UCPTdiConfig

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

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

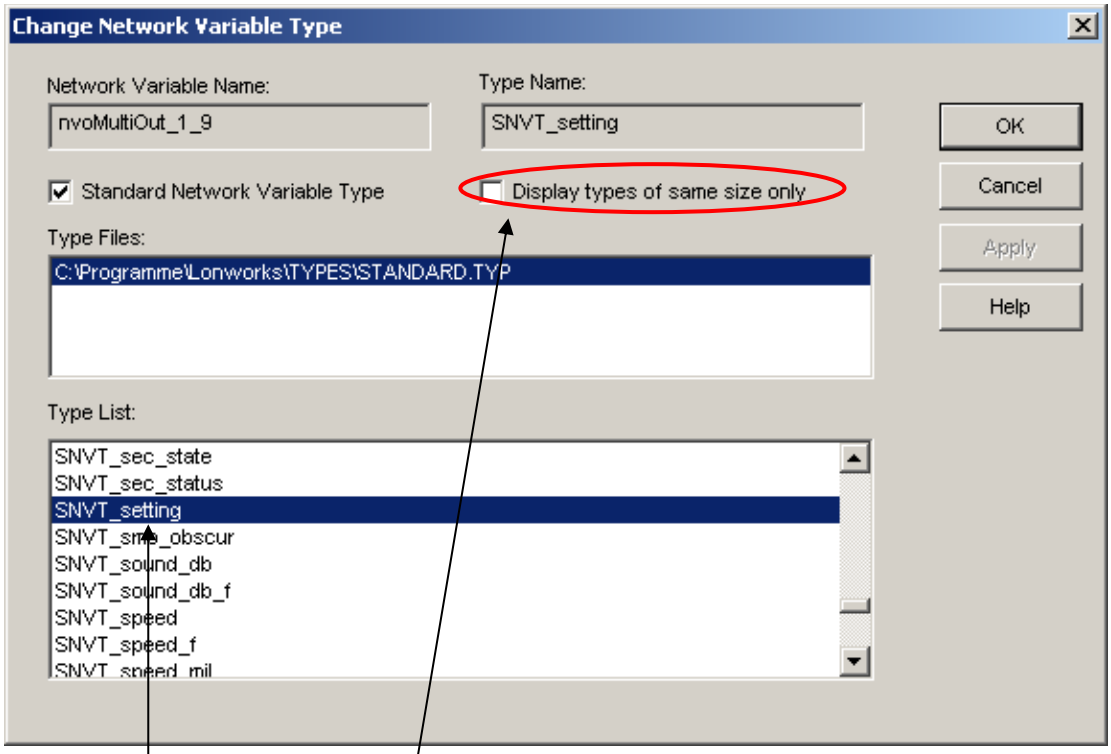
UCPTdiConfig.Byte[0] defines the function of button 1
UCPTdiConfig.Byte[1] defines the function of button 2
UCPTdiConfig.Byte[2] defines the function of button 3
UCPTdiConfig.Byte[3] defines the function of button 4



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“ or by copying the corresponding string into the SCPTnvType-Property (see Chapter 5). During a type change, it is required to deactivate the ”Monitoring“ of the network variable.



Picture 3-1: Type Change

Select SNVT Type Deactivate the check mark

In case no Plugin is used, the corresponding information on the selected variable type **must** be entered into the parameter SCPTnvType. Under point 4.2.3 and 4.3.3 SCPTnvType the corresponding information are listed.

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.

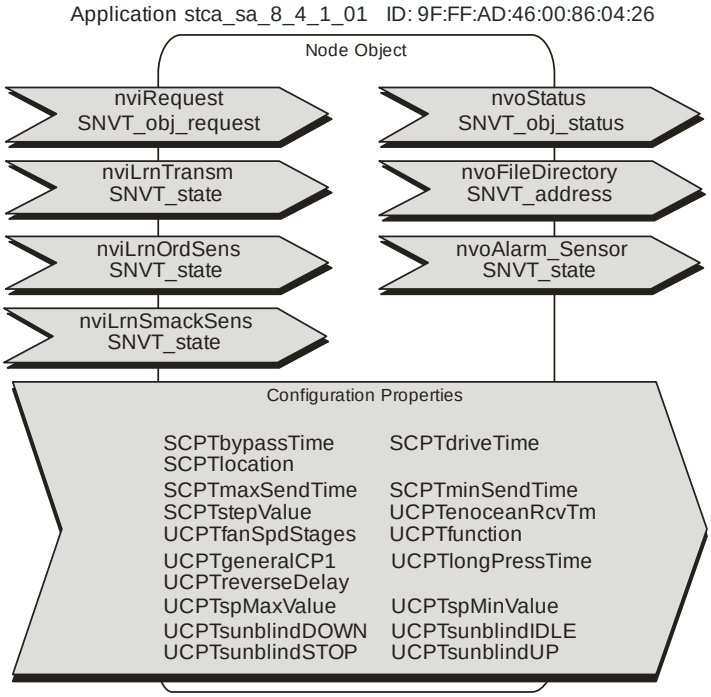
3.9 STC EnOceanID

The EnOcean ID of the device is stored in the object nvoStcEnOceanID. The ID´s of the transmitter objects arise of the EnOcean ID plus the index of the transmitter objects.
E.g.:
nvoStcEnOceanID = 1F FA 09 10
Transmitter object 0 = 1F FA 09 10
:
Transmitter object 3 = 1F FA 09 13

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 by wireless switches, keys and SecuSignal® window handles are not monitored.

