

SENSOLON plugin guide

multisensor with LON SENSOLON

For room control with sensors for:



✓ temperature



✓ brightness



✓ humidity



✓ occupation



✓ IR-receiver for remote controls



Implementierte LonMark® Functional Profiles:

- Light Sensor
- Temperature Sensor
- Relative Humidity Sensor
- Occupancy Sensor

function

The module comes with 5 sensors: light sensor, temperature sensor, relative humidity sensor, occupancy sensor and infrared sensor. Optional the module can be extended with a carbon dioxide sensor. The measured data from the sensors for brightness, temperature and humidity are updated every 10 seconds.

The LEDs, the relays and the buzzer could be switch by network variables and remote control.

teach in the remote control (infrared function)

It is possible to teach in 77 free selectable keys. The first 10 keys could be used to switch the both relays, the emergency light (LED2) and a free selectable scene (switch function) or to switch 5 switch-network variables as dim function (in each case 2 keys for plus/minus). It is also possible to use the switch and the dim function at the same time, but in the most practises it does not make sense. The keys from 11 to 14 could be used to switch a setting-network variable, whereat 2 keys are for setting (plus/minus) and 2 keys are for rotation (plus/minus). With key 15 it is possible to activate the motion detector function. The keys from 16 to 77 could be used to switch the network variable "nvoIRSwitch64" (switch Bit 0 to 61). (See also summary under software)

The teaching is raised by pressing the pushbutton at the module or over the network.

teach in by pushbutton

The pushbutton must be pressed for 3 seconds, until 3 short beeps occur. Now, the module is in the learning mode and starts with key 1. If you want to teach in this key, then press the desired key on the remote control, until a short beep occur. This beep is the sign that the key was learned in. With a short press on the pushbutton you select the next key, so that you could arrive every 15 keys. Therefore it is not necessary to teach in all 15 keys. You can leave the learn mode every time by pressing the pushbutton for 3 seconds, until 3 short beeps occur.

During the learn mode, the module waits 1 minute for a key press. After this time the module leave automatically the learn mode.

teach in by plugin

There are two possible ways.

Method 1: You choose a key and afterwards you have to press the selected key on the remote control.

Method 2: You choose a key and afterwards you have to transmit the infrared-code of the selected key.

switch function

This function could be used to switch the relays, the emergency light (LED2) and a free selectable scene with the keys from 1 to 10. With the keys 16 to 77 it is possible to switch the bits 0 to 61 from the network variable "nvoIRSwitch64". Therefore you can choose between 3 different functions.

dim function

This function could be used to dim up to 5 lamps or to open windows step by step. The increment is selectable.

special function

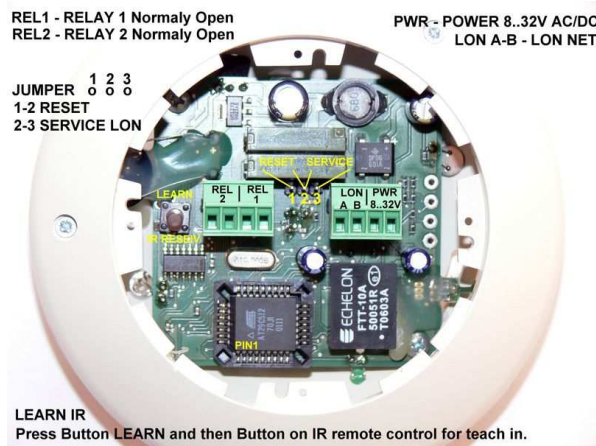
Motion detector function

This function could be used to switch the light automatically on once people enter the room and the brightness fall below a defined value. When the people leaved the room, the light will be switched off automatically. The parameter for the Brightness and the timer could be selected by the use. It is also possible to switch the relays with this function.

Jalousie function

This function could be used to control a Jalousie with the remote control (key 11 to 14). The increment for the opening/closing and the increment for the changing of the fins position are selectable.

connection



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option IR remote control



Optional there is a IR remote control available for SENSOLON (TYP SPEGA lumina MS-FB). Other types of IR remote controls may work, but PASStec could not give a guaranty that these remote control will properly work with SENSOLON. To use an IR remote control learn the IR data stream by using the teach in function.

SENSOLON plugin for LonMaker

current values

PASStec Sensolon Plugin Version 3

Values Settings Switch Function Dim Function Special Function IR Learn In IR Key Function

Brightness: 101 Lux
Setpoint: 0 Lux Apply

Temperature: 22,01 °C
Offset: 0,00 °C Apply

Humidity: 31,645 %
Offset: 0,000 % Apply

abs. Humidity: 5,21 g/kg

Occupancy: UNOCCUPIED

CO₂ Content: 628 ppm

Current Scene:
Scene: SC_NUL
Number: 0

Buzzer: On Off

LED 1: On Off

LED 2: On Off

Relay 1: On Off

Relay 2: On Off

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PASStec
Industrie-Elektronik

- A** In this field you can enter an extern measured brightness value. To send this value to SENSOLON you have to click "Apply". Enter the value „0“ to return to the standard calculation.
- B** In this field you can enter the value for the temperature offset. To send this value to SENSOLON you have to click "Apply". Choose the offset value so, that the intern temperature value is the same like the extern measured value.
- C** In this field you can enter the value for the humidity offset. To send this value to SENSOLON you have to click "Apply". Choose the offset value so, that the intern humidity value is the same like the extern measured value.
- D** Click on the flag to set the language to German.
- E** Click on the flag to set the language to English.
- F** Click on the button to open the website "www.passtec.de".
- G** The symbols show the status of each component. (green = on / grey = off)
With the respective buttons you can switch the components direct.
- H** Here is the actual value of the network variable „nvoIRScene“ shown.

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settings for LON

In this tab you can define the configuration parameter of the sensor objects.
Enter the desired value and click on "Apply" to send the value to SENSOLON.

