

Functional Profile

SOMFY animeo® LON 4 DC Motor Controller

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1. Node Object

UFPTnodeObject #0000

1.1 Overview

The SOMFY Node Object inherits all mandatory and some optional members from the LonMark® Node Object # 0000. Various SOMFY specific members have been added.

The Node Object functional profile describes a special type of functional block—called the *Node Object functional block*—that is used by network tools to test and manage all the functional blocks on a device.

The Node Object functional block may also be used to set the time for the device, manage the extension devices and document the position on earth.

The Node Object functional block includes a mandatory **nviRequest** input network variable and a mandatory **nvoStatus** output network variable. Other devices and applications may request a Node Object function by sending a request to the **nviRequest** network variable. Upon receiving an update to the **nviRequest** network variable, the request is processed and the **nvoStatus** network variable is updated with either the results of the request, an in-process indication, or an error indication. The definition of the **nviRequest** network variable includes an object ID field to allow the Node Object to report status and alarm conditions for all functional blocks on a device.

1.2 Functional-Block Details

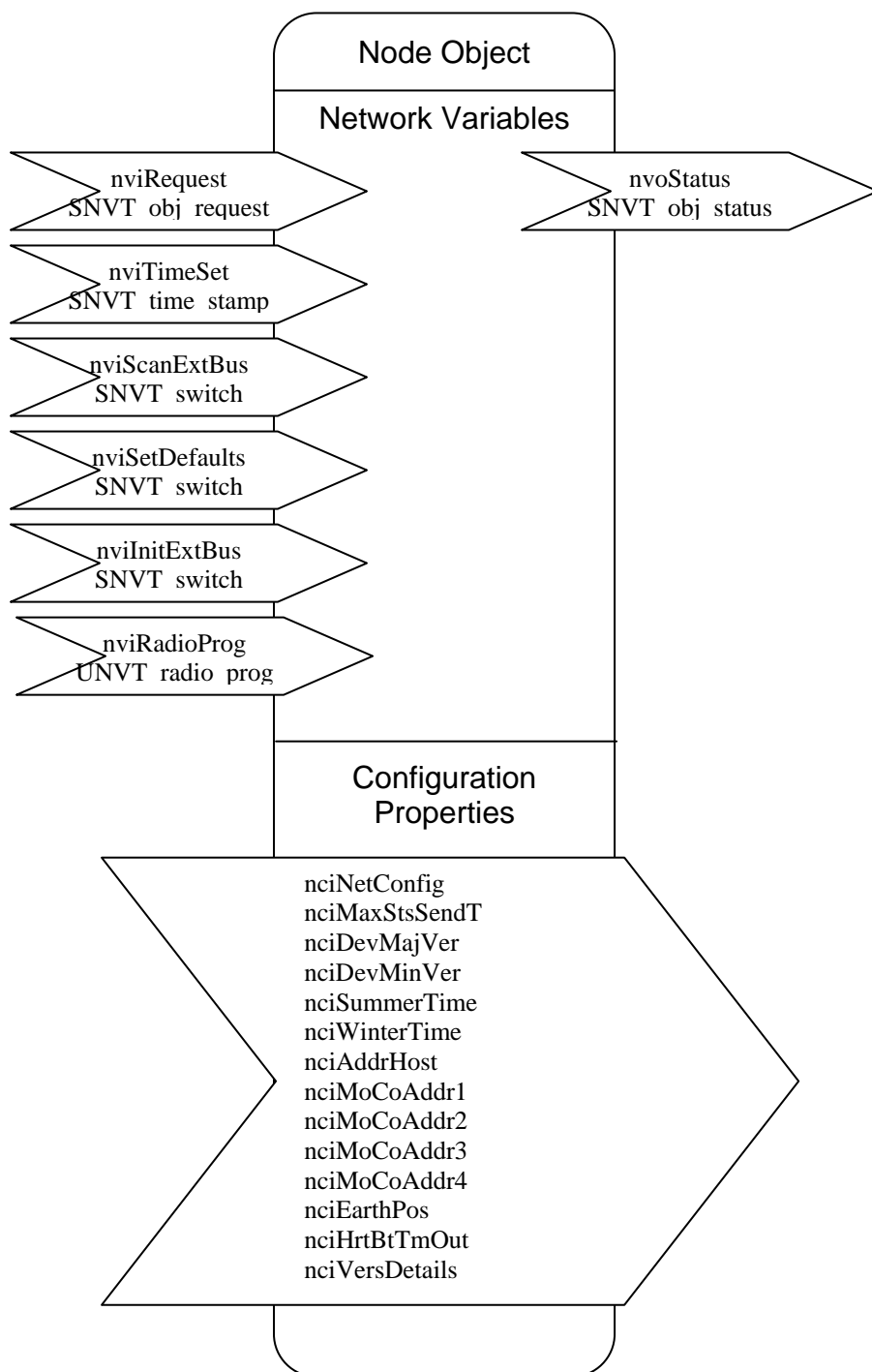


Figure 2 Functional-Block Details

Table 1 Network Variable Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nviRequest	SNVT_obj_request	92	Requests a particular mode for a particular functional block in the device
2 (S)	nvoStatus	SNVT_obj_status	93	Reports the status of the requested functional block in the device
3 (S)	nviTimeSet	SNVT_time_stamp	84	Synchronize the device's internal real time clock with an external time source
#1 (U)	nviScanExtBus	SNVT_switch	95	Starts scanning of Extension Bus for attached members
#2 (U)	nviSetDefaults	SNVT_switch	95	Sets default values to all NVs and CPs
#3 (U)	nviInitExtBus	SNVT_switch	95	Initialises all Extension Bus members
#4 (U)	nviRadioProg	UNVT_radio_prog	4	Enables/disables the programming mode of a connected radio module in order to add/change transmitters

* S = LonMark Standard, U = User defined

Table 2 Configuration Property Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT Index	Associated NVs **	Description
S	SCPTnwrkCnfg nciNetConfig SNVT_config_src (69)	25	Entire Functional Block	Controls the maximum period of time before the object status is transmitted. Zero means disabled
S	SCPTmaxSndT nciMaxStsSendT SNVT_elapsed_tm (87)	22	nv2	Controls the maximum period of time before the object status is transmitted. Zero means disabled
S	SCPTdevMajVer nciDevMajVer unsigned short	165	Entire Functional Block	The major version number for the device
S	SCPTdevMinVer nciDevMinVer unsigned short	166	Entire Functional Block	The minor version number for the device
S	SCPTsummerTime nciSummerTime SNVT_time_stamp (84)	99	Entire Functional Block	The start of summer time for purposes of daylight-savings time, all zeros disables
S	SCPTwinterTime nciWinterTime SNVT_time_stamp (84)	100	Entire Functional Block	The start of winter time for purposes of daylight-savings time, all zeros disables
U	UCPTaddrHost nciAddrHost 4 byte struct	10	Entire Functional Block	Information about connected host MoCo
U	UCPTaddrExt1 nciMoCoAddr1 signed quad	11	Entire Functional Block	ID of Extension MoCo 1
U	UCPTaddrExt2 nciMoCoAddr2 signed quad	12	Entire Functional Block	ID of Extension MoCo 2
U	UCPTaddrExt3 nciMoCoAddr3 signed quad	13	Entire Functional Block	ID of Extension MoCo 2
U	UCPTaddrExt4 nciMoCoAddr4 signed quad	14	Entire Functional Block	ID of Extension MoCo 4
U	UCPTearthPosTm nciEarthPosTm 8 byte struct	19	Entire Functional Block	Latitude, longitude and time difference to UTC
U	UCPTheartBeatTmOut nciHrtBtTmOut unsigned short	26	Entire Functional Block	Timeout for Extension MoCo supervision in seconds
U	UCPTversDetails nciVersDetails SNVT_str_asc	63	Entire Functional Block	Shows information about the software version presently used

* S = LonMark Standard, U = User defined

** List of NVs to which this configuration property applies.

1.3 Network Variables

1.3.1 Object Request

```
network input SNVT_obj_request nviRequest;
```

This input network variable provides the mechanism to request an operation or a mode for a functional block within a device. For a listing of all possible request codes, and for the meaning of the function codes for **SNVT_obj_request**, see the *SNVT Master List*.

A request consists of an object ID (the **object_id** field) and an object request (the **object_request** field). The object ID is the functional block index for a functional block on the device. If a device has a Node Object functional block, its functional block index must be zero. The remaining functional blocks are numbered sequentially, starting with one.

The object request specifies a request function for the functional block identified by the object ID. The **object_request_t** definition in the *SNVT Master List* defines the available request functions; the following requests are the only mandatory request functions:

RQ_NORMAL
RQ_UPDATE_STATUS
RQ_REPORT_MASK

If an **nviRequest** update specifies an unsupported request function, the **nvoStatus** output network variable must be updated with the **invalid_request** field set to one. Support for the object-disable, self-test, override, and alarm-reporting request functions is not required.

The request functions are defined as follows:

RQ_NORMAL If the specified functional block was in the disabled or overridden state, this request cancels that state, and returns the functional block to normal operation. If the functional block was already in the normal state, a request to enter the normal state is not an error. After device reset, the state of functional blocks on the device is application-specific. An **RQ_NORMAL** request that specifies the Node Object functional block index is a request for all functional blocks in the device to leave the disabled and overridden states.

RQ_UPDATE_STATUS Requests the status of the specified functional block to be sent to the **nvoStatus** output network variable. The state of the functional block is unchanged. An **RQ_UPDATE_STATUS** request that specifies the Node Object functional block is a request for the status of the device and all functional blocks on the device. The status bits of the Node Object (with the exception of **invalid_request** and **invalid_id**) are defined to be the inclusive-OR of the status bits of all the other functional blocks in the device;

with the possible addition of error conditions and other conditions attributed to the device as a whole, rather than to any individual functional block. For example, if **comm_failure** is supported for the Node Object, then it should be set when reporting the Node Object functional block status whenever any of the functional blocks in the device reports communications failure, as well as when there is a communications failure at the device level.

RQ_REPORT_MASK Requests a *status mask* reporting the status bits that are supported by the specified functional block to be sent to the **nvoStatus** output network variable. A one bit in the status mask means that the device may set the corresponding bit in the object status when the condition defined for that bit occurs. A zero bit in the status mask means that the bit is never set by the device. For example, if object disable (**RQ_DISABLED**) is not supported for a functional block, the **disabled** bit in the status mask must be zero for that functional block. If self-test (**RQ_SELF_TEST**) is not supported for a functional block, the **fail_self_test** and **self_test_in_progress** bits in the status mask must be zero for that functional block. If alarm reporting (**RQ_UPDATE_ALARM** or asynchronous notification) is not supported, the **in_alarm** bit in the status mask must be zero for that functional block. An **RQ_REPORT_MASK** request that specifies the Node Object functional block requests a status mask that is the inclusive-OR of supported status bits for the device and all functional blocks on the device.

Valid Range

The valid range is any value within the defined limits of **SNVT_obj_request**.

Default Value

The default value is undefined.

Configuration Considerations

None specified.

1.3.2 Object Status

```
network output SNVT_obj_status nvoStatus;
```

This output network variable reports the status for any functional block on a device. It is also used to report the status of the entire device and all functional blocks on the device.

A status update consists of an object ID (the **object_id** field) and multiple status fields. The object ID is the functional block index as described under **nviRequest**. If the object ID is zero, the status of the device itself and all functional blocks on the device is reported.

The status fields are one-bit bitfields. The only required status fields are the **report_mask**, **invalid_id**, and **invalid_request** fields; all other status fields are optional. If an error condition is active for a reported functional block, the **out_of_limits** field is set to one. Following is a description of the required status fields. See the *SNVT Master List* for a description of the optional fields.

invalid_request Set to one if an unsupported request code (**RQ_xxx**) is received on the **nviRequest** input network variable.

invalid_id Set to one if a request is received for a functional block index that is not defined in the device. No further checking of the request code is required when set to one.

report_mask Set to one if an **RQ_REPORT_MASK** request is received by the **nviRequest** input network variable, and the **nvoStatus** output network variable is set to contain the status mask. The *status mask* is an **nvoStatus** value that describes the status bits that are supported beyond the three mandatory status bits. The status mask consists of all fields in the **nvoStatus** output network variable, with the exception of the **report_mask**, **invalid_id**, and **invalid_request** fields. A one bit in the mask means that the functional block may set the corresponding bit in the **nvoStatus** output network variable when the condition defined for that bit occurs. A zero bit means that the functional block may never set the bit.

Valid Range

The valid range is any value within the defined limits of **SNVT_obj_status**, with the exception that the **report_mask**, **invalid_id**, and **invalid_request** fields must be set to one.

Default Value

The default value must be the actual status of the device for all supported fields. All other fields must be set to zero. The application must update the status such that a polling of the status, following the request, returns a reasonable value.

Configuration Considerations

The optional **nciMaxStsSendT** configuration property specifies a heartbeat for sending this network variable. If the CP is not implemented, or is implemented and is set to zero or the invalid value, a heartbeat is not provided.

When Transmitted

The output variable is transmitted when either of the following conditions occurs:

- A request is received by the **nviRequest** input network variable.

- The heartbeat interval specified by the optional **nciMaxStstSendT** CP expires.

When the heartbeat timer expires, the status of each functional block (including the Node Object functional block) is returned sequentially in round-robin fashion—one object status per expiration of the timer.

Default Service Type

The default service type is acknowledged.

1.3.3 Time Setting

```
network input SNVT_time_stamp nviTimeSet;
```

This input network variable synchronizes the device's internal real-time clock with an external time source.

Valid Range

The valid range for all fields is any value within the defined limits of **SNVT_time_stamp**.

Default Value

The default value is the time of application compilation.

Configuration Considerations

When used for sun tracking the sun time must be the local winter time unless a daylight saving periode has been defined.

See **nciSummerTime**, **nciWinterTime** and **nciEarthPosTm**

1.3.4 Extension Bus Scanning Switch

```
network input SNVT_switch nviScanExtBus;
```

Starts scanning of Extension Bus for attached members.

The Motorcontroller Extension Bus is an RS 485 half duplex bus which allows to increase the number of controlled motors up to 20. For this purpose up to four standard Motorcontrollers can be connected. The host MoCo needs to know how much extensions are connected and selects the LON interface according to it. To achieve this knowledge a scanning procedure has been implemented which takes some time. The detected MoCo IDs are sorted and stored in nciMoCoAddr[n].

Valid Range

The valid range is the range of **SNVT_switch**.

Default Value

```
nviScanExtBus.value = 0
```

```
nviScanExtBus.state = 0xFF
```

Configuration Considerations

See nciNetConfig.

1.3.5 Extension Bus Initialisation Switch

```
network input SNVT_switch nviInitExtBus;
```

Initializes all Extension Bus members and synchronizes local settings. The members are automatically initialized at start-up. In case of any local changes it might be required to reinitialize them.

Valid Range

The valid range is the range of **SNVT_switch**.

Default Value

```
nviInitExtBus.value = 0
```

```
nviInitExtBus.state = 0xFF
```

Configuration Considerations

None specified.

1.3.6 Default Settings Switch

```
network input SNVT_switch nviSetDefaults;
```

Sets factory default values to all NVs and CPs. This feature might be used independently from the default mechanisms provided by network tools.

Valid Range

The valid range is the range of **SNVT_switch**.

Default Value

```
nviSetDefaults.value = 0
```

```
nviSetDefaults.state = 0xFF
```

Configuration Considerations

None specified.

1.3.7 Radio Programming

```
network input UNVT_radio_prog nviRadioProg;
```

Enables (corresponding MoCo = 1) or disables (= 0) the programming mode of a connected radio module in order to add/change transmitters if valid = 1.

Valid Range

0:0:0:0:0 to 1:1:1:1:1.

Default Value

0:0:0:0:0.

Configuration Considerations

None specified.

1.4 Configuration Properties

1.4.1 Network Configuration Source

```
network input config SCPTnwrkCnfg nciNetConfig;
```

This configuration property sets the source for network configuration for a device. The source may be the device itself, using a process called *self-installation*, or an external network tool. All devices that support self-installation must provide this configuration property to allow a network tool to take control of the device's network configuration.

A self-installed device updates its own network-addressing information based on factory settings—with no interaction with other devices on the network during the installation process.

Depending on this configuration property the Extension Bus is scanned at start-up or not.

Valid Range

Value	Identifier	Notes
0	CFG_LOCAL	Device will use self-installation functions to set its own network address and default bindings. Extension Bus scanning at start-up initiated.
1	CFG_EXTERNAL	Device's network address will be set by an outside source. The device's application will not interfere with addresses assigned by external network tools. The device must be compatible with any valid ANSI/EIA/CEA-709.1 protocol address.
-1 (0xFF)	CFG_NUL	Value not available.

Default Value

For a self-installed device, the default value is **CFG_LOCAL**.

