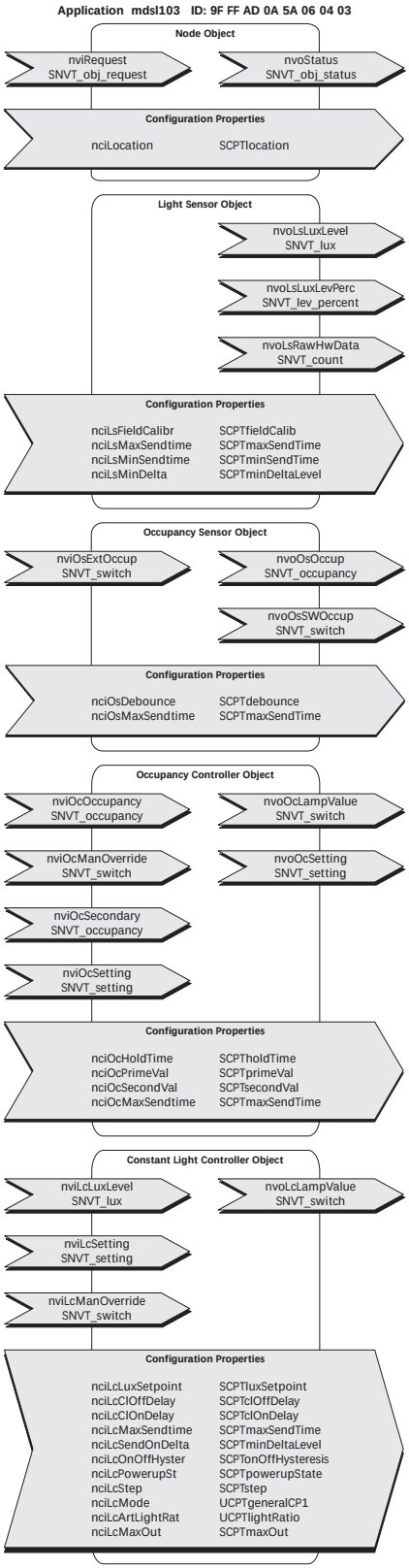
Software Application mdsl103 (Sensoring, Constant Light Controller)

For sensor model MDS-L1

Application for room occupancy detection, measuring of light intensity (0 - 1000 lux) and evaluation of two digital inputs for potential free contacts. The basic functions required by the LonMark® function profile 1010 (Light Sensor),1060 (Occupancy Sensor), 3071 (Occupancy Controller), 3050 (Constant Light Controller) and 3200 (Switch) are supported.

LNS™ Plug-in www.thermokon.de

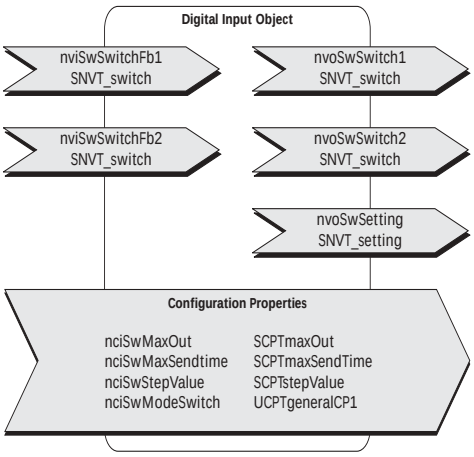


Light Sensor: The measured light value is output by variables of type SNVT_lux, SNVT_lev_percent and SNVT_count. For calibration of the light sensor, the exact light intensity can be determined and recorded by means of an external luxmeter and input via the parameter nciLsFieldCalibr. The reflection factor is automatically calculated and the measuring value as well as the measuring end value of the measured range is corrected, accordingly.

Occupancy Sensor: The current room occupancy is output by means of the variables type SNVT_occupancy and SNVT_switch. As soon as motion is detected, a reset of the output variables is made time delayed (adjustable via nciOsDebounce).
By means of the input/output variables type SNVT_switch the occupancy sensor offers additionally the possibility to connect various occupancy sensors or to control a direct illumination depending on the motion.

Occupancy Controller: The Occupancy Controller can either be used as a light switch (with nvoOcLampValue) depending on occupancy or for the switch-on/switch-off of a connected constant light controller (with nvoOcSetting). The reset of the output variables after detected motion is made time delayed (adjustable via nciHoldTime). The input variable nviOcOccupancy can be connected to a output variable nvoOcOccup of the internal occupancy sensor. By means of nviOcOccupany=OCCUPIED the illumination is set to the value nciOcPrimeVal. The input variable nviSecondary can be connected to a contiguous occupancy detector. By means of nviOcSecondary=OCCUPIED the illumination is set to the value nciOcSecondVal. Via nviOcSetting the controller is activated respectively deactivated. By means of nviOcManOverride it is possible to override the controller from outside.