Light sensor	MinSendTime	nciMinSendTLux
	MaxSendTime	nciMaxSendTLux
	SendOnDelta	nciMinDeltaLux
	SensorLocation	nciLocationLS
Humidity sensor	MinSendTime	nciMinSendTRH
	MaxSendTime	nciMaxSendTRH
	SendOnDelta	nciminDeltaRH
Temperature sensor	MinSendTime	nciMinSendTTemp
	MaxSendTime	nciMaxSendTTemp
	SendOnDelta	nciDeltaSendTemp
Occupancy sensor	DebounceTime	nciDebounce
	HeartbeatTime	nciheartbeat
	SensorLocation	nciLocationOS
Carbon dioxide sensor	MinSendTime	nciMinSendTCO2
	MaxSendTime	nciMaxSendTCO2
	SendOnDelta	nciminDeltaCO2

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switch function

- A** The numeration means the keys from 1 to 10.
- B** Defines the switch mode from relay 1 by every key press.
Default = relay stay unmodified; on = relay turn on or stay on; off = relay turn off or stay off;
Toggle = relay turn on, if it was off and it turn off, if it was on
- C** Defines the time till turning off relay 1 if option „B“ is set to „on“ . Enter „0“ to disable the automatic turn off function
- D** Same function like „B“ based on relay 2
- E** Same function like „C“ based on relay 2
- F** Same function like „B“ based on emergency light
- G** Same function like „C“ based on emergency light
- H** Defines the value from the network variable „nvoIRScene“ in each case. The value „SC_NUL“ means, that „nvoIRScene“ stay unmodified.
- I** Defines if on each key press a short beep sound.
- J** Send all data to SENSOLON.
- K** Read all data from SENSOLON.
- L** Reset all values on SENSOLON to standard.

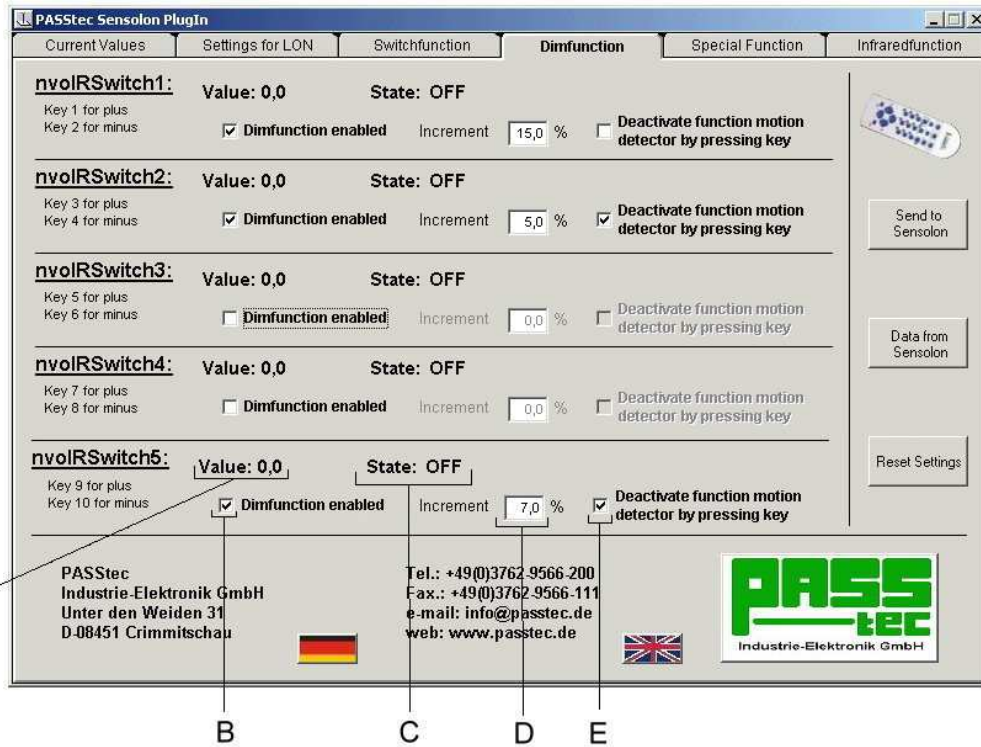
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dim function



A	Shows the actual value of the network variable „nvoIRSwitch.value“.
B	Defines if the dim function is enabled for each key.
C	Shows the actual value of the network variable „nvoIRSwitch.state“.
D	Defines the increment for each network variable by every key press.
E	Defines if the motion detector function will be deactivating by each key press.

