

Functional Profile

SOMFY animeo® LON 4 DC-E Motor Controller

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Preliminary Remark:

 Before installation, please read the safety instructions carefully. Failure to respect these instructions automatically invalidates warranty and all liability claims against SOMFY (e.g. wrong installation, maloperation etc.). The product must be installed by a qualified electrician! All connections have to be disconnected from mains before mounting! Make precautions against switching on by accident!

 The installation of Somfy products has to be made at easily accessible places only. For maintenance and repairs which are difficult to perform because of bad accessibility (e.g. cluttered or extensive cluttered floors, installation behind lamps or behind façades) additional costs cannot be claimed against the seller.

 A proper functioning of the Motor Controllers and motors is assured only if the animeo DC or DC/E Motor Controllers are combined with compatible Somfy motors or with motors which are expressly approved by Somfy for this purpose. In case the buyer should use motors or DC power supplies made by other producers in combination with such made by Somfy, the warranty and responsibility of Somfy will be excluded both for the Somfy product itself and its suitability as part of a functioning system as a whole. The checking and decision whether external products are suitable without restraint is exclusively within buyer's own responsibility.

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

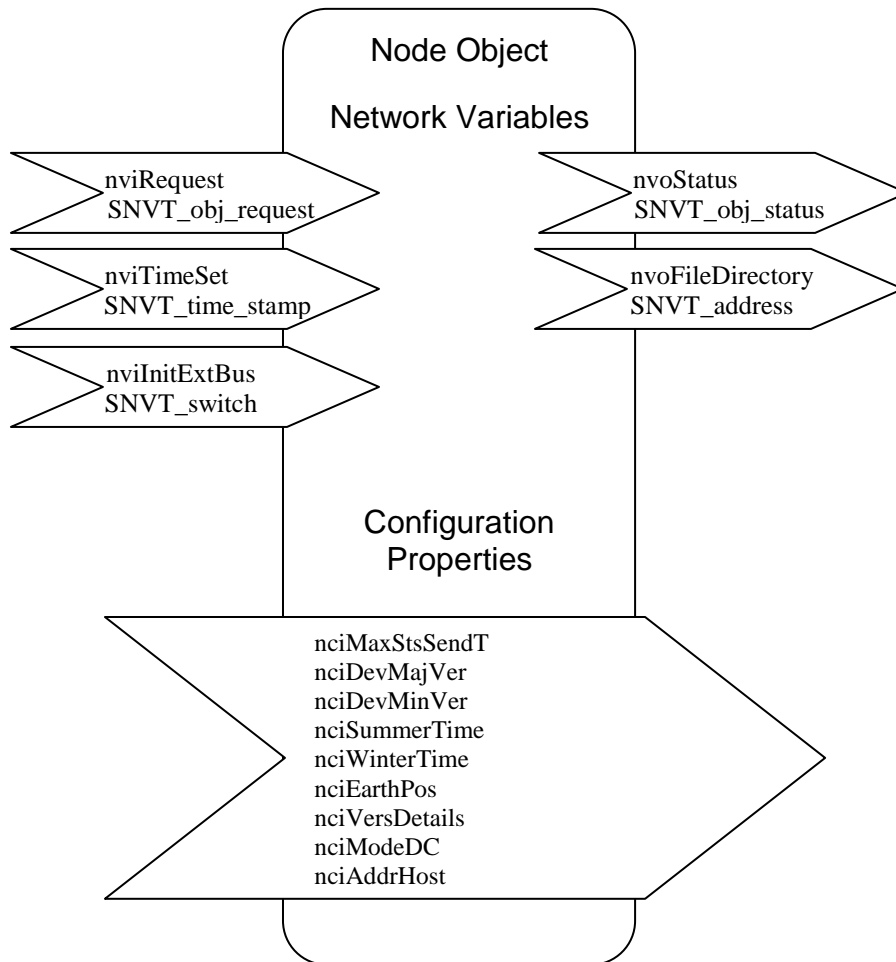


Figure 2 Functional-Block Details

Table 1 SNVT 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
#3 (U)	nviInitExtBus	SNVT_switch	95	Initialises all Settings

* 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	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	UCPTearthPos nciEarthPos SNVT_earth_pos	65	Entire Functional Block	Latitude, longitude and height above sea
U	UCPTversDetails nciVersDetails SNVT_str_asc	63	Entire Functional Block	shows information about the software version presently used
U	UCPTmodeDCFlg nciModeDC boolean	84	Entire Functional Block	disables encoder consideration of DCE MoCo
U	UCPToutpLinksFlg nciOutpLinks enumerated	82	Entire Functional Block	Output linking to use one single encoder signal

* 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 used which shall be 12:00 (noon) if the sun is at the highest point.