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

Fan Speed Adjustment:
The rotary switch for fan speed adjustment can be parameterized by UCPTfanSpdStages for one, two or three fan stages. The output of the fan speed stages is nvoMultiOut_1.

Presence Key / Slide Switch:
The function of the delay time for the presence key respectively the output of the slide switch is adjusted by SCPTbypassTime.

Installation:
If the sensors should be integrated by means of the teach-in button, each sensor object can be individually put into the teach-in mode by nviLrnOrdSens respectively nviLrnSmackSens. Alternatively, the sensor ID of a conventional sensor in each object can also be manually written into the parameter UCPTenoceanID. The different device types (SR04, SR06, 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.

nviLrnOrdSens
SNVT Type: SNVT_state, Index 83
Function: Upon installation of conventional sensors the objects can be placed in the teach-in mode by means of **nviLrnOrdSens**, whereas each bit of a network variable is allocated to a sensor object.

nviLrnOrdSens.bit0 ==> Sensor-Object[0]
nviLrnOrdSens.bit1 ==> Sensor-Object[1]
:
:
nviLrnOrdSens.bit8 ==> Sensor-Object[7]

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

nviLrnSmackSens
SNVT Type: SNVT_state, Index 83
Function: Upon installation of Smart-Ack sensors the objects can be placed in teach-in mode by means of **nviLrnSmackSens**, whereas each bit of a network variable is allocated to a sensor object. The first four bits support Smart-Ack teach-in via learn button! The last four bits are used for manually teach-in.

nviLrnSmackSens.bit0 ==> Sensor-Object[0]
:
nviLrnSmackSens.bit3 ==> Sensor-Object[3]

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

nviLrnSmackSens.bit12 ==> Manuel teach-in of Sensor-Object[0]
:
nviLrnSmackSens.bit15 ==> Manual teach-in of Sensor-Object[3]

Bit-value =1, the device ID is teached-in to the sensor-object and as confirmation, the bit will be automatically reset to 0.

nviLrnTransm
SNVT Type: SNVT_state, Index 83
Function: When installing the transmitters, the objects can send a teach-in telegram by means of **nviLrnTransm**, whereas each bit of a network variable is assigned to a transmitter object.

nviLrnTransm.bit0 ==> Transmitter-Object[0]
:
nviLrnTransm.bit3 ==> Transmitter-Object[3]

Bit-value = 1 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_Sensor, whereas each sensor is allocated to a bit. The alarm bits are cleared automatically by receiving the next associated telegram. Bits 12-15 are used for generating a Smart-Ack alarm which is triggered if a Smart-Ack sensor is not correctly learned-in.

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]

nvoAlarm_Sensor.bit12 = 1 ==> Smart-Ack Alarm for SR-Sensor-Object[0]
nvoAlarm_Sensor.bit13 = 1 ==> Smart-Ack Alarm for SR-Sensor-Object[1]
nvoAlarm_Sensor.bit14 = 1 ==> Smart-Ack Alarm for SR-Sensor-Object[2]
nvoAlarm_Sensor.bit15 = 1 ==> Smart-Ack Alarm for SR-Sensor-Object[3]

Please note: Updates of the values of bit 12-15 in a LON browser can last up to 4 minutes!!!

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_Sensor and can be identified, thus. The individual alarm bits are automatically cleared upon receipt of the next associated telegram.
(Preset value: 60 min)

UCPTgeneralCP1
UCPT Index: 7, SNVT_state
Function: Configuration of switching behaviour of receiving LED.

bit0	bit1	Receiving LED
0	0	No flashing
1	0	Flashing with each telegram received
0	1	Flashing with each teached-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 for a long button actuation can be set.
(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 / 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 OC_OCCUPIED / 100.0 1 with closed contact 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: 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 parameters 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 fan stages specification.

