

# User Manual

## LON I/O Module DR-N 8S-10A

Art. no.:MTN881801