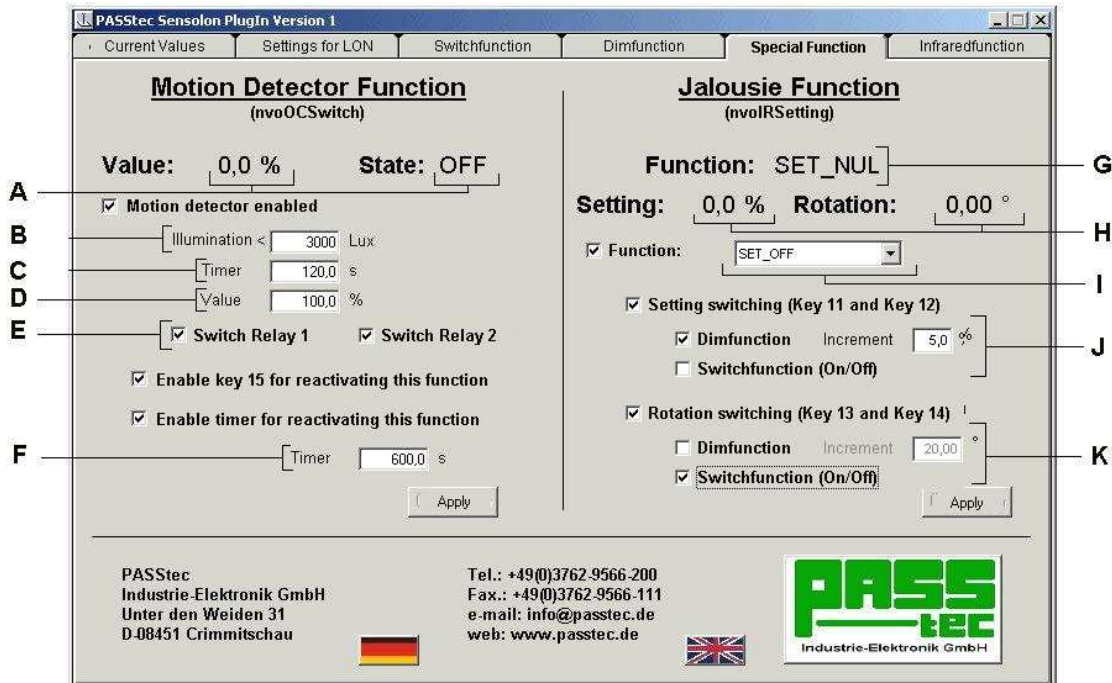
Key function

key 1	$nvoIRSwitch1.value + increment\ 1$
key 2	$nvoIRSwitch1.value - increment\ 1$
key 3	$nvoIRSwitch2.value + increment\ 2$
key 4	$nvoIRSwitch2.value - increment\ 2$
key 5	$nvoIRSwitch3.value + increment\ 3$
key 6	$nvoIRSwitch3.value - increment\ 3$
key 7	$nvoIRSwitch4.value + increment\ 4$
key 8	$nvoIRSwitch4.value - increment\ 4$
key 9	$nvoIRSwitch5.value + increment\ 5$
key 10	$nvoIRSwitch5.value - increment\ 5$



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special function



A	Shows the actual value of the network variable „nvoOCSwitch“.
B	Defines the maximal brightness for the motion detector function.
C	Timer for the automatic turn off from the relays and the network variable „nvoOCSwitch“.
D	This value is transmitted from the motion detector function to the network variable „nvoOCSwitch.value“.
E	Defines if the relays will switch from the motion detector function.
F	Timer for the reactivation of the motion detector function.
G	Shows the actual value of the network variable „nvoIRSetting.function“.
H	Shows the actual value of the network variable „nvoIRSetting.setting“ and „nvoIRSetting.rotation“.
I	This value is transmitted to the network variable „nvoIRSetting.function“ by each key press.
J	Defines the increment for network variable „nvoIRSetting.setting“ by every key press. If you enable the option “Switchfunction”, „nvoIRSetting.setting“ can only embrace the values „0%“ and „100%“.
K	Defines the increment for network variable „nvoIRSetting.rotation“ by every key press. If you enable the option “Switchfunction”, can only embrace the values „-359,98°“, „0°“ and „360°“.

infrared learn function



A	Shows the last received infrared-code in hexadecimal notation.
B	Shows the last received infrared-code in binary notation.
C	Teach in the remote control by key press: Select a key from combo-box "C" and click on button „D“. Now, press a key on the remote control.
D	Teach in the remote control by infrared-code: Enter the infrared-code into field „F" and select a key from combo-box "G". Now, click on button "H" to teach in this key.
E	With click on this button, all learned keys will be deleted.

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infrared key function (not available in version 1)



With the keys 16 to 77 it is possible to switch the bits 0 to 61 from the network variable "nvolRSwitch64". Therefore you can choose between 3 different functions.

Normal Function:	The selected Bit will be set to '1' and will be send (repeated) until the key is pressed.
Toggle Function:	The selected Bit will be set from '0' to '1' or from '1' to '0' by each key press.
Set to group:	You can set a group number for each bit. In each group is always only one bit set to '1', all other bits in this group are automatically set to '0'.

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functional profiles – LON Software & LON network variables

When wink message is received, LED1 (red) + LED2 (white) are blinking and a beep sounds

Measure: brightness, temperature, relative humidity, occupation

Number of keys: 15

key 1	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch1 plus
key 2	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch1 minus
key 3	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch2 plus
key 4	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch2 minus
key 5	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch3 plus
key 6	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch3 minus
key 7	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch4 plus
key 8	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch4 minus
key 9	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch5 plus
key 10	LED2(white) + Relays+ switch nvoIRScene	nvoIRSwitch5 minus
key 11	nvoIRSetting.setting plus	
key 12	nvoIRSetting.setting minus	
key 13	nvoIRSetting.rotation plus	
key 14	nvoIRSetting.rotation minus	
key 15	activate motion detector function	
key 16 - 77	Bit 0-61 of nvoIRSwitch64	
All keys are arranged, but the keys on the remote control are free selectable.		
Prog ID	90:00:00:0A:00:0A:04:0D	
Node sd string	"&3.4@0,1010LIGHT,1040TEMPERATURE,1050HUMIDITY,1060OCCUPANCY,20000IR;Sensolon V1 PASStec"	

network variables

I/O	set	type	bind info	name
//////////////////////////////////// Node-Object //////////////////////////////////////				
input		SNVT_obj_request		nviRequest
output	sync	SNVT_obj_status		nvoStatus
input		SNVT_lev_disc		nviLED1
input		SNVT_lev_disc		nviLED2
input		SNVT_lev_disc		nviRELAIS1
input		SNVT_lev_disc		nviRELAIS2
input		SNVT_lev_disc		nviBUZZER
//////////////////////////////////// Light-Sensor //////////////////////////////////////				
output	polled	SNVT_lux	unackd nonauth	nvoLuxLevel
input	config	SCPTlocation		nciLocationLS
input	config	SCPTminSendTime		nciMinSendTLux
input	config	SCPTmaxSendTime		nciMaxSendTLux
input	config	SCPTminDeltaLevel		nciMinDeltaLux
input	config	SCPTluxSetpoint		nciLuxSetpoint