With switch position Auto	**Without switch position Auto**
1 – 1 Stage with Auto	11 – 1 Stage without Auto
2 – 2 Stages with Auto	12 – 2 Stages without Auto
3 – 3 Stages with Auto	13 – 3 Stages 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 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

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, value range: 100 – 20000 ms)

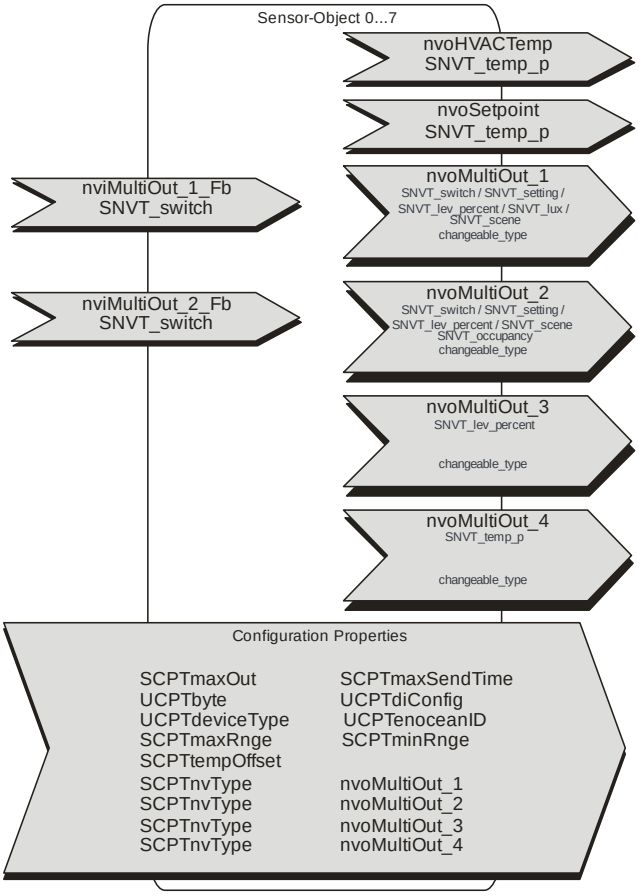
UCPTsunblindUP
UCPT Index: 72, SNVT_setting
Function: By means of this configuration property it can be adjusted which SNVT_setting value shall be sent when the blind/shutter is going up.
(Preset value: SET_UP 100.0 0.0)

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 to *UCPTsunblindSTOP*.
(Preset value: SET_NUL 0.0 0.0)

4.2 Sensor-Objects



8 objects for the detection of EnOcean wireless sensors as well as for the detection of EnOcean wireless keys / switches and wireless actuator. The first 4 sensor objects are capable of Smart-Ack or wireless actuator devices.

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

The network variables nvoMultiOut_1, nvoMultiOut_2, nvoMultiOut_3 and nvoMultiOut_4 are changeable and can be adapted to the respective function by a SNVT type change. Their functionality is dependent of the teached-in EEP-profile.

4.2.1 Input Variables Sensor-Object:

nviMultiOut_1_Fb, nviMultiOut_2_Fb

SNVT Type: SNVT_switch, Index 95

Function: Input variable for the current status of the lighting groups controlled by nvoMultiOut_1_Fb respectively nvoMultiOut_2_Fb.

4.2.2 Output Variables Sensor-Object:

nvoHVACTemp

SNVT Type: SNVT_temp_p, Index 105

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

nvoSetpoint

SNVT Type: SNVT_temp_p, Index 105

Function: Output variable for set point correction respectively set point temperature, which can be adjusted by the set point adjuster. The value range for the most sensors can be adjusted by **UCPTspMinValue** and **UCPTspMaxValue**. Exceptions are some Smart-Ack Devices like SR06LCD which report their internal range automatically! 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. (Preset value: 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 the output variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Fan Stage

Type: SR04..S (with rotary switch for fan stage adjustment)
- SNVT Type: SNVT_switch
- UCPTdeviceType 7, 16017 … 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

Humidity

Type: SR04..rH (combi sensor with relative humidity)
SR04..rH CO2 (combi sensor with relative humidity and CO_2)
- SNVT Type: SNVT_lev_percent
- UCPTdeviceType 4017, 16167 … 16207, 9047
- nvoMultiOut_1 = 0.0 ... 100.0 %

Light Sensor

Type: SR MDS (multi sensor, light 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 %

Occupancy

Type: SR06 LCD (Smart-Ack)
- UCPTdeviceType 1613

nvoMultiOut_2

SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool, e.g the LonMaker. (Preset value: 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 the output variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

CO_2

Type: SR04 CO_2 (A5-09-04)
- SNVT Type: SNVT_ppm
- UCPTdeviceType 9047

Occupancy

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

Typ: SR-KCS (KeyCard)
- UCPTdeviceType 505

SNVT Type: SNVT_switch
- With **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. There is no reset to the value 0.0 0.
- With **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.
- With **SCPTbypassTime = 2** each button actuation leads to a switching-over of the lighting between ON and OFF
- With **SCPTbypassTime >= 3** the party-time function is activated. By button actuation the output variable receives the value 100.0 1. After expiration of the delay time it is set back to the value 0.0 0. Each button actuation restarts the timer.