1.3.4 Extension Bus Initialisation Switch

```
network input SNVT_switch nviInitExtBus;
```

Initialises and synchronizes local settings. The settings are automatically initialised at start-up. In case of any local changes it might be required to reinitialise them.

Valid Range

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

Default Value

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

Configuration Considerations

None specified.

1.4 Configuration Properties

1.4.1 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 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 update).

Configuration Requirements/Restrictions

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

1.4.2 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.

1.4.3 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.

1.4.4 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 contains a date later in the year. The hour setting is ignored since this configuration property affects only the sun tracking.

1.4.5 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 contains a date earlier in the year. The hour setting is ignored since this configuration property affects only the sun tracking.

1.4.6 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.

1.4.7 Position On Earth

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

Latitude, longitude and deviation from Universal Time Coordinated (UTC).

Valid Range

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

Default Value

1:0:48:28:8:57:1h. Position of Rottenburg/Germany.

Configuration Requirements/Restrictions

None specified.

1.4.8 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.

1.4.9 DC Mode

```
network input config UCPTmodeDCFlg nciMotReverse;
```

This input configuration property disables encoder consideration of DCE MoCo.

Valid Range

Valid is BOOL_TRUE and BOOL_FALSE.

Default Value

The default value is BOOL_FALSE, no DC motor, encoder needed.

Configuration Requirements/Restrictions

None specified.

1.4.10 Output Links

```
network input config UCPToutpLinksFlg nciOutpLinks;
```

This input configuration property sets output linking to use one single encoder signal.

Valid Range

Value	Description
OUT_LINK_1_1_1_1	no linking
OUT_LINK_2_1_1	1+2 linked
OUT_LINK_1_2_1	2+3 linked
OUT_LINK_1_1_2	3+4 linked
OUT_LINK_2_2	outputs 1+2 and 3+4 linked

Default Value

The default value is OUT_LINK_1_1_1_1.

Configuration Requirements/Restrictions

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

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.