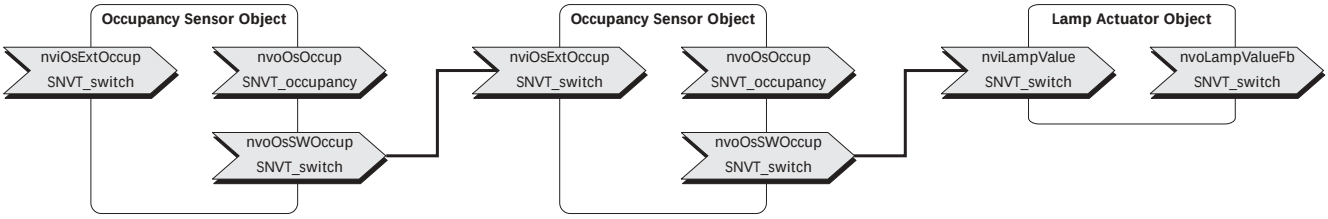
Constant Light Controller: For controlling constant light the input variable nviLcLuxLevel is connected to an actuator for light control along with the light sensor and the output variable nvoLcLampValue. By means of nviLcSetting the controller can be switched-on resprectively switched-off and the setpoint can be temporarily changed. An additional switch to nviLcManOverride serves for the deactivation of the constant light controller. Thereby, the input variable directly determines the output variable for controlling the light. Via nciLcModel the function of the constant light controller can be adjusted to the function of an occupancy detector depending on the light control (please refer to the description nciLcMode and the corresponding function diagram).



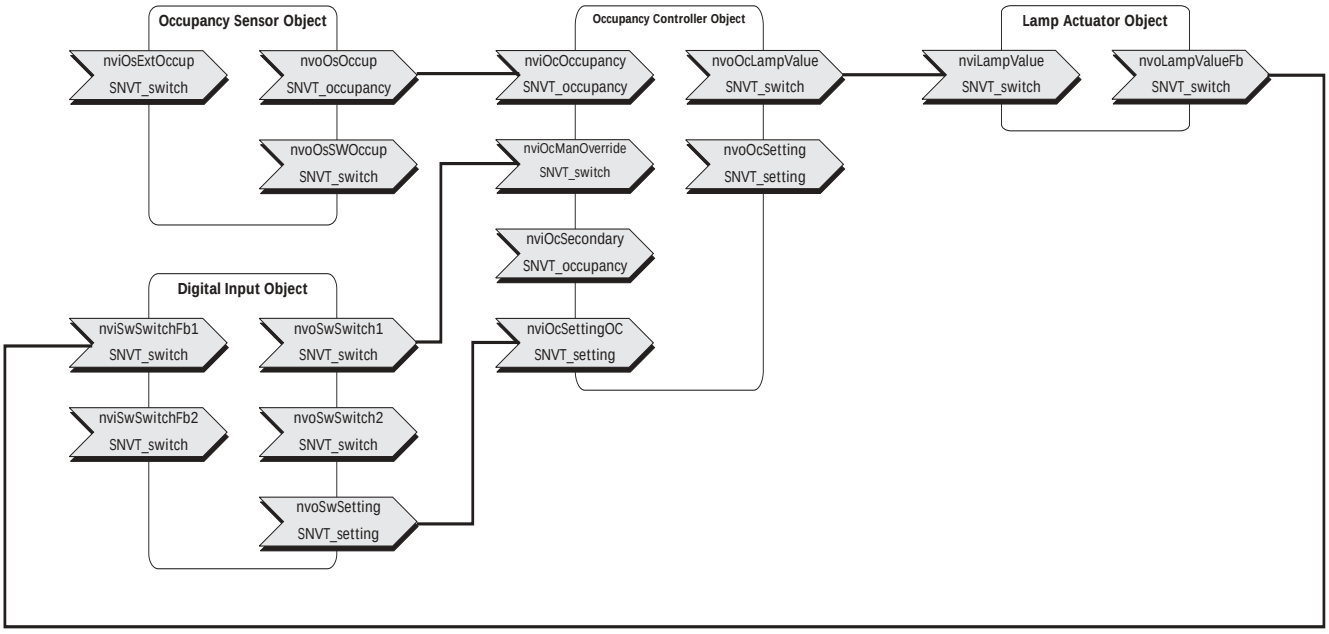
Digital Input Object: The functions of the potential-free inputs are captured. Depending on the respective configuration (nciSwModeSwitch) they are output via the output variables of type SNVT_switch and SNVT_setting. By means of SNVT_switch an absolut light value is sent for manual overriding. By means of SNVT_setting the occupancy controller or the constant light controller can be activated, respectively deactivated.
The functions standard I/O, toggle, dimming or „manual override“ can be taken over by the digital inputs. By means of nciSwMaxOut the maximum output value of the SNVT_switch variables can be limited.