SNVT Type: SNVT_occupancy
- With **SCPTbypassTime = 0** only the value OC_OCCUPIED is sent with button actuation. There is no reset to the value OC_UNOCCUPIED.
- With **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.
  With **SCPTbypassTime >= 2** the delay function is activated. By button actuation the output variable receives the value OC_OCCUPIED. After expiration of the delay time it is set back to the value OC_UNOCCUPIED. Each button actuation restarts the timer.

Motion sensor

Type: SR MDS - SensoLux
- SNVT Type: SNVT_occupancy
- UCPTdeviceType 8017
- Motion: nvoMultiOut_2 = OC_OCCUPIED
- No Motion: nvoMultiOut_2 = OC_UNOCCUPIED

Switch

Type: Easyfit / EasySens
- SNVT Type: 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 (nvoMultiOut_1 … _4)

UCPTdiConfig.Byte[0...3] = 01_{hex} / 02_{hex} / 03_{hex} / 04_{hex}

SNVT Type: SNVT_switch

Button pressed	nvoMultiOut_1/2/3/4.value	= SCPTmaxOut
	nvoMultiOut_1/2/3/4.state	= 1
Button not pressed	nvoMultiOut_1/2/3/4.value	= 0
	nvoMultiOut_1/2/3/4.state	= 0

SNVT Type: SNVT_setting

Button pressed	nvoMultiOut_1/2/3/4.function	= SET_ON
	nvoMultiOut_1/2/3/4.setting	= SCPTmaxOut
Button not pressed	nvoMultiOut_1/2/3/4.function	= SET_OFF
	nvoMultiOut_1/2/3/4.setting	= 0

Lighting Toggle

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

Each button actuation results in a toggling of the lighting 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] = 07_{hex} / 08_{hex}

Each button actuation results in a switching-on 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] = 09_{hex} / $0A_{hex}$

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 acutations result in a toggling of the current lighting status, whereas the .value - switch-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}

Same Function like 10_{hex} / 11_{hex}, but with the difference that not the value SCPTmaxOut but the last switch-on value is set. The smallest switch-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 “dimming-brighter“ is activated, i.e. based on the current light status the .value - value of the switch variable is raised 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

Lighting ON	nvoMultiOut_1/2.value	= SCPTmaxOut
	nvoMultiOut_1/2.state	= 1
Lightning brighter	nvoMultiOut_1/2.value	= last value + UCPTstepValue
	nvoMultiOut_1/2.state	= 1

SNVT Type: SNVT_setting

Lightning ON	nvoMultiOut_1/2.function	= SET_ON
	nvoMultiOut_1/2.setting	= SCPTmaxOut
Lightning brighter	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}

Same Function like 14_{hex} / 15_{hex}, but with the difference that not the value SCPTmaxOut but the last switch-on value is set. The smallest switch-on value is limited to 20%.

Lighting OFF with Darker Dimming

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

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

SNVT Type: SNVT_switch

Lightning OFF	nvoMultiOut_1/2.value	= 0
	nvoMultiOut_1/2.state	= 0
Lightning darker	nvoMultiOut_1/2.value	= last value – UCPTstepValue
	nvoMultiOut_1/2.state	= 1

SNVT Type: SNVT_setting

Lightning OFF	nvoMultiOut_1/2.function	= SET_OFF
	nvoMultiOut_1/2.setting	= 0
Lightning darker	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 acutation starts the automatic run and drives the blind contiuously 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 adjusted individually.

SNVT Type: SNVT_setting

Open shutter	nvoMultiOut_1/2.function= UCPTsunblindUP
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.

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 controlling a scene controller. The scene numbers 0-15 can be allocated to the button. With short button actuations the scene SC_RECALL is called. With long button actuations the scene is teached-in again by SC_LEARN. The corresponded Output is nvoMultiOut_1.

SNVT Type: SNVT_scene

UCPTdiConfig.Byte[0…3] = 50_{hex} … $5F_{hex}$

Output variable for controlling a scene controller. The scene numbers 0-15 can be allocated to a button. With short button actuations the scene SC_RECALL is called. With long button actuations the scene is teached-in again by SC_LEARN. The corresponded Output is 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. With this function a light controller can be reset in the automatic mode after external override.

SNVT Type: SNVT_switch

Fan coil

Type: SR06 LCD (Smart-Ack type)
- SNVT Type: SNVT_switch
- UCPTdeviceType 1613
- nvoMultiOut_2 = 0.0 -1 AUTO
- nvoMultiOut_2 = 0.0 0 OFF
- nvoMultiOut_2 = 33.0 1 Stage 1
- nvoMultiOut_2 = 66.5 1 Stage 2
- nvoMultiOut_2 = 100.0 1 Stage 3

nvoMultiOut_3

SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool, e.g the LonMaker. (Preset value: SNVT_setting)

Valid values: SNVT_lev_percent, Index 81

Function: The type of the output variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Humidity