Configuration Requirements/Restrictions

Be sure that this property is not CFG_LOCAL in the LNS data base. Otherwise settings will be lost after a power cycle.

1.4.2 Maximum Send Time

```
network input config SCPTmaxSndT nciMaxStsSendT;
```

Also known as a *send heartbeat*, this configuration property sets the maximum period of time that can expire before the functional block automatically (cyclically) updates the **nvoStatus** output network variable.

Valid Range

Minimum is “0 0:0:0:0”

Maximum is “0 17:59:59:999” (0 days, 17 hours, 59 minutes, 59 seconds, 999 milliseconds).

Default Value

The default value is “0 0:0:0:0” (no automatic/cyclic update).

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

1.4.3 Device Major Version

```
network input config SCPTdevMajVer nciDevMajVer;
```

This configuration property provides the major version number of a device.

The major version number is incremented when the network interface for the device changes.

Valid Range

Any integer number from 0 to 255.

Default Value

The default value is zero.

Configuration Requirements/Restrictions

Read only.

1.4.4 Device Minor Version

```
network input config SCPTdevMinVer nciDevMinVer;
```

This configuration property provides the minor version number of a device.

The minor version number is incremented when the network interface remains the same, but the device has a different behaviour.

Valid Range

Any integer number from 0 to 255.

Default Value

The default value is zero.

Configuration Requirements/Restrictions

Read only. Only online available.

1.4.5 Start Date and Time Summer Time

```
network input config SCPTsummerTime nciSummerTime;
```

This configuration property sets the start of summer time for purposes of daylight-savings time. At the defined summer date the clock will increase its time by one hour. Setting this table to all zeroes disables daylight savings time. Year, minutes, and seconds are ignored.

Valid Range

The valid range for this configuration property is 1 January 0 hours, to 31 December 23 hours. Year, minutes, and seconds should be set to zero.

Default Value

The default value is 0/0/0 0:0:0.

Configuration Requirements/Restrictions

Only effective if SCPTwinterTime is set as well. The hour setting is ignored since this configuration property affects only the sun tracking.

1.4.6 Start Date and Time Winter Time

```
network input config SCPTwinterTime nciWinterTime;
```

This configuration property sets the start of wintertime for purposes of daylight savings time. At the defined winter date the clock will decrease its time by one hour. Setting this table to all zeroes disables daylight savings time. Year, minutes, and seconds are ignored.

Valid Range

The valid range for this configuration property is 1 January 0 hours, to 31 December 23 hours. Year, minutes, and seconds should be set to zero.

Default Value

The default value is 0/0/0 0:0:0.

Configuration Requirements/Restrictions

Only effective if SCPTsummerTime is set as well. The hour setting is ignored since this configuration property affects only the sun tracking.

1.4.7 Type of Host MoCo

```
network input config UCPTaddrHost structure nciAddrHost;
```

Information about connected host MoCo. It is entered during Extension Bus scanning and contains software version and hardware type of connected host MoCo.

Valid Range

Not applicable.

Default Value

Not applicable.

Configuration Requirements/Restrictions

Read only. Only online available.

1.4.8 Address of MoCo [n]

```
network input config UCPTaddrExt[n] nciMoCoAddr[n];
```

ID (serial number) of Extension MoCo [n]. It is automatically entered during Extension Bus scanning. Might be sorted or extended manually. Internal restart initiated then!

Valid Range

0 ... 2^{24} .

Default Value

0.

Configuration Requirements/Restrictions

Sets MoCo's bus ID only if changed. Zero deletes flash and forces restart.

1.4.9 Position On Earth

```
network input config UCPTearthPosTm nciEarthPosTm;
```

Latitude, longitude and height above sea.

Valid Range

Valid range of SCPT_earth_pos but -24h ... 24h instead of meters.

Default Value

1:0:48:0:8:0:1h. Position of Rottenburg/Germany.

Configuration Requirements/Restrictions

None specified.

1.4.10 Extension Bus Heartbeat Timeout

```
network input config UCPTheartBeatTmOut nciHrtBtTmOut;
```

Timeout for Extension MoCo supervision. Controls central sending and local supervision. The heartbeat is sent ten times during the set time, the position can be defined in each Sunblind Actuator separately.

Valid Range

1 ... 254 sec.

Default Value

30 sec.

Configuration Requirements/Restrictions

None specified.

1.4.11 Version Details

```
network input config UCPTversDetails nciVersDetails;
```

Time of creation of the loaded application software.

Valid Range

Any NUL-terminated ASCII string up to 31 bytes of total length.

Default Value

Not applicable.

Configuration Requirements/Restrictions

Read only.

2. Sunblind Actuator

UFPTsunblindActuator #6110

2.1 Overview

The SOMFY Sunblind Actuator inherits all mandatory and some optional members from the LonMark[®] Sunblind Actuator Object # 6110. Various SOMFY specific members have been added.

This document describes the Functional Profile of a Sunblind Actuator functional block, which has self-contained hardware inputs and actuators. The Sunblind Actuator functional block is used to drive a motorized sunblind to a specific position (length) and/or angle.

Due to some constraints of the controller hardware as well as to the property of the connected DC motors some setting commands might not lead to the expected results.

- If Tension Relief is used the position feedback at upper end limit is > 0%
- SET_STATE commands causes the hardware to reference to the upper end limit
- SET_DOWN commands with a position value > 0 are ignored at 100%

2.2 Functional-Block Details

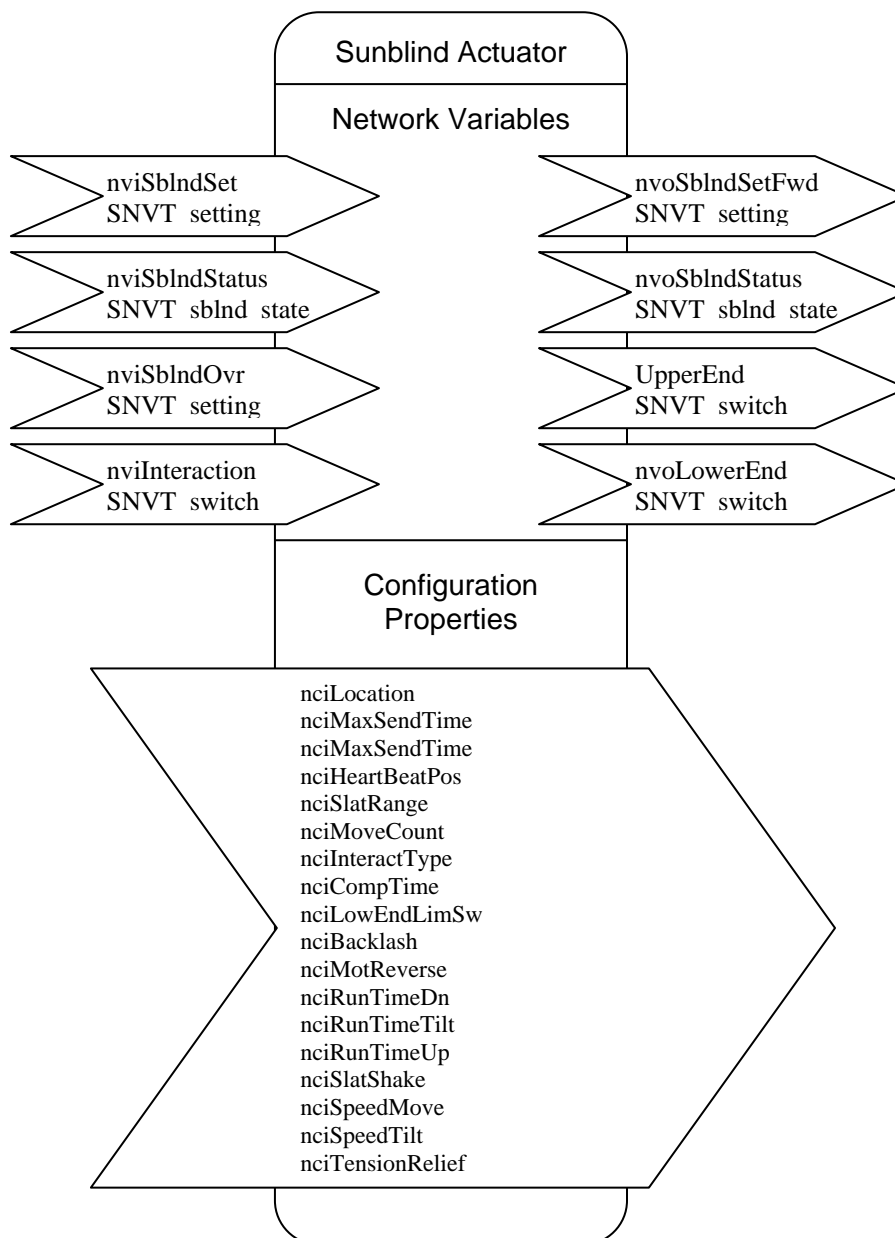


Figure 2 Functional-Block Details

Table 1 SNVT Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nviSblndSet	SNVT_setting	115	Sunblind Setting input
2 (S)	nvoSblndSetFwd	SNVT_setting	115	Sunblind Control output for daisy chaining (forwarding)
3 (S)	nviSblndStatus	SNVT_sblnd_state	180	Sunblind Status input
4 (S)	nviSblndOvr	SNVT_setting	115	Sunblind Override input
5 (S)	nvoSblndStatus	SNVT_sblnd_state	180	Sunblind Status output
1# (U)	nvoUpperEnd	SNVT_switch	95	Signals whether the upper linear position has been reached
2# (U)	nvoLowerEnd	SNVT_switch	95	Signals whether the lower linear position has been reached
3# (U)	nviInteraction	SNVT_switch	95	Allows to influence the setting input temporary

* S = LonMark Standard, U = User defined

Table 2 SCPT Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT Index	Associated NVs	Description
S	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Functional Block	Used to provide physical location of the device
S	SCPTmaxSendTime nciMaxSendTime SNVT_time_sec (107)	49	nv5	Maximum period of time that expires before the functional block will automatically update NV
S	SCPTmaxSendTime nciMaxSendTime SNVT_time_sec (107)	49	nv#1 nv#2	Maximum period of time that expires before the functional block will automatically update NV
U	UCPTheartBeatPos nciHeartBeatPos SNVT_lev_cont (21)	25	Entire Functional Block	Position to which the local MoCo moves after timeout
U	UCPTslatRange nciSlatRange structure	33	Entire Functional Block	Mechanical tilting range of slats
U	UCPTmoveCount nciMoveCount SNVT_time_sec (8)	22	Entire Functional Block	Counter of executed move commands
U	UCPTinteract nciInteractType enumerated	69	nv#3	Allows to specify how the actor should be influenced by the switch input
U	UCPTcompTime nciCompTime SNVT_time_sec (107)	73	Entire Functional Block	Compensation time for slack (AC) or start delay (DC)
U	UCPTlowEndLimSw nciLowEndLimSw boolean	87	Entire Functional Block	Usage of an end limit switch at lower end of end product
U	UCPTbacklash nciBacklash SNVT_time_sec (107)	15	Entire Functional Block	Time without movement due to mechanical tolerances
U	UCPTmotReverse nciMotReverse boolean	21	Entire Functional Block	Inverts the motor output in order to reverse rotating direction

U	UCPTrunTimeDn nciRunTimeDn SNVT_time_sec (107)	6	Entire Functional Block	Time for complete movement from 0% to 100% level
U	UCPTrunTimeTilt nciRunTimeTilt SNVT_time_sec (107)	31	Entire Functional Block	Time for complete slat tilting; angle depends of the mechanical limits
U	UCPTrunTimeUp nciRunTimeUp SNVT_time_sec (107)	8	Entire Functional Block	Time for complete movement from 100% to 0% level
U	UCPTslatShake nciSlatShake boolean	85	Entire Functional Block	Moves the slats at destination to align all in spite of poor mechanic
U	UCPTspeedMove nciSpeedMove SNVT_lev_cont (21)	89	Entire Functional Block	Speed during moving up and down
U	UCPTspeedTilt nciSpeedTilt SNVT_lev_cont (21)	90	Entire Functional Block	Speed during tilting of slats
U	UCPTtensionRelief nciTensionRelief boolean	86	Entire Functional Block	Moves Venetian blinds back at upper end to avoid permanent stress on ropes

* S = LonMark Standard, U = User defined

2.3 Network Variables

2.3.1 Setting Input

```
network input SNVT_setting nviSblndSet;
```

This input network variable is used to send the sunblind to a desired position.

The interpretation of the SNVT_setting enumeration field, as it relates to sunblinds, is shown in the table at the end of this profile document. The mode switching can be used to recall/delete a local position (see Table 3 and Status Input).

Valid Range

For details, refer to “Additional Considerations” and the LONMARK SNVT and SCPT Master List (versions 13.00 and later).

Default Value

The default value of SNVT_setting.

Configuration Considerations

Any Up/Down function with invalid setting and rotation initiates an end limit movement, i. e. an additional runtime of 5 s is used.

2.3.2 Control-Forwarding Output

```
network output SNVT_setting nvoSblndSetFwd;
```

This output network variable is used to provide feedback or to forward the input NV of nviSblndSet to another device or functional block.

The interpretation of the SNVT_sbld_state enumeration field, as related to sunblinds, is shown in a table below (for details refer to the *LONMARK SNVT and SCPT Master List*, versions 13.00 and later).

The interpretation of the SNVT_setting enumeration field, as it relates to sunblinds, is shown in the table at the end of this profile document.

Whenever the actuator stops a SET_STATE with the actual position values is generated.

Valid Range

For details, refer to “Additional Considerations” and the LONMARK SNVT and SCPT Master List (versions 13.00 and later).

Default Value

The present value of the nviSblndSet NV.

Configuration Considerations

The transmission of this NV is regulated by the nviSblndSet NV.

When Transmitted

The output variable is transmitted:

When the state of nviSblndSet has changed.

When the actuator has stopped.

When polled.

Default Service Type

The default service type is unacknowledged and repeated.

2.3.3 Status Input

```
network input SNVT_sblnd_state nviSblndStatus;
```

This input network variable provides for receiving a Sunblind Controller status in order to report, via the Status output NV, the Sunblind Actuator status in conjunction with the Sunblind Controller status (for details see “Additional Considerations”).

The interpretation of the SNVT_sblnd_state enumeration field as related to sunblinds is shown in a table below (for details refer to the *LONMARK SNVT and SCPT Master List*, versions 13.00 and later).

Whenever the command source SBCS_LOCAL was the cause for a movement the final position is stored as local position and might be recalled afterwards (see Table 3).

Valid Range

For details, refer to “Additional Considerations” and the LONMARK SNVT and SCPT Master List (versions 13.00 and later).

Default Value

The default value of SNVT_sbldnd_state.

Configuration Considerations

None specified.

2.3.4 Override Input

```
network input SNVT_setting nviSbldndOvr;
```

This input network variable is used to send the sunblind to a desired position.

This NV has priority over nviSbldndSet, **and locally connected control units** unless receiving a SET_NUL command.

Valid Range

For details, refer to “Additional Considerations” and the LONMARK SNVT and SCPT Master List (versions 13.00 and later).

Default Value

Updated after a reset, the default value is “SET_NUL, invalid, invalid.”

Configuration Considerations

None specified.

2.3.5 Status Output

```
network output SNVT_sbldnd_state nvoSbldndStatus;
```

This output network variable is used to provide feedback as to the actual sunblind position, error messages, and the cause of the latest change of the setpoint.

The interpretation of the SNVT_sbldnd_state enumeration field, as related to sunblinds, is shown in a table below (for details refer to the *LONMARK SNVT and SCPT Master List*, versions 13.00 and later).

Valid Range

For details, refer to “Additional Considerations” and the *LONMARK SNVT and SCPT Master List* (versions 13.00 and later).

Default Value

nvoSblndStatus.pos = INVALID (SET_NUL, 0xFF, 0x7FFF)

nvoSblndStatus.cmdSource = INVALID (BCS_NUL)

nvoSblndStatus.errorCode = INVALID (BEC_NUL)

Configuration Considerations

The transmission of this NV is regulated by the time specified in the nciMaxSendStatus CP, unless the nciMaxSendStatus CP has a value of 0.0, or other invalid value; in which case, the NV is not regulated by the nciMaxSendStatus value.

If more than one cause for an error messages is present, then this NV is updated by the latest occurrence of an error.

When Transmitted

The output variable is transmitted:

When the state has changed.

When the actuator has stopped.

When an error message needs to be propagated.

Regularly at the interval defined by the configuration variable nciMaxSendStatus.

Default Service Type

The default service type is unacknowledged and repeated.

2.3.6 Lower/Upper End Output

```
network output SNVT_switch nvoLowerEnd/nvoUpperEnd;
```

This output network variable is used to provide a feedback output for switch LEDs or general monitoring. It signals whether lower end (position 100%) respective upper end (position 0%) is reached. The rotation is ignored. Can be used to feed Interaction Input.