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//////////////////// Temperature-Sensor //////////////////////				
output	polled	SNVT_temp_p	unackd nonauth	nvoHVACTemp
input	config	SCPTminSendTime		nciMinSendTTemp
input	config	SCPTmaxSendTime		nciMaxSendTTemp
input	config	SCPTminDeltaTemp		nciDeltaSendTemp
input	config	SCPToffsetTemp		nciTmpOffset
//////////////////// Relative-Humidity-Sensor //////////////////////				
output	polled	SNVT_lev_percent	unackd nonauth	nvoHVACRH
input	config	SCPTminSendTime		nciMinSendTRH
input	config	SCPTmaxSendTime		nciMaxSendTRH
input	config	SCPTminDeltaRH		nciminDeltaRH
input	config	SCPTminDeltaRH		nciHumidOffset
//////////////////// Occupancy-Sensor //////////////////////				
output	polled	SNVT_occupancy		nvoOccup
input	config	SCPTlocation		nciLocationOS
input	config	SCPTmaxRcvTime		nciheartbeat
input	config	SCPTdebounce		nciDebounce
//////////////////// IR-Sensor //////////////////////				
output		SNVT_scene		nvoIRScene
output	polled	SNVT_state_64		nvoIRData
output		SNVT_switch		nvoOCSwitch
output		SNVT_setting		nvoIRSetting
input		SNVT_state_64		nviIRData
input		CPTIRSet		IRsetting[10]
input		SNVT_scene		nviIRLearn
input		CPTOCReset		nviOCReset
input		SNVT_setting		nviIRSetting
input		CPTOCSet		nviOcLux
input		CPTSwSet		nviIRSwitch
input		SNVT_switch		nviOccupSwitch
input		SNVT_occupancy		nviOccupOccup
output		SNVT_switch		nvoIRSwitch1
output		SNVT_switch		nvoIRSwitch2
output		SNVT_switch		nvoIRSwitch3
output		SNVT_switch		nvoIRSwitch4
output		SNVT_switch		nvoIRSwitch
output		SNVT_state_64		nvoIRSwitch64
input		CPTParam		nviParam1
input		CPTParam		nviParam2
typedef struct {				
		SNVT_lev_disc Relais1;		
		SNVT_time_sec TimerR1;		
		SNVT_lev_disc Relais2;		
		SNVT_time_sec TimerR2;		



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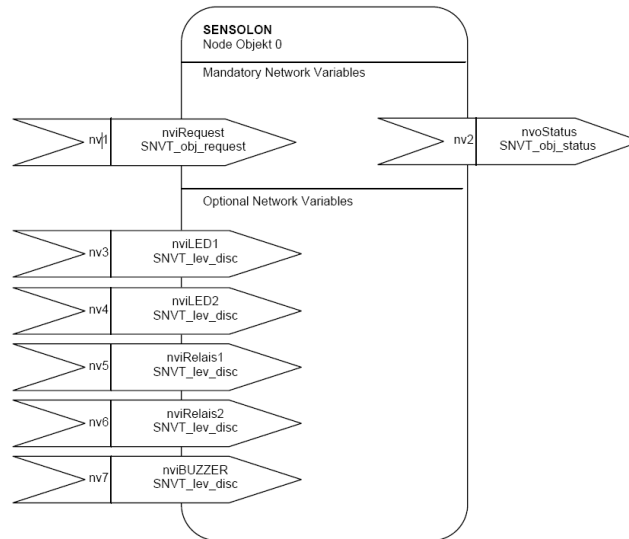
```

        SNVT_lev_disc LED;
        SNVT_time_sec TimeLED;
        SNVT_scene Scene;
        SNVT_lev_disc Buzzer;
    }CPTIRSet;
}
typedef struct{
        SNVT_time_sec OccupOn;
        SNVT_lev_disc FBAllowed;
    }CPTOCReset;
}
typedef struct{
        SNVT_lux LuxSwitch;
        SNVT_time_sec LuxOffTime;
        SNVTswitch LuxPercent;
        SNVT_lev_disc relais1;
        SNVT_lev_disc relais2;
    }CPTOCSet;
}
typedef struct{
        SNVT_switch switch1;
        SNVT_switch switch2;
        SNVT_switch switch3;
        SNVT_switch switch4;
        SNVT_switch switch5;
    }CPTSwSet;
}
typedef struct{
        Unsigned int param[31];
    }CPTParam;
}
////////////////////////////////////CO2////////////////////////////////////
output        polled        SNVT_ppm                unackd nonauth        nvoCO2;
input         config        SCPTminSendTime        nciMinSendTCO2
input         config        SCPTmaxSendTime        nciMaxSendTCO2
input         config        SCPTminDeltaCO2        nciminDeltaCO2
    
```



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SENSOLON node object



mandatory network variables

object Status Request

Request the status

network input sd_string("@0|1;LonMark nvi Request") SNVT_obj_request nvoRequest;

Valid for: see SNVT_obj_request

Standard: -

object Status Report

Reports status on request by nviRequest

network output sync sd_string("@0|2;LonMark nvo Status") SNVT_obj_status nvoStatus;

Valid for: see SNVT_obj_status

Standard: -

Optional Network Variables

Switch LED 1 (red LED)

ST_ON switch the LED 1 on and all other values switch the LED 1 off.

network input sd_string("@0|3;LED1 schalten") SNVT_lev_disc nviLED1=ST_NUL;

Valid for: see SNVT_lev_disc

Standard: ST_NUL (LED off)

Switch LED 2 (white LED)

ST_ON switch the LED 2 on and all other values switch the LED 2 off.

network input sd_string("@0|4;LED2 schalten") SNVT_lev_disc nviLED2=ST_NUL;

Valid for: see SNVT_lev_disc

Standard: ST_NUL (LED off)

Switch relay 1

ST_ON switch the relay 1 on and all other values switch the relay 1 off.

network input sd_string("@0|5;Relais1 schalten") SNVT_lev_disc nviRELAIS1=ST_NUL;