Type: SR06 LCD (Smart-Ack type)
- SNVT Type: SNVT_lev_percent
- UCPTdeviceType 1613
- nvoMultiOut_3 = 0.0 ... 100.0 %

Type: SR06 LCD rH
- SNVT Type: SNVT_lev_percent
- UCPTdeviceType 16347, 16357
- nvoMultiOut_3 = 0.0 ... 100.0 %

nvoMultiOut_4

SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool, e.g the LonMaker. (Preset value: SNVT_setting)

Valid values: SNVT_temp_p, Index 105

Function: The type of the output variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Set point effective

Type: SR06 LCD (Smart-Ack type)
- SNVT Type: SNVT_temp_p
- UCPTdeviceType 1613

4.2.3 Configuration Properties Sensor-Object:

SCPTnvType

SCPT Index: 254, SNVT_nv_type

There is one SCPTnvType for nvoMultiOut_1, nvoMultiOut_2, nvoMultiOut_3 and nvoMultiOut_4 for each Sensor-Object. This configuration property specifies the type of the network variable. If SCPTnvType is not adapted automatically to the new variable type by the installation tool, the following settings must be entered manually:

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_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
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

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 *3.4. Supported device types*
SCPT Index: 23, 20, SNVT_temp_p
Function: The properties are used 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 are selected.
See *3.4 Supported device types*
(Preset value: 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. Smart-Ack devices cannot be entered manually!! If the parameter is set to 0,0,0,0 the sensor will be learned-out. Display format of the 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 fixed allocated to the tactile sensor in the Sensor-Object. For the keys / wireless switches – functions in the Sensor-Objects UCPTdeviceType must be set to 5.

UCPTdiConfig .*Byte[0]* configures **Button 1 mode**
UCPTdiConfig .*Byte[1]* configures **Button 2 mode**
UCPTdiConfig .*Byte[2]* configures **Button 3 mode**
UCPTdiConfig .*Byte[3]* configures **Button 4 mode**

No function 0x00

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

Switching functions 0x01 – 0x0A

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	pressed / not pressed / nvoMultiOut_3	SNVT_switch SNVT_setting
0x04	pressed / not pressed / nvoMultiOut_4	SNVT_switch SNVT_setting
0x05	Light Toggle / nvoMultiOut_1	SNVT_switch SNVT_setting
0x06	Light Toggle/ nvoMultiOut_2	SNVT_switch SNVT_setting
0x07	Light only ON nvoMultiOut_1	SNVT_switch SNVT_setting
0x08	Light only ON nvoMultiOut_2	SNVT_switch SNVT_setting
0x09	Light only OFF nvoMultiOut_1	SNVT_switch SNVT_setting
0x0A	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 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:

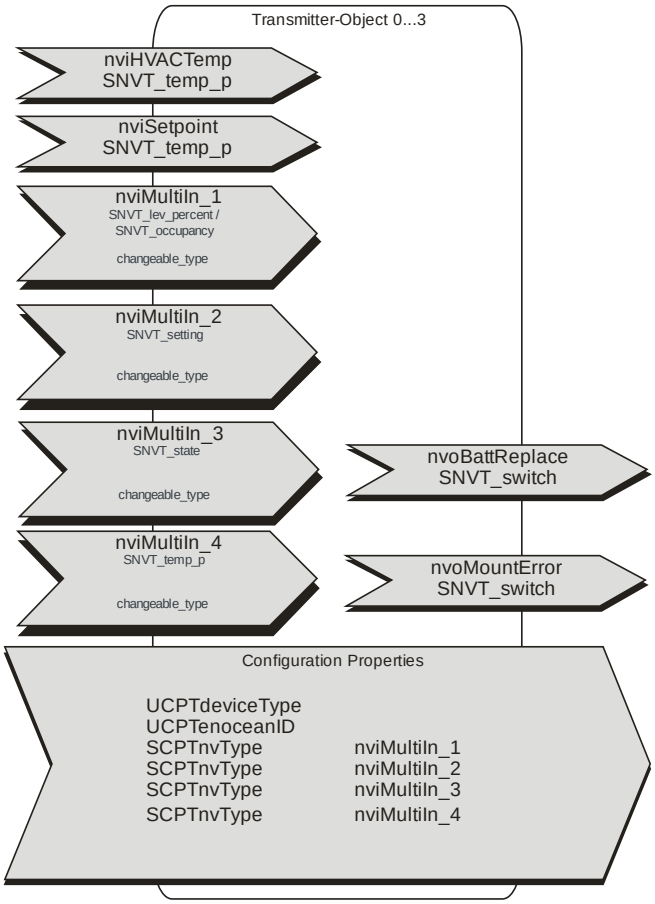
Button 1	Light ON	->	UCPTdiConfig.Byte[0] = 0x07
Button 2	Light OFF	->	UCPTdiConfig.Byte[1] = 0x09

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 DOWN	->	UCPTdiConfig.Byte[3] = 0x23

For this a type change from nvoMultiOut_2 to SNVT_setting must be made.