The output is variable from 0 to 100%, where 100% is a fully closed (sun-blocking) blind (as shown in Figure 5).

Valid Range

The range of SNVT_switch.

Default Value

Actual position of sunblind, if known; otherwise, SNVT_switch definition of NULL.

Configuration Considerations

The transmission of this NV is regulated by the time specified in the nciMaxSendMode CP, unless the nciMaxSendMode CP has a value of 0.0, or other invalid value; in which case, the NV is not regulated by the nciMaxSendMode value.

When Transmitted

The output variable is transmitted:

When the sunblind position has changed.

Regularly at the interval defined by the configuration variable nciMaxSendMode.

Default Service Type

The default service type is unacknowledged and repeated.

2.3.7 Interaction Input

```
network input SNVT_switch nviInteraction;
```

This input network variable is used to communicate directly with other actuators. The setting Input can be blocked or released with this input. Useful in connection with end limit outputs.

Valid Range

The range of SNVT_switch.

Default Value

The default value is IA_NUL (no interaction).

Configuration Considerations

Configuration	Interaction Input	Description
IA_NUL	don't care	nothing
IA_LOCK_SETG	100, 1	blocks the setting input at the related end limit position
IA_UNLOCK_SETG	100, 1	releases the setting input at the related end limit position

2.4 Configuration Properties

2.4.1 Location Label

```
network input config SNVT_str_asc nciLocation;
```

This configuration property can be used to provide the location of the device. It has the same content as the location label of the controller functional block.

Valid Range

Any NULL-terminated ASCII string up to 31 bytes of total length (including NULL). The string must be truncated if the length does not allow the 31st character to be the NULL (0x00).

Default Value

An ASCII string: “Sunblind Actuator”.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SCPT Reference

SCPTlocation (17)

2.4.2 Send Heartbeat

```
network input config SNVT_time_sec nciMaxSendTime;
```

This input configuration property sets the maximum period of time that can expire before the functional block will automatically update the following network variable:

nv5 – nvoSblndStatus

nv6 – nvoLowerEnd/nvoUpperEnd

Valid Range

The valid range is 1.0 to 3600.0 seconds.

Values outside this range are invalid and will disable the automatic update mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 3600.0 seconds.

Default Value

The default value is 0.0 (no automatic update).

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SCPT Reference

SCPTmaxSendTime (49)

2.4.3 Heartbeat Timeout Position

```
network input config UCPTheartBeatPos nciHeartBeatPos;
```

To provide a secure connection between the host MoCo and the extension MoCos it is possible to send heart beat messages cyclically. This input configuration property sets the position to which the local MoCo moves after a timeout.

Valid Range

The valid range is 1 to 254 seconds.

Default Value

The default value is 0 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time. The timeout can be set in the node object.

SNVT Reference

SNVT_level_cont (21)

2.4.4 Slat Range

```
network input config UCPTslatRange nciSlatRange;
```

This input configuration property sets the mechanical tilting range of slats, where Down Angle is the slat angle during down movement and Up Angle the one while lifting.

Valid Range

The valid range is -90° to $+90^{\circ}$ for both values.

Default Value

`nciSlatRange.downAngle` = -90°

`nciSlatRange.upAngle` = $+90^{\circ}$

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.4.5 Movement Counter

```
network input config UCPTmoveCount nciMoveCount;
```

This input configuration property shows the amount of executed move commands.

Valid Range

The valid range is 0 to 65535 movements.

Default Value

The default value is 0 movements.

Configuration Requirements/Restrictions

This CP is read only.

SNVT Reference

SNVT_count (8)

2.4.6 Interaction Type

```
network input config UCPTinteract nciInteract;
```

This input configuration property allows to specify how the actor should be influenced by the Interaction switch input.

Valid Range

Value	Description
IA_NUL	invalid
IA_LOCK_SETG	blocks the setting input if input is active
IA_UNLOCK_SETG	releases the setting input if input is active

Default Value

The default value is IA_NUL.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.4.7 Compensation Time

```
network input config UCPTcompTime nciCompTime;
```

This input configuration property sets the compensation time for a delayed movement of horizontal curtains.

Valid Range

The valid range is 0 to 320,0 seconds.

Default Value

The default value is 0,0 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SNVT Reference

SNVT_time_sec (107)

2.4.8 Lower End Limit Switch

```
network input config UCPTlowEndLimSw nciLowEndLimSw;
```

This input configuration property sets the usage of an end limit switch at lower end of sunblind product. If an end limit switch is assumed the runtime is lengthened to ensure the open/close position.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, no end limit switch is assumed.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.4.9 Backlash

```
network input config UCPTbacklash nciBacklash;
```

This input configuration property sets the time without movement due to mechanical tolerances, effective if reversing from down to up or up to down.

Valid Range

The valid range is 0 to 320,0 seconds.

Default Value

The default value is 0,5 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time. Increasing reduces Runtime Tilt and vice versa.

SNVT Reference

SNVT_time_sec (107)

2.4.10 Motor Reverse

```
network input config UCPTmotReverse nciMotReverse;
```

This input configuration property inverts the motor output in order to reverse rotating direction.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, motor not reversed.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.4.11 Runtime Down

```
network input config UCPTrunTimeDn nciRunTimeDn;
```

This input configuration property sets time which is needed for complete movement from 0% to 100% level.

Valid Range

The valid range is 0 to 320,0 seconds.

Default Value

The default value is 180,0 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time. A change of actual setting initiates an up command.

SNVT Reference

SNVT_time_sec (107)

2.4.12 Runtime Tilt

```
network input config UCPTrunTimeTilt nciRunTimeTilt;
```

This input configuration property sets time which is needed for a complete slat tilting; the angle depends of the mechanical limits.

Valid Range

The valid range is 0 to value of backlash.

Default Value

The default value is 3,0 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SNVT Reference

SNVT_time_sec (107)

2.4.13 Runtime Up

```
network input config UCPTrunTimeUp nciRunTimeUp;
```

This input configuration property sets time which is needed for complete movement from 100% to 0% level.

Valid Range

The valid range is 0 to 320,0 seconds.

Default Value

The default value is 180,0 seconds.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SNVT Reference

SNVT_time_sec (107)

2.4.14 Slat Shaking

```
network input config UCPTslatShake nciSlatShake;
```

This input configuration property controls the move of the slats at destination to align all in spite of poor mechanic.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, no slat shaking.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.4.15 Move Speed

```
network input config UCPTspeedMove nciSpeedMove;
```

This input configuration property sets the motor speed during moving.

Valid Range

The valid range is 0 to 100 %.

Default Value

The default value is 100 %.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SNVT Reference

SNVT_lev_cont (21)

2.4.16 Tilt Speed

```
network input config UCPTspeedTilt nciSpeedTilt;
```

This input configuration property sets the motor speed during tilting.

Valid Range

The valid range is 0 to 100 %.

Default Value

The default value is 60 %.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

SNVT Reference

SNVT_lev_cont (21)

2.4.17 Tension Relief

```
network input config UCPTtensionRelief nciTensionRelief;
```

This input configuration property controls the back movement of venetian blinds at upper end to avoid permanent stress on ropes.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, no relieving.

Configuration Requirements/Restrictions

This CP has no modification restrictions. It can be modified at any time.

2.5 Additional Considerations

2.5.1 SNVT_setting consideration

When using SNVT_setting for sunblinds, note that there are different types of sunblinds available on the market, which may differ in their mechanical possibilities. These differences may be exposed through the resulting UP and DOWN movement and slat movement.

For example, with standard shutters: only the sunblind position is adjustable. A slat angle is usually not available. However, using Venetian blinds: the sunblind position is adjustable as well as the slat angle.

The following table, “*Interpretation of SNVT_setting applying on sunblinds*” is related to the use of Venetian blinds, which are a complex sunblind type.

All other sunblind types may be controlled easily with the same consideration, but noting that some sunblinds do not have the “Slat angle” feature.

Sunblind position and slat angle related to the sun position and a building

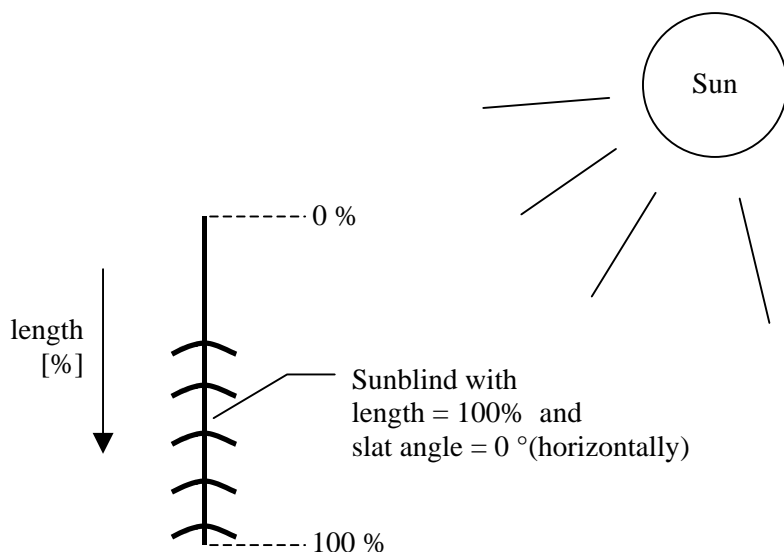


Figure 5: Venetian blind related to the sun position

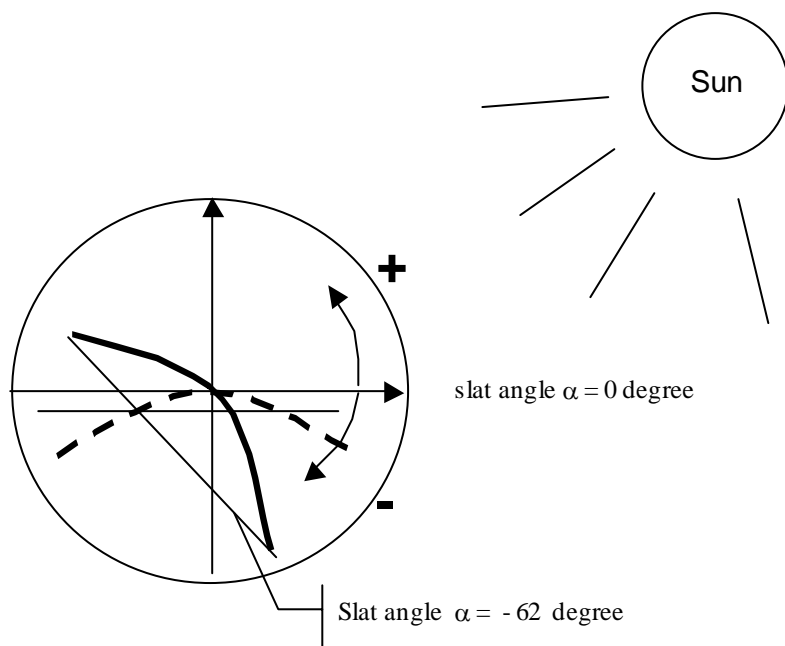


Figure 6: Slat angle scheme

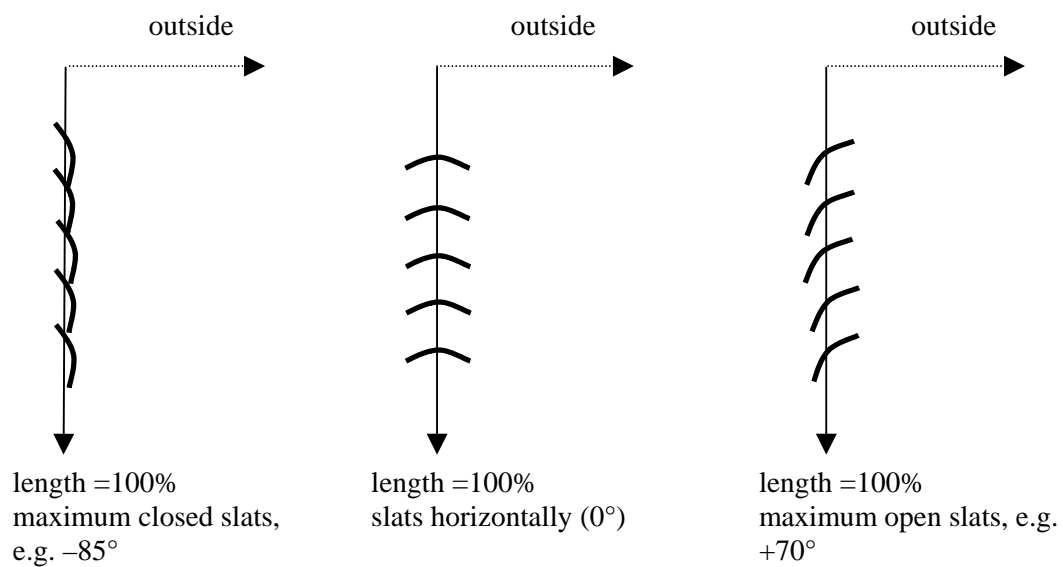


Figure 7: Slat angle examples related to a building

Table 3 Interpretation of SNVT_setting applied to sunblinds

Function	Setting** position “x”	Rotation*** slat angle “α”	Description	Sunblind behaviour
SET_OFF	Don't care	Don't care	Mode OFF	Delete last local position, no actuator action
SET_ON	Don't care	Don't care	Mode ON	Recall last local position
SET_DOWN	INVALID	INVALID	Sunblind moves down	Sunblind moves down to the position specified in the actuator device or until STOP command is received.
	INVALID	$0^\circ \leq \alpha \leq 360^\circ$	Relative slat angle downwards	Sunblind rotates the slats downwards by a relative angle of α
	0%	$0^\circ \leq \alpha \leq 360^\circ$	Slats move relatively	Sunblind rotates the slats as specified in the device. If $\alpha = 0$ or INVALID : At the new sunblind position, the slat angle is the same as before.
	100%	$0^\circ \leq \alpha \leq 360^\circ$	Sunblind moves down, slats move relatively	Sunblind moves down as specified in the device. If $\alpha = 0$ or INVALID: At the new sunblind position, the slat angle is the same as before.
	$0 < x < 100\%$	$0^\circ \leq \alpha \leq 360^\circ$	Sunblind /slats move down relatively	Sunblind reacts as specified in the device. If $\alpha = 0$: At the new sunblind position, the slat angle is the same as before.
	$0 < x < 100\%$	INVALID	Sunblind moves down relatively	Moves the sunblind up by x percent to a new sunblind position.
SET_UP	INVALID	INVALID	Sunblind moves up	Sunblind moves up to the position specified in the actuator device or until STOP command is received.
	INVALID	$0^\circ \leq \alpha \leq 360^\circ$	Relative slat angle upwards	Sunblind rotates the slats upwards by a relative angle of α
	$0 \leq x \leq 100\%$	$0^\circ \leq \alpha \leq 360^\circ$	Sunblind/slats moves up upwards	Moves the sunblind up by x percent to a new sunblind position. If $\alpha = 0$: At the new sunblind length, the slat angle is the same as before.
	$0 \leq x \leq 100\%$	INVALID	Sunblind moves up	Moves the sunblind up by x percent to a new sunblind position.
SET_STOP	Don't care	Don't care	Sunblind stops	STOP sunblind immediately.
SET_STATE	$0 \leq x \leq 100\%$	INVALID	Setting sunblind's position only	Setting of the absolute position as defined by the “setting” field.
	INVALID	$-360 < \alpha \leq 360^\circ$	Setting sunblind's slat angle only	Setting of the absolute rotation angle as defined by the “rotation” field.
	$0 \leq x \leq 100\%$	$-360 < \alpha \leq 360^\circ$	Setting Sunblind to position x and to slat angle α	Set the absolute sunblind position to x and slat angle to α .
SET_NUL			Ignored	Cancels the last command of this input

** The values of the *setting* column correspond to the SNVT_lev_cont format. Herewith, INVALID means a value of 0xFF.

*** The values of the *rotation* column correspond to the SNVT_angle_deg format. Herewith, INVALID means a value of 0x7FFF.

For sensor devices using SNVT Setting: Values that are not in the specified range will be interpreted as INVALID values.

Relative Positioning relate always on the fully mechanical/physical movement range of a sunblind.

Interpretation of nvoSblndStatus (SNVT_Setting):

(used for feedback and monitoring)

Function	Setting** position “x”	Rotation*** slat angle “α”	Description	Sunblind behaviour
SET_ON SET_OFF SET_NUL	INVALID ^a or Actual absolute position	INVALID ^a or Actual absolute angle		Feeds-back the sunblind’s position, slat angle, and Mode Status

^a SET_NUL or INVALID: value is not applicable.

3. Sunblind Controller

UFPTsunblindController #6111

3.1 Overview

The SOMFY Sunblind Controller inherits all mandatory and optional members from the LonMark® Sunblind Controller Object # 6111. Various SOMFY specific members have been added.