Application examples:

Occupancy Sensor (OR-connection of 2 occupancy detectors):



Occupancy Controller (Switching of light with manual overriding depending on occupancy) :



Constant Light Controller:
Constant light control with manual overriding and switch-on/switch-off via occupancy controller

Remark for calibration and installation:

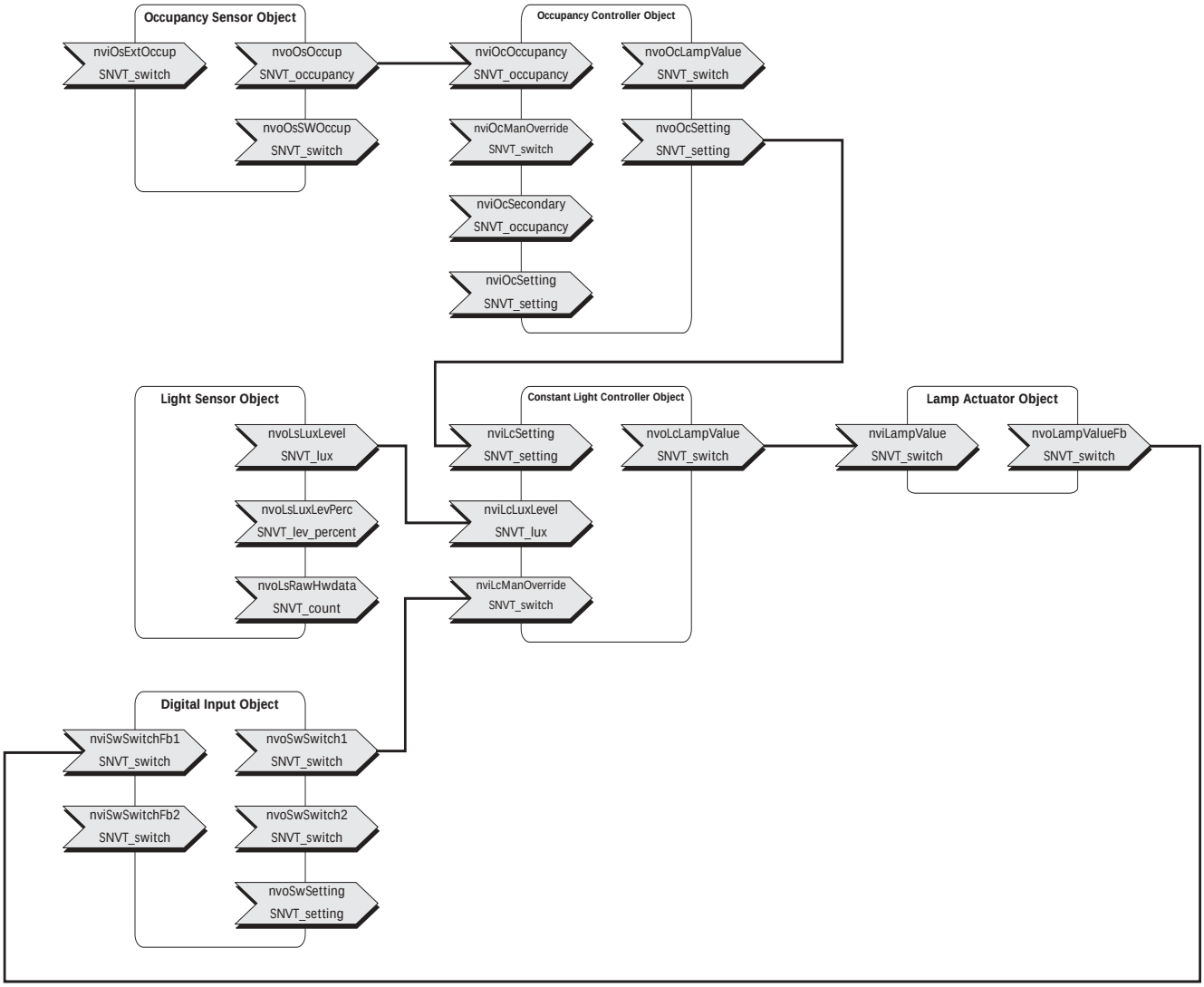
1. Light Sensor: The calibration of the light sensor should be made without any artificial light and with a room typical shutter position. Therefore, the light intensity is measured by a reference device at the working surface and is then registered as configuration value in the parameter nciFieldCalibr.

2. Constant Light Controller: As the sensivity of the light sensor against arificial light depends among others on the light source used, the position of the sensor and the reflection characteristics, the sensitivity has to be determinded by the configuration parameter nciArtLightRatio for installation.

nciArtLightRatio.multiplier: Light intensity with 100 % artifical light, measured at the working surface by a reference device.

nciArtLightRatio.divisor: Light intensity with 100 % artifical light, measured by multi sensor MDS L1.

The determination of the values has to be effected in a well darken room, if possible without any daylight. The arifical light should thereby be switched to its maximum value by 100%.



Node Object

The Node Objekt supervises and controls the functions of the individual objects within the unit. The basic functions by the LonMark® are supported.

Network Variables Node Object:

nviRequest

SNVT Type: SNVT_obj_request, Index 92
Function: Input variables with the functions RQ_NORMAL, RQ_UPDATE_STATUS and RQ_REPORT_MASK.

nvoStatus

SNVT Type: SNVT_obj_status, Index 93
Function: Output variables with the required status bits „invalid_id“ and „invalid_request“.

Configuration Parameter Node Object:

nciLocation

SCPT Type: SCPTlocation, Index 17, SNVT_str_asc
Function: Additional input possibility to store location information.

Light Sensor Object

Object includes mesuring of light intensity and data output.