4.3 Transmitter-Objects



4 objects for transmission of EnOcean telegrams (wireless actuator). All 4 objects support Smart-Ack.

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

If the update is done too fast and if too many receivers are updated at one time radio telegrams might get lost!

The basic EnOcean ID is saved in the output variable nvoStcEnOceanID in the EnOcean ID object.

Each transmitter object has its own address:

EnOceanID of the objects:
Transmitter-Object0 = nvoStcEnOceanID + 0
Transmitter-Object1 = nvoStcEnOceanID + 1
Transmitter-Object2 = nvoStcEnOceanID + 2
Transmitter-Object3 = nvoStcEnOceanID + 3

4.3.1 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/temperature. The standard range is -3 to +3 K and can be set by **UCPTspMinValue a**nd **UCPTspMinValue.** Exceptions are devices like SR06 LCD which include their configured range in their telegrams.

nviMultiIn_1

SNVT Type: **changeable_type**, i.e. the variable type can be adjusted via a LON installation tool, e.g. LonMaker (Preset value: SNVT_ setting)

Valid values: SNVT_lev_percent, Index 81; SNVT_occupancy, Index 109

Function: The type of the input variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Actual Value

Type: Actuator (A5-20-01)
- SNVT Type: SNVT_lev_percent
- UCPTdeviceType 32017
- nviMultiIn_1 = 0.0 ... 100.0 %

Occupancy

Type: SR06 LCD (Smart-Ack)
- SNVT Type: SNVT_occupancy
- UCPTdeviceType 1613

nviMultiIn_2

SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool e.g. the LonMaker (Preset value: SNVT_setting)

Valid values: SNVT_switch, Index 95

Function: The type of the input variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Fan coil

Type: SR06 LCD (Smart-Ack)
- SNVT Type: SNVT_switch
- UCPTdeviceType 1613
- nvoMultiOut_2 = 0.0 -1 AUTO
- nvoMultiOut_2 = 0.0 0 OFF
- nvoMultiOut_2 = 33.0 1 Stage 1
- nvoMultiOut_2 = 66.5 1 Stage 2
- nvoMultiOut_2 = 100.0 1 Stage 3

nviMultiIn_3

SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool e.g. the LonMaker (Preset value: SNVT_setting)

Valid values: SNVT_state, Index 83

Function: The type of the input variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Symbols

Type: SR06 LCD (Smart-Ack)
- SNVT Type: SNVT_state
- UCPTdeviceType 1613
- Value = 1 Show symbol, value = 0 Symbol off
- .bit0: Heating
- .bit1: Cooling
- .bit2: Window

nviMultiIn_4
SNVT Type: **changeable_type**, i.e. the variable type can be set via a LON installation tool e.g. the LonMaker (Preset value: SNVT_setting)
Valid values: SNVT_temp_p, Index 105
Function: The type of the input variable has to be set in accordance to the associated EEP-Profile. See Chapter 5 for more details.

Set point effective

Type: SR06 LCD (Smart-Ack)
- SNVT Type: SNVT_temp_p
- UCPTdeviceType 1613

4.3.2 Output Variables Transmitter-Object:

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: Output variable for the Mounted-State of a SAB. 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 end-position was detected
- The button on the SAB was not pressed after initial installation

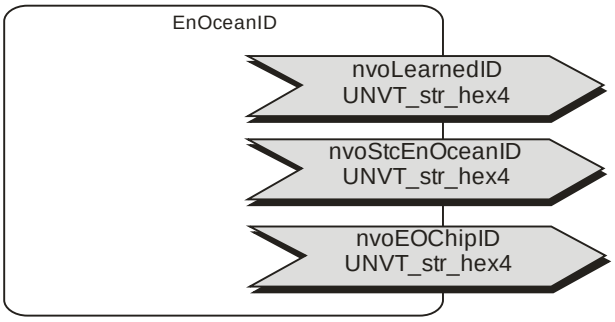
4.3.3 Configuration Properties Transmitter-Object:

SCPTnvType
SCPT Index: 254, SNVT_nv_type
There is one SCPTnvType for nviMultIn_1, nviMultIn_2, nviMultIn_3 and nviMultIn_4 each. The configuration property specifies the type of the network variable. If SCPTnvType is not adapted automatically to the new variable type by the installation tool the following settings must be entered manually:

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_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_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_state
==> SCPTnvType = PID 0:0:0:0:0:0:0:0, Scope 0, Index 83, 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

UCPTdeviceType
UCPT Index: 42, SNVT_count
Function: With UCPTdeviceType all different device types will be selected (SR06 LCD Smart-Ack and wireless actuator).
(Preset value: 7, i.e. Universal Sensor)

4.4 EnOceanID



nvoLearnedID
SNVT Type: UNVT_str_hex4
Function: Display of the sensor ID teached-in last.

nvoStcEnOceanID
SNVT Type: UNVT_str_hex4
Function: Display of the EnOcean ID of the transmitter (STC)-Module.

nvoEoChipID
SNVT Type: UNVT_str_hex4
Function: Display of the EnOcean-Chip-ID.