This document describes the profile for the Sunblind Controller Functional Block. The Sunblind Controller Functional Block generates a control output SNVT_setting (see also profile “Sunblind Actuator”) and state information SNVT_sbldn_state. The output values may depend on one or more input SNVTs.

Typically the Sunblind Controller output is connected to the input of a set of Sunblind Actuators. However in Somfy devices one Controller per motor is available. A sunblind switch may be used to have manual access to the Sunblind Controller. A BMS (Building Management System) may influence the controller and the resulting decision is directly transmitted via SNVT_setting to a sunblind actuator Functional Block.

Remark: Opposite to older applications the priority of inputs is implemented according to SCPTnvPriority. This means that the name of an input variable says nothing about its priority. Thus for example nviSunLux might get a higher priority than nviOverride!

3.2 Functional-Block Details

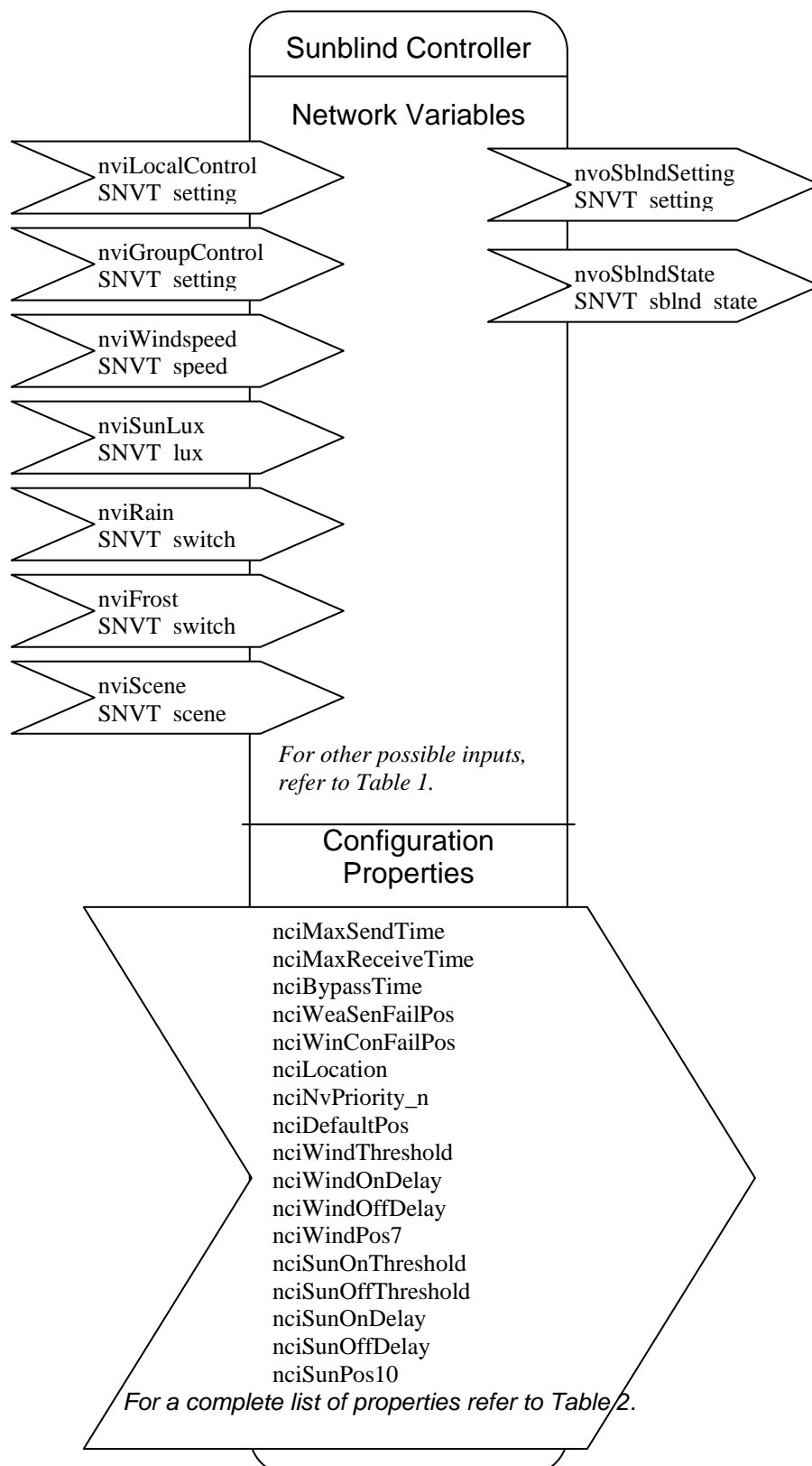


Figure 2 Functional-Block Details

Table 1 SNVT Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nvoSblndSetting	SNVT_setting	117	Controller setpoint output
2 (S)	nvoSblndState	SNVT_sblnd_state	180	Sunblind controller state output
3 (S)	nviLocalControl	SNVT_setting	117	Local setpoint adjustment
4 (S)	nviGroupControl	SNVT_setting	117	Group setpoint adjustment
5 (S)	nviWindspeed	SNVT_speed	34	Wind speed sensor input
6 (S)	nviSunLux	SNVT_lux	79	Outdoor brightness input standard range (0...65kLux)
7 (S)	nviRain	SNVT_switch	95	Rain sensor input
8 (S)	nviFrost	SNVT_switch	95	Frost sensor input
9 (S)	nviDawn	SNVT_switch	95	Dawn state input
10 (S)	nviDusk	SNVT_switch	95	Dusk state input
11 (S)	nviOutdoorTemp	SNVT_temp_p	105	Outdoor air temperature input
12 (S)	nviIndoorTemp	SNVT_temp_p	105	Indoor temperature input
13 (S)	nviOutdoorRH	SNVT_lev_percent	81	Outdoor relative humidity input
14 (S)	nviIndoorRH	SNVT_lev_percent	81	Indoor relative humidity input
15 (S)	nviIllumLev	SNVT_lux	79	Indoor illumination level input
16 (S)	nviScene	SNVT_scene	115	Scene trigger input
17 (S)	nviGlobalControl	SNVT_setting	117	Global setpoint adjustment
18 (S)	nviWindowContact	SNVT_switch	95	Window contact input
19 (S)	nviAutoMode	SNVT_switch	95	Auto mode enabling/disabling input
20 (S)	nviOverride	SNVT_switch	95	Override state input
21 (S)	nviMaintenance	SNVT_switch	95	State input for maintenance reasons
22 (S)	nviTerminalLoad	SNVT_lev_percent	81	Heating/cooling demand input
23 (S)	nviOccSensor	SNVT_occupancy	109	Occupancy sensor value input
24 (S)	nviOccManCmd	SNVT_occupancy	109	Occupancy override input
25 (S)	nviGlare	SNVT_switch	95	Glare detecting sensor value input
26 (S)	nviSunElevation	SNVT_angle_deg	104	Astronomical sensor value input for sun declination
27 (S)	nviSunAzimuth	SNVT_angle_deg	104	Astronomical sensor value input for sun inclination
28 (S)	nviSetOverride	SNVT_setting	117	Override setpoint adjustment
29 (S)	nviSetMaint	SNVT_setting	117	Maintenance setpoint adjustment
#1 (U)	nviWindDir	SNVT_angle_deg	34	Wind direction sensor input
#2 (U)	nviIceReset	SNVT_switch	95	Releases the ice function if trigger conditions have disappeared
#3 (U)	nviInTempHigh	SNVT_switch	95	This input can be used instead of comparing the inside temperature value with a setpoint
#4 (U)	nviSunGlobRad	UNVT_sunGlobRad	3	Global radiation input in W/m² to measure bright light

* S = LonMark Standard, U = User defined

Table 2 SCPT Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/ UCPT Index	Associated NVs **	Description
S	SCPTmaxSendTime nciMaxSendTime SNVT_time_sec (107)	49	nv1 nv2	Maximum period of time that expires before the functional block will automatically (cyclically) update NV
S	SCPTmaxRcvTime nciMaxReceiveTime SNVT_time_sec (107)	48	nv5, nv7 nv8, nv18, nv#1	Maximum period of time that expires before the NVs will use their default values
S	SCPTbypassTime nciBypassTime SNVT_time_min (123)	34	Entire Functional Block	Defines the maximum amount of time that the controller can be in the bypass (occupancy) mode
S	SCPTdefaultSetting nciWeaSenFailPos SNVT_setting (117)	297	Entire Functional Block	Used to provide the default Position for a Heartbeat Failure of the Weather Sensor
S	SCPTdefaultSetting nciWinConFailPos SNVT_setting (117)	297	nv18	Used to provide the default Position for a Heartbeat Failure of the Window Contact
S	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Functional Block	Used to provide physical location of the device
U	UCPTnvPriority nciNvPriority_n UNVT_prioRef (#1)	34 - 38 52 - 62	Entire Functional Block	Set the priority of the Input NV's at all 16 available
U	UCPTdefaultPos nciDefaultPos SNVT_setting (117)	71	Entire Functional Block	Setpoint value which is sent if no functionality is pending
U	UCPTwindThreshold nciWDirThreshold SNVT_speed (34)	24	nv#1	Setpoint at which the windalarm functionality starts and terminates
U	SCPTorientation nciWindDirOrientation SNVT_angle_deg (104)	231	nv6 nv#1	The orientation angle of the facade
U	UCPTwindThreshold nciWindThreshold SNVT_speed (34)	24	nv5	Setpoint at which the windalarm functionality starts and terminates
U	SCPTclOnDelay nciWindOnDelay SNVT_time_sec (107)	86	nv5 nv#1	The delay after which the controller output is switched on
U	SCPTclOffDelay nciWindOffDelay SNVT_time_sec (107)	85	nv5 nv#1	The delay after which the controller output is switched off
U	UCPTwindPos7 nciWindPos7 SNVT_setting (117)	39	nv5 nv16	Windalarm Position, Scene 7
U	SCPTclOnDelay nciRainOnDelay SNVT_time_sec (107)	86	nv7	The delay after which the controller output is switched on
U	SCPTclOffDelay nciRainOffDelay SNVT_time_sec (107)	85	nv7	The delay after which the controller output is switched off
U	UCPTtrainPos8 nciRainPos8 SNVT_setting (117)	39	nv7 nv16	Rain Position, Scene 8

U	SCPTclOnDelay nciFrostOnDelay SNVT_time_sec (107)	86	nv8	The delay after which the controller output is switched on
U	SCPTclOffDelay nciFrostOffDelay SNVT_time_sec (107)	85	nv8	The delay after which the controller output is switched off
U	UCPTfrostPos9 nciFrostPos9 SNVT_setting (117)	39	nv8 nv16	Frost Position, Scene 9
U	UCPTsunOnThreshold nciSunOnThreshold SNVT_lux (79)	27	nv6 nv#4	Setpoint at which the sun functionality starts
U	UCPTsunOffThreshold nciSunOffThreshold SNVT_lux (79)	28	nv6 nv#4	Setpoint at which the sun functionality terminates
U	SCPTclOnDelay nciSunOnDelay SNVT_time_sec (107)	86	nv6	The delay after which the controller output is switched on
U	SCPTclOffDelay nciSunOffDelay SNVT_time_sec (107)	85	nv6	The delay after which the controller output is switched off
U	UCPTsunPos10 nciSunPos10 SNVT_setting (117)	42	nv6 nv16	Sun Position, Scene 10
U	UCPToffAngleUse nciOffAngleUse boolean	48	nv6	Determines whether slats should move to a horizontal position after 10% of the delay time
U	UCPTminSlatAngle nciMinSlatAngle SNVT_angle_deg (104)	46	nv6	lowest allowed angle of sun blind slats (-90° is completely closed)
U	UCPTminSlatStep nciMinSlatStep SNVT_angle_deg (104)	66	nv6	Determines the minimum angle that slats should move to follow the sun
U	UCPTsunTrackUpdate nciSunTrackUpdate SNVT_time_min (123)	64	nv6	Determines the time period after which a new sun position is calculated
U	UCPTscreenLength nciScreenLength SNVT_lenght_mil (20)	67	nv6	Total vertical length of sun protection; used for suntracking
U	UCPTsunDepth nciSunDepth SNVT_lenght_mil (20)	68	nv6	How far the sun may enter horizontally at the bottom of the sun protection; used for suntracking
U	UCPTsunOffPos16 nciSunOffPos16 SNVT_setting (117)	70	nv6 nv16	Sun Off Position, Scene 16
U	UCPTdawnPos11 nciDawnPos11 SNVT_setting (117)	43	nv9 nv16	Dawn Position, Scene 11
U	UCPTduskPos12 nciDuskPos12 SNVT_setting (117)	43	nv10 nv16	Dusk Position, Scene 12
U	UCPTfrostTemp nciFrostTemp SNVT_temp_p (105)	47	nv11	Temperature setpoint below which damage due to frozen sunprotection device might occur
U	UCPTiceRH nciIceRH SNVT_lev_percent (81)	50	nv13	Relative Humidity at which ice might occur

U	SCPTonOffHyst nciOnOffHyst SNVT_level_cont (21)	84	nv12 nv14	Sets the hysteresis for the indoor temperature and humidity setpoint.
U	SCPTmaxRemoteTempS etpoint nciTempSetp SNVT_level_cont (21)	244	nv12	Setpoint for the operational high temperature limit (remote sensor)
U	SCPTstepValue nciStepValue SNVT_level_cont (21)	84	nv12, nv14 nv15, nv#3	The step value for up/down ramps or fade control
U	UCPTthresholdRH nciThresholdRH SNVT_lev_percent (81)	98	nv14 nv#2	Setpoint at which the window control functionality starts and terminates
U	SCPTluxSetpoint nciIllumSetp SNVT_lux (79)	82	nv15	The illumination level setpoint for the controller
U	UCPTlocalIP1 nciLocalIP1 SNVT_setting (117)	20	nv16	position that can be recalled if local key control is enabled
U	UCPTscenePos_n nciScenePos_n SNVT_setting (117)	93 - 97	nv16	Setpoint value which is sent if the particular scene is recalled
U	UCPToverrdPos14 nciOverrdPos14 SNVT_setting (117)	29	nv20 nv16	Override Position, Scene 14
U	UCPTmaintPos15 nciMaintPos15 SNVT_setting (117)	30	nv21 nv16	Maintenance Position, Scene 15
U	UCPTglarePos13 nciGlarePos13 SNVT_setting (117)	45	nv25 nv16	Glare Position, Scene 13
U	UCPTtrainHistory nciRainHistory SNVT_time_hour (124)	49	nv#2	Time period after rain which is needed that sunprotection becomes dry

* S = LonMark Standard, U = User defined

** List of NVs to which this configuration property applies.

3.3 Network Variables

3.3.1 Setpoint Output

```
network output SNVT_setting nvoSblndSetting;
```

This output network variable provides the Sunblind Controller setpoint value which may depend on any network input and configuration properties.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nvoSblndSetting.function = SET_NUL
```

```
nvoSblndSetting.setting = 0
```

```
nvoSblndSetting.rotation = 0
```

Configuration Considerations

The transmission of this NV is regulated by the time specified in the nciMaxSendTime CP, unless the nciMaxSendTime CP has a value of 0.0, or other invalid value; in which case, the NV is not regulated by the nciMaxSendTime value.

When Transmitted

The output variable is transmitted:

- When the ‘state’ has changed.
- Regularly at the interval defined by the configuration variable nciMaxSendTime.

Default Service Type

The default service type is unacknowledged.

3.3.2 State Output

```
network output SNVT_sblnd_state nvoSblndState;
```

This output network variable is used to report the actual setpoint, error messages and the cause of the latest change of this setpoint. (For details refer to the *LONMARK SNVT and SCPT Master List*, versions 13.00 and later).

Valid Range

The Valid Range of nvoSblndState.pos is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

See Enum Lists (for details refer to the *LONMARK SNVT and SCPT Master List*, versions 13.00 and later).

Default Service Type

The default service type is unacknowledged.

Configuration Considerations

The transmission of this NV is regulated by the time specified in the nciMaxSendTime CP, unless the nciMaxSendTime CP has a value of 0.0, or other invalid value; in which case, the NV is not regulated by the nciMaxSendTime value.

When Transmitted

The output variable is transmitted:

- When the ‘state’ has changed.
- Regularly at the interval defined by the configuration variable nciMaxSendTime.

If more than one cause for an error messages is present, then this NV is updated by the latest occurrence of an error.

3.3.3 Local Control Input

```
network input SNVT_setting nviLocalControl;
```

This network variable input is provided to set the controller setpoint output. Usually this command is given by a local control device. The changes made to the setpoint value are not stored permanently into the memory.

Canceling the control is done by `nviLocalControl.function = SET_NUL`.

In contrast to the other setting inputs the local input function can be additionally inactivated (apply `SET_NUL`) by an update of the Auto Mode Input (switch to 100,0 1).

Automatic on/off switching may be achieved by `nviLocalControl.function = SET_OFF/SET_ON`. *For details refer to the sunblind actuator profile or the SNVT Master List and Programmer's Guide.*

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nviLocalControl.function = SET_NUL
```

```
nviLocalControl.setting = 0
```

```
nviLocalControl.rotation = 0
```

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

3.3.4 Group Control Input

```
network input SNVT_setting nviGroupControl;
```

This network variable input is provided to set the controller setpoint output. Usually this command is given by a device which is intended to control groups of controllers or actuators. The changes made to the setpoint value are not stored permanently into the memory.