Network Variable Light Sensor Object:

nvoLsLuxLevel

SNVT Type: SNVT_lux, Index 79
Function: Output variable for measured light intensity in Lux. Data output is made depending on configuration parameter nciLsMinSendtime, nciLsMaxSendtime and nciLsMinDelta as well as 5 s after reset.

nvoLsLuxLevPerc

SNVT Type: SNVT_lev_percent, Index 81
Function: Output variable for measured light intensity in % from the measuring range. Data output is made analog to nvoLsLuxLevel.

nvoLsRawHwData

SNVT Type: SNVT_count, Index 8
Function: Output variable for measured light intensity as direct measuring result of the 12-bit AD-converter. Data output is made analog to nvoLsLuxLevel.

Configuration Parameter Light Sensor Object:

nciLsFieldCalibr

SCPT Type: SCPTfieldCalib, Index 90, SNVT_lux
Function: Configuration parameter for self-calibration of light sensor. By means of of an external Luxmeter, the exact light intensity can be determined and recorded. The reflection factor is automatically calculated and the measured value as well as the measured end value are corrected, accordingly.
!! The calibration should be made without artificial light and with a room typical shutter position
(Preset value: 0 Lux==> Field Calibration deactivated)

nciLsMaxSendtime

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulates interval period after which output variable is sent independ of change of result. Heartbeat function is deactivated by the input value =0. (Preset value: 60 sec.)

nciLsMinSendtime

SCPT Type: SCPTminSendTime, Index 52, SNVT_time_sec
Function: Stipulates the smallest update interval. An update is made after expiration of „nciLsMinSendtime“, if the light sensor changed by more than „nciLsMinDelta“. By means of the input values =0, the „Minsend“-function is deactivated. (Preset valuet: 1 sec.)

nciLsMinDelta

SCPT Type: SCPTminDeltaLevel, Index 88, SNVT_lev_cont
Function: If the light intensity changes by the set value „nciLsMinDelta“ (% of current measuring value) the new light values are transfered. The function depends on the adjustment „nciLsMinSendtime“.
(Value Range: 0 % - 100 %; Preset value: 2,5 %)

Occupancy Sensor Object

Detection of present room occupancy.

Network Variable Occupancy Sensor Object:

nviOsExtOccup

SNVT Type: SNVT_switch, Index 95
Function: Input variables for external occupancy detector (e.g. to combine various occupancy sensors. In case of nviOsExtOccup =100.0 1 the output variables are set. In case of nviOsExtOccup=0.0 0 the output variables are reset after expiration of delay period „nciOsDebounce“.

nvoOsOccup

SNVT Type: SNVT_occupancy, Index 109
Function: Output variables room occupancy detected. Set as soon as an internal motion is detected. Reset is made after expiration of delay period nciOsDebounce. Data transmission is made depending on the configuration parameter nciOsDebounce and nciOsMaxSendtime. ***Module-Reset:*** No data transmission is made within the first 30 sec after the reset. nvoOsOccup receives the value OC_UNOCCUPIED.

nvoOsSWOccup

SNVT Type: SNVT_switch, Index 95
Function: Output variable room occupancy detected. Is sent parallel to nvoOsOccup. This variable can be evaluated by another occupancy sensor as „external occupancy detection“ or it can directly control a light group.

Configuration Parameter Occupancy Sensor Object:

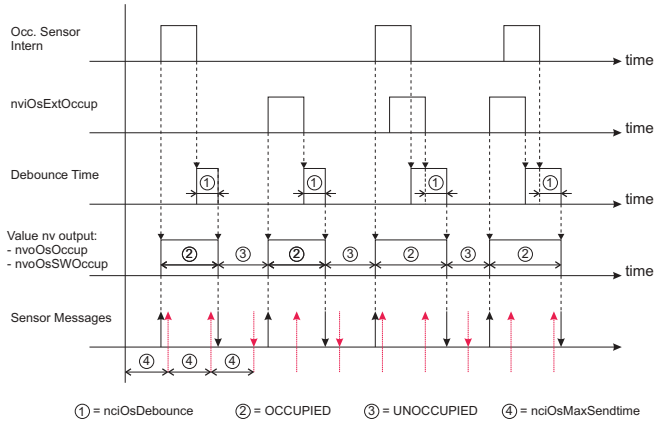
nciOsMaxSendtime

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulates the interval period after output variables are sent independent of change of result. Heartbeat function is deactivated by input value =0. (Preset value: 120 sec)

nciOsDebounce

SCPT Type: SCPTdebounce, Index 139, SNVT_time_sec
Function: Delay period for reset of output variable after room occupancy detection. The delay timer is started after change of status „Occuppied==> Unoccupied“. (Preset value: 0 sec.)

Function Diagram Occupancy Sensor:



Occupancy Controller Object

Ther Occupancy Controller can be used as a light switch independent of an occupancy (by nvoOcLampValue) or it can be used for switching-on /-off a connected Constant Light Controllers (by nvoOcSetting).