5 Overview Profiles Network Variable assignment

5.1 Room operating panel Thermokon – Profile D2-00-10, D2-11-xx

Uses a Smart-Ack Sensor- and Transmitter-Object (0-3)

5.1.1 Sensor-Object

Process data	LON-Variable	NV-Type	SCPTnvType
Temperature	nvoHVACTemp	SNVT_temp_p	fixed
Setpoint offset	nvoSetpoint	SNVT_temp_p	fixed
Occupancy	nvoMultiOut_1	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
Fan coil	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
Humidity	nvoMultiOut_3	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
Setpoint effective	nvoMultiOut_4	SNVT_temp_p	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

5.1.2 Transmitter-Object

Process data	LON-Variable	NV-Type	SCPTnvType
Setpoint offset	nviSetpoint	SNVT_temp_p	fixed
Occupancy	nviMultiIn_1	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
Fan coil	nviMultiIn_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
Symbols	nviMultiIn_3	SNVT_state	PID 0:0:0:0:0:0:0:0, Scope 0, Index 83, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
Setpoint effective	nviMultiIn_4	SNVT_temp_p	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

5.2 Wireless Actuator – Profile A5-20-01

Uses a Sensor- and Transmitter-Object (0-3)

5.2.1 Sensor-Object

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

5.2.2 Transmitter-Object

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

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

5.3.1 Sensor-Object

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
Humidity	nvoMultiOut_x	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

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

5.4.1 Sensor-Object

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

5.5 Lightning and Motion – Profile A5-08-01

5.5.1 Sensor-Object

Process data	LON-Variable	NV-Type	SCPTnvType
Lightning	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

5.6 Gas – Profile A5-09-04

5.6.1 Sensor-Object

Process data	LON-Variable	NV-Type	SCPTnvType

Temperature	nvoHVACTemp	SNVT_temp_p	fixed
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

5.7 Window contact – ORG 5

5.7.1 Sensor-Object

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

5.8 Window handle – ORG 5

5.8.1 Sensor-Object

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

5.9 KeyCard – ORG 5

5.9.1 Sensor-Object

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

5.10 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!

6 Appendix

6.1 Examples

6.1.1 Teach-in of a 4-channel wireless-switch for shutter control

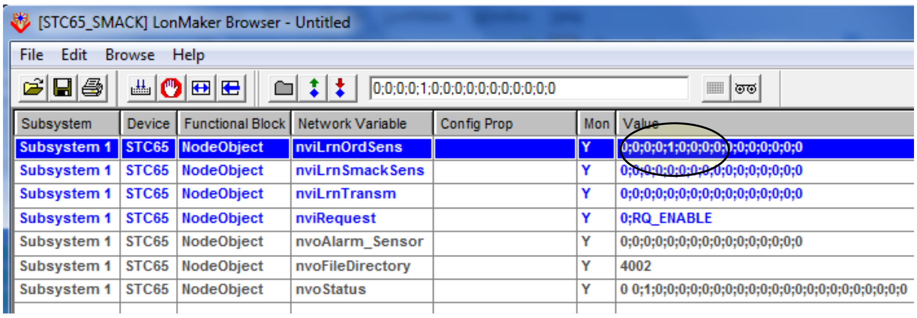
LonMaker is used as commissioning tool. Sensor object 4 is used.

Step 1: Enter device type 5 manually in UCPTdeviceType in the sensor object

Step 2: Adjust the SNVT-type of nvoMultiOut_1 and _2 to SNVT_setting

Step 3: Select function of the network output variables. Please refer to chapter 4.2.3 Configuration Property Sensor-Object -> ***UCPTdiConfig*** (0x20 – 0x23 shutter).
Enter the values 0x30..0x33 in UCPTdiConfig.Byte[0..3]

