e.control
ombra W2 – Outdoor weather sensor
SC411202EC_x4.*

Software description

This document describes the behaviour and parameterisation of the software application listed below. The application is split into logical objects according to LONMARK™-Interoperability Guidelines. The objects' behaviour is described separately in this document.

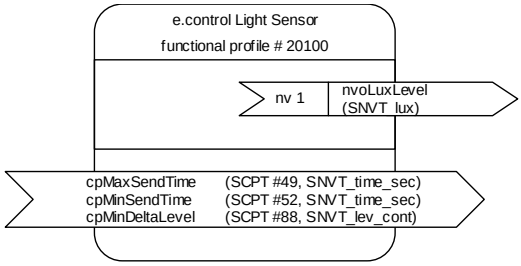
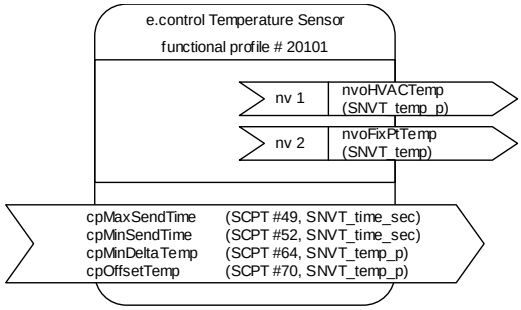
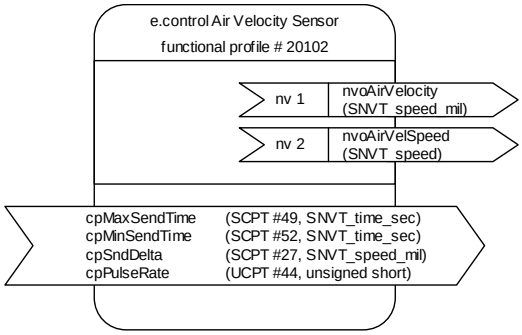
The application complies with LONMARK-Interoperability-Guidelines. With LNS based system integration tools the use of e.control resource files is recommended.

IMPORTANT: This application is applicable for spega device with hardware release 2 or 3. This is indicated by „HW 2" or "HW 3" on the Neuron-ID label. For hardware release 1 please use application files SC411202EC_03..*

Software files

Files	SC411202EC_x4.APB SC411202EC_x4.NXE SC411202EC_x4.XIF SC411202EC_x4.XFB	Application files Interface files
Resource files	e.control resource files version 1.07 +	
Plug-ins	---	

Overview of implemented software objects

Quantity	Object	Interface
1	#20100 Light Sensor	
1	#20101 Temperature Sensor	
1	#20102 Air Velocity Sensor	

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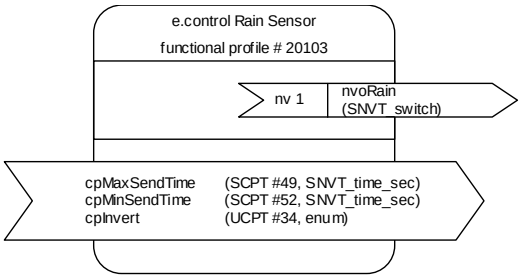
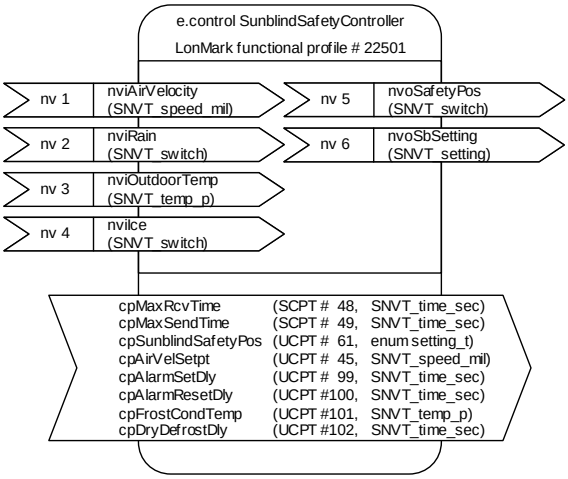
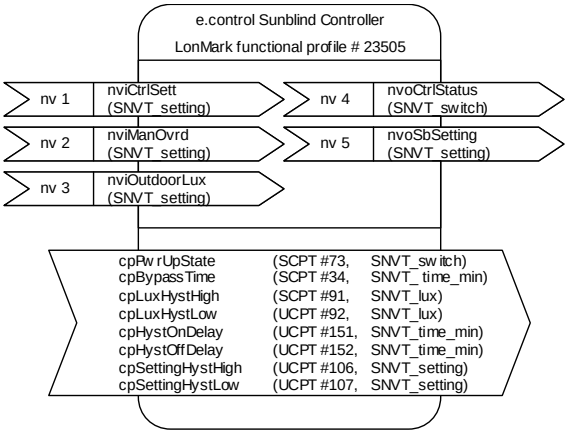
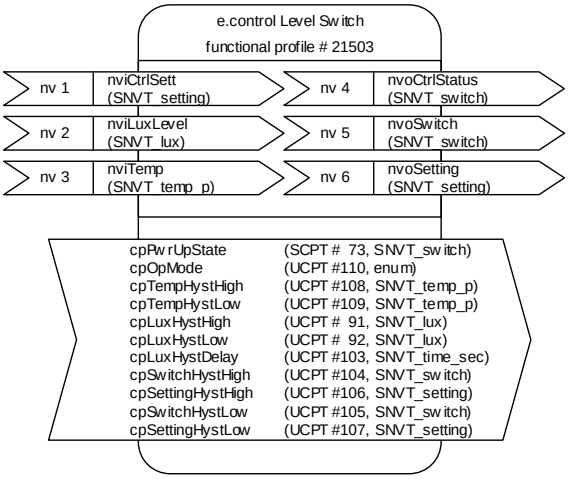
Quantity	Object	Interface
1	#20103 Rain Sensor	
1	#22501 Sunblind Protection Controller	
2	#23505 Anti-glare_Controller	
2	#21503 Level Switch	