Netzwerkvariablen Occupancy Controller Object:

nviOcOccupancy

SNVT Type: SNVT_occupancy, Index 109
Function: The input variable nviOcOccupancy places the current room occupancy at the disposal of the controller and is connected to the output variable nvoOsOccup of the occupancy sensor.
(Initialization value after reset: OC_NUL)

nviOcManOverride

SNVT Type: SNVT_switch, Index 95
Function: Input varialbe for manual control of light. An update of nviOcManOverride locks the controller and the output variable nvoOcLampValue takes over the values of nviOcManOverride.

nviOcManOverride.state = 0 ==> nvoOcLampValue = 0.0 0
nviOcManOverride.state = 1 ==> nvoOcLampValue = nviOcManOverride

If the occupancy controller is deactivated by nviOcManOverride, the controller is switched back to the automatic mode after having received UNOCCUPIED an nviOcOccupancy and after experiation of delay time nciHoldTime.
(Initialization value after reset: 0.0 -1)

nviOcSecondary

SNVT Type: SNVT_occupancy, Index 109
Function: Input variables of a contiguous occupancy senor with current room occupancy of a contiguous area.
(Initialization value after reset: OC_NUL)

nviOcSetting

SNVT Type: SNVT_setting, Index 117
Function: The input variable nviOcSetting activates respectively deactivates the controller. Initialization mode after reset: nviOcSetting.function = SET_ON

nviOcSetting.function = SET_OFF ==> Controller = OFF; nvoOcLampValue = 0.0 0 (light OFF)
nviOcSetting.function = SET_ON ==> Controller = ON;

nvoOcLampValue

SNVT Type: SNVT_switch, Index 95
Function: Output variable for control of light. (see function diagram Occupancy Controller)
nvoOcLampValue.state = 0 ==> light OFF
nvoOcLampValue.state = 1 ==> light ON
nvoOcLampValue.value = light intensity (0 - 100 %)

Data transmission is made depending on the configuration parameter nciOcMaxSendtime upon change of output value and 5 seconds after reset.

nvoOcSetting

SNVT Type: SNVT_setting, Index 117
Function: Output variable for controlling a secondary controller, e.g. Constant Light Controller (see function diagram Occupancy Controller). Data transmission is made analog to nvoOcLampValue.

nviOcOccupancy or nviOcSecondary = OCCUPIED ==> nvoOcSetting.function = SET_ON
nviOcOccupancy and nviOcSecondary = UNOCCUPIED ==> nvoOcSetting.function = SET_OFF

Configuration Parameter Occupancy Controller Object:

nciOcHoldTime

SCPT Type: SCPTholdTime, Index 91, SNVT_time_sec
Function: Time delay for reset of the output variables nvoOcLampValue and nvoOcSetting after nviOcOccupancy and nviOcSecondary have taken over the status UNOCCUPIED. The delay timer is started after change of status „OCCUPED ==> UNOCCUPIED“. (Preset value: 600,0 sec = 10 min)

nciOcPrimeVal

SCPT Type: SCPTprimeVal, Index 155, SNVT_switch
Function: The configuration parameter nciOcPrimVal defines the output value of nvoOcLampValue if nviOcOccupancy = OCCUPIED. (Preset value: 100.0 1)

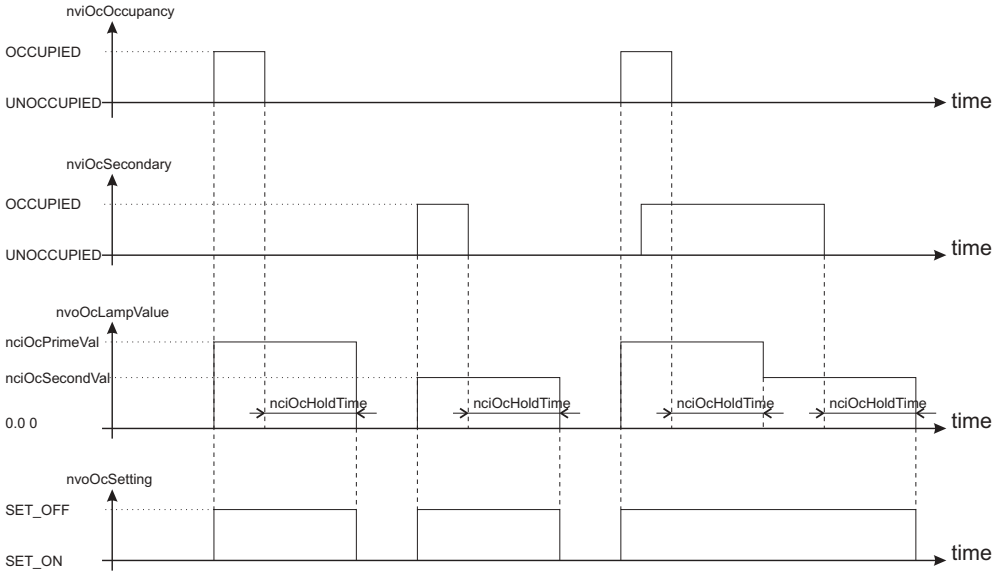
nciOcSecondVal

SCPT Type: SCPTsecondVal, Index 156, SNVT_switch
Function: The configuraiton parameter nciOcSecondVal defines the output value of nvoOcLampValue if nviOcOccupancy = UNOCCUPIED and nviOcSecondary = OCCUPIED. (Preset valuet: 0.0 0)

nciOcMaxSendtime

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulates the interval period, after output variables are sent independent of change of result. Heartbeat function is deactivated by input value =0. (Preset value: 120 sec)

Function diagram Occupancy Controller:



Constant Light Controller Object

Control of light intensity to a given setpoint. Via nciLcMode the function of the Constant Light Controller can be switched into the function of an occupancy sensor for light control depending on lightness (switch-on respectively switch-off the light depending on room occupancy and lightness).

