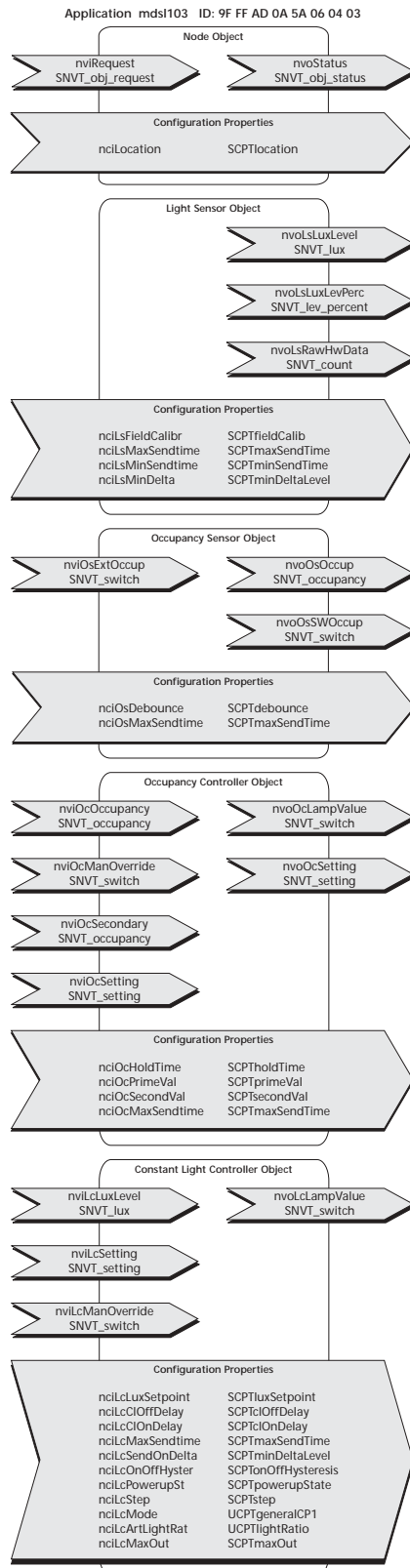


**Software Application mds103** (Sensing, Constant Light Controller)

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<sup>®</sup> function profile 1010 (Light Sensor), 1060 (Occupancy Sensor), 3071 (Occupancy Controller), 3050 (Constant Light Controller) and 3200 (Switch) are supported.



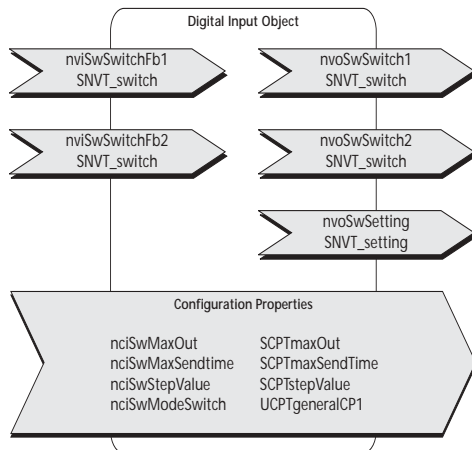
**Light Sensor:** The measured light value is output by variables of type SNVT\_lux, SNVT\_lev\_percent and SNVT\_count. For calibration of the light sensor, the exact light intensity can be determined and recorded by means of an external luxmeter and input via the parameter nciLsFieldCalibr. The reflection 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 nviOcOccupancy=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 respectively 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).

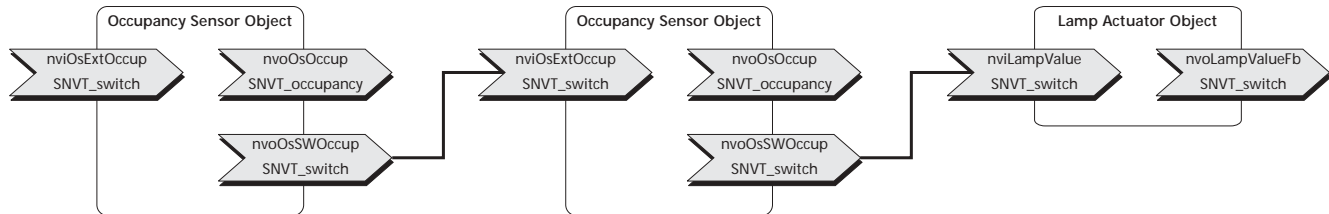


**Digital Input Object:** The functions of the potential-free inputs are captured. Depending on the respective configuration (nciSwModeSwitch) they are output via the output variables of type SNVT\_switch and SNVT\_setting. By means of SNVT\_switch an absolut light value is sent for manual overriding. By means of SNVT\_setting the occupancy controller or the constant light controller can be activated, respectively deactivated.