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e.control
Light Sensor
Profile # 20100 (corresponds to LonMark # 1010)

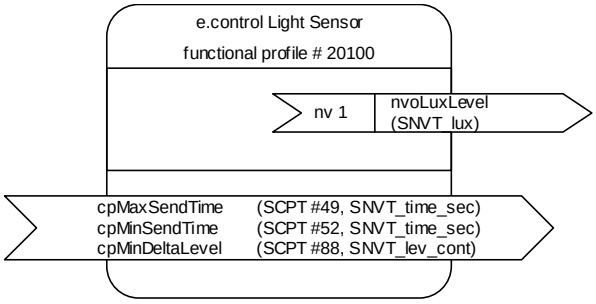
Version/Status

1.0	25.04.2003

Description

The e.control light sensor describes the software profile of a light sensor for various levels of brightness. These are sent in cycles to the LonWorks network as a lux value.

Network interface



Network variables

Output variables

`nvoLuxLevel` Brightness value of sensor

Type:	SNVT_lux
Range of values:	0 ... 65535 lux
Presetting:	0 lux
Transfer:	For changes greater than *cpMin-DeltaLevel* or in cycles after *cpMaxSendTime*

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Configuration parameters

`cpMaxSendTime` Heartbeat time of sensor

Type: SNVT_time_sec (SCPT #49)

Range of values: 0 no heartbeat
1 ... 6500 s

Presetting: 300s (3000)

`cpMinSendTime` Minimum transmission interval before re-sending a value

Type: SNVT_time_sec (SCPT #52)

Range of values: 0 no interval
0.1 ... 6553.5 s

Presetting: 1s (10)

`cpMinDeltaLevel` Minimum variation in a value, causing the value to be re-sent

Type: SNVT_lev_cont (SCPT #88)

Range of values: 0.0 ... 100.0 %

Presetting: 2% (4)

Functional description

The light sensor sends the measured light value in cycles, or whenever the variations in the value are sufficiently great, to the LonWorks network. The valid brightness value can be transmitted to various controllers or actuators via the *nvoLuxLevel* output network variable.

Setting the minimum variation levels

cpMinDeltaLevel is used for indicating from which level of variation (in percentage terms) in the most recently transmitted value a new light value is sent to the network. A parameter value “0” indicates that each variation is being sent (Note: *cpMinSendTime*).

Setting the repeat send time

cpMaxSendTime is used for fixing the time after which the sensor repeats the most recently sent value, regardless of any variations (heartbeat). Value repetition is disabled via the parameter value “0”.

Setting the minimum interval during transmission

cpMinSendTime is used for indicating the shortest time after which a new telegram is sent. The bus load can be limited on the basis of this value. This limitation can be removed using the value “0“.

Reset response

The sensor starts with the set configuration parameters.

Troubleshooting

No troubleshooting is required

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e.control
Temperature Sensor
Profile # 20101 (corresponds to LonMark # 1040)

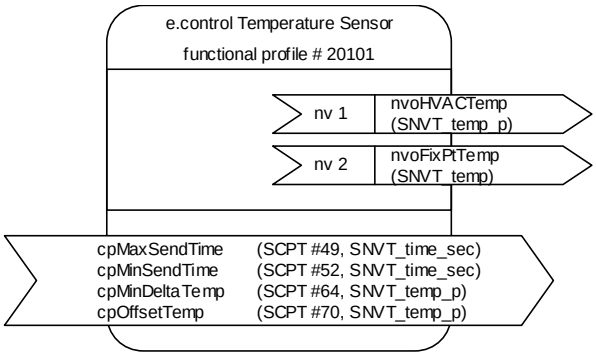
Version/Status

1.0	25.04.2003

Description

The e.control light sensor describes the software profile of a temperature sensor. The measured values are sent in cycles in various formats.