Step 4: Set sensor object 4 in teach-in mode


[STC65_SMACK] LonMaker Browser - Untitled

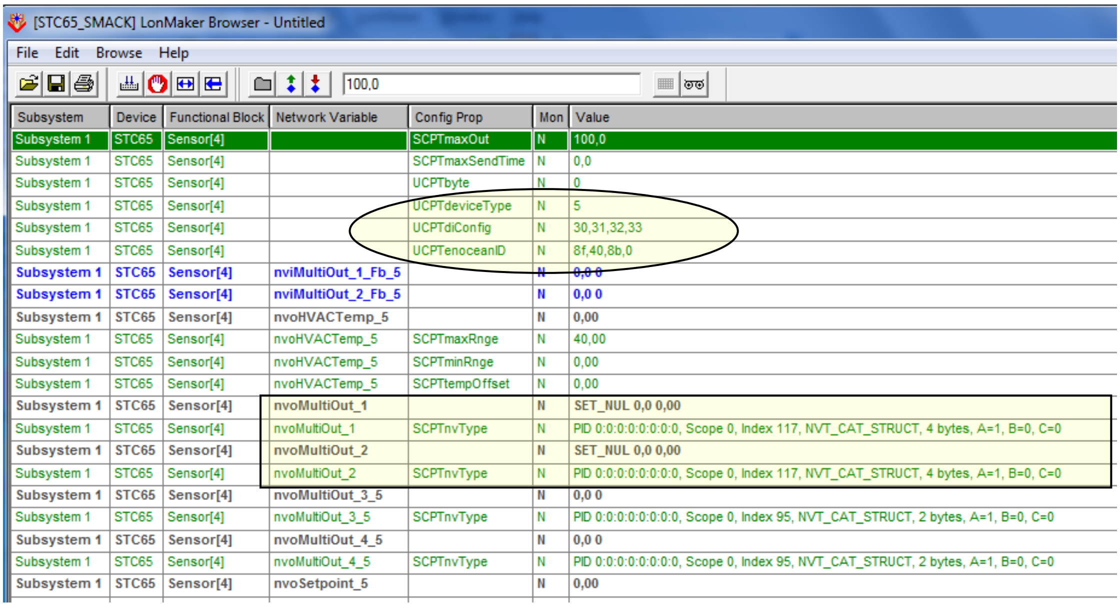
File Edit Browse Help

0;0;0;0;1;0;0;0;0;0;0;0;0;0;0;0

Subsystem	Device	Functional Block	Network Variable	Config Prop	Mon	Value
Subsystem 1	STC65	NodeObject	nviLrnOrdSens		Y	0;0;0;0;1;0;0;0;0;0;0;0;0;0;0;0
Subsystem 1	STC65	NodeObject	nviLrnSmackSens		Y	0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0
Subsystem 1	STC65	NodeObject	nviLrnTransm		Y	0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0
Subsystem 1	STC65	NodeObject	nviRequest		Y	0;RQ_ENABLE
Subsystem 1	STC65	NodeObject	nvoAlarm_Sensor		Y	0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0
Subsystem 1	STC65	NodeObject	nvoFileDirectory		Y	4002
Subsystem 1	STC65	NodeObject	nvoStatus		Y	0 0;1;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0

Step 5: Press a button of the wireless switch. The corresponding teach-in bit resets.

Step 6: Synchronize device configuration parameters with LNS database


[STC65_SMACK] LonMaker Browser - Untitled

File Edit Browse Help

100,0

Subsystem	Device	Functional Block	Network Variable	Config Prop	Mon	Value
Subsystem 1	STC65	Sensor[4]		SCPTmaxOut	N	100,0
Subsystem 1	STC65	Sensor[4]		SCPTmaxSendTime	N	0,0
Subsystem 1	STC65	Sensor[4]		UCPTbyte	N	0
Subsystem 1	STC65	Sensor[4]		UCPTdeviceType	N	5
Subsystem 1	STC65	Sensor[4]		UCPTdiConfig	N	30,31,32,33
Subsystem 1	STC65	Sensor[4]		UCPTenoceanID	N	8f,40,8b,0
Subsystem 1	STC65	Sensor[4]	nviMultiOut_1_Fb_5		N	0,0 0
Subsystem 1	STC65	Sensor[4]	nviMultiOut_2_Fb_5		N	0,0 0
Subsystem 1	STC65	Sensor[4]	nvoHVACTemp_5		N	0,00
Subsystem 1	STC65	Sensor[4]	nvoHVACTemp_5	SCPTmaxRnge	N	40,00
Subsystem 1	STC65	Sensor[4]	nvoHVACTemp_5	SCPTminRnge	N	0,00
Subsystem 1	STC65	Sensor[4]	nvoHVACTemp_5	SCPTtempOffset	N	0,00
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_1		N	SET_NUL 0,0 0,00
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_1	SCPTnvType	N	PID 0:0:0:0:0:0:0:0, Scope 0, Index 117, NVT_CAT_STRUCT, 4 bytes, A=1, B=0, C=0
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_2		N	SET_NUL 0,0 0,00
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_2	SCPTnvType	N	PID 0:0:0:0:0:0:0:0, Scope 0, Index 117, NVT_CAT_STRUCT, 4 bytes, A=1, B=0, C=0
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_3_5		N	0,0 0
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_3_5	SCPTnvType	N	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_4_5		N	0,0 0
Subsystem 1	STC65	Sensor[4]	nvoMultiOut_4_5	SCPTnvType	N	PID 0:0:0:0:0:0:0:0, Scope 0, Index 95, NVT_CAT_STRUCT, 2 bytes, A=1, B=0, C=0
Subsystem 1	STC65	Sensor[4]	nvoSetpoint_5		N	0,00