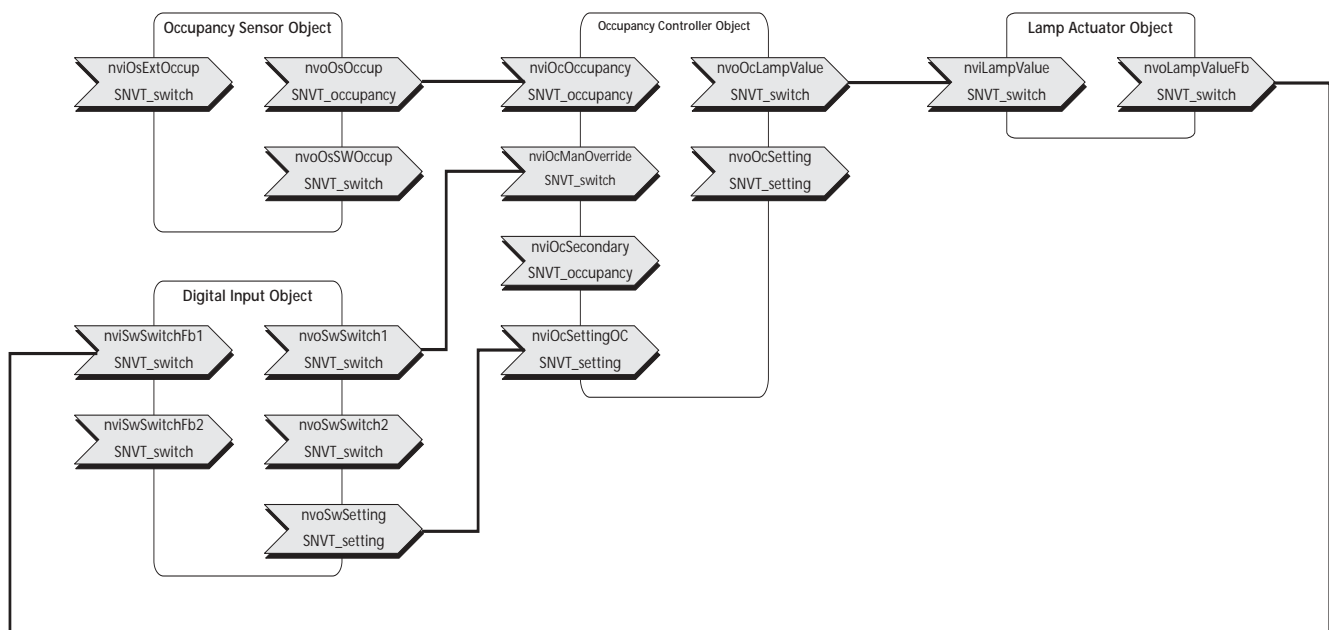
The functions standard I/O, toggle, dimming or „manual override“ can be taken over by the digital inputs. By means of nciSwMaxOut the maximum output value of the SNVT\_switch variables can be limited.