2.2 Functional-Block Details

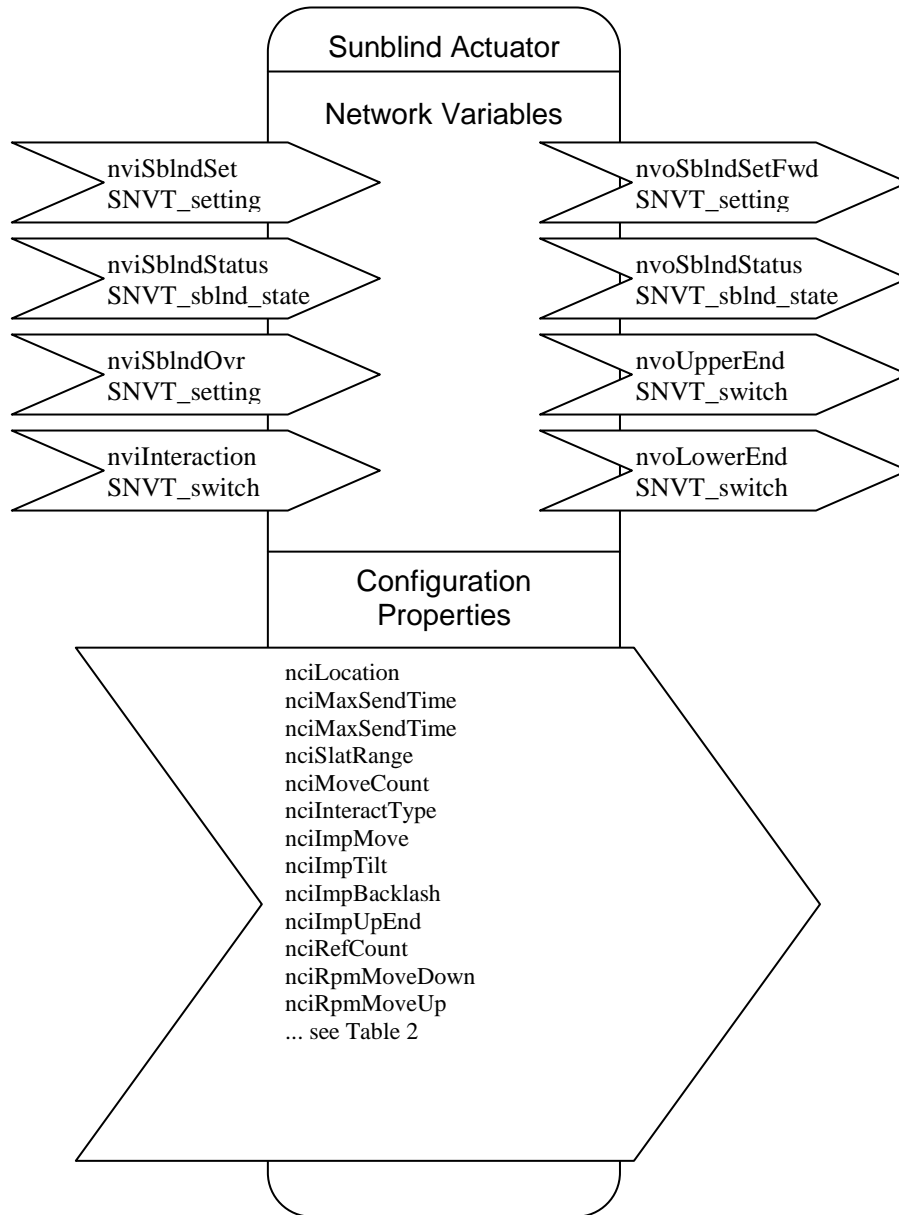


Figure 2 Functional-Block Details

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	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	UCPTrefCount nciRefCount SNVT_count (8)	78	Entire Functional Block	Max. movements before referencing again
U	UCPTslatShakeFlg nciSlatShake boolean	85	Entire Functional Block	Moves the slats at destination to align all in spite of poor mechanic
U	UCPTimpMove nciImpMove SNVT_count (8)	74	Entire Functional Block	Encoder pulses representing the moving distance of end product
U	UCPTimpTilt nciImpTilt SNVT_count (8)	75	Entire Functional Block	Encoder pulses representing the tilting distance of end product
U	UCPTimpBacklash nciImpBacklash SNVT_count (8)	76	Entire Functional Block	Encoder pulses representing the backlash distance of end product
U	UCPTimpUpEnd nciImpUpEnd SNVT_count (8)	77	Entire Functional Block	Encoder pulses representing the offset distance at the upper end of end product
U	UCPTrpmMoveDown nciRpmMoveDown SNVT_rpm (102)	81	Entire Functional Block	Motor speed during moving down
U	UCPTrpmMoveUp nciRpmMoveUp SNVT_rpm (102)	80	Entire Functional Block	Motor speed during moving up
U	UCPTrpmTilt nciRpmTilt SNVT_rpm (102)	79	Entire Functional Block	Motor speed during tilting
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	UCPTbacklash nciBacklash SNVT_time_sec (107)	15	Entire Functional Block	time without movement due to mechanical tolerances
U	UCPTspeedTilt nciSpeedTilt SNVT_lev_cont (21)	90	Entire Functional Block	Speed during tilting of slats
U	UCPTlowEndLimSwFlg nciLowEndLimSw boolean	87	Entire Functional Block	Usage of an end limit switch at lower end of end product
U	UCPTtensionReliefFlg 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,  DCE-Mode,  DC-Mode

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_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).

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_sblnd_state.

Configuration Considerations

None specified.

2.3.4 Override Input

```
network input SNVT_setting nviSblndOvr;
```

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

This NV has priority over `nviSblndSet`, **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_sblnd_state nvoSblndStatus;
```

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_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).

Valid Range

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

Only `EC_MOTORCIRCUIT` (motor circuit fault) might occur.

Default Value

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

```
nvoSblndStatus.cmdSource = INVALID (SBCS_NUL)
```

```
nvoSblndStatus.errorCode = INVALID (SBE_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.

If an encoder motor is used this outputs are real end limit switches!

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 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.

2.4.4 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)

2.4.5 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.

2.4.6 Reference Counter

```
network input config UCPTrefCount nciRefCount;
```

This input configuration property sets the maximum amount of movements before referencing again.

Valid Range

The valid range is 0 to 65535 movements.

Default Value

The default value is 20 movements.