Network Variable Constant Light Controller Object:

nviLcLuxLevel

SNVT Type: SNVT_lux, Index 79
Function: The input variable includes the current room light intensity and is connected to the output variable nvoLcLuxLevel of the light sensor.

nviLcSetting

SNVT Type: SNVT_setting, Index 117
Function: The input variable stipulates the operation status of the controller (ON or OFF) and can additionally be used for temporary setpoint adjustment.

nviLcSetting.function = SET_ON: Controller = ON, that is to say the output value for light control (nvoLcLampValue) is changed in that way, that the room light intensity corresponds to the adjusted setpoint.

nviLcSetting.function = SET_OFF: Controller = OFF and lightOFF (nvoLcLampValue = 0.0 0)

Configured as constant light controller (nciLcMode.bit14 = 0, nciLcMode.bit15 = 0):

nviLcSetting.function = SET_UP: Increase of output variables nvoLcLampValue.value by the value nviLcSetting.setting. The new light value is automatically becoming new light setpoint.

nviLcSetting.function = SET_DOWN: Decrease of ouptput variable nvoLcLampValue.value by the value nviLcSetting.setting. The new light value is automatically becoming new light setpoint.

By an update to SET_ON the setpoint is reset again to the basis setpoint nciLcLuxSetpoint.

nviLcManOverride

SNVT Type: SNVT_switch, Index 95
Function: Input variable for manual light control (Initialiation value after reset: 0.0 -1).

Configured as constant light controller ***(nciLcMode.bit14 = 0, nciLcMode.bit15 = 0) or*** configured as Occupancy sensor for light control depending on lightness***(nciLcMode.bit14 = 0, nciLcMode.bit15 = 1)***:

An Update of nviLcManOverride locks the controller and the output variable nvoLcLampValue takes over the value of nviLcManOverride. By nviLcManOverride.state = -1 the controller is activated.

nviLcManOverride.state = -1 ==> Light controller ON
nviLcManOverride.state = 0, 1 und .value = 0 - 100 % ==> Light controller OFF
==> nvoLcLampValue = nviLcManOverride

Configured for switching off the illumination depending on lightness ***(nciLcMode.bit14 = 1 and nciLcMode.bit15 = 0)***:
An Update of nviLcManOverride = 100.0 1 switches on the illumination (nvoLcLampValue = 100.0 1). The illumination is switched off depending on the lightness (see function diagram).

nvoLcLampValue

SNVT Type: SNVT_switch, Index 95
Function: Output variable for light control.

nvoLcLampValue.state = 0 ==> Light OFF
nvoLcLampValue.state = 1 ==> Light ON
nvoLcLampValue.value = Light intensity (0 - 100 %)

Data output is made depending on the configuration parameter nciLcSendOnDelta, nciLcMaxSendtime and 5 s after reset.

Configuration Parameter Constant Light Controller Object:

nciLcLuxSetpoint

SCPT Type: SCPTluxSetpoint, Index 82, SNVT_lux
Function: Configuration parameter for preset of setpoint for light control. (Preset valuet: 500 lux)

nciLcClOffDelay

SCPT Type: SCPTclOffDelay, Index 85, SNVT_time_sec
Function: Switching-off delay for light (nvoLcLampValue.state = 0). If limit (nciLcLuxSetpoint + nciLcOnOffHyster/2) is exceeded for a time being nciLcClOffDelay, the light is switched off (within nciLcOnOffHyster = 0 no automatic switching-off is effected). (Preset value: 300,0 sec = 5 min)

nciLcClOnDelay

SCPT Type: SCPTclOnDelay, Index 86, SNVT_time_sec
Function: Switching-on delay for light (nvoLcLampValue.state = 1). If limit (nciLcLuxSetpoint - nciLcOnOffHyster/2) is not reached for a time being nciLcClOnDelay, the light is switched-on (with nciLcOnOffHyster = 0 no automatic switching-off is effected). (Preset value: 0 sec)

nciLcMaxSendtime

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulated interval period after output variables are sent independent of result change. The heartbeat function is deactivated by input value =0. (Preset value: 300 sec = 5 min)

nciLcSendOnDelta

SCPT Type: SCPTminDeltaLevel, Index 88, SNVT_lev_cont
Function: If the output variable changes by the adjusted value nciLcSendOnDeltat (% of current value), nvoLcLampValue is sent. (Value range: 0 % - 100 %; Preset value: 0,5 %)

nciLcOnOffHyster

SCPT Type: SCPTonOffHysteresis, Index 84, SNVT_lev_cont
Function: Relative hysteresis value (% of nciLcLuxSetpoint) for calculation of switch tresholds, at which light should be switched-on/-off depending on time delays nciLcClOnDelay and nciLCClOffDelay. By means of the value nciLcOnOffHyster = 0 % the automatic switching-on/-off is deactivated (Preset value: 0 %).