### 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:**

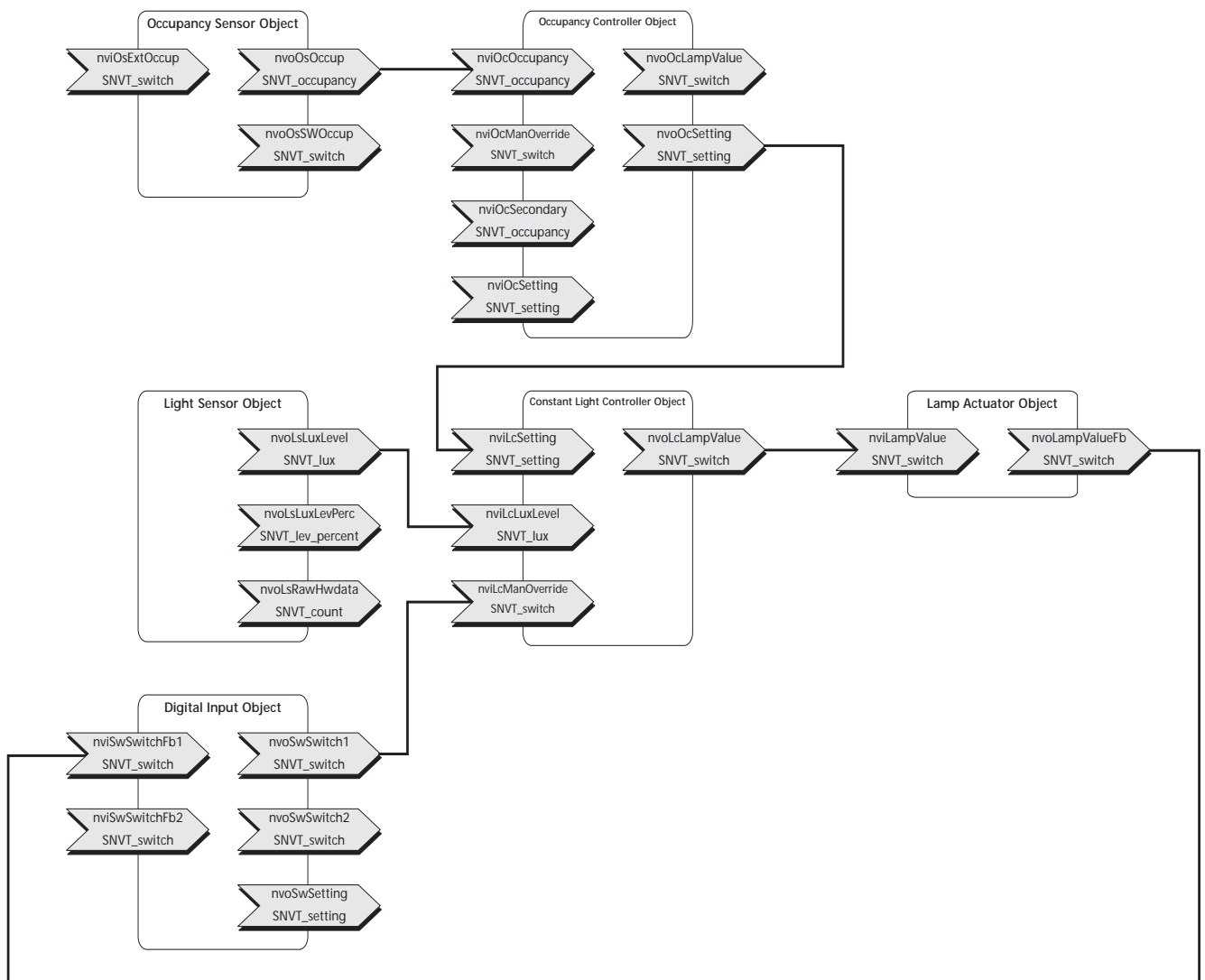
**1. Light Sensor:** The calibration of the light sensor should be made without any artificial light and with a room typical shutter position. Therefore, the light intensity is measured by a reference device at the working surface and is then registered as configuration value in the parameter nciFieldCalibr.

**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 determined 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 darkened 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<sup>®</sup> 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 measuring 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 value: 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 transferred. 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**

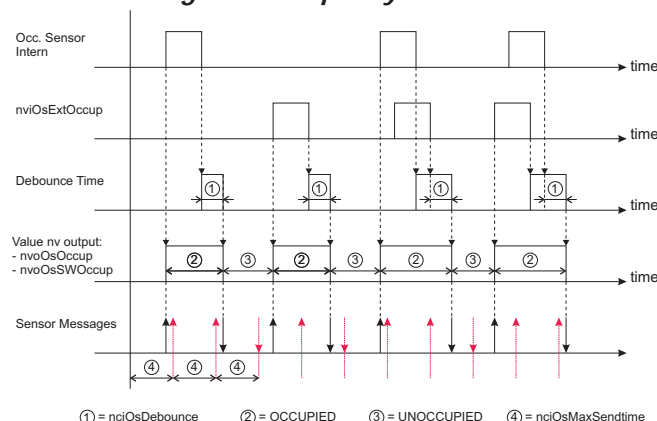
SCPT Type: SCPTmaxSendTime, Index 49, SNVT\_time\_sec

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 „Occupied==> Unoccupied“. (Preset value: 0 sec.)

**Function Diagram Occupancy Sensor:**

## Occupancy Controller Object

The 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 nvoOcLampValue of the occupancy sensor.  
 (Initialization value after reset: OC\_NUL)

#### nviOcManOverride

SNVT Type: SNVT\_switch, Index 95

Function: Input variable 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 expiration 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 sensor 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 „OCCUPIED ==> 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***