Network interface



Network variables

Output variables

`nvoHVACTemp` Temperature value of the sensors of the resolution usually used for heating, ventilation and air-conditioning applications

Type:	SNVT_temp_p
Range of values:	-273.17 ... 327.66 °C
Presetting:	0 °C
Transmission:	In the event of variations greater than *cpMinDeltaTemp* or in cycles after cpM*axSendTime*

`nvoFixPtTemp` Temperature value of the sensor of a smaller resolution

Type:	SNVT_temp
Range of values:	-274 ... 6279.5 °C
Presetting:	0 °C
Transmission:	as with *nvoHVACTemp*

Configuration parameters

`cpMaxSendTime` Heartbeat time of the sensor

Type:	SNVT_time_sec (SCPT #49)
Range of values:	0 no heartbeat 0.1 ... 6553.5 s
Presetting:	300s (3000)

`cpMinSendTime` Minimum transmission interval before re-sending a value

Type:	SNVT_time_sec (SCPT #52)
Range of values:	0 no interval 0.1 ... 6553.5 s
Presetting:	5 s (50)

`cpMinDeltaTemp` Minimum variation in temperature, causing the value to be re-sent

Type:	SNVT_temp_p (SCPT #64)
Range of values:	as with SNVT_temp_p
Presetting:	0.5 °C (50)

`cpOffsetTemp` Shift in temperature for calibration of sensor

Type:	SNVT_temp_p (SCPT #70)
Range of values:	as with SNVT_temp_p
Presetting:	0 °K (0)

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Functional description

The e.control temperature sensor sends the measured temperature in cycles, or whenever the variations in temperature are sufficiently great, to the LonWorks network. The current temperature can be transmitted to various controllers or to the actuators of different mechanisms via the *nvoHVACTemp* or *nvoFixPtTemp* output network variables.

Setting the minimum variation level

cpMinDeltaTemp is used for indicating from which level of variation (in percentage terms) in the most recently transmitted value a new temperature value is sent to the network. A parameter value “0” indicates that each variation is being sent (Note: *cpMinSendTime*).

cpMinSendTime is used for indicating the shortest time after which a new telegram is sent. The bus load can be limited on the basis of this value. This limitation can be removed using the value “0“.

Setting the heartbeat time

cpMaxSendTime is used for fixing the time after which the sensor repeats the most recently sent value, regardless of any variations (heartbeat). Value repetition is disabled via the parameter value “0”.

Calibration of the sensor

The sensor can be re-calibrated at any time, depending on the installation conditions, via *cpOffsetTemp*.

Reset response

The sensor starts with the set configuration parameters.

Troubleshooting

No troubleshooting is required.

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e.control
Air Velocity Sensor
Profile # 20102 (corresponds to LonMark # 1083)

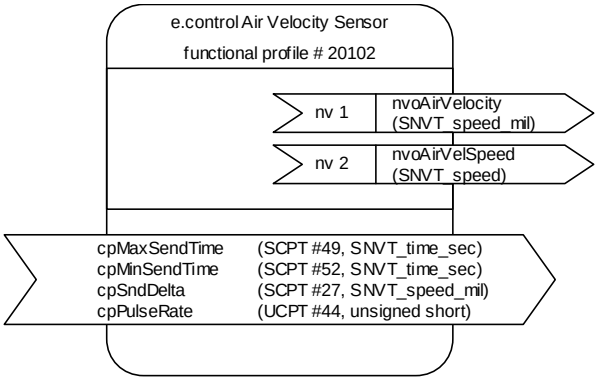
Version/Status

1.0	25.04.2003

Description

The e.control air velocity sensor describes the software profile of an air velocity sensor. The measured values are sent in cycles in various formats.

Network interface



Network variables

Output variables

`nvoAirVelocity` Air velocity of a high resolution

Type: SNVT_speed_mil

Range of values: 0 ... 65,535 m/s

Presetting: 0 m/s

Transmission: In the event of variations greater than *cpSndDelta* or in cycles after *cpMaxSendTime*

`nvoAirVelSpeed` Air velocity of a small resolution

Type: SNVT_speed

Range of values: 0 ... 6.553.5 m/s

Presetting: 0 m/s

Transmission: As with *nvoAirVelocity*

Configuration parameters

`cpMaxSendTime` Heartbeat time of the sensor

Type: SNVT_time_sec (SCPT #49)

Range of values: 0 no heartbeat
0.1 ... 6553.5 s

Presetting: 300s (3000)

`cpMinSendTime` Minimum transmission interval before re-sending a value

Type: SNVT_time_sec (SCPT #52)

Range of values: 0 no interval
0.1 ... 6553.5 s

Presetting: 1s (10)

`cpSndDelta` Min. variation in velocity, causing the value to be resent

Type: SNVT_speed_mil (SCPT #27)

Range of values: As with SNVT_speed_mil

Presetting: 0.05 m/s (50)

`cpPulseRate` Impulse rate of the connected wind wheel (x impulses every 10 m/s)

Type: unsigned short (UCPT #44)

Range of values: 0 ... 255 impulses every 10 m/s

Presetting: 25 (for spega wind wheel)

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Functional description

The e.control Air Velocity Sensor sends the measured air velocity in cycles, or whenever the variations in air velocity are sufficiently great, to the LonWorks network. The current velocity can be transmitted to various controllers or to the actuators of different mechanisms via the *nvoAirVelocity* or *nvoAirVelSpeed* output network variables.