Canceling the control is done by `nviGroupControl.function = SET_NUL`.

Automatic on/off switching may be achieved by `nviGroupControl.function = SET_OFF/SET_ON`. *For details refer to the sunblind actuator profile or the SNVT Master List and Programmer's Guide.*

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nviGroupControl.function = SET_NUL

nviGroupControl.setting = 0

nviGroupControl.rotation = 0

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

3.3.5 Wind Speed Input

```
network input SNVT_speed nviWindspeed;
```

This input network variable is used to get wind speed influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

A value of 6553,5 m/s causes the controller to behave as specified for the event of a wind alarm regardless of other values, which determines the wind speed specific behaviour.

Default Value

nviWindspeed = 0xFFFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- SCPTmaxRcvTime
- SCPTclOnDelay
- SCPTclOffDelay
- UCPTwindPosition7
- UCPTwindThreshold

3.3.6 SunLux Input

```
network input SNVT_lux nviSunLux;
```

This input network variable is used to get sun (outdoor) brightness influence with a range from 0...65 kLux on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Only effective in Auto Mode.
- Appearing and disappearing position possible.
- Sun tracking with internal calculated elevation and azimuth possible.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviSunLux = 0xFFFF

Configuration Considerations

Behaviour depends on the values of the following properties:

SCPTclOffDelay

SCPTclOnDelay

SCPTorientation

UCPTsunPosition10

UCPTsunOffPosition16 only effective if no other function is pending

UCPTminSlatAngle limits slat angle during sun tracking

UCPTminSlatStep minimum slat displacement during sun tracking

UCPTsunTrackUpdate minimum time for slat adjustment during sun tracking

UCPToffAngleUse additional disappearing action after 10% delay

UCPTscreenLength and UCPTsunDepthsuntracking with screens/roller blinds

UCPTsunOnThreshold

UCPTsunOffThreshold

3.3.7 Rain Sensor Input

```
network input SNVT_switch nviRain;
```

This input network variable is used to get rain (precipitation) sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviRain.state	nviRain.value	Meaning
0	0	no rain
1	0	no rain
1	1..200 (0.5% .. 100.0%)	rain level
0xFF	not considered	INVALID

Default Value

nviRain.value = 0

nviRain.state = 0xFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- SCPTmaxRcvTime
- SCPTclOffDelay
- SCPTclOnDelay
- UCPTTrainPosition8

3.3.8 Frost Sensor Input

```
network input SNVT_switch nviFrost;
```

This input network variable is used to get frost sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

This input network variable can also be used as ice input if UCPTTrainHistory > 0. Then the influence is reset by time or by nviIceReset.

Valid Range

For details refer to The SNVT Master List and Programmer's Guide.

nviFrost.state	nviFrost.value	Meaning
0	not considered	no frost
1	0	no frost
1	> 0	frost
0xFF	not considered	INVALID

Default Value

nviFrost.value = 0

nviFrost.state = 0xFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- SCPTmaxRcvTime
- SCPTclOffDelay
- SCPTclOnDelay
- UCPTfrostPosition9

3.3.9 Dawn State Input

```
network input SNVT_switch nviDawn;
```

The term “Dawn” means the time before sunrise (morning) when it is more bright than during the night but not as bright as the average of daytime.

This input network variable is used to get dawn influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to The SNVT Master List and Programmer’s Guide.

nviDawn.state	nviDawn.value	Meaning
0	not considered	no dawn
1	0	no dawn
1	> 0	dawn
0xFF	not considered	INVALID

Default Value

nviDawn.value = 0

nviDawn.state = 0xFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- UCPTdawnPosition11

3.3.10 Dusk State Input

```
network input SNVT_switch nviDusk;
```

The term “Dusk” means the time after sunset (evening) when it is no longer as bright as the average of daytime but brighter than during the night.

This input network variable is used to get dusk influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to The SNVT Master List and Programmer’s Guide.

nviDusk.state	nviDusk.value	Meaning
0	not considered	no dusk
1	0	no dusk
1	> 0	dusk
0xFF	not considered	INVALID

Default Value

nviDusk.value = 0

nviDusk.state = 0xFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- UCPTduskPosition12

3.3.11 Outdoor Temperature Input

```
network input SNVT_temp_p nviOutdoorTemp;
```

This input network variable is used to get outdoor temperature sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Can be used as additional frost input. However, no heartbeat monitoring is possible. A priority assignment concerns only the frost function.
- Is used for natural ventilation. See Indoor Temperature Input.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviOutdoorTemp = 0x7FFF

Configuration Considerations

See Frost Sensor Input.

Behaviour depends on the values of the following properties:

- UCPTfrostTemp

3.3.12 Indoor Temperature Input

```
network input SNVT_temp_p nviIndoorTemp;
```

This input network variable is used to get indoor temperature sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Only effective in Auto Mode.
- Used to open and close windows step by step.
- If Outdoor Temperature Input is used it must be colder outside.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviIndoorTemp = 0x7FFF

Configuration Considerations

See Relative Humidity Input.

Behaviour depends on the values of the following properties:

- SCPTmaxRemoteTempSetpoint
- SCPTonOffHysteresis
- SCPTstepValue.

3.3.13 Outdoor Relative Humidity Input

```
network input SNVT_lev_percent nviOutdoorRH;
```

This input network variable is used to get outdoor relative humidity sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Can be used as additional ice input.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviOutdoorRH = 0x7FFF

Configuration Considerations

This input cannot get any priority level!

See Reset Ice Input.

Behaviour depends on the values of the following properties:

- UCPTiceRH

3.3.14 Indoor Relative Humidity Input

```
network input SNVT_lev_percent nviIndoorRH;
```

This input network variable is used to get indoor relative humidity sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Only effective in Auto Mode.
- Used to open and close windows step by step.
- If Outdoor Relative Humidity Input is used it must be drier outside.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviIndoorRH = 0x7FFF

Configuration Considerations

See Indoor Temperature Input.

Behaviour depends on the values of the following properties:

- UCPTthresholdRH
- SCPTonOffHysteresis
- SCPTstepValue

3.3.15 Illumination Level Input

```
network input SNVT_lux nviIllumLev;
```

This input network variable is used to get indoor light sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Only effective in Auto Mode.
- Used to open and close solar protection step by step to achieve natural illumination inside.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviIllumLev = 0xFFFF

Configuration Considerations

See Indoor Temperature Input.

Behaviour depends on the values of the following properties:

- SCPTluxSetpoint (fix hysteresis of 20%)
- SCPTstepValue

3.3.16 Scene Input

```
network input SNVT_scene nviScene;
```

Every scene relates to a particular setpoint value, which could be sent via nvoSbldSetting.

This input network variable recalls a scene or learns the selected scene preset memory with the current sunblind position and slat angle. If the recalled scene number is not found in the preset memory, the controller takes no action.

- Scene 1 is local IP1 of the corresponding MoCo channel.
- Learning only for scene 1 through 6 possible.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

SC_NUL

Configuration Considerations

Behaviour depends on the values of the following properties:

- UCPTscenePos# (dedicated scene positions)
- UCPTxxxPos# (additional dual purpose positions)

3.3.17 Global Control Input

```
network input SNVT_setting nviGlobalControl;
```

This network variable input is provided to set the controller setpoint output. Usually this command is given by a device which is intended to control all sunblind controllers or actuators in a network area. The changes made to the setpoint value are not stored permanently into the memory. The corresponding output behaviour of the sunblind controller depends on the configuration.

Cancelling the control is done by `nviGlobalControl.function = SET_NUL`.

Automatic on/off switching may be achieved by `nviGlobalControl.function = SET_OFF/SET_ON`. For details refer to the *sunblind actuator profile* or the *SNVT Master List and Programmer's Guide*.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nviGlobalControl.function = SET_NUL

nviGlobalControl.setting = 0

nviGlobalControl.rotation = 0x7FFF

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

3.3.18 Window Contact Input

```
network input SNVT_switch nviWindowContact;
```

This input network variable is used to get window contact influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Typically this network input is intended for protection of the equipment driven by Sunblind Actuators.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviWindowContact.state	nviWindowContact.value	Meaning
0	not considered	window is closed
1	0	window is closed
1	>0	window is open
0xFF	not considered	INVALID

Default Value

nviWindowContact.value = 0

nviWindowContact.state = 0xFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- SCPTmaxRcvTime
- SCPTdefaultSetting (different from weather sensor failure position, also used if window is open)

3.3.19 Auto Mode Input

```
network input SNVT_switch nviAutoMode;
```

This input network variable is used to get mode switch functionality on the controller. It enables/disables sun/illumination functions and window functions permanently.

- Any On-event cancels Local Control Input's influence.
- Can be also switched by Local, Group, Global, Override and Maintenance Inputs.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviMode.state	nviMode.value	Meaning
0	not considered	Disable Auto-Mode
1	0	Disable Auto-Mode
1	> 0	Enable Auto-Mode
0xFF	not considered	INVALID

Default Value

nviAutoMode.value = 0

nviAutoMode.state = 0xFF

Configuration Considerations

Needs to be eventually considered in the priority order.

3.3.20 Override Input

```
network input SNVT_switch nviOverride;
```

This input network variable is used to get override influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviOverride.state	nviOverride.value	Meaning
0	not considered	override disabled
1	0	override disabled
1	> 0	override enabled
0xFF	not considered	INVALID

Default Value

nviOverride.value = 0

nviOverride.state = 0xFF

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

Behaviour depends on the values of the following properties:

- UCPToverridePos14

3.3.21 Maintenance State Input

```
network input SNVT_switch nviMaintenance;
```

This input network variable is used to get maintenance signal influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviMaintenance.state	nviMaintenance.value	Meaning
0	not considered	maintenance disabled
1	0	maintenance disabled
1	> 0	maintenance enabled
0xFF	not considered	INVALID

Default Value

nviMaintenance.value = 0

nviMaintenance.state = 0xFF

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

Behaviour depends on the values of the following properties:

- UCPTmaintPos15

3.3.22 Terminal Load Input

```
network input SNVT_lev_percent nviTerminalLoad;
```

This input is used to receive the current heating/cooling demand of the system which the sunblind controller shares in. Positive values indicate that cooling energy is required, while negative values indicate that heating energy is required.

The corresponding output behaviour of the sunblind controller is that the received percentage is used as setting; the angle, if applicable, is horizontal for heating and closed for cooling.

Valid Range

The typical range is -100.0% to 100.0%.

Default Value

nviTerminalLoad = 0 (no heating/cooling demand)

Configuration Considerations

None specified.

3.3.23 Occupancy Sensor Input

```
network input SNVT_occupancy nviOccSensor;
```

This input network variable is used to get occupancy sensor influence on the controller.

The network variable is used to indicate the presence of occupants in the controlled space. It is typically sent by an occupancy sensor. The corresponding output behaviour of the sunblind controller is that during occupancy the last local position is recalled (SET_ON) and during absence the previous control function is retriggered.

Valid Range

- 0 = OC_OCCUPIED: The occupancy sensor is indicating that the room is occupied.
- 1 = OC_UNOCCUPIED: The occupancy sensor is indicating that the room is unoccupied. The Sunblind Controller continues operating in the occupied mode for a period of time defined by nciBypassTime.
- 0xFF = OC_NUL: This is the initial value after power-up and it remains until another value is received. It is used to indicate that this network variable input is invalid or unused. With the value OC_NUL the considered area is supposed to be occupied.

All other enumerations are handled as equivalent to OC_NUL.

Default Value

nviOccSensor = OC_NUL

Configuration Considerations

Behaviour depends on the values of nciBypassTime.

3.3.24 Occupancy Override Input

```
network input SNVT_occupancy nviOccManCmd;
```

This input network variable is used to get **business hour info influence** on the controller. It is typically sent by a wall-mounted occupant-interface module or a supervisory node, to manually control occupancy modes, or to override the occupancy sensor input.

To override the occupancy sensor input the input priority must be set accordingly.

The corresponding output behaviour of the sunblind controller is that during occupancy the setting of the Local Control input is used and during absence the one of Global Control input.

Valid Range

- 0 = OC_OCCUPIED: The Sunblind Controller operates in the occupied mode (Local Control setting).
- 1 = OC_UNOCCUPIED: The Sunblind Controller operates in the unoccupied mode (Global Control setting).
- 2 = OC_BYPASS: The Sunblind Controller operates in the occupied mode for a period of time defined by nciBypassTime.
- 3 = OC_STANDBY: The Sunblind Controller operates in the standby mode (does nothing).
- 0xFF = OC_NUL: This is the initial value after power-up and it remains until another value is received. It is used to indicate that this network variable input is invalid, unused or to cancel a previous command.

Default Value

nviOccManCmd = OC_NUL

Configuration Considerations

A configuration property Bypass Time defines the maximum amount of time that the controller can be in the Bypass mode following a single Bypass request via nviOccManCmd. Additional Bypass requests can restart the timer.

3.3.25 Glare Sensor Input

```
network input SNVT_switch nviGlare;
```

The term “Glare” means conditions, when occupants could be exposed to direct sun light or something similar.

This input network variable is used to get glare detecting sensor influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviGlare.state	nviGlare.value	Meaning
0	not considered	no glare
1	0	no glare
1	>0	glare
0xFF	not considered	INVALID

Default Value

nviGlare.value = 0

nviGlare.state = 0xFF.

Configuration Considerations

Behaviour depends on the values of the following properties:

- UCPTglarePos13

3.3.26 Sun Elevation Input

```
network input SNVT_angle_deg nviSunElevation;
```

This network input represents information from a sun-position calculating device and triggers the recalculation of the controller output.

The elevation is the angle between the horizon and the middle of the sun, considered out of the viewpoint of an observer. Thus this input should be handled in conjunction with the Sun Azimuth Input.

Valid Range

For details refer to The SNVT Master List and Programmer's Guide.

The values 0..90° are typically used (0= Sunrise/Sunset; 90 = zenith position)

Default Value

nviSunElevation = 0x7FFF

Configuration Considerations

This input cannot get any priority level!

3.3.27 Sun Azimuth Input

```
network input SNVT_angle_deg nviSunAzimuth;
```

This network input represents information from a sun-position calculating device and triggers the recalculation of the controller output.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

The values 0..359° are typically used (0 = NORTH, 90 = EAST, 180 = SOUTH, 270 = WEST).

Default Value

nviSunAzimuth = 0x7FFF

Configuration Considerations

This input cannot get any priority level!

3.3.28 Override Setting Input

```
network input SNVT_setting nviSetOverride;
```

This input network variable is used to get override influence on the controller. The corresponding output behaviour is defined by the SNVT_Setting.

Cancelling the control is done by nviSetOverride.function = SET_NUL.

Automatic on/off switching may be achieved by nviSetOverride.function = SET_OFF/SET_ON. *For details refer to the sunblind actuator profile or the SNVT Master List and Programmer's Guide.*

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nviSetOverride.function = SET_NUL

nviSetOverride.setting = 0

nviSetOverride.rotation = 0xFF

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

3.3.29 Maintenance Setting Input

```
network input SNVT_setting nviSetMaint;
```

This input network variable is used to get maintenance influence on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

Cancelling the control is done by `nviSetMaint.function = SET_NUL`.

Automatic on/off switching may be achieved by `nviSetMaint.function = SET_OFF/SET_ON`. For details refer to the sunblind actuator profile or the SNVT Master List and Programmer's Guide.

Valid Range

The Valid Range is given by the interpretation of the "SNVT_setting related to sunblinds" as shown in the tables in the chapter "Additional Considerations" in the Sunblind Actuator Profile.

Default Value

```
nviSetMaint.function = SET_NUL
```

```
nviSetMaint.setting = 0
```

```
nviSetMaint.rotation = 0xFF
```

Configuration Considerations

Although the NV's name could lead to the assumption that any priority is implied the latter is only fixed by the Input Priority Configuration.

3.3.30 Wind Direction Input

```
network input SNVT_angle_deg nviWindDir;
```

This input network variable is used to weight the wind speed influence (`nviWindspeed`) on the controller depending on the direction of the wind. The corresponding output behaviour of the sunblind controller depends on the configuration.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

The values 0..359° are typically used (0 = NORTH, 90 = EAST, 180 = SOUTH, 270 = WEST).