Valid for: see SNVT_lev_disc

Standard: ST_NUL (Relay off)

Switch relay 2

ST_ON switch the relay 2 on and all other values switch the relay 2 off.

network input sd_string("@0|6;Relais2 schalten") SNVT_lev_disc nviRELAIS2=ST_NUL;

Valid for: see SNVT_lev_disc

Standard: ST_NUL (Relay off)

Switch buzzer

ST_ON switch the buzzer on and all other values switch the buzzer off.

network input sd_string("@0|7;Buzzer ein/aus") SNVT_lev_disc nviBUZZER=ST_NUL;

Valid for: see SNVT_lev_disc

Standard: ST_NUL (Buzzer off)

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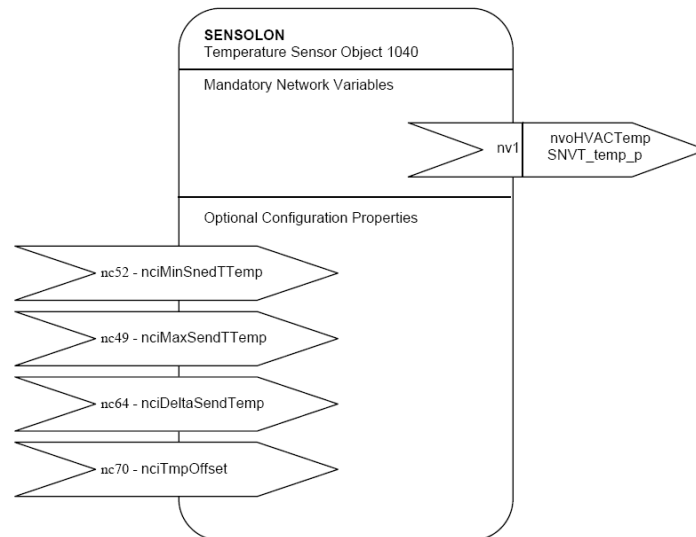
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temperature sensor object



mandatory network variables

Temperature output value

Output of the current temperature

network output polled sd_string("@2|1;Temperatur Sensor") SNVT_temp_p bind_info(unackd nonauthenticated) nvoHVACTemp;

Valid for: see SNVT_temp_p

Standard: -

Optional Configuration Properties

Min Send Time

Minimum period between output network variable transmissions.

far offchip eeprom config network input sd_string("&1,2,0|x80,52;Min Send Time Temperature") SCPTminSendTime nciMinSendTTemp;

Valid for: see SCPTminSendTime

Standard: 10,0 seconds

Max Send Time

Maximum period of time that expires before the object automatically transmits the current value of *nvoHVACTemp*.

far offchip eeprom config network input sd_string("&1,2,0|x80,49;Max Send Time Temperature") SCPTmaxSendTime nciMaxSendTTemp;

Valid for: see SCPTmaxSendTime

Standard: 120,0 seconds

Send on Delta

Minimum of changing witch must occur that *nvoHVACTemp* is transmitted.

far offchip eeprom config network input sd_string("&1,2,0|x80,64;Send on Delta Temperature") SCPTminDeltaTemp nciDeltaSendTemp;

Valid for: see SCPTminDeltaTemp

Standard: 1,00 °C

Temperature offset

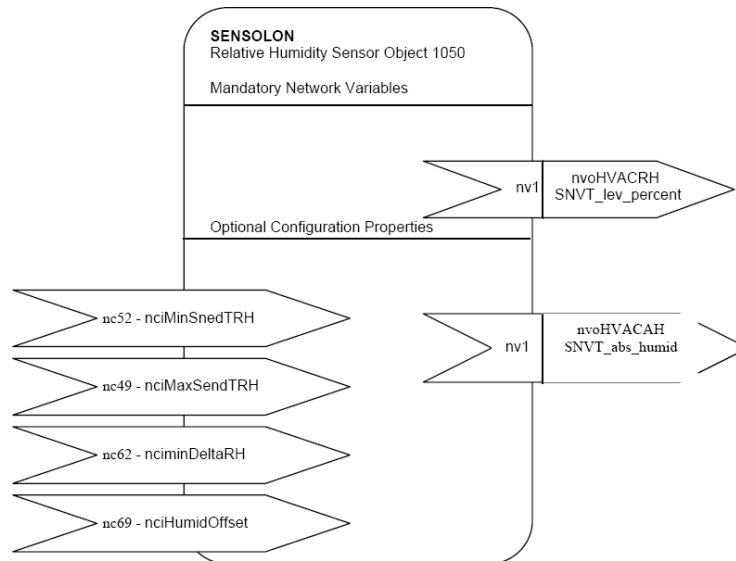
Calibration of the intern temperature sensor by adding this value to *nvoHVACTemp*.

far offchip eeprom config network input sd_string("&1,2,0|x80,70;Temperature Offset") SCPToffsetTemp nciTmpOffset;

Valid for: see SCPToffsetTemp

Standard: 0,00 °C

relative humidity sensor object



mandatory network variables

Relative humidity output

Output of the current relative humidity

network output polled sd_string("@3|1;Luftfeuchte Sensor") SNVT_lev_percent nvoHVACRH;

Valid for: see SNVT_lev_percent

Standard: -

Optional Configuration Properties**Absolute Luftfeuchte Ausgabe**

Output off the current absolute humidity in g/kg.

network output polled sd_string("@0|9;AbsLuftfeuchte Sensor") SNVT_abs_humid nvoHVACAH;;

Valid for: see SNVT_abs_humid

Standard: -

Min Send Time

Minimum period between output network variable transmissions.

far offchip eeprom config network input sd_string("&1,3,0|x80,52;Min Send Time Luftfeuchte") SCPTminSendTime nciMinSendTRH;

Valid for: see SCPTminSendTime

Standard: 10,0 seconds

Max Send Time

Maximum period of time that expires before the object automatically transmits the current value of nvoHVACRH.