Setting the minimum variation level

cpSndDelta is used for indicating from which level of variation in the most recently transmitted value a new temperature value is sent to the network. A parameter value “0” indicates that each variation is being sent (Note: *cpMinSendTime*).

cpMinSendTime is used for indicating the shortest time after which a new telegram is sent. The bus load can be limited on the basis of this value. This limitation can be removed using the value “0“.

Setting the repeat send time

cpM*axSendTime* is used for fixing the time after which the sensor repeats the most recently sent value, regardless of any variations (heartbeat). Value repetition is disabled via the parameter value “0”.

Reset response

The sensor starts with the set configuration parameters.

Troubleshooting

No troubleshooting is required.

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e.control
Rain Sensor
Profile # 20103 (corresponds to LonMark # 1051)

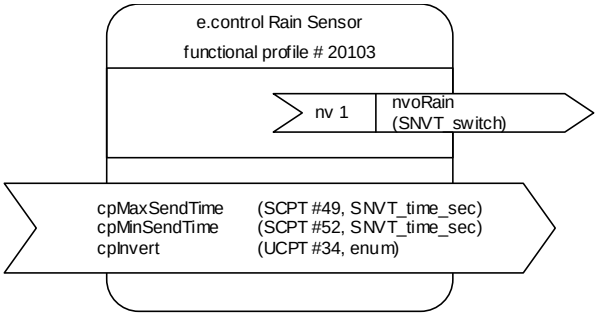
Version/Status

1.0	25.04.2003

Description

The e.control rain sensor describes the software profile of a rain sensor. The status is transmitted in cycles.

Network interface



Network variables

Output variables

`nvoRain` Status of rain recognition

Type:	SNVT_switch
Range of values:	{ 0%, 0} No rain {100%, 1} Rain
Presetting:	{0%, 0} (0, 0)
Transmission:	In the event of variations and in cycles after *cpMaxSendTime*

Configuration parameters

`cpMaxSendTime` Heartbeat time of the sensor

Type:	SNVT_time_sec (SCPT #49)
Range of values:	0 no heartbeat 0.1 ... 6553.5 s
Presetting:	300s (3000)

`cpMinSendTime` Minimum transmission interval before re-sending a value

Type:	SNVT_time_sec (SCPT #52)
Range of values:	0 no interval 0.1 ... 6553.5 s
Presetting:	30s (300)

`cpInvert` Setting of the input contact

Type:	Enumeration (SCPT #34)
Range of values:	0 LO_NORM Make contact 1 LO_INVERT Break contact
Presetting:	LO_NORM (0)

Functional description

The e.control rain sensor sends the measured rain status in cycles, or whenever the variations in the status are sufficiently great, to the LonWorks network. The current rain status can be transmitted to various controllers or to the actuators of different mechanisms via the *nvoRain* output network variable.

Setting the repeat send time

cpMaxSendTime is used for fixing the time after which the sensor repeats the most recently sent value, regardless of any variations (heartbeat). Value repetition is disabled via the parameter value “0”.

Setting the minimum variation level

cpMinSendTime is used for indicating from which level of variation in the most recently transmitted value a new temperature value is sent to the network. The bus load can be limited on the basis of this value. This limitation can be removed using the value “0“.

Setting the type of contact

The type of connected signal contact is parameterised via *cpInvert*. Make contacts receive the parameter LO_NORM, break contacts the parameter LO_INVERT.

Reset response

The sensor tests the contact input and transmits the corresponding status.

Troubleshooting

No troubleshooting is required.

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e.control
Sunblind Protection Controller
Profile # 22501

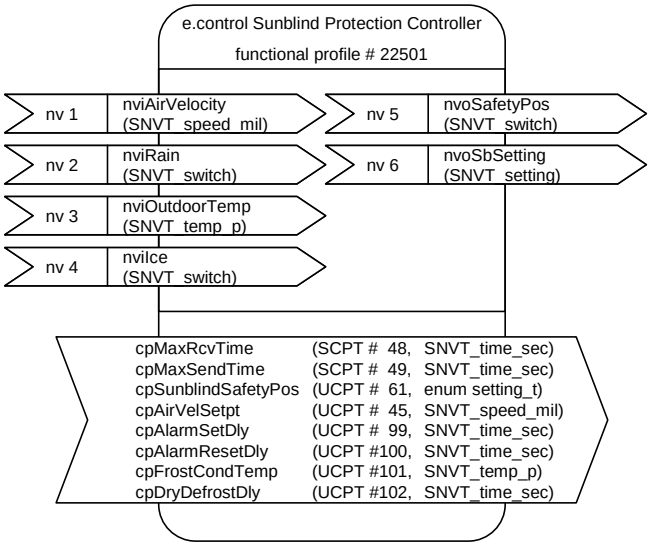
Version/Status

1.0	13.05.2003

Description

The sunblind protection controller calculates the safety-relevant time spans from the weather data. In these time spans, a safety command is sent to the sunblind actuators. For this purpose, air velocity and ice formation are used which are defined by a dedicated ice sensor or alternatively by evaluating the outside temperature and rainfall.