Default Value

nviWindDir = 0xFFFF

Configuration Considerations

Behaviour depends on the values of the following properties:

- SCPTclOnDelay (same as Wind Speed Input)
- SCPTclOffDelay (same as Wind Speed Input)
- SCPTorientation
- UCPTwindThreshold (different from Wind Speed Input)

3.3.31 Reset Ice Input

```
network input SNVT_switch nviIceReset;
```

This input network variable is used to terminate the influence of frost and rain or humidity on the controller if those inputs get sensor information beyond the corresponding trigger conditions.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviIceReset.state	nviIceReset.value	Meaning
0	not considered	no action
1	0	no action
1	>0	reset
0xFF	not considered	INVALID

Default Value

nviIceReset.value = 0

nviIceReset.state = 0xFF.

Configuration Considerations

See Frost and Outdoor Relative Humidity Input.

Behaviour depends on the values of the following properties:

- UCPTTrainHistory

3.3.32 Indoor Temperature High Input

```
network input SNVT_switch nviInTempHigh;
```

This input network variable is used to avoid the comparison of temperature and setpoint in the controller. It is an additional input for switch based window control.

Te controller is only influenced in Auto Mode.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

nviInTempHigh.state	nviInTempHigh.value	Meaning
0	not considered	temperature low
1	0	temperature low
1	>0	temperature high
0xFF	not considered	INVALID

Default Value

nviInTempHigh = 0

nviInTempHigh.state = 0xFF.

Configuration Considerations

See Indoor Temperature Input.

3.3.33 Sun Global Radiation Input

```
network input UNVT_sunGlobRad nviSunGlobRad;
```

This input network variable is used to get global brightness influence with a range from 0...65 W/m² on the controller. The corresponding output behaviour of the sunblind controller depends on the configuration.

- Only effective in Auto Mode.
- Same configuration as for Sun-Lux input
- Only effective if Sun-Lux input is not used.

Valid Range

For details refer to the *LONMARK SNVT Master List*, versions 13.00 and later.

Default Value

nviSunGlobRad = 0xFFFF

Configuration Considerations

See Sun-Lux Input.

3.4 Configuration Properties

3.4.1 Send Heartbeat

```
network input config SNVT_time_sec nciMaxSendTime;
```

This input configuration property sets the maximum period of time that can expire before the Object will automatically (cyclically) update one of the following network variables:

- nv1 – nvoSblndSetting
- nv2 – nvoSblndState

Valid Range

The valid range is 0 to 6553.5 seconds.

Default Value

The default value is 0.0 (no automatic update).

SCPT Reference

SCPTmaxSendTime (49)

3.4.2 Receiver Heartbeat

```
network input configSNVT_time_sec nciMaxRcvTime;
```

This configuration property is used to control the maximum time that elapses after the last update to a bound network input. Usually, that network input should be monitored which is intended for equipment protection, e.g. nviWindspeed, nviFrost, nviRain and nviWindowContact.

Valid Range

The valid range for this configuration property is any value between 0.0 sec and 6553.4 sec. Setting SCPTmaxRcvTime to zero disables the receive failure detect mechanism.

Default Value

The default value is 0 (no default detect).

SCPT Reference

SCPTmaxRcvTime (48)

3.4.3 Input Priority_x

```
network input config UCPTnvPriority_x nciNvPriority_x;
```

This configuration property is used to set the priorities of the inputs. It is possible to assign up to 16 priority levels for each controller.

Valid Range

The valid range for this configuration property is 1 to the NV-member number. An assigned value of “0” means, that Setting Priority for the assigned input is not applicable.

To facilitate the configuration the NV-member numbers were named by the enumeration ‘functions_t’.

All input events are considered according to their assigned priority. If no priority is assigned the last is considered. If a high priority input condition disappears the next lower pending priority level is executed.

Examples:

nciNvPriority_x = BF_NUL → nciNvPriority not applicable.

nciNvPriority0 = BF_RAIN → rain input has priority 0 (highest priority).

nciNvPriority4 = BF_GROUP → group control input has the priority 4.

...

...

nciNvPriority15 = BF_SCENE → scene input has the priority 15 (lowest).

Default Value

The default priority is as follows:

nciNvPriority0 = BF_SET_OVERRIDE

nciNvPriority1 = BF_OVERRIDE

nciNvPriority2 = BF_WINDSPEED

nciNvPriority3 = BF_WIND_DIR

nciNvPriority4 = BF_FROST

nciNvPriority5 = BF_OUTTEMP

nciNvPriority6 = BF_RAIN

nciNvPriority7 = BF_GLOBAL

nciNvPriority8 = BF_GROUP

The remaining priority levels are unused.

SCPT Reference

SCPTnvPriority format might be applied without losing information. The enumeration 'functions_t' provides both, the NV-member number and the user flag.

3.4.4 Bypass Time

```
network input config SNVT_time_min nciBypassTime;
```

This configuration property defines the maximum amount of time that the controller can be in the bypass (occupancy) mode following a single bypass request from another device over the network. Additional bypass requests can restart the timer. Setting this configuration property to zero disables the bypass function and no bypass takes place.

Valid Range

0 .. 65535 minutes

Default Value

0 (no bypass allowed)

SCPT Reference

SCPTbypassTime (34)

3.4.5 Default Position Heartbeat Failure Weather Sensor

```
network input config SNVT_setting nciWeaSenFailPos;
```

This configuration property defines the safety position of an **exterior** sunblind, when a failure of safety relevant weather sensor (e.g. wind, rain or frost) has occurred.

Valid Range

The Valid Range is given by the interpretation of the "SNVT_setting related to sunblinds" as shown in the tables in the chapter "Additional Considerations" in the Sunblind Actuator Profile.

Default Value

```
nciWeaSenFailPos.function = 3 (SET_UP)
nciWeaSenFailPos.setting = 0xFF
nciWeaSenFailPos.rotation = 0xFFFF
```

SCPT Reference

SCPTdefaultSetting (297)

3.4.6 Default Position Heartbeat Failure Window Contact

```
network input config SNVT_setting nciWinConFailPos;
```

This configuration property defines the safety position of an **interior** sunblind, when a failure of safety relevant sensor (e.g. window contact) has occurred.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciWinConFailPos.function = 3 (SET_UP)
nciWinConFailPos.setting = 0xFF
nciWinConFailPos.rotation = 0xFFFF
```

SCPT Reference

SCPTdefaultSetting (297)

3.4.7 Location Label

```
network input config SNVT_str_asc nciLocation;
```

This configuration property can be used to provide the location of the device. It has the same content as the location label of the actuator functional block.

Valid Range

Any NULL-terminated ASCII string up to 31 bytes of total length (including NULL). The string must be truncated if the length does not allow the 31st character to be the NULL (0x00).

Default Value

An ASCII string: “Sunblind Actuator”.

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTlocation (17)

3.4.8 Wind Direction Threshold

```
network input config UCPTwindThreshold nciWDirThreshold;
```

This configuration property defines the setpoint at which the direction weighted windalarm functionality starts and terminates.

Valid Range

0 .. 6553.5 Meters per Second (m/s)

Default Value

6.9 Meters per Second (m/s)

SNVT Reference

SNVT_speed (34)

3.4.9 Wind Direction Orientation

```
network input config SCPTorientation  
nciWindDirOrientation;
```

This configuration property defines the orientation angle of the facade. Wind is only considered if it's direction is this property $\pm 90^\circ$.

Valid Range

The values 0..359° are typically used (0 = NORTH, 90 = EAST, 180 = SOUTH, 270 = WEST).

Default Value

180 = SOUTH

SNVT Reference

SNVT_angle_deg (104)

3.4.10 Wind Speed Threshold

```
network input config UCPTwindThreshold nciWindThreshold;
```

This configuration property defines the setpoint at which the windalarm functionality starts and terminates.

Valid Range

0 .. 6553.5 Meters per Second (m/s)

Default Value

6.9 Meters per Second (m/s)

SNVT Reference

SNVT_speed (34)

3.4.11 Wind On Delay

```
network input config SCPTclOnDelay nciWindOnDelay;
```

This configuration property defines the delay after which the controller output is switched on and the windalarm functionality starts.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

2.0 Seconds (s)

SNVT Reference

SNVT_time_sec (107)

3.4.12 Wind Off Delay

```
network input config SCPTcloffDelay nciWindOffDelay;
```

This configuration property defines the delay after which the controller output is switched off and the windalarm functionality terminates.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

900.0 Seconds (s) (15 min)

SNVT Reference

SNVT_time_sec (107)

3.4.13 Wind Alarm Position, Scene 7

```
network input config UCPTwindPos7 nciWindPos7;
```

This configuration property defines the position settings which the controller outputs if windalarm is detected.

The same position is output if scene 7 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nciWindPos7.function = 3 (SET_UP)

nciWindPos7.setting = 0xFF

nciWindPos7.rotation = 0xFFFF

SNVT Reference

SNVT_setting (117)

3.4.14 Rain On Delay

```
network input config SCPTclOnDelay nciRainOnDelay;
```

This configuration property defines the delay after which the controller output is switched on and the rain functionality starts.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

1.0 Seconds (s)

SNVT Reference

SNVT_time_sec (107)

3.4.15 Rain Off Delay

```
network input config SCPTclOffDelay nciRainOffDelay;
```

This configuration property defines the delay after which the controller output is switched off and the rain functionality terminates.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

1800.0 Seconds (s) (30 min)

SNVT Reference

SNVT_time_sec (107)

3.4.16 Rain Position, Scene 8

```
network input config UCPTtrainPos8 nciRainPos8;
```

This configuration property defines the position settings which the controller outputs if rain is detected.

The same position is output if scene 8 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nciRainPos8.function = 3 (SET_UP)

nciRainPos8.setting = 0xFF

nciRainPos8.rotation = 0xFFFF

SNVT Reference

SNVT_setting (117)

3.4.17 Frost On Delay

```
network input config SCPTclOnDelay nciFrostOnDelay;
```

This configuration property defines the delay after which the controller output is switched on and the frost functionality starts.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

600.0 Seconds (s) (10 min)

SNVT Reference

SNVT_time_sec (107)

3.4.18 Frost Off Delay

```
network input config SCPTclOffDelay nciFrostOffDelay;
```

This configuration property defines the delay after which the controller output is switched off and the frost functionality terminates.

If ice detection is used (see Rain History) a value of 6553.5 (0xFFFF) makes using UCPTTrainHistory as delay.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

1800.0 Seconds (s) (30 min)

SNVT Reference

SNVT_time_sec (107)

3.4.19 Frost Position, Scene 9

```
network input config UCPTfrostPos9 nciFrostPos9;
```

This configuration property defines the position settings which the controller outputs if frost is detected.

The same position is output if scene 9 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nciFrostPos9.function = 3 (SET_UP)

nciFrostPos9.setting = 0xFF

nciFrostPos9.rotation = 0xFFFF

SNVT Reference

SNVT_setting (117)

3.4.20 Sun On Threshold

```
network input config UCPTSunOnThreshold
nciSunOnThreshold;
```

This configuration property defines the setpoint at which the sun functionality starts.

Valid Range

0 .. 65535 Lux

Default Value

20000 Lux

SNVT Reference

SNVT_lux (79)

3.4.21 Sun Off Threshold

```
network input config UCPTSunOffThreshold
nciSunOffThreshold;
```

This configuration property defines the setpoint at which the sun functionality terminates.

Valid Range

0 .. 65535 Lux

Default Value

10000 Lux

SNVT Reference

SNVT_lux (79)

3.4.22 Sun On Delay

```
network input config SCPTclOnDelay nciSunOnDelay;
```

This configuration property defines the delay after which the controller output is switched on and the sun functionality starts.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

600.0 Seconds (s) (10 min)

SNVT Reference

SNVT_time_sec (107)

3.4.23 Sun Off Delay

```
network input config SCPTclOffDelay nciSunOffDelay;
```

This configuration property defines the delay after which the controller output is switched off and the sun functionality terminates.

Valid Range

0 .. 6553.5 Seconds (s)

Default Value

1800.0 Seconds (s) (30 min)

SNVT Reference

SNVT_time_sec (107)

3.4.24 Sun Position, Scene 10

```
network input config UCPTsunPos10 nciSunPos10;
```

This configuration property defines the position settings which the controller outputs if sun is detected.

The same position is output if scene 10 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciSunPos10.function = 5 (SET_STATE)
```

```
nciSunPos10.setting = 50
```

```
nciSunPos10.rotation = -90
```

SNVT Reference

SNVT_setting (117)

3.4.25 Sun Off Angle Used

```
network input config UCPToffAngleUse nciOffAngleUse;
```

This configuration property determines whether slats should move to a horizontal position after 10% of the off delay time.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, no sun off angle used.

SNVT Reference

boolean

3.4.26 Minimum Slat Angle

```
network input config UCPTminSlatAngle nciMinSlatAngle;
```

This configuration property defines the lowest allowed angle of sun blind slats (90° is completely closed). Typically used to limit local operation or sun tracking.

If sun tracking is used the ratio between slat width and slat distance is derived from this angle.

Valid Range

Supported range of used actuator, typically 0° ... -90°.

Default Value

-90°, completely closed

SNVT Reference

SNVT_angle_deg (104)

3.4.27 Minimum Slat Step

```
network input config UCPTminSlatStep nciMinSlatStep;
```

This configuration property defines the minimum angle that slats should move to follow the sun. Typically used to limit the movements due to sun tracking.

Valid Range

Supported range of used actuator, typically 0° ... -90°.

Default Value

0°, each angle change causes an output update.

SNVT Reference

SNVT_angle_deg (104)

3.4.28 Sun Track Update Time

```
network input config UCPTsunTrackUpdate
nciSunTrackUpdate;
```

This configuration property defines the time period after which a new sun position is calculated. A value of 0 disables sun track calculation. After disabling 'nciSunPos10' has to be reconfigured or a power cut has to be performed.

For a correct calculation the controller needs the time and the actual position on earth which can be set in the node object.

Valid Range

0 .. 65535 Minutes.

Default Value

0, sun track calculation disabled.

SNVT Reference

SNVT_time_min (123)

3.4.29 Screen Length

```
network input config UCPTscreenLength nciScreenLength;
```

This configuration property defines the total vertical length of sun protection; used for sun tracking in conjunction with the sun depth.

Valid Range

0 .. 6553,5 Millimetres (mm).

Default Value

0, no screen, sun track calculation does not influence linear position.

SNVT Reference

SNVT_lenght_mil (20)

3.4.30 Sun Depth

```
network input config UCPTsunDepth nciSunDepth;
```

This configuration property defines how far the sun might enter the building, measured horizontally at the bottom of the sun protection; used for sun tracking in conjunction with the screen length.

Valid Range

0 .. 6553,5 Millimetres (mm).

Default Value

0, sun track calculation closes screens.

SNVT Reference

SNVT_lenght_mil (20)

3.4.31 Sun Disappearing Position, Scene 16

```
network input config UCPTsunOffPos16 nciSunOffPos16;
```

This configuration property defines the position settings which the controller outputs if sun was detected and disappears.

It is only effective if no other function is pending!

The same position is output if scene 16 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nciSunOffPos16.function = 3 (SET_UP)

nciSunOffPos16.setting = 0xFF

nciSunOffPos16.rotation = 0xFFFF

SNVT Reference

SNVT_setting (117)

3.4.32 Dawn Position, Scene 11

```
network input config UCPTdawnPos11 nciDawnPos11;
```

This configuration property defines the position settings which the controller outputs if dawn was detected.

The same position is output if scene 11 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciDawnPos11.function = 5 (SET_STATE)
nciDawnPos11.setting = 20
nciDawnPos11.rotation = -0
```

SNVT Reference

SNVT_setting (117)

3.4.33 Dusk Position, Scene 12

```
network input config UCPTduskPos11 nciDuskPos11;
```

This configuration property defines the position settings which the controller outputs if dusk was detected.

The same position is output if scene 12 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciDuskPos11.function = 5 (SET_STATE)
nciDuskPos11.setting = 30
nciDuskPos11.rotation = -0
```

SNVT Reference

SNVT_setting (117)

3.4.34 Frost Temperature

```
network input config UCPTfrostTemp nciFrostTemp;
```

This configuration property defines the temperature setpoint below which damage due to frozen sun protection device might occur.

Valid Range

-273.17 .. 327.66 Degrees Celsius (°C)

Default Value

0.00 °C

SNVT Reference

SNVT_temp_p (105)

3.4.35 Ice Relative Humidity

```
network input config UCPTiceRH nciIceRH;
```

This configuration property defines the relative humidity at which ice might occur.

Valid Range

0 .. 100.000 Percent of Full Scale, or Parts-per-Million (ppm).

Default Value

50.000 Percent

SNVT Reference

SNVT_lev_percent (81)

3.4.36 Window Function Hysteresis

```
network input config SCPTonOffHyst nciOnOffHyst;
```

This configuration property defines the hysteresis for the indoor temperature and humidity setpoint which are typically used to control windows.