far offchip eeprom config network input sd_string("&1,3,0|x80,49;Max Send Time Luftfeuchte") SCPTmaxSendTime nciMaxSendTRH;

Valid for: see SCPTmaxSendTime

Standard: 120,0 secon

Send on Delta

Minimum of changing witch must occur that nvoHVACRH is transmitted.

far offchip eeprom config network input sd_string("&1,3,0|x80,62;Send on Delta Luftfeuchte") SCPTminDeltaRH nciminDeltaRH;

Valid for: see SCPTminDeltaRH

Standard: 2,000 %

Relative humidity offset

Calibration of the intern temperature sensor by adding this value to nvoHVACRH.

far offchip eeprom config network input sd_string("&1,3,0|x80,69;Humidity Offset") SCPTminDeltaRH nciHumidOffset;

Valid for: see SCPTminDeltaRH

Standard: 0,000 %

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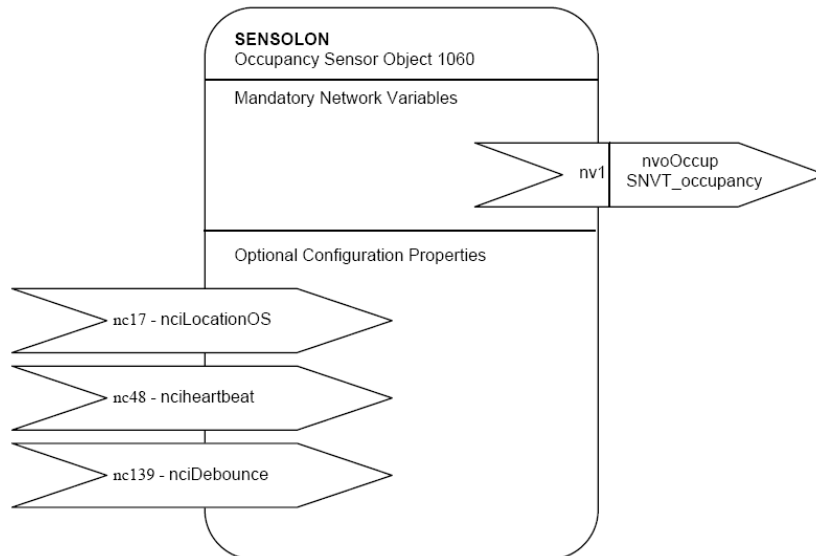
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occupancy sensor object



mandatory network variables

Occupation output

Output, if a person is in the room.

network output polled `sd_string("@4|1;Bewegungssensor") SNVT_occupancy nvoOccup;`

Valid for: see *SNVT_occupancy*

Standard: -

Optional Configuration Properties

Heartbeat

Maximum period of time that expires before the object automatically transmits the current value of *nvoOccup*.

far offchip eeprom config network input `sd_string("&1,4,0|x80,48;Heartbeat") SCPTmaxRcvTime nciheartbeat;`

Valid for: see *SCPTmaxRcvTime*

Standard: 120,0 seconds

Debounce

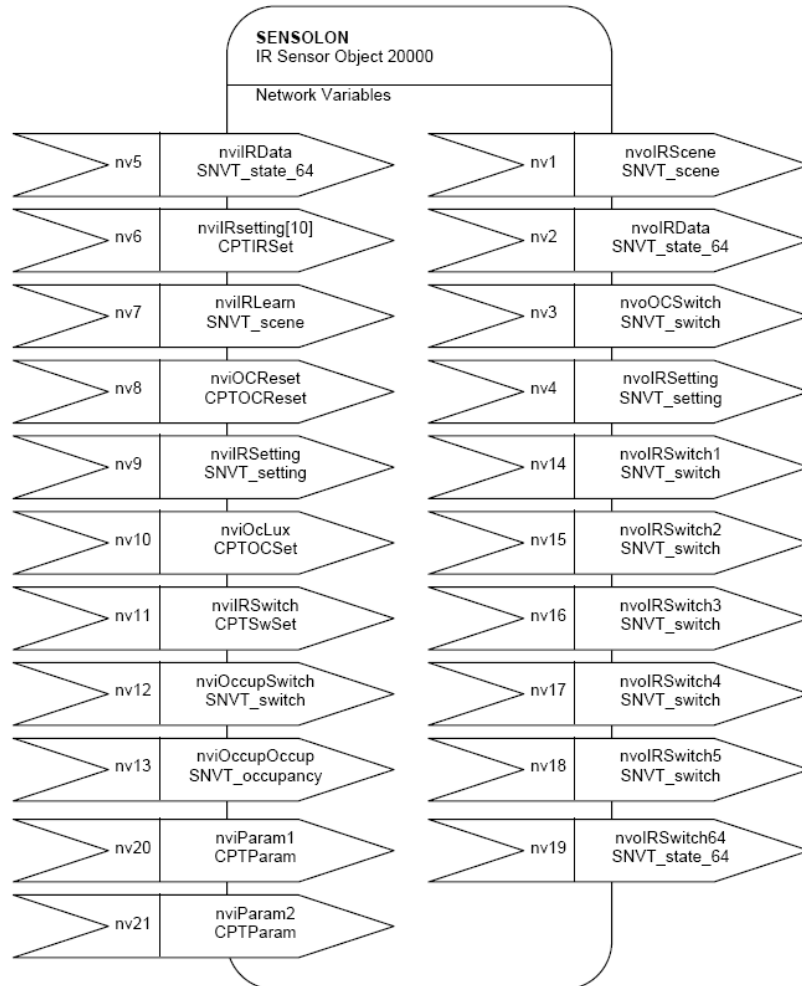
Defines the debouncing time to generate the detection envelop and the OCCUPIED and NON OCCUPIED message.

far offchip eeprom config network input `sd_string("&1,4,0|x80,139;Debounce Time") SCPTdebounce nciDebounce;`