Network interface



Network variables

Input variables

`nviAirVeloci.` Air velocity measured by an external sensor

Type: SNVT_speed_mil

Range of values: see SNVT_speed_mil

Presetting: 0 m/s (0)

`nviRain` Rainfall measured by an external sensor

Type: SNVT_switch

Range of values: .state = 0 No rain
.state = 1 Rain

Presetting: (0.0, 0)

`nviOutdoorTemp` Outside temperature measured by an external sensor

Type: SNVT_temp_p

Range of values: see SNVT_temp_p

Presetting: 0 °C (0)

`nviIce` Ice formation measured by an external sensor

Type: SNVT_switch

Range of values: .state = 0 No ice formation
.state = 1 Ice formation

Presetting: (0.0, 0)

Output variables

`nvoSafetyPos` Safety code in the event of danger

Type: SNVT_switch

Range of values: (0.0%, 0) No danger
(100,0%, 1) Danger

Presetting: (0.0, 0)

Transmission: After changing the value and cyclically after *cpMaxSendTime*

`nvoSetting` Travel command output

Type: SNVT_setting

Range of values: Depends on the setting in
- *cpSunblindSafetyPos*

Presetting: (SET_OFF, 0 , 0)

Transmission: After changing the value

Configuration parameters

`cpMaxRcvTime` Duration of validity for input telegrams (currently without function)

Type: SNVT_time_sec (SPCT #48)

Range of values: 0 No restriction
0.1 ...6553.5s Duration of validity

Presetting: 0.0s (0)

`cpMaxSendTime` Heartbeat for *nvoSafetyPos*

Type: SNVT_time_sec (SPCT #49)

Range of values: 0 No heartbeat
0.1 ...6553.5s Heartbeat time

Presetting: 0.0s (0)

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`cpSunblind-SafetyPos` Direction of the travel command in case of safety travel

Type: setting_t (UCPT #61)

Range of values:
2 SET_DOWN Travel to bott. end pos.
3 SET_UP Travel to top end pos.
4 SET_STOP No travel

Presetting: SET_UP (3)

`cpAirVelSetpt` Limit value of air velocity

Type: SNVT_speed_mil (UCPT #45)

Range of values: see SNVT_speed_mil

Presetting: 12,000 m/s (12000)

`cpAlarmSetDly` Time delay until activation of the air alarm

Type: SNVT_time_sec (UCPT #99)

Range of values:
0 No delay
1 ...6553 s Delay

Presetting: 2.0s (20)

`cpAlarmReSetDly` Time delay until deactivation of air alarm

Type: SNVT_time_sec (UCPT #100)

Range of values:
0 No delay
1 ...6553 s Delay

Presetting: 900,0s (9000)

`cpFrostCond-Temp` Temperature starting from which there is a danger of ice formation

Type: SNVT_temp_p (UCPT #101)

Range of values: siehe SNVT_temp_p

Presetting: 3,00°C (300)

`cpDryDefrost-Dly` Time delay with the following functions

a) Drying time of sunblind after rain

b) Defrost time of sunblind after exceeding the danger temperature for ice formation

Type: SNVT_time_sec (UCPT #102)

Range of values:
0 No delay
1 ...6553 s Delay

Presetting: 1800s (18000)

Functional description

The sunblind protection controller calculates safety-relevant time spans from the weather data. In these time spans, a safety command is sent to the sunblind actuators. For this purpose, air velocity and ice formation are used which are defined by a dedicated ice sensor or alternatively by evaluating the outside temperature and rainfall.

If at least one of the criteria storm or ice formation are identified, the safety telegrams are sent via *nvoSafetyPos* and *nvoSbSetting*:

Network variable.	*Normal mode*	*Safety function*
nvoSafetyPos	(0.0 0)	(100.0 1)
nvoSbSetting	(SET_NUL, 0.0, 0.00)	(*cpSunblindSafetyPos*, 100.0, 0.00)

The value on the *nvoSafetyPos* which is relevant in each case is sent cyclically if a corresponding time in cpMaxSendTime has been parameterised.

Protection against damage from storms

The current air velocity is received through *nviAirVelocity*, measured by a wind sensor. For protection against damage from storms, the corresponding telegrams are sent via *nvoSafetyPos* and *nvoSbSetting* if the threshold value cpAirVelSetpt for the time set in *cpAlarmSetDly* has been exceeded.

The safety condition is cancelled only if the threshold value is no longer attained over a time span of *cpAlarmResetDly* .

Protection against damage from ice formation

If sunblind systems are to be protected against damage from ice formation, then evaluation can be carried out by means of a dedicated ice sensor or the danger of ice formation is handled by the controller directly on the basis of the measured temperature and rainfall values.

a) Evaluation of an explicit ice sensor

The controller accepts telegrams for ice formation directly via *nviIce*. An ice message directly results in the transmission of safety telegrams. If the sensor reports the end of ice formation, the controller waits for the defrost time set in *cpDryDefrostDly* before the safety condition is cancelled.