Valid Range

0 .. 100 Percent of Full Level (%).

Default Value

0 Percent, window control disabled.

SNVT Reference

SNVT_level_cont (21)

3.4.37 Window Function Temperature

```
network input config SCPTmaxRemoteTempSetpoint  
nciTempSetp;
```

This configuration property defines the indoor temperature setpoint above which window control typically starts.

Valid Range

-273.17°C ... 327.66 Degrees Celsius (°C)

Default Value

20.00 °C.

SNVT Reference

SNVT_level_cont (21)

3.4.38 Window Step Value

```
network input config SCPTstepValue nciStepValue;
```

This configuration property defines the step value to displace windows if the corresponding control is active.

Valid Range

0 .. 100 Percent of Full Level (%).

Default Value

10%.

SNVT Reference

SNVT_level_cont (21)

3.4.39 Relative Humidity Threshold

```
network input config UCPTthresholdRH nciThresholdRH;
```

This configuration property defines the relative humidity at which the window control functionality starts and terminates.

Valid Range

0 .. 100.000 Percent of Full Scale, or Parts-per-Million (ppm).

Default Value

40.000 Percent

SNVT Reference

SNVT_lev_percent (81)

3.4.40 Illumination Threshold

```
network input config SCPTluxSetpoint nciIllumSetp;
```

This configuration property defines the illumination level setpoint for the controller to control light protection.

Valid Range

0 .. 65535 Lux

Default Value

0 Lux

SNVT Reference

SNVT_lux (79)

3.4.41 Local Intermediate Position, Scene 1

```
network input config UCPTlocalIP1 nciLocalIP1;
```

This configuration property defines the position settings which the controller outputs if scene 1 is recalled. This position can be recalled by local wired switch as well.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

nciLocalIP1.function = 5 (SET_STATE)

nciLocalIP1.setting = 30

nciLocalIP1.rotation = 0

SNVT Reference

SNVT_setting (117)

3.4.42 Scene Position n

```
network input config UCPTscenePos_n nciScenePos_n;
```

This configuration property defines the position settings which the controller outputs if scene n is recalled where $2 \leq n \leq 6$. Those five positions can also be learned.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciScenePos_n.function = 5 (SET_STATE)
nciScenePos_n.setting = 10/20/30/40/50
nciScenePos_n.rotation = -0
```

SNVT Reference

SNVT_setting (117)

3.4.43 Override Position, Scene 14

```
network input config UCPToverrdPos14 nciOverrdPos14;
```

This configuration property defines the position settings which the controller outputs if the override switch input is active.

The same position is output if scene 14 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciOverrdPos14.function = 3 (SET_UP)
nciOverrdPos14.setting = 0xFF
nciOverrdPos14.rotation = 0xFFFF
```

SNVT Reference

SNVT_setting (117)

3.4.44 Maintenance Position, Scene 15

```
network input config UCPTmaintPos15 nciMaintPos15;
```

This configuration property defines the position settings which the controller outputs if the maintenance switch input is active.

The same position is output if scene 15 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciMaintPos15.function = 3 (SET_UP)
nciMaintPos15.setting = 0xFF
nciMaintPos15.rotation = 0xFFFF
```

SNVT Reference

SNVT_setting (117)

3.4.45 Glare Position, Scene 13

```
network input config UCPTglarePos13 nciGlarePos13;
```

This configuration property defines the position settings which the controller outputs if the glare switch input is active.

The same position is output if scene 13 is recalled.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

Default Value

```
nciGlarePos13.function = 5 (SET_STATE)
nciGlarePos13.setting = 40
nciGlarePos13.rotation = -0
```

SNVT Reference

SNVT_setting (117)

3.4.46 Rain History

```
network input config UCPTrainHistory nciRainHistory;
```

This configuration property defines the time period after rain which is needed that a sun protection product becomes dry. A value of 0 disables the ice detection functionality.

Valid Range

0 .. 65 535 Hours.

Default Value

0 Hours, ice function off

SNVT Reference

SNVT_time_hour (124)

3.4.47 Power-up State

There is no immediate network action on Power-up State.

3.4.48 Boundary and Error Conditions

None specified.

3.4.49 Additional Considerations

None specified.

4. Sunblind Switch

UFPTkey #3200

4.1 Overview

The SOMFY Sunblind Switch inherits all mandatory and some optional members from the LonMark[®] Switch Object # 3200. Various SOMFY specific members have been added.

This document describes the profile for a switch sensor object. The profile is used preferably for sunblind keys composed of switch-up and switch-down hardware. The sunblind key sensor object can be used for both closed and open loop applications.

4.2 Functional-Block Details

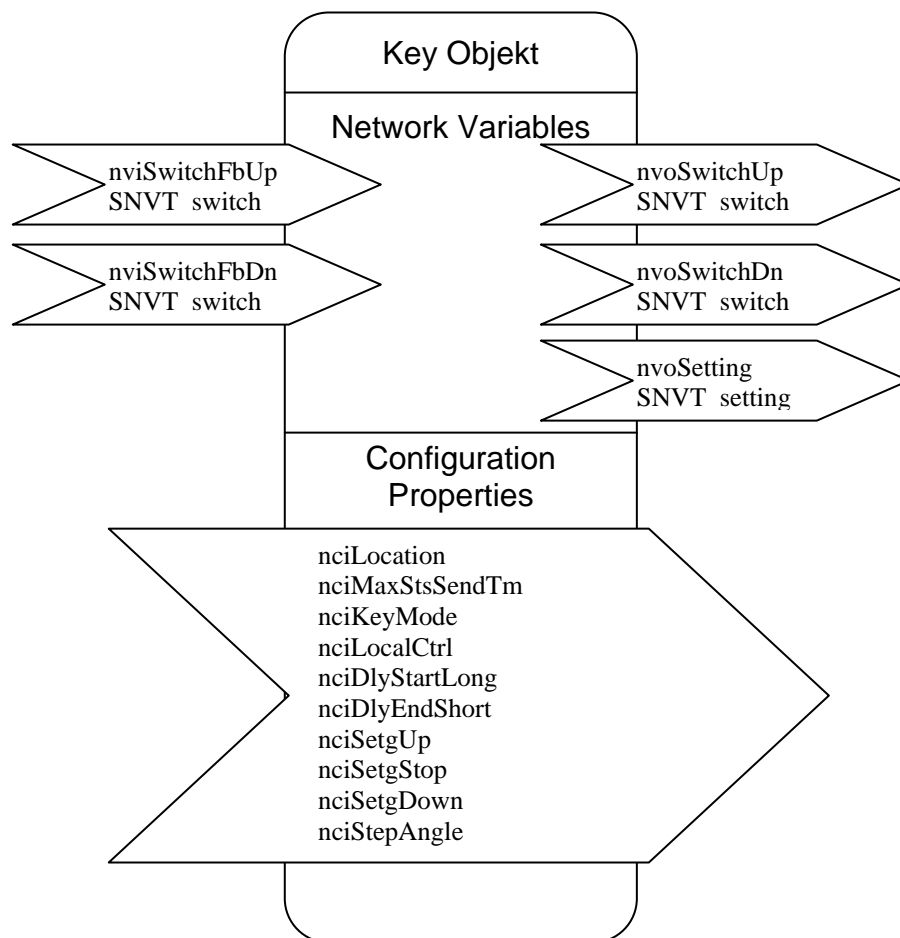


Figure 1.1 Switch Sensor Functional Profile

Table 1.1 SNVT Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nvoSwitchUp	SNVT_switch	95	Switch output value linked to Up hardware input
2 (S)	nviSwitchFbUp	SNVT_switch	95	Switch feedback value linked to Up hardware input
3 (S)	nvoSetting	SNVT_setting	117	Setting output
#1 (U)	nvoSwitchDn	SNVT_switch	95	Switch output value linked to Down hardware input
#2 (U)	nviSwitchFbDn	SNVT_switch	95	Switch feedback value linked to Down hardware input

* S = LonMark Standard, U = User defined

Table 1.2 SCPT Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT Index	Associated NVs	Description
S	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Functional Block	Provides descriptive physical location information related to the object.
S	SCPTmaxSndTime nciMaxStsSendTm SNVT_elapsed_tm (87)	49	Entire Functional Block	Maximum send time for network output
U	UCPTkeyMode nciKeyMode enumerated	9	Entire Functional Block	Mode to set a specific reaction on the corresponding key operation
U	UCPTlocalCtrl nciLocalCtrl boolean	72	Entire Functional Block	Indicates the consideration of MoCo inputs for local control; manipulated by 'UCPTkeyMode' of any channel on the same MoCo
U	UCPTdlyStartLong nciDlyStartLong SNVT_time_sec (107)	5	Entire Functional Block	The delay [sec] after which the key input processing changes behaviour the first time
U	UCPTdlyEndShort nciDlyEndShort SNVT_time_sec (107)	4	Entire Functional Block	The delay [sec] after which the key input processing changes behaviour the second time
U	UCPTsetgUp nciSetgUp SNVT_setting (117)	1	Entire Functional Block	Values which are sent via nvoSetting if up function was detected
U	UCPTsetgStop nciSetgStop SNVT_setting (117)	3	Entire Functional Block	Values which are sent via nvoSetting if stop function was detected
U	UCPTsetgDown nciSetgDown SNVT_setting (117)	2	Entire Functional Block	Values which are sent via nvoSetting if down function was detected
U	UCPTstepAngle nciStepAngle SNVT_angle_deg (104)	16	Entire Functional Block	Angle which is used to tilt blinds up or down if stepping mode is used

* S = LonMark Standard, U = User defined

4.3 Network Variables

4.3.1 Switch Output up/down

```
network output SNVT_switch nvoSwitchUp/nvoSwitchDn;
```

This output network variables provides the switch output linked to the corresponding hardware input. It is used for direct control of devices.

Valid Range

The valid range is the range of SNVT_switch. State 0 means OFF, 1 means ON. The range of the 8-bit intensity value is 0 - 200 (0 - 100% in 0,5% steps). Minimum level is value 0.

When Transmitted

Whenever the hardware state of the switch changes or change is initiated by the application.

Update Rate

There is no maximum update rate. The default minimum update rate is 0 ms. Minimum update rate is configurable.

Default Service Type

The default service type is acknowledged.

4.3.2 Switch Feedback Input up/down

```
network input SNVT_switch nviSwitchFbUp/nviSwitchFbDn;
```

This input network variable provides the feedback from other devices.

Valid Range

Valid range is the range of SNVT_switch.

Default Value

The default value is state = -1, value = 0,0.

4.3.3 Setting Output

```
network output SNVT_setting nvoSetting;
```

When blinds are controlled by a controller, such as a sunblind controller, the setting output is used to change the mode and/or the setpoint of the controller. The controller can be turned ON or OFF and the setpoint can be adjusted.

Valid Range

The Valid Range is given by the interpretation of the “SNVT_setting related to sunblinds” as shown in the tables in the chapter “Additional Considerations” in the Sunblind Actuator Profile.

When Transmitted

Whenever the hardware state of the switch changes or change is initiated by the application.

Update Rate

There is no maximum update rate. The default minimum update rate is 0 ms. Minimum update rate is configurable.

Default Service Type

The default service type is acknowledged.

4.4 Configuration Properties

4.4.1 Location Label

```
network input config SNVT_str_asc nciLocation;
```

This input configuration network variable is used to store ASCII text. It provides more space for descriptive location information.

Valid Range

Any NUL terminated ASCII string of 31 bytes total length.

Default Value

An ASCII string: “MoCo inputs as Sunblind Keys”.

SCPT Reference

SCPTlocation #17

4.4.2 Maximum Send Time

```
network input config SNVT_time_sec nciMaxSendTime;
```

This input configuration network variable is used to set the maximum time between cyclical network output updates. The device will update output variables (nvoSwitch and nvoSetting), when the configured time since the last network update has elapsed (Send Heartbeat).

Valid Range

The valid range of SCPTmaxSendTime.

Default Value

The default value is zero. When the value is zero, there is no maximum time defined, and automatic (cyclical) update is disabled.

SCPT Reference

SCPTmaxSendTime #49

4.4.3 Key Mode

```
network input config UPCTkeyMode nciKeyMode;
```

Mode to set a specific reaction on the corresponding key operation. In principle there are two major modes with basically different behaviour, the network (LON) mode and the local mode.

LON Mode: All hardware input level changes lead to an event that is propagated via network. Depending on the specific setting NV updates are generated. Only if those NVs are bound to an appropriate input NV any action might be performed.

Local Mode: All hardware input level changes are processed locally and the network functions are bypassed. The hardware inputs have fixed up/down functionality and are linked to the corresponding output of the same device.

Valid Range

	Description
LON-Modes	MoCo inputs are only used as LON inputs, outputs depend on configuration and operation time
KEY_DEFAULT	output 'nvoSetting' creates step/move commands.
KEY_TOGGLE	output 'nvoSwitch' toggles On/Off.
KEY_DIMM	output 'nvoSwitch' dims up and down as long as key is pressed.
KEY_US_EU	output 'nvoSetting' creates move/stop commands.
Local Modes	MoCo inputs are only used locally, no 'nvoSetting' is propagated!
EU_MODE	maintain (deadman) during tilting, toggling during moving.
US_MODE	maintain (deadman) during tilting if long pressed, toggling during moving.
TIPT_MODE	maintain (deadman) during tilting, no move command possible.
SCREEN_MODE	On/Off toggling.
WINDOW_PRESS	always maintain (deadman).
FIX_MAINTAIN	maintain (deadman) for 2 sec, toggling afterwards.

Default Value

The default value is KEY_DEFAULT.

Remark: If the device has not been commissioned by a Network Management Tool (e. g. LonMaker) the local EU_MODE is effective.

Configuration Requirements/Restrictions

The local mode is only effective if all four key modes on that specific device have a local mode.

A possibly connected **RTS** sister card always uses the Local Modes. Choose the appropriate Local Mode even if the wired inputs are used for LON afterwards.

If any local mode is adjusted it is strongly recommended that the Sunblind Actuator Object is controlled via the Override Input nviSbldOvr!

4.4.4 Local Control

```
network input config UPCTlocalCtrl nciLocalCtrl;
```

Indicates the consideration of MoCo inputs for local control; manipulated by 'UCPTkeyMode' of any channel on the same MoCo.

Valid Range

Boolean, Read Only.

Default Value

BOOL_FALSE.

Configuration Requirements/Restrictions

Even if this CP is BOOL_TRUE the local control of the specific channel might be disabled by the Override Input of the corresponding actuator object.

4.4.5 Short Operation End Delay