Automatic switching-on: nviLcLuxLevel < nciLcLuxSetpoint - nciLcOnOffHyster/2

Automatic switching-off: nvoLcLampValue.value = 0
and
nviLcLuxLevel > nciLcLuxSetpoint + nciLcOnOffHyster/2

nciLcPowerupSt

SCPT Type: SCPTpowerupState, Index 87, SNVT_setting
Function: Initialization value for operation status of controller after reset.(Preset value: {SET_OFF,0,0})

nciLcStep

SCPT Type: SCPTstep, Index 83, SNVT_lev_cont
Function: Maximum stepping width by which the output variable nvoLcLampValue.value is allowed to be changed by the light controller to achieve the pre-adjusted septpoint. (Preset valuet: 10 %)

nciLcArtLightRat

UCPT Type: UCPTlightRatio, Index 11, SNVT_muldiv
Function: Configuration parameter for stipulation of sensitivity of light sensor against artifical light.
Preset value: 1000,100

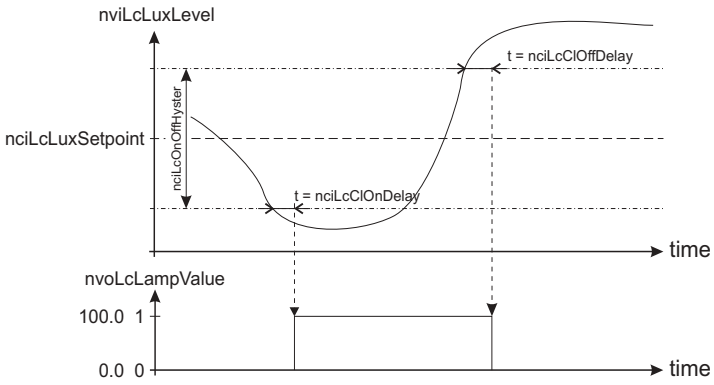
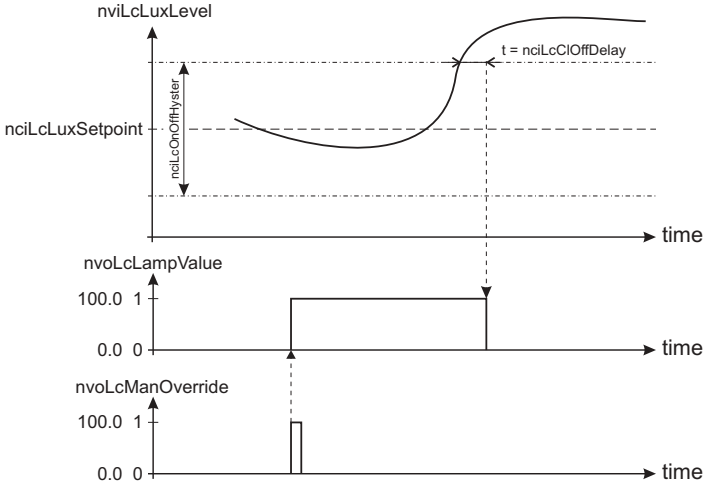
nciArtLightRatio.multiplier: Light intensity with 100 % artificial light, measured by a reference device at the working surface .

nciArtLightRatio.divisor: Light intensity withi 100 % artificial light, measured by multi sensor MDS L1 wit nvoLsLuxLevel.

!! The determination of the values has to be effected in a well darken room, if possible without !! daylight. The artificial light should thereby be switched to its maximum value by 100%.

nciLcMode

UCPT Type: UCPTgeneralCP1, Index 7, SNVT_state
Function: Via nciLcMode the operation mode can be selectet.
(Preset value: nciModeLC = 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0 = constant light controller)

nciModeLC.bit14	nciModeLC.bit15	Function
0	0	Constant Light Controller (***Constant LC***)
0	1	Occupancy sensor for light control depending on lightness (***ON/OFF LC***) ***Function diagram:*** 
1	0	Switching off the illumination depending on lightness (***OFF LC***). An Update of nviLcManOverride = 100.0 1 switches on the illumination. ***Function diagram:*** 

nciLcMaxOut

SCPT Type: SCPTmaxOut, Index 93, SNVT_lev_cont
Function: Configuration parameter for limiting output values of output variables nvoLcLampValue.value.
(Preset value: 100 %)

Digital Input Object (DI1, DI2)

The status of the potential-free digital inputs DI1 and DI2 are captured. Depending on the configuration (nciSwModeSwitch) they are output via the output variables of type SNVT_switch and SNVT_setting, whereas by SNVT_switch an absolute light value for manual overriding is sent. By means of SNVT_setting the occupancy controller or the constant light controller can be activated, respectively deactivated.

Network Variables Digital Input Object:

nviSwSwitchFb1, nviSwSwitchFb2

SNVT Type: SNVT_switch, Index 95
Function: Input variables for current status for the light groups controlled by nvoSwSwitch1 respectively nvoSwSwitch2

nvoSwSwitch1 (DI1), nvoSwSwitch2 (DI2)

SNVT Type: SNVT_switch, Index 95
Function: Depending on the configuration (nciSwModeSwitch), the output variables are sending the current switch status of the digital inputs (contact open/closed) or values for manual light control.