If an external ice sensor is bound via *nviIce*, the internal evaluation through temperature and rainfall (see below) is deactivated.

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b) Evaluation through temperature and rainfall

If there is no dedicated ice sensor, the outside temperature and rainfall can be used to calculate frost through *nviOutdoorTmp* and *nviRain* respectively.

If the temperature falls below the limit *cpFrostCondTemp* and there is simultaneous rainfall, safety telegrams are triggered since wet blinds would now freeze.

If the temperature once again rises above the limit, then defrosting takes place (*cpDryDefrostDly*). Once the ice on the blinds has defrosted, the safety condition is cancelled.

The blinds are considered to be wet beyond the duration of rainfall, i.e. also in the drying period (*cpDryDefrostDly*). Drying starts the moment no rainfall is measured and the surface of the blinds is sufficiently warm (temperature above limit value and defrosting has stopped). Prior to the expiration of the drying time, a drop in temperature below the limit value would once again trigger the safety telegrams even without renewed occurrence of rainfall.

Note 1: If there is no rain sensor (nviRain not bound), the blind is considered as always being wet, i.e. the drop below the limit value already triggers the transmission of the safety telegrams.

Note 2: If the sunblind facilities are brought into the safety position already upon occurrence of rain, a rain sensor can be bound to nvilce instead of the ice sensor. The binding of the rain sensor to nviRain without a temperature sensor to nviOutdoorTmp would not trigger the safety telegrams since the evaluation logic requires the outside temperature.

Reset response

The controller operation is set after binding the input variables (see functional description).

Troubleshooting

No troubleshooting required.

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e.control
Anti-glare Controller
Profile # 23505

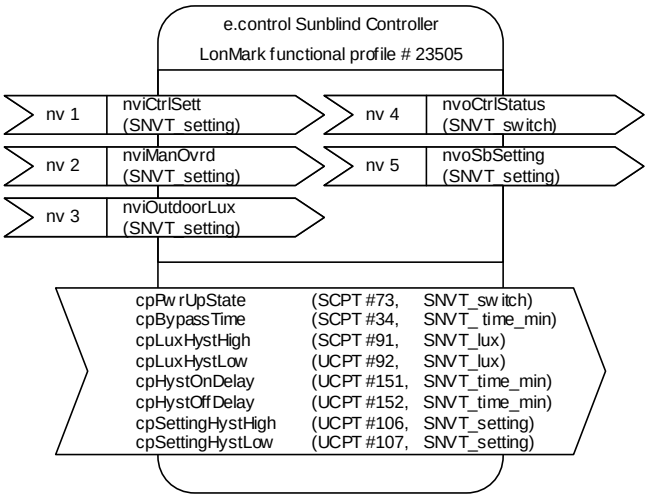
Version/Status

3.00	01.09.2003

Description

The anti-glare controller object controls a group of sunblind actuators depending on the brightness outside. Furthermore, manual travel commands can be transmitted to the group via the controller.

Network interface



Network variables

Input variables

`nviCtrlSett` Switches the controller on or off

Type: SNVT_setting

Range of values: 0 SET_OFF controller inactive1
SET_ON controller active

Presetting: ---

`nviManOvrd` Manual overriding of automatic travel commands

Type: SNVT_setting

Range of values: see SNVT_setting

Presetting: (SET_OFF, 0, 0)

`nviOutdoorLux` Outside brightness of sensor

Type: SNVT_lux

Range of values: SNVT_lux

Presetting: 0 lux (0)

Output variables

`nvoCtrlStatus` Status of controller (e.g. for display on GLT)

Type: SNVT_switch

Range of values: (0.0, 0) controller inactive
(100.0, 1) controller active

Presetting: depends on *cpPwrUpState*

Transmission:: after changeover of the status and after power restoration

`nvoSetting` Travel command for blind actuators

Type: SNVT_setting

Range of values: SNVT_setting

Presetting: (SET_OFF, 0 , 0)

Transmission:: after changing the status

Configuration parameters

`cpPwrUpState` Status of controller after power restoration

Type: SNVT_switch (SPCT #73)

Range of values: .state with following significance:
0 controller inactive
1 controller active
-1 controller status remains unchanged

Presetting: {0.0, 1} (0 1)

`cpBypassTime` Lock-out time for antiglare commands after receipt of a manual command

Type: SNVT_time_min (SCPT #34)

Range of values: 0 unlimited
1 ... 1000 min Enable after…

Presetting: 0 min (0)

`cpLuxHystHigh` High hysteresis value (beginning of antiglare)

Type: SNVT_lux (UCPT #91)

Range of values: see SNVT_lux

Presetting: 20.000 lux (20000)

`cpLuxHystLow` Low hysteresis value (end of antiglare)

Type: SNVT_lux (UCPT #92)

Range of values: see SNVT_lux

Presetting: 5000 lux (5000)

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`cpHystOnDelay` Time delay on enabling of antiglare