```
network input config UCPTdlyEndShort nciDlyEndShort
```

In KEY_DEFAULT mode a push button activation for less than the adjusted time generates a tilt step command.

In KEY_US_EU mode it is the delay after which the key input works in maintain (deadman) mode; a SET_STOP is generated when released later.

Valid Range

The valid range of SNVT_time_sec.

Default Value

1,0 seconds.

Configuration Requirements/Restrictions

Avoid overlapping with 'Long Operation Start Delay'!

0 seconds for SOMFY EU-Mode in KEY_US_EU.

0,3 seconds for SOMFY US-Mode in KEY_US_EU.

SNVT Reference

SNVT_time_sec #107

4.4.6 Long Operation Start Delay

network input config UCPTdlyStartLong nciDlyStartLong

In KEY_DEFAULT mode a push button activation for longer than the adjusted time outputs the setting specified in the corresponding configuration property.

In KEY_US_EU mode it is the delay after which the key input stops working in maintain mode. No SET_STOP is generated upon releasing anymore.

Valid Range

The valid range of SNVT_time_sec.

Default Value

1,0 seconds.

Configuration Requirements/Restrictions

Avoid overlapping with 'Short Operation End Delay'!

0 seconds for SOMFY Screen-Mode in KEY_US_EU.

= Tilttime for others in KEY_US_EU.

SNVT Reference

SNVT_time_sec #107

4.4.7 Setting Down

network input config UCPTsetgDown nciSetgDown

Values which are sent via nvoSetting if down function (down key pressed) was detected.

Valid Range

The valid range of SNVT_setting.

Default Value

SET_DOWN, INVALID, INVALID.

SNVT Reference

SNVT_setting #117

4.4.8 Setting Up

network input config UCPTsetgUp nciSetgUp

Values which are sent via nvoSetting if up function (up key pressed) was detected.

Valid Range

The valid range of SNVT_setting.

Default Value

SET_UP, INVALID, INVALID.

SNVT Reference

SNVT_setting #117

4.4.9 Setting Stop

network input config UCPTsetgStop nciSetgStop

Values which are sent via nvoSetting if stop function (up+down key pressed) was detected.

Valid Range

The valid range of SNVT_setting.

Default Value

SET_STOP, 0, 0.

SNVT Reference

SNVT_setting #117

4.4.10 Step Angle

network input config UCPTstepAngle nciStepAngle

Angle which is used in setting to tilt blinds up or down if stepping mode (KEY_DEFAULT) is used.

Valid Range

The valid range is 0 to 180,0 degrees.

Default Value

The default value is 20,0 degrees.

Configuration Requirements/Restrictions

The physical capabilities of the blinds and the internal solution of tilt range determine the smallest possible tilt step angle.

SNVT Reference

SNVT_angle_deg #104

5. Occupancy Sensor

UFPTocc #1060

5.1 Overview

The SOMFY Occupancy Sensor inherits all mandatory and some optional members from the LonMark® Occupancy Sensor Object # 1060.

This document describes the functional profile for an occupancy sensor object. This object is used if a hardware sensor whose output is either in an occupied or unoccupied state is connected to the local inputs of the device. Noise and measuring accuracy is taken care of by the hardware and manufacturer specific parameters.

The occupancy sensor object is used to detect occupancy and keep the occupied state until no occupancy can be detected. Optionally there can be configuration parameters for debouncing and adjusting the heartbeat frequency.

5.2 Functional-Block Details

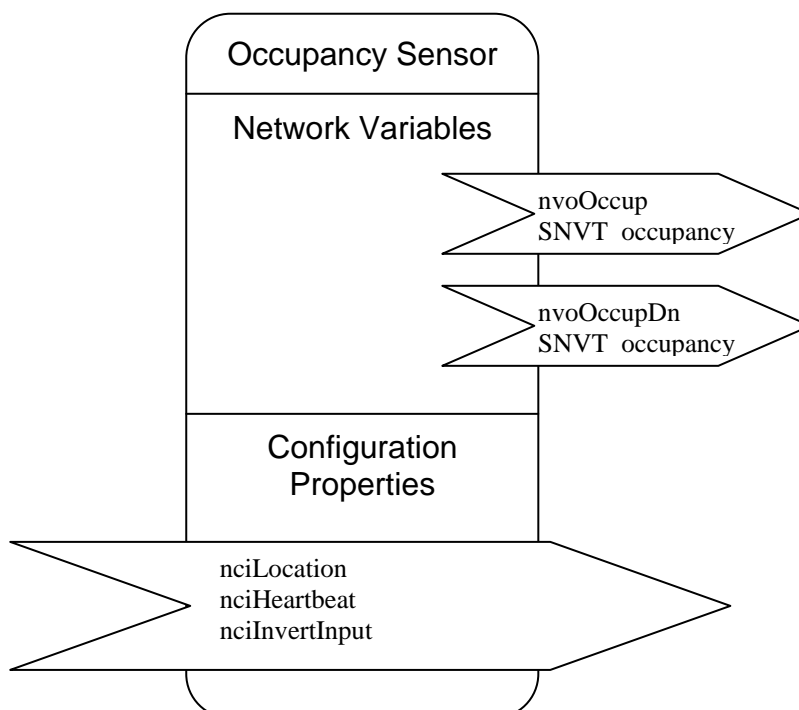


Figure 1.1 Occupancy Sensor Functional Profile

Table 1 SNVT Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nvoOccup	SNVT_occupancy	109	Occupancy state linked to Up hardware input
2 (S)	nvoOccupDn	SNVT_occupancy	109	Occupancy state linked to Down hardware input

* S = LonMark Standard, U = User defined

Table 2 SCPT Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT Index	Associated NVs **	Description
S	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Functional Block	Provides descriptive physical location information related to the object.
S	SCPTmaxSendTime nciHeartbeat SNVT_time_sec (107)	48	Entire Functional Block	The maximum period of time between consecutive transmissions of the current value.
U	UCPTinvertInput nciInvertInput boolean	51	Entire Functional Block	Inverts the signal logic level for occupancy

* S = LonMark Standard, U = User defined

5.3 Network Variables

5.3.1 Occupancy Output

```
network output SNVT_occupancy nvoOccup;
```

This output network variable provides the qualified state of the hardware sensor output.

Valid Range

0 = OC_OCCUPIED
1 = OC_UNOCCUPIED

When Transmitted

When the occupancy state changes from unoccupied to occupied or when the occupancy state has changed from occupied to unoccupied at the frequency of the heartbeat.

Update Rate

The maximum update rate is fixed by the heartbeat frequency and the minimum update rate is fixed by a fixed input debouncing time.

Default Service Type

The default service type is acknowledged.

5.4 Configuration Properties

5.4.1 Location Label

```
network input config SNVT_asc_str nciLocation;
```

This input configuration network is used to store ASCII text. It provides more space for descriptive location information.

Valid Range

Any NUL terminated ASCII string of 31 bytes total length.

Default Value

An ASCII string: "MoCo inputs as Occup. Sensor".

SCPT Reference

SCPT_location (#17)

5.4.2 Heartbeat

```
network input config SNVT_time_sec nciHeartbeat;
```

This configuration network variable defines the repeat period between to value update sent on the bus. The aims of the heartbeat is to be sure that the sensor is alive and to permit a controller to have multiple sensors on the same input SNVT.

Valid Range

Valid range is 0.0 - 6553.4 by steps of 0.1s.

Default Value

Default value is 0 min.

SCPT Reference

SCPTHeartbeat (#48)

5.4.3 Invert Input

```
network input config UCPTinvertInput (boolean)
nciInvertInput;
```

Inverts the signal logic level for occupancy.

Valid Range

BOOL_TRUE, BOOL_FALSE.

Default Value

Default value is BOOL_FALSE.

UCPT Reference

UCPTinvertInput (#51)

6. Scene Panel

UFPTscene #3250

6.1 Overview

The SOMFY Scene Panel inherits all mandatory and some optional members from the LonMark® Scene Panel Object # 3250.

This document describes the profile for the scene panel object which is linked to each hardware input pair.

6.2 Functional-Block Details

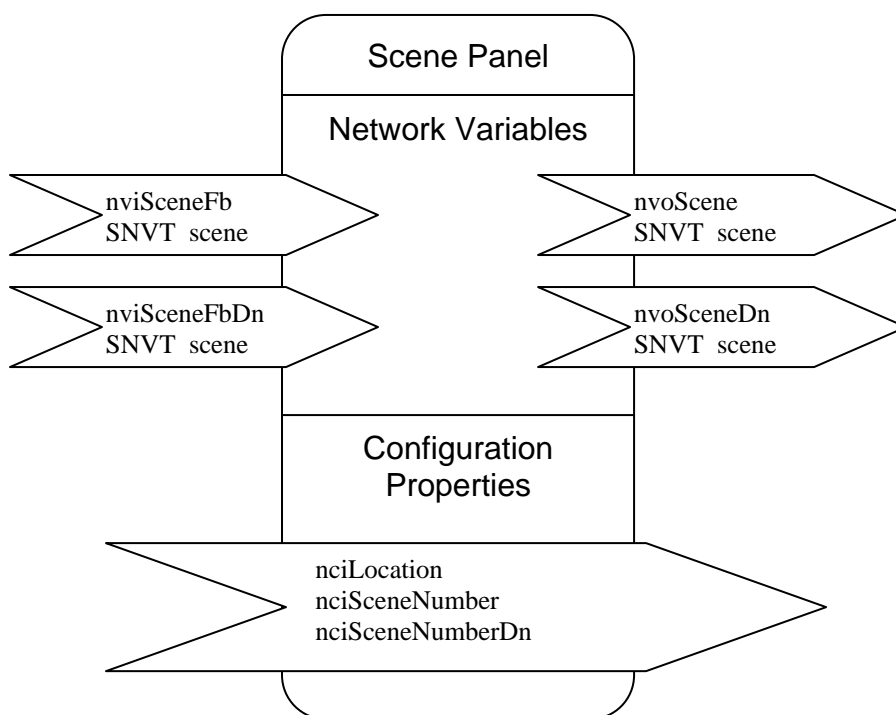


Figure 1.1 Scene Panel Functional Profile

Table 1.1 SNVT Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (S)	nvoScene	SNVT_scene	115	Scene trigger output
2 (S)	nviSceneFb	SNVT_scene	115	Scene number feedback, provides feedback from other scene panels
#1 (U)	nvoSceneDn	SNVT_scene	115	second scene output linked to down hardware input
#2 (U)	nviSceneFbDn	SNVT_scene	115	Scene number feedback, provides feedback from other scene panels

* S = LonMark Standard, U = User defined

Table 1.2 SCPT Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT Index	Associated NVs**	Description
S	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Functional Block	Provides descriptive physical location information related to the object.
S	SCPTsceneNmbr nciSceneNumber unsigned short		nv1	The number of the first scene for the panel, other numbers are subsequent
U	UCPTsceneNmbr nciSceneNumberDn unsigned short		nv#1	The number of the first scene for the panel, other numbers are subsequent

6.3 Network Variables

6.3.1 Scene Output up/down

```
network output SNVT_scene nvoScene/nvoSceneDn;
```

This output network variables provides the scene output. They are linked to the corresponding up/down hardware inputs.

Valid Range

The valid range is the range of SNVT_scene. RECALL and LEARN with associated scene number. Scene number 0 is not used.

When Transmitted

Whenever change of scene is initiated by the application.

Update Rate

There is no maximum update rate.

Default Service Type

The default service type is acknowledged.

6.3.2 Scene Feedback Input up/down

```
network input SNVT_scene nviScenFb/nviSceneDn;
```

This input network variable provides feedback from other scene panels.

Valid Range

Valid range is the range of SNVT_scene. RECALL with associated scene number is used to indicate scene selection. Scene number 0 is not used.

Default Value

The default value is scene number 0 meaning feedback not received.

6.4 Configuration Properties

6.4.1 Location Label

```
network input config SNVT_str_asc nciLocation;
```

This input configuration network variable is used to store ASCII text. It provides more space for descriptive location information.

Valid Range

Any NUL terminated ASCII string of 31 bytes total length.

Default Value

An ASCII string: "MoCo inputs as Scene Panel".

SCPT Reference

SCPTlocation #17

6.4.2 Scene number up/down

```
network input config unsigned short nciSceneNumber/  
nciSceneDnNbr;
```

This input configuration network variable is used to set the number of each scene for the panel.

Valid Range

The valid range is 1 to 255. 0 is used to output SC_NUL.

Default Value

The default value is 1.

SCPT Reference

SCPTsceneNmbr #94

7. Adapter Object

UFPTadapter #20000

7.1 Overview

The Adapter Object functional profile describes a special type of functional block—called the *Adapter Object functional block*—that might be used to adapt the unit to existing installations where old Somfy actuators have been replaced.

7.2 Functional-Block Details

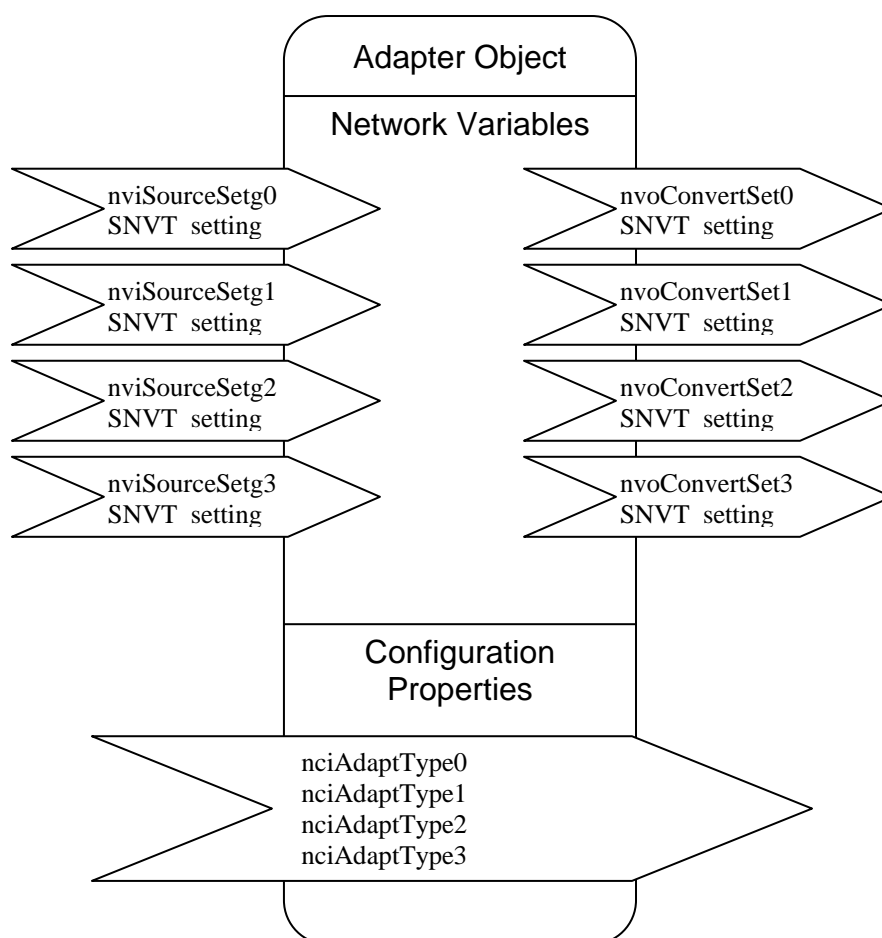


Figure 2 Functional-Block Details

Table 1 Network Variable Details

NV (S/U)*	Variable Name	SNVT/UNVT Name	SNVT/UNVT Index	Description
1 (U)	nviSourceSetg0	SNVT_setting	117	Input for settings which have to be converted
2 (U)	nvoConvertSet0	SNVT_setting	117	Output of converted setting
3 (U)	nviSourceSetg1	SNVT_setting	117	Input for settings which have to be converted
4 (U)	nvoConvertSet1	SNVT_setting	117	Output of converted setting
5 (U)	nviSourceSetg2	SNVT_setting	117	Input for settings which have to be converted
6 (U)	nvoConvertSet2	SNVT_setting	117	Output of converted setting
7 (U)	nviSourceSetg3	SNVT_setting	117	Input for settings which have to be converted
8(U)	nvoConvertSet3	SNVT_setting	117	Output of converted setting

* S = LonMark Standard, U = User defined

Table 2 Configuration Property Details

(S/U)*	SCPT/UCPT Name NV Name Type or SNVT	SCPT/UCPT T Index	Associated NVs **	Description
U	UCPTadaptType nciAdaptType0 enumerated	17	nv1	Determines how the input Network Variable will be converted and forwarded via output Network Variable
U	UCPTadaptType nciAdaptType1 enumerated	17	nv3	Determines how the input Network Variable will be converted and forwarded via output Network Variable
U	UCPTadaptType nciAdaptType2 enumerated	17	nv5	Determines how the input Network Variable will be converted and forwarded via output Network Variable
U	UCPTadaptType nciAdaptType3 enumerated	17	nv7	Determines how the input Network Variable will be converted and forwarded via output Network Variable

7.3 Network Variables

7.3.1 Source Setting Input n

```
network input SNVT_setting nviSourceSetg n;
```

This network variable input is provided to receive all types of settings. The changes made to the input value are not stored permanently into the memory.

Valid Range

The valid range is any value within the defined limits of **SNVT_setting**.

Default Value

```
nviLocalControl.function = SET_NUL  
nviLocalControl.setting = 0  
nviLocalControl.rotation = 0
```

Configuration Considerations

See Adapter Type.

7.3.2 Converted Setting Output n

```
network output SNVT_setting ConvertSet;
```

This output network variable provides a setting value which depend on the corresponding source input and Configuration Property.

Valid Range

The valid range is any value within the defined limits of **SNVT_setting**.

Default Value

The default value is identical to the corresponding source input.

Configuration Considerations

None specified.

When Transmitted

The output variable is transmitted when an update of the corresponding input occurs.

Default Service Type

The default service type is acknowledged.

7.4 Configuration Properties

7.4.1 Adapter Type

```
network input config UCPTadaptType nciAdaptType;
```

This configuration property determines how the corresponding source setting Network Variable will be converted and forwarded via output Network Variable.

Valid Range

Value	Identifier	Notes
-1 (0xFF)	NO_CONVERSION	nviSourceSetg is directly forwarded to nvoConvertSet
0	OLD_SOMFY_TO_LONMARK	SET_UP, SET_DOWN: setting = 0 ---> INVALID (FF) rotation = 0 ---> INVALID (7FFF) SET_STATE: setting 100% ... 0% ---> 0% ... 100% rotation 0° ... 180° ---> -90° ... +90°
1	LONMARK_TO_OLD_SOMFY	SET_STATE: setting 0% ... 100% ---> 100% ... 0% rotation -90° ... +90° ---> 0° ... 180°
2	CONV_STEPS_ABSOLUT	SET_UP, SET_DOWN, ---> SET_STATE setting remains INVALID rotation is accumulated
3	HORIZONTAL_TILT_LIMIT	SET_STATE: setting remains INVALID rotation -90° ... +90° ---> -90° ... 0°

Default Value

The default value is **OLD_SOMFY_TO_LONMARK**.

Configuration Requirements/Restrictions

None specified.