Valid for: see *SCPTdebounce*

Standard: 10,0 seconds

infrared sensor object



network variables

nvoIRScene

The network variable „nvoIRScene“ can be switched by remote control (key 1 to 10). All necessary configurations are set by the network variable „nviIRsetting[10]“.

network output sd_string("@5|1;Scene") SNVT_scene nvoIRScene;

Valid for: see SNVT_scene

Standard: {SC_NUL,0}

nvoIRData

The network variable „nvoIRData“ shows the last received infrared-code in binary notation, independent if this received infrared-code is an already learned infrared-code or not.

network output polled_sd_string("@5|2;IR-Bits 0-63") SNVT_state_64 nvoIRData;

Valid for: see SNVT_state_64

Standard: -

nvoOCSwitch

The network variable „nvoOCSwitch“ is switched by the motion detector function. If the motion detector function is allowed, the brightness fall below a defined value and a person is detected, then state is set to 1 and value is set to a defined value. When the timer for the motion detector function occurs, then state is set to 0 and value is set to 0. The specified settings for the brightness, the timer and the value are set in the network variable „nviOcLux“.

network output sd_string("@5|3;Switch") SNVT_switch nvoOCSwitch;

Valid for: see SNVT_switch

Standard: {0,-1}

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nvolRSetting

The network variable „nvolRSetting“ is switched by the remote control.

Key 11 -> nvolRSetting.setting plus

Key 12 -> nvolRSetting.setting minus

Key 13 -> nvolRSetting.rotation plus

Key 14 -> nvolRSetting.rotation minus

At each key press (key 11 to 14) the defined nvolRSetting.function is transmitted. The specified settings for the increment and the function are set in the network variable „nvolRSetting“.

network output sd_string("@5|4;Setting") SNVT_setting nvolRSetting;

Valid for: see SNVT_setting

Standard: {-1,0,0}

nviIRData

The network variable „nviIRData“ is used for the input of the infrared-code, without pressing a key on the remote control. Therefore it is necessary to set a valid key index (1-15) by using the network variable „nviLearn“.

network input sd_string("@5|5;IR-Bits 0-63") SNVT_state_64 nviIRData;

Valid for: see SNVT_state_64

Standard: -

nviRSetting[10]

The network variable „nviRSetting[10]“ is used for setting the keys 1 to 10 and defines what occurs on each key press.

The following structure is defined :

```
typedef struct {
  SNVT_lev_disc Relais1;
  SNVT_time_sec TimeR1;
  SNVT_lev_disc Relais2;
  SNVT_time_sec TimeR2;
  SNVT_lev_disc LED;
  SNVT_time_sec TimeLED;
  SNVT_scene Scene;
  SNVT_lev_disc Buzzer;
} CPTIRSet;
```

far offchip eeprom network input sd_string("@5|6;Settings") CPTIRSet IRsetting[10];

Valid for: IRsetting[Index] -> index from 0 to 9 means key 1 to 10

Relais1: The following modes are possible (all other values have no effect)

ST_ON -> turn on

ST_OFF -> turn off

ST_MED -> toggle-function (on -> off ; off -> on)

TimeR1: If IRsetting[Index].Relais1 = ST_ON (turn on), then it is possible to activate a timer. When this timer occurs, the value will be set to ST_OFF (turn off). This timer starts on every key press new. If the value for the time is set to 0, then is the timer not active and it occurs no automatic turn off.

Relais2, TimeR2, LED, TimeLED: Like Relais1 und TimeR1.

Scene: The here defined IRsetting[Index].Scene.scene and IRsetting[Index].Scene.value are transmitted to the network variable „nvolRScene“. If IRsetting[Index].Scene.scene=ST_NUL, then occurs no changing to „nvolRScene“.

Buzzer: If IRsetting[Index].Buzzer = ST_ON, then occurs a short beep on every key press.

Standard: {ST_NUL,0,ST_NUL,0,ST_NUL,0,{SC_NUL,0},ST_NUL} for all 10 keys

nviRLearn

The network variable „nviRLearn“ is used to switch into the learn mode, without pressing the pushbutton. Therefore it is necessary that nviRLearn.function = SC_LEARN and nviRLearn.scene_number is a number from 1 to 15 (number of the key). When the SENSOLON switched successfully into the learn mode, you will hear two short beeps. Now, the user have 1 minute to press the wanted key on the remote control or send the wanted infrared-code by using the network variable „nviIRData“. If the teach in was successful, you will hear again two short beeps.

network input sd_string("@5|7;Learn Settings") SNVT_scene nviRLearn;

Valid for: function = SC_LEARN -> switch into learn mode

scene_number: 1...15

Standard: {-1,0}

nviOCReset

The network variable „nviOCReset“ is used to reactivate the motion detector function, if this function was deactivated by a key press on the remote control. This function can reactivate by key press on the remote control (key 15) or by using the timer.

```
typedef struct{
  SNVT_time_sec OccupOn;
  SNVT_lev_disc FBAllowed;
}CPTOCReset;
```

far offchip eeprom network input sd_string("@5|8;Switch") CPTOCReset nviOCReset;

Valid for: OccupOn = 0 -> timer deactivated

OccupOn > 0 -> timer activated (means seconds till the function will get activated)

FBAllowed = ST_ON -> key 15 is allowed

Standard: {0,-1}

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nviIRSetting

The network variable „nviIRSetting“ is used to define the increment for the switching of the network variable „nvoIRSetting“.

nviIRSetting.function -> is transmitted to nvoIRSetting.function

nviIRSetting.setting -> increment for the switching of nvoIRSetting.setting (key 11 and 12)

nviIRSetting.rotation -> increment for the switching of nvoIRSetting.rotation (key 13 and 14)

far offchip eeprom network input sd_string("@5|9;Setting") SNVT_setting nviIRSetting;

Valid for: see SNVT_setting

function = SC_NUL -> key 11 to 14 is not allowed

rotation: 0°...360°

Standard: {-1,0,0}

nviOCLux

The network variable „nviOCLux“ is used to activate and to configure the motion detector function.