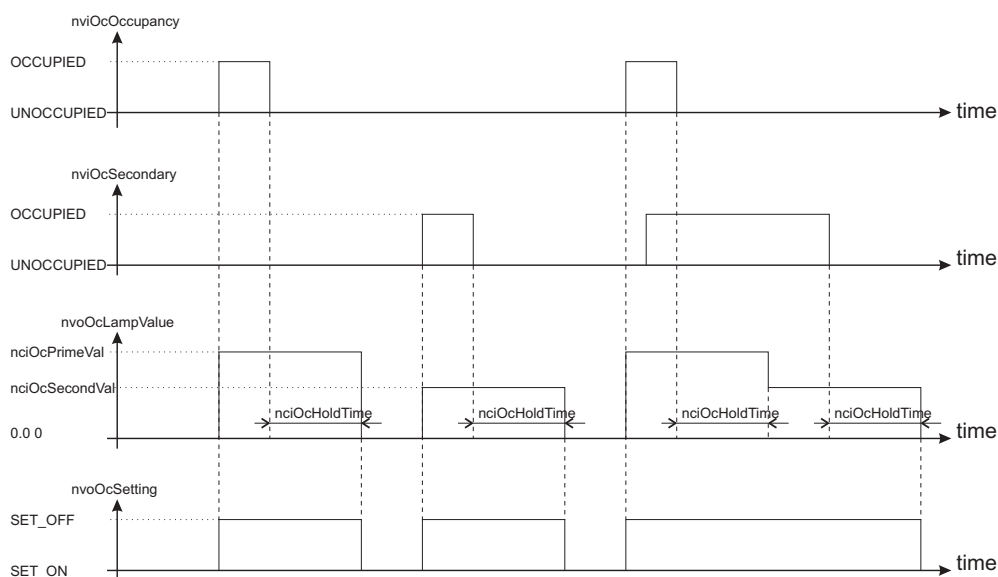
SCPT Type: SCPTsecondVal, Index 156, SNVT\_switch

Function: The configuraiton parameter nciOcSecondVal defines the output value of nvoOcLampValue if nviOcOccupancy = UNOCCUPIED and nviOcSecondary = OCCUPIED. (Preset value: 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 output 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 value: 500 lux)

#### **nciLcCOffDelay**

SCPT Type: SCPTcOffDelay, 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 nciLcCOffDelay, 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 sepoint. (Preset value: 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 with 100 % artificial light, measured by multi sensor MDS L1 wit nvoLsLuxLevel.

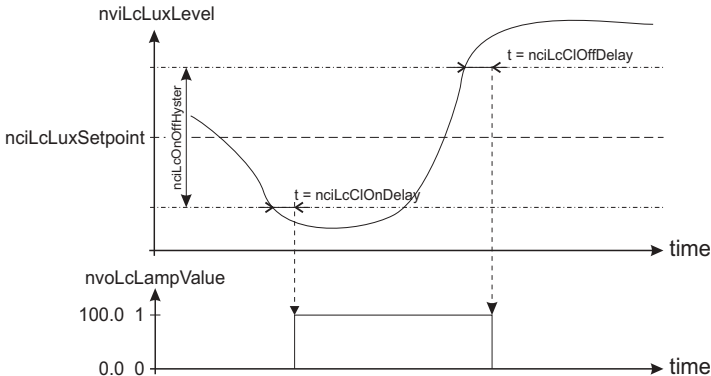
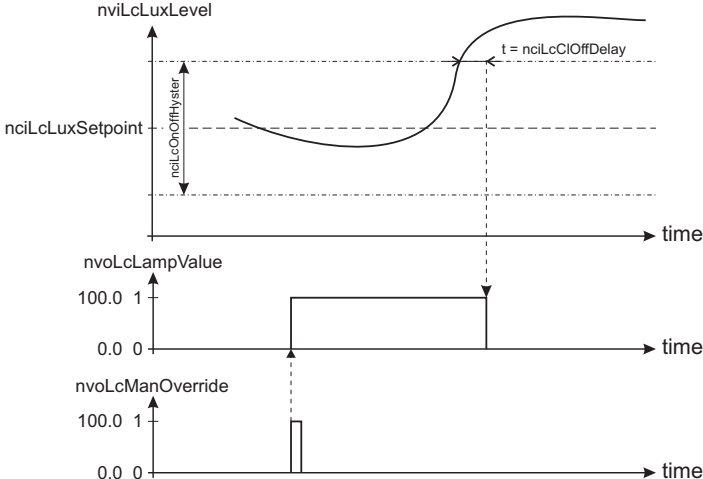
**!! The determination of the values has to be effected in a well darken room, if possible without daylight. The artificial light should thereby be switched to its maximum value by 100%.**

### 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 ( <i>Constant LC</i> )
0	1	<p>Occupancy sensor for light control depending on lightness (<i>ON/OFF LC</i>)</p> <p><b>Function diagram:</b></p> 
1	0	<p>Switching off the illumination depending on lightness (<i>OFF LC</i>). An Update of nviLcManOverride = 100.0 1 switches on the illumination.</p> <p><b>Function diagram:</b></p> 

### 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  
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 functions 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 capacity 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.