Type: SNVT_time_min (UCPT #151)

Range of values: 0 No delay
1 ...1000 min Delay

Presetting: 5 min (5)

`cpHystOffDelay` Time delay on cancellation of antiglare

Type: SNVT_time_min (UCPT #152)

Range of values: 0 No delay
1 ...1000 min Delay

Presetting: 60 min (60)

`cpSettingHyst-High` Travel command on activation of antiglare

Type: SNVT_setting (UCPT #106)

Range of values: see SNVT_setting

Presetting: (SET_STATE, 100.0%, -30.00°)

`cpSettingHyst-Low` Travel command on termination of antiglare

Type: SNVT_setting (UCPT #107)

Range of values: see SNVT_setting

Presetting: (SET_UP, 100.0%, 0.00)

Functional description

The anti-glare controller object controls a group of sunblind actuators depending on the brightness outside. Furthermore, manual travel commands can be transmitted to the group via the controller.

Setting the operating status after reset

The operating status of the controller can be influenced by *cpPwrUpState*. Either the threshold switch is active (.state = 1) or. inactive (.state = 0) or it assumes the same status it had before power interruption (.state = -1).

Automatic mode (antiglare function)

The controller monitors the outside brightness and if the limit value defined in *cpLuxHystHigh* is exceeded by the time stipulated in *cpHystOnDelay* , it moves the sunblind into the antiglare position. This is defined in the parameter *cpSettingHystHigh*.

However, if the outside brightness falls below the threshold *cpLuxHystLow* for the time parameterised in *cpHystOffDelay*, the telegram *cpSettingHystLow* is sent. The antiglare can, for example, be cancelled in this manner.

Manual overriding of the controller

The anti-glare function can be overridden by *nviManOvrd*. The duration of the deactivation of the antiglare can be indicated through *cpBypassTime*. Through the command SET_NUL, the antiglare can be activated again at any time. If a valid sunblind command is received, this is sent to the bound actuators through *nvoSbSetting*. The following table shows the behaviour:

nviManOvrd.function	*Antiglare*	*nvoSbSetting.function*
SET_OFF	deactivated*	-----
SET_ON	deactivated*	-----
SET_DOWN	deactivated*	SET_DOWN
SET_UP	deactivated*	SET_UP
SET_STOP	deactivated*	SET_STOP
SET_NUL	activated	-----

* if *cpBypassTime* does not equal “0”, the antiglare is automatically activated again after the time lapses.

Reset response

The anti-glare function is activated. The controller begins with the preset values if it is active (either *cpPwrUpState.state = 1* or *cpPwrUpState.state = -1* and controller is active before power failure).

Troubleshooting

No troubleshooting is required.

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e.control
Level Switch
Profile # 21503

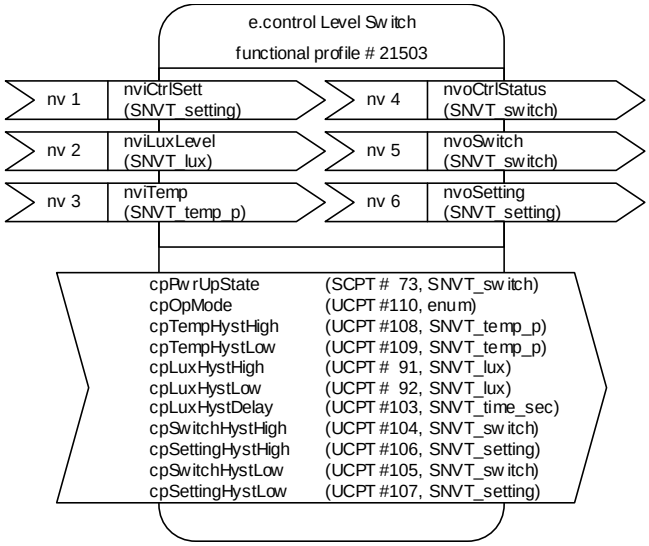
Version/Status

1.0	13.05.2003

Description

The level switch object is a brightness or temperature-dependent threshold switch (e.g. twilight detector). The output telegrams in the event of the level being exceeded or falling short can be parameterised.

Network interface



Network variables

Input variables

`nviCtrlSett` Switches the controller on or off

Type: SNVT_setting

Range of values: 0 SET_OFF Controller inactive
1 SET_ON Controller active

Presetting: ---

`nviLuxLevel` Brightness value

Type: SNVT_lux

Range of values: See SNVT_lux:

Presetting: 0 lux (0)

`nviTemp` Temperature value

Type: SNVT_temp_p

Range of values: See SNVT_temp_p

Presetting: 0 °C (0)

Output variables

`nvoCtrlStatus` Operating status of the controller (e.g. for displaying on GLT)

Type: SNVT_switch

Range of values: (0.0, 0) Controller inactive
(100.0, 1) Controller active

Presetting: Dependent on *cpPwrUpState*

Transmission: Following changeover of the operating status and after power restoration

`nvoSwitch` Switching output of the controller

Type: SNVT_switch

Range of values: Depending on the setting in
- *cpSwitchHystHigh*,
- *cpSwitchHystLow*