nviOCLux.LuxSwitch -> maximal Brightness for the motion detector function

nviOCLux.LuxOffTime -> timer, when occurs then nvoOCSwitch={0,0}

nviOCLux.LuxPercent -> when state unequal -1, then is the motion detector function allowed and state is transmitted to nvoOCSwitch.state

-> when this function occurs, value will be transmitted to nvoOCSwitch.value

nviOCLux.relais1 -> if ST_ON then switch also Relays 1

nviOCLux.relais2 -> if ST_ON then switch also Relays 2

```
typedef struct{
```

```
SNVT_lux LuxSwitch;
```

```
SNVT_time_sec LuxOffTime;
```

```
SNVT_switch LuxPercent;
```

```
SNVT_lev_disc relais1;
```

```
SNVT_lev_disc relais2;
```

```
} CPTOCSet;
```

far offchip eeprom network input sd_string("@5|10;Bewegungsmelder") CPTOCSet nviOCLux;

Valid for: nviOCLux.LuxSwitch see SNVT_lux

nviOCLux.LuxOffTime see SNVT_time_sec

nviOCLux.LuxPercent see SNVT_switch

Standard: {0,0,{0,-1}}

nviIRSwitch

The network variable „nviIRSwitch“ is used to set the increment, the allowance for switch by key press and the allowance for the deactivation of the motion detector function for the network variables „nvoIRSwitch1“, „nvoIRSwitch2“, „nvoIRSwitch3“, „nvoIRSwitch4“ und „nvoIRSwitch5“.

```
typedef struct{
```

```
SNVT_switch switch1; // key 1 and 2
```

```
SNVT_switch switch2; // key 3 and 4
```

```
SNVT_switch switch3; // key 5 and 6
```

```
SNVT_switch switch4; // key 7 and 8
```

```
SNVT_switch switch5; // key 9 and 10
```

```
} CPTSwSet;
```

far offchip eeprom network input sd_string("@5|11;Switch Schrittweite") CPTSwSet nviIRSwitch;

Valid for: {>0,0} -> switch enabled, motion detector function unmodified

{>0,1} -> switch enabled, motion detector function deactivated

all other switch disabled, motion detector function unmodified

Standard: {{0,-1},{0,-1},{0,-1},{0,-1},{0,-1}}

nviOccupSwitch

The network variable „nviOccupSwitch“ is used to get an extern motion detector the possibility to disable or enable the intern motion detector function.

network input sd_string("@5|12;Occupancy Extern") SNVT_switch nviOccupSwitch;

Valid for: when state = 1 and value >0, then is the motion detector function deactivated, else activated

Standard: {0,0xFF}

nviOccupOccup

The network variable „nviOccupSwitch“ is used to get an extern motion detector the possibility to disable or enable the intern motion detector function.

network input sd_string("@5|13;Occupancy Extern") SNVT_occupancy nviOccupOccup;

Valid for: when state = 1 and value >0, then is the motion detector function deactivated, else activated

Standard: {0,0xFF}

nvoIRSwitch1

The network variable „nvoIRSwitch1“ could be switched by remote control (key 1 and 2). The necessary setting are defined in the network variable „nviIRSwitch“.

key 1 -> nvoIRSwitch1.value plus

key 2 -> nvoIRSwitch1.value minus

network output sd_string("@5|14;IR Switch 1") SNVT_switch nvoIRSwitch1;

Valid for: see SNVT_switch

Standard: {0,-1}

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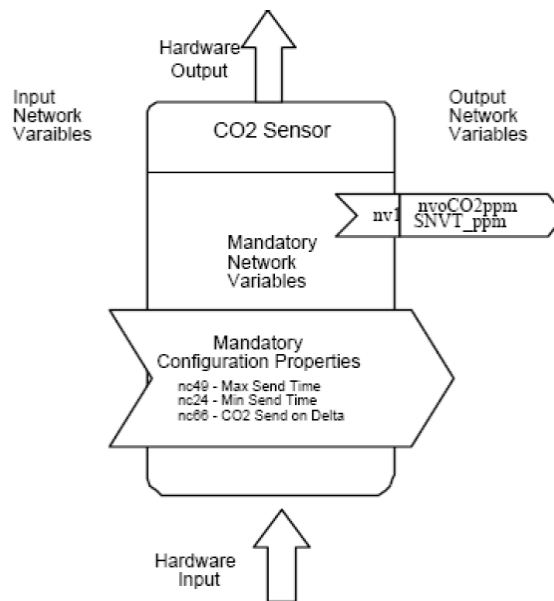
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Carbon Dioxide object



mandatory network variables

Carbon Dioxide content Output

Output off the current carbon dioxide content in ppm.

network output polled sd_string("@0|8;Kohlendioxidgehalt Sensor") SNVT_ppm nvoCO2;;

Valid for: see SNVT_ppm

Standard: -

Min Send Time

Minimum period between output network variable transmissions.

far offchip eeprom network input sd_string("&1,0,0|x80,52;Min Send Time Kohlendioxidgehalt") SCPTminSendTime nciMinSendTCO2;

Valid for: see SCPTminSendTime

Standard: 5,0 Seconds

Max Send Time

Maximum period of time that expires before the object automatically transmits the current value of nvoCO2.

far offchip eeprom network input sd_string("&1,0,0|x80,49;Max Send Time Kohlendioxidgehalt") SCPTmaxSendTime nciMaxSendTCO2;

Valid for: see SCPTmaxSendTime

Standard: 300,0 Seconds

Send on Delta

Minimum of changing with must occur that nvoCO2 is transmitted.

far offchip eeprom network input sd_string("&1,0,0|x80,62;Send on Delta Kohlendioxidgehalt") SCPTminDeltaCO2 nciminDeltaCO2;

Valid for: see nciCO2MinDelta;

Standard: 10 ppm