Configuration Requirements/Restrictions

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

SNVT Reference

SNVT_count (8)

2.4.7 Slat Shaking

```
network input config UCPTslatShakeFlg 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.

2.5 Configuration Properties with Encoder Usage

2.5.1 Impulses Move

```
network input config UCPTimpMove nciImpMove;
```

This input configuration property sets the encoder pulses representing the moving distance of an end product.

Valid Range

The valid range is 0 to 9000 impulses.

Default Value

The default value is 479 impulses.

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_count (8)

2.5.2 Impulses Tilting

```
network input config UCPTimpTilt nciImpTilt;
```

This input configuration property sets the encoder pulses representing the tilting distance of an end product' slats.

Valid Range

The valid range is 0 to 9000 impulses.

Default Value

The default value is 85 impulses.

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_count (8)

2.5.3 Impulses Backlash

```
network input config UCPTimpBacklash nciImpBacklash;
```

This input configuration property sets the encoder pulses representing the backlash distance of an end product.

Valid Range

The valid range is 0 to 255 impulses.

Default Value

The default value is 20 impulses.

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_count (8)

2.5.4 Impulses at Upper End

```
network input config UCPTimpUpEnd nciImpUpEnd;
```

This input configuration property sets the encoder pulses representing the impulse offset at the upper end.

Valid Range

The valid range is 0 to 9000 impulses.

Default Value

The default value is 0 impulses.

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_count (8)

2.5.5 Move Down RPM

```
network input config UCPTrpmMoveDown nciRpmMoveDown;
```

This input configuration property sets the motor speed during moving down.

Valid Range

The valid range is 0 to 65534 rpm.

Default Value

The default value is 45 rpm.

Configuration Requirements/Restrictions

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

SNVT Reference

SNVT_rpm (102)

2.5.6 Move Up RPM

```
network input config UCPTrpmMoveUp nciRpmMoveUp;
```

This input configuration property sets the motor speed during moving up.

Valid Range

The valid range is 0 to 65534 rpm.

Default Value

The default value is 35 rpm.

Configuration Requirements/Restrictions

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

SNVT Reference

SNVT_rpm (102)

2.5.7 Tilting RPM

```
network input config UCPTrpmTilt nciRpmTilt;
```

This input configuration property sets the motor speed during tilting.

Valid Range

The valid range is 0 to 65534 rpm.

Default Value

The default value is 15 rpm.

Configuration Requirements/Restrictions

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

SNVT Reference

SNVT_rpm (102)

2.6 Configuration Properties without Encoder Usage

2.6.1 Lower End Limit Switch

```
network input config UCPTlowEndLimSwFlg 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_TRUE, end limit switch is assumed.

Configuration Requirements/Restrictions

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

2.6.2 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 1.2 seconds.

Default Value

The default value is 0,4 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)

2.6.3 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 327,6 seconds.

Default Value

The default value is 10 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)

2.6.4 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)

2.6.5 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 327,6 seconds.

Default Value

The default value is 10 seconds.

Configuration Requirements/Restrictions

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

SNVT Reference

SNVT_time_sec (107)

2.6.6 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)