Standard I/O:

Potential free contact closed	==>	nvoSwSwitch1/2.state = 1 nvoSwSwitch1/2.value = nciMaxOut
Potential free contact open	==>	nvoSwSwitch1/2 = 0.0 0

Toggle:

Change open ==> closed	==>	Any button actuation results in a change of the variables between the values 100.0 1 and 0.0 0. nvoSwSwitch1/2.state = 1Light ON nvoSwSwitch1/2.value = nciSwMaxOut nvoSwSwitch1/2 = 0.0 0 Light OFF

Dimming:

Change open ==> closed	==>	Short-term actuation of buttons (< 1 s) results in a change of present light status. By long-term actuation of button (> 1 s) the dimming function is activated, that is to say based on the current light status, the .value-value of the variables is increased or reduced, as long as the button is pressed. nvoSwSwitch1/2.state = 1Light = ON at nciSwMaxOut nvoSwSwitch1/2.value = nciSwMaxOut nvoSwSwitch1/2 = 50.0 1 Light = EIN at 50% nvoSwSwitch1/2 = 0.0 0 Light OFF

Manual Overriding:

Change open ==> closed	==>	If DI1 has been configured for Toggle or Dimming and DI2 has been configured for manual overriding, nvoSwSwitch1 can be connected to nviLcManOverride and can be used for overriding of constant light controller. DI1 operates with normal Toggle- or Dimming function and sends the values for light control by nvoSwitch1. DI2 (configured for manual overriding) will set the output variable nvoSwitch1 = 0.0 -1 when actuating the button and thereby the light control is set free again.

The output variables are output upon change of output value, after expiration of heartbeat-time (nciSwMaxSendtime) and 5 s after module-reset.

nvoSwSetting (DI1 und DI2)

SNVT Type: SNVT_setting, Index 117
Function: Output variable for manual control of operation status of a constant light controller. It is possible to switch the controller on or off and to change the setpoint. The function can also be configured via nciSwModeSwitch.

Toggle:
Change open ==> closed ==> Any button actuation results in a change of the variables between the values

nvoSwSetting.function = SET_ON Controller ON
nvoSwSetting.function = SET_OFF Controller OFF

Dimming:
Change open ==> closed ==> Short-term actuation of button (< 1 s) leads to a change between SET_ON and SET_OFF.By long-term actuation of button (> 1 s) the dimming function is activated and the setpoint of the controller is changed by nciSwStepValue (Sending interval 400 ms):

DI1, increase of setpoint: nvoSwSetting.function = SET_UP
nvoSwSetting.setting = nciSwStepValue

DI2, decrease of setpoint: nvoSwSetting.function = SET_DOWN
nvoSwSetting.setting = nciSwStepValue

Configuration Parameter Digital Input Object:

nciSwMaxOut

SCPT Type: SCPTmaxOut, Index 93, SNVT_lev_cont
Function: Configuration parameter for limiting the output values of the output variables nvoSwSwitch1.value and nvoSwSwitch2.value. (Preset value: 100 %)

nciSwMaxSendtime

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat interval. After expiration of time nciSwMaxSendtime the digital inputs are inquired and the output variables are updated. The heartbeat function is deactivated by input values = 0.
(Preset value: 0)

nciSwStepValue

SCPT Type: SCPTstepValue, Index 92, SNVT_lev_cont
Function: By means of nciSwStepValue the stepping width of the output variables nvoSwSwitch1.value and nvoSwSwitch2.value are defined, by which the values of the dimming function are changed. When using SNVT_setting, nciSwStepValue determines the value of nvoSwSetting.setting.
(Preset value: 5 %)

nciSwModeSwitch

UCPT Type: UCPTgeneralCP1, Index 7, SNVT_state
Function: Via nciSwModeSwitch the digital inputs for the fucntions Standard I/O, Toggle, Dimming or „manual overriding“ are configured.
(Preset value: DI2 = manual overriding, DI1 = dimming ==> 0,0,0,0,0,0,0,0,0,0,0,0,1,1,1,0)
bit0,.. .....,bit15

	DI2		DI1	
	bit 12	bit 13	bit 14	bit 15
Standard I/O	0	0	0	0
Toggle	0	1	0	1
Dimmen	1	0	1	0
Manual override	1	1	1	1

General Remarks:

Wink - Event

Service LED is tripped and blinked two times.

Configuration Parameter:

A download of application overwrites manufacturer's configuration parameters. The configuration parameter are designed as configuration network variables and are therefore also available as bindable network variables in virtual functional block (from LNS 3.0). Thus parameter changes are possible even without installation tool.

!! An update of variables is directly written into the non-volatile memory of hardware. User has to make sure that !! total number of writing cycles does not exceed maximum capacitiy of non-volatile memory (dimension <10000).

Service Pin Message

As long as the device is still unconfigured, the Service Pin Message can be generated without initializing Service Pin. Thus an installed and wired unit can be easily commissioned. If the unconfigured light sensor detects three changes from dark to light following each other, the Service Pin Message is sent. Limit for change dark/light is 800 Lux. Change of status dark ==> light can be created by a flash light, impulse for light respectively dark is approx. 2 seconds each status.