Presetting: (0.0, -1)

Transmission: After the value has changed

`nvoSetting` Control output of the controller

Type: SNVT_setting

Range of values: Depending on the setting in
- *cpSettingHystHigh*,
- *cpSettingHystLow*

Presetting: (SET_NUL, 0 , 0)

Transmission: After the value has been changed

Configuration parameters

`cpPwrUpState` Operating status of the controller after power restoration

Type: SNVT_switch (SPCT #73)

Range of values: .state with the following meaning:
0 Controller inactive
1 Controller active
-1 Controller status remains unchanged

Presetting: {0.0, 1} (0 1)

`cpOpMode` Operating method of the controller

Type: enumeration (UPCT #110)

Range of values: 0 OM_NO_OP No operation
1 OM_MODE_1 Brightness switch
2 OM_MODE_2 Temperature switch

Presetting: OP_MODE_1 (1)

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`cpTempHystHigh` Upper hysteresis value during temperature switch operation

Type: SNVT_temp_p (UCPT #108)

Range of values: See SNVT_temp_p

Presetting: 5,00°C (500)

`cpTempHystLow` Lower hysteresis value during temperature switch operation

Type: SNVT_temp_p (UCPT #109)

Range of values: See SNVT_temp_p

Presetting: 2.00°C (200)

`cpLuxHystHigh` Upper hysteresis value during brightness switch operation

Type: SNVT_lux (UCPT #91)

Range of values: See SNVT_lux

Presetting: 100 lux (100)

`cpLuxHystLow` Lower hysteresis value during brightness switch operation

Type: SNVT_lux (UCPT #92)

Range of values: See SNVT_lux

Presetting: 30 lux (30)

`cpLuxHystDelay` Time delay for brightness values

Type: SNVT_time_sec (UCPT #103)

Range of values: 0 no delay
1 ...6553.5 s delay

Presetting: 300.0 s (3000)

`cpSwitchHyst-High` Switching command in the event of the upper threshold being exceeded

Type: SNVT_switch (UCPT #104)

Range of values: See SNVT_switch

Presetting: (0.0%, 0)

`cpSettingHyst-High` Control command in the event of the upper threshold being exceeded

Type: SNVT_setting (UCPT #106)

Range of values: See SNVT_setting

Presetting: (SET_OFF, 0.0, 0.00)

`cpSwitchHyst-Low` Switching command in the event of the value falling below the lower threshold

Type: SNVT_switch (UCPT #105)

Range of values: See SNVT_switch

Presetting: (100.0%, 1)

`cpSettingHyst-Low` Control command in the event of the value falling below the lower threshold

Type: SNVT_setting (UCPT #107)

Range of values: See SNVT_setting

Presetting: (SET_ON, 100.0, 0.00)

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Functional description

The level switch object is a brightness or temperature-dependent threshold value (e.g. twilight detectors). The output telegrams in the event of the threshold value being exceeded can be parameterised.

Setting the operating status after reset

The operating status of the controller can be influenced via *cpPwrUpState*. Either the threshold switch is activated (.state = 1) or deactivated (.state = 0) or it takes on the same status it had before the power was interrupted (.state = -1).

Selection of the operating mode-

The threshold switch can monitor brightness or temperature thresholds alternately. It is set via *cpOpMode*.

a) Brightness threshold value (OM_MODE_1)

If the set upper brightness threshold *cpLuxHystHigh* is exceeded for the time set in *cpLuxHystDelay*, the telegram set in *cpSwitchHystHigh* is sent via *nvoSwitch* and the telegram specified in *cpSettingHystHigh* is sent via *nvoSetting*.

If the brightness value falls below the set lower brightness threshold *cpLuxHystLow* for the time specified in *cpLuxHystDelay*, the telegram set in *cpSwitchHystLow* is sent via *nvoSwitch* and the telegram specified in *cpSetting-HystLow* is sent via *nvoSetting*.

Example: Twilight detector:
A twilight detector should switch on the external lighting at a brightness level of under 30 lux and switch it off again when the brightness level exceeds 100 lux the following morning. In order to prevent the lighting being switched on unintentionally, e.g. by a car's headlights, the brightness level should either exceed or fall below the desired threshold for at least 5 minutes. The presetting parameters reflect this response.

b) Temperature threshold switch (OM_MODE_2)

If the set upper temperature threshold *cpTempHystHig* is exceeded, the telegram set in *cpSwitchHystHigh* is sent via *nvoSwitch* and the telegram specified in *cpSettingHystHigh* is sent via *nvoSetting*.

If the temperature value falls below the set lower temperature threshold *cpTempHystLow*, the telegram set in *cpSwitchHystLow* is sent via *nvoSwitch* and the telegram specified in *cpSettingHystLow* is sent via *nvoSetting*.

Reset response

The output variables move to the presetting. The controller starts in the set mode if it is active (either *cpPwrUpState.state = 1* or *cpPwrUpState.state = -1* and controller active before power failure).

Troubleshooting

No troubleshooting is required.

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