2.6.7 Tension Relief

```
network input config UCPTtensionReliefFlg  
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.

2.7 Additional Considerations

2.7.1 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

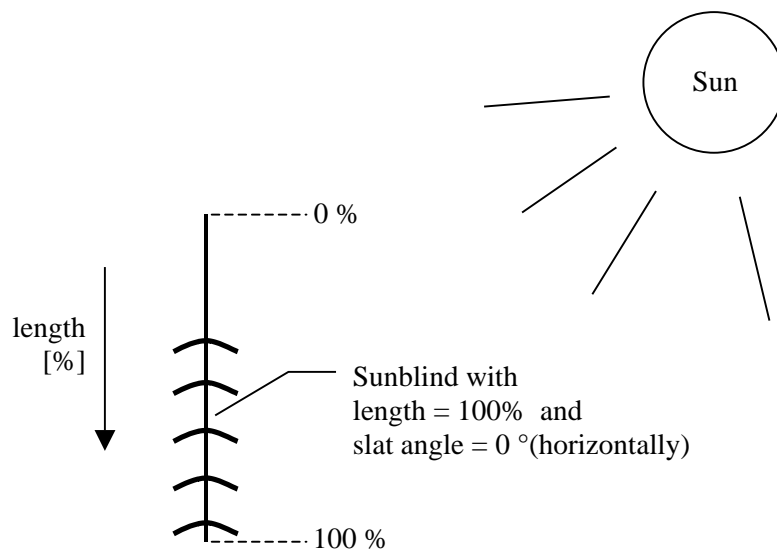


Figure 5: Venetian blind related to the sun position

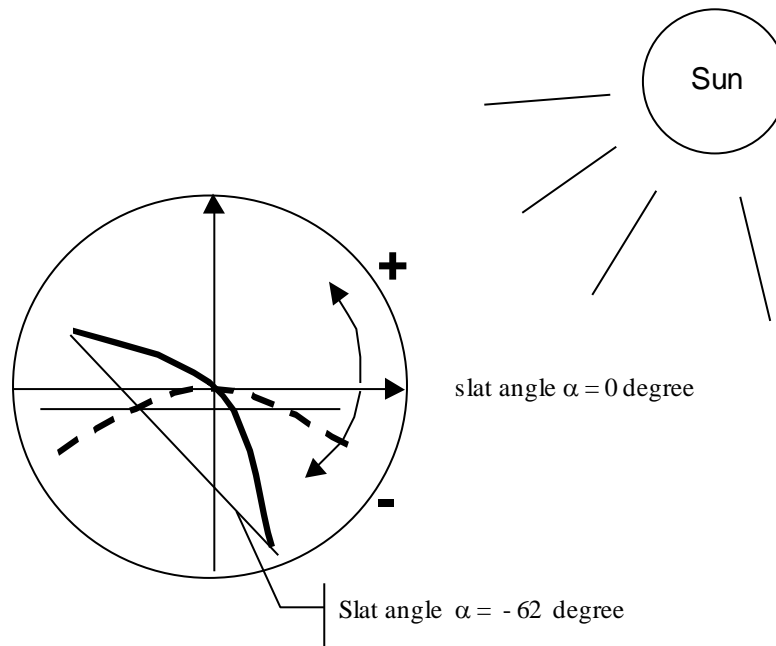


Figure 6: Slat angle scheme

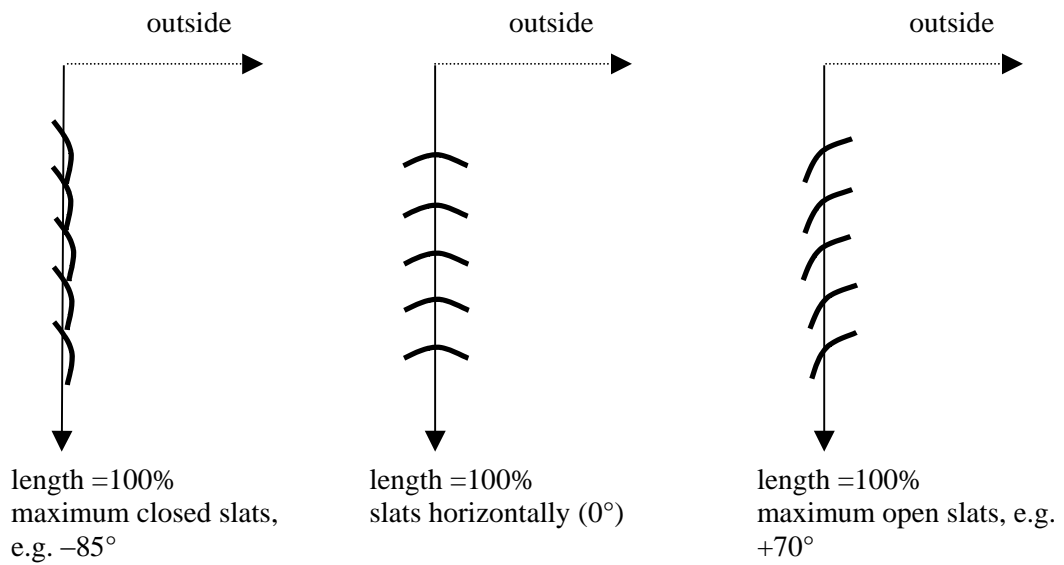


Figure 7: Slat angle examples related to a building

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.
	INVALID	INVALID		
	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.
	INVALID	INVALID		
	$0 < x < 100\%$	$0^\circ \leq \alpha \leq 360^\circ$	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.
	INVALID	INVALID		
	$0 < x < 100\%$	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
	$0 <= x <= 100\%$	$0^\circ \leq \alpha \leq 360^\circ$	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.
	INVALID	INVALID		
	$0 <= x <= 100\%$	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	$0 <= x <= 100\%$	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.
	$0 <= x <= 100\%$	$-360 < \alpha \leq 360^\circ$	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_sblnd_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

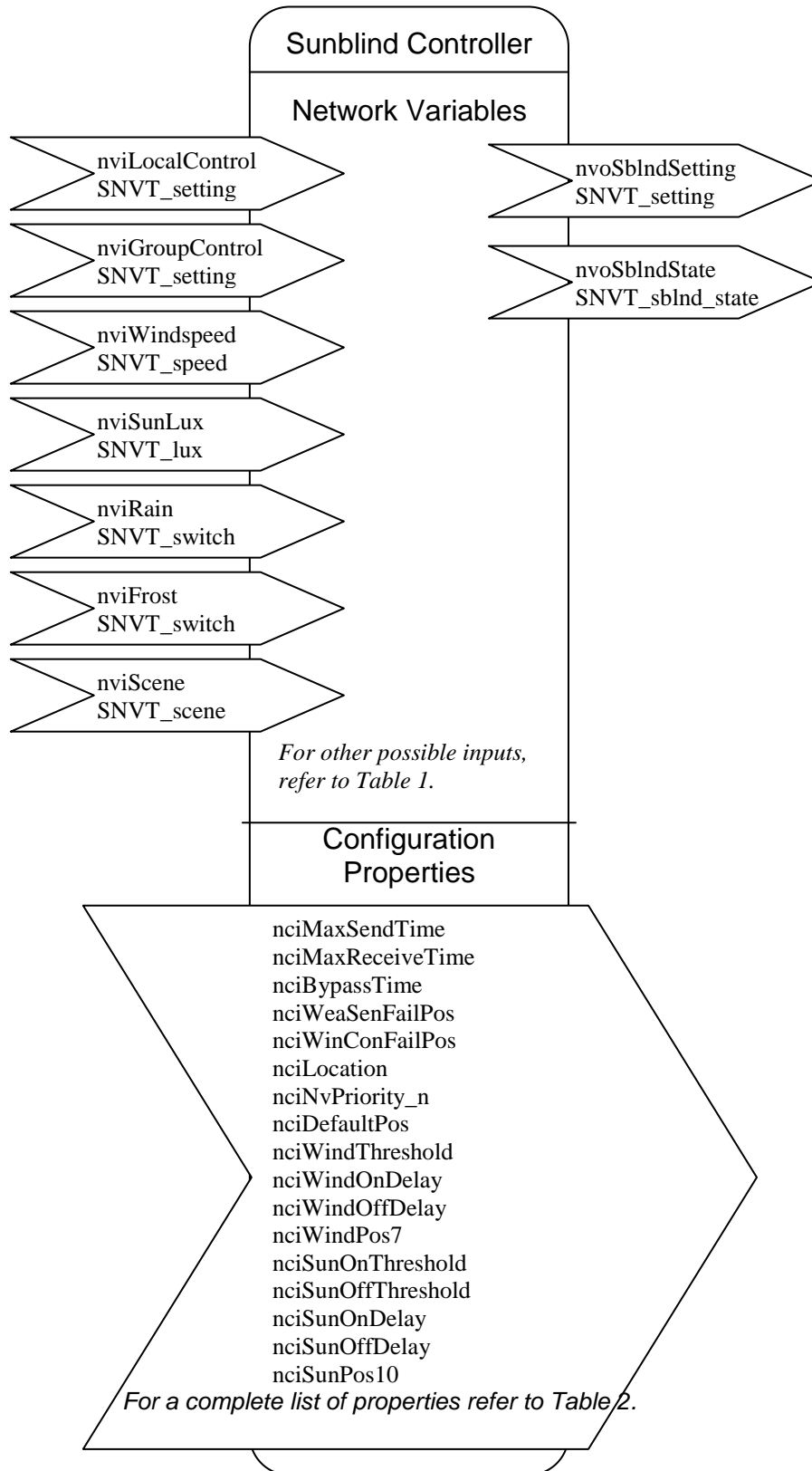


Figure 2 Functional-Block Details

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
13 (S)	nviOutdoorRH	SNVT_lev_percent	81	Outdoor 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
#4 (U)	nviSunGlobRad	UNVT_sunGlobRad	3	Global radiation input in W/m ² 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	UCPTmaxRcvTimeFlg 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	UCPTnvPriorityFlg 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	Windalarm Position,
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	UCPTrainPos8 nciRainPos8 SNVT_setting (117)	39	nv7	Rain Position,

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	Frost Position,
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	Sun Position,
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	Sun Off Position,
U	UCPTdawnPos11 nciDawnPos11 SNVT_setting (117)	43	nv9	Dawn Position,
U	UCPTduskPos12 nciDuskPos12 SNVT_setting (117)	43	nv10	Dusk Position,
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	SCPTstepValue nciStepValue SNVT_level_cont (21)	84	nv15	The step value for up/down ramps or fade control
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	Override Position,
U	UCPTmaintPos15 nciMaintPos15 SNVT_setting (117)	30	nv21	Maintenance Position,
U	UCPTglarePos13 nciGlarePos13 SNVT_setting (117)	45	nv25	Glare Position,
U	UCPTrainHistory 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.

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 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

3.3.13 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

3.3.14 Scene Input

```
network input SNVT_scene nviScene;
```

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

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)

3.3.15 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.

3.3.16 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)

3.3.17 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.

3.3.18 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

3.3.19 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

3.3.20 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.

3.3.21 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 an absence notification cancels the local control function regardless of its priority setting.

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.
- 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

This input is not considered in the usual priority handling adjusted by nciNvPriority_x.

3.3.22 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.

3.3.23 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

3.3.24 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!

3.3.25 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!

3.3.26 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_NULL`.

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_NULL
```

```
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.

3.3.27 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.

3.3.28 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)

3.3.29 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:

- UCPTrainHistory

3.3.30 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...6553.5 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 Heartbeats

```
network input config UCPTMaxRcvTimeFlg nciMaxRcvTimeNV05  
(wind speed);
```

```
network input config UCPTMaxRcvTimeFlg  
nciMaxRcvTimeNV07 (rain);
```

```
network input config UCPTMaxRcvTimeFlg nciMaxRcvTimeNV08  
(frost);
```

```
network input config UCPTMaxRcvTimeFlg nciMaxRcvTimeNV18  
(window contact);
```

This configuration properties are 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.

The values have to be set for each of those network variable inputs.

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_Flg  
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

1 (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 Controller”.

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 SCPTc1OffDelay 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

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

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

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

```
network input config UCPTrainPos8 nciRainPos8;
```

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

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

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

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

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;
```

```
network input config UCPTSunOnThreshold  
nciGlRadOnThresh;
```

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

Valid Range

0 .. 65535 Lux/0 .. 6553 W/m²

Default Value

20000 Lux/200 W/m²

SNVT Reference

SNVT_lux (79)/SNVT_power (27)

3.4.21 Sun Off Threshold

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

```
network input config UCPTSunOnThreshold
nciGlRadOffThresh;
```

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

Valid Range

0 .. 65535 Lux/0 .. 6553 W/m²

Default Value

10000 Lux/100 W/m²

SNVT Reference

SNVT_lux (79))/SNVT_power (27)

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 SCPTc1OffDelay 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

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

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

If enabled, suntracking is performed at the set position. The maximum rotation is in this case 0° (= horizontal).

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 the 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

```
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!

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

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

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

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

```
network input config UCPTduskPos11 nciDuskPos12;
```

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

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 .. 327.67 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 Step Value

```
network input config SCPTstepValue nciStepValueIllum  
(illumination level);
```

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

nciStepValueTh of nviInTempHigh displays the setting of nciStepValueTiRst.

Valid Range

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

Default Value

10%.

SNVT Reference

SNVT_level_cont (21)

3.4.37 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)

3.4.38 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)

3.4.39 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)

3.4.40 Override Position

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

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

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)

3.4.41 Maintenance Position

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

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

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)

3.4.42 Glare Position

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

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

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)

3.4.43 Rain History

```
network input config UCPTainHistory 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)

3.4.44 Power-up State

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

3.4.45 Boundary and Error Conditions

None specified.

3.4.46 **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

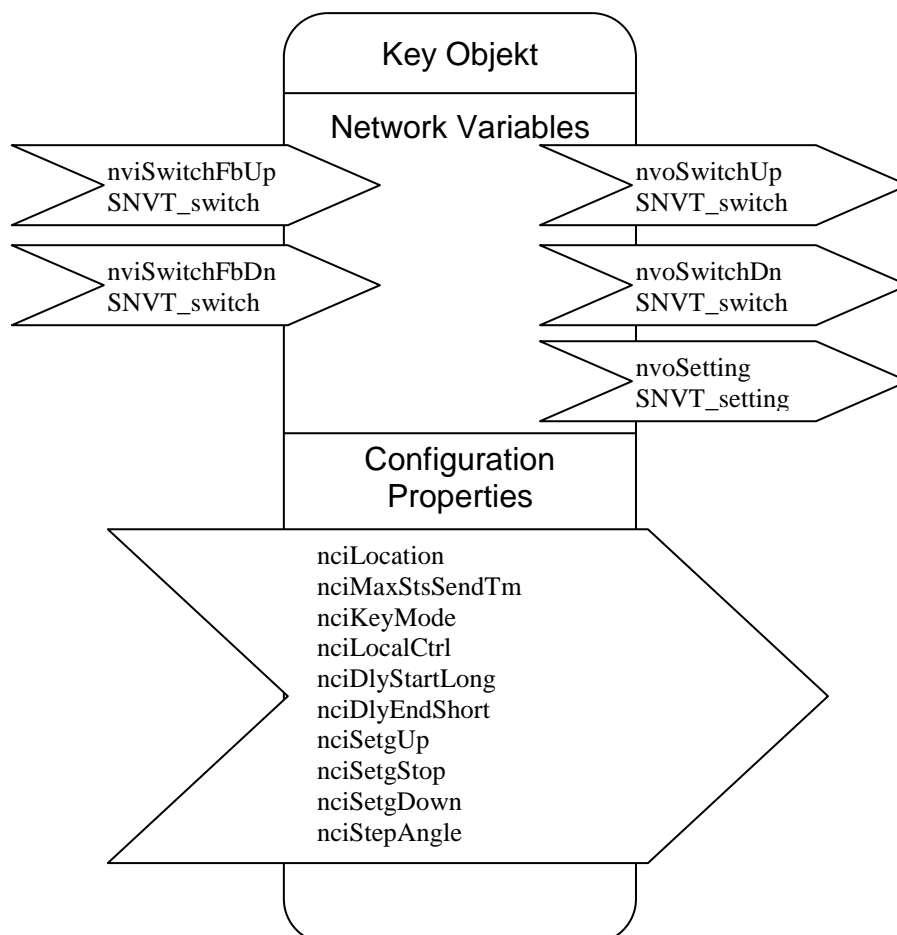


Figure 1.1 Switch Sensor Functional Profile

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.
TILT_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.

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

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. Adapter Object

UFPTadapter #20000

5.1 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.

5.2 Functional-Block Details

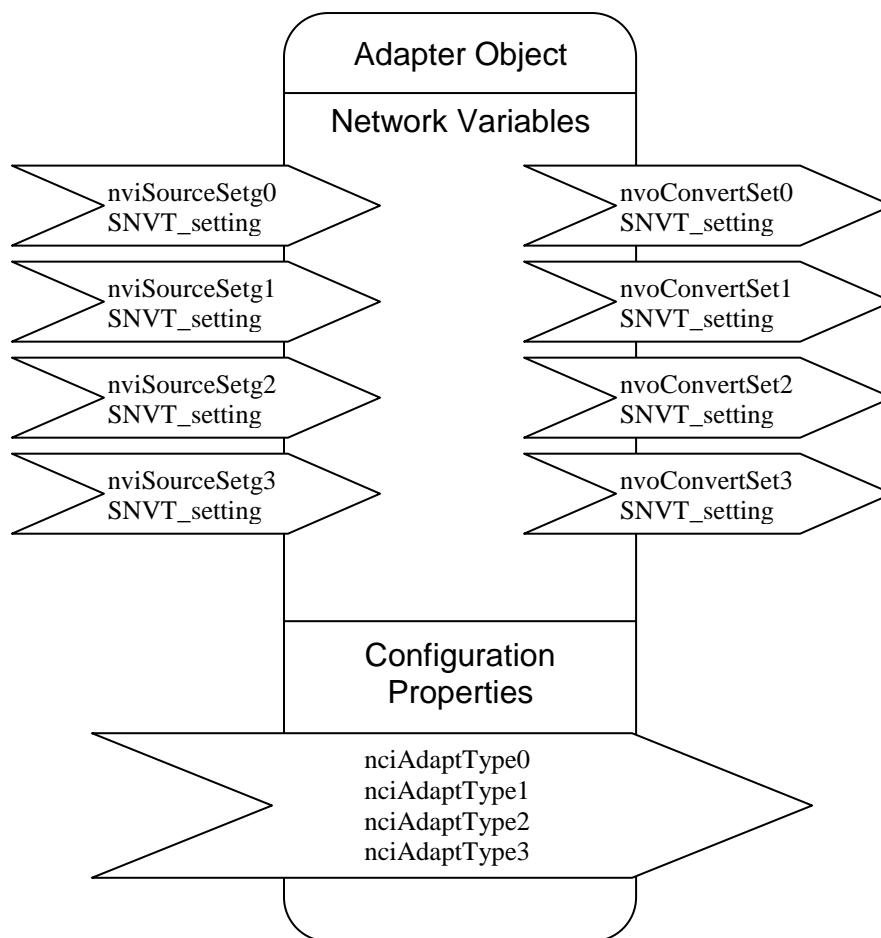


Figure 2 Functional-Block Details

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 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

5.3 Network Variables

5.3.1 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.

5.3.2 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.

5.4 Configuration Properties

5.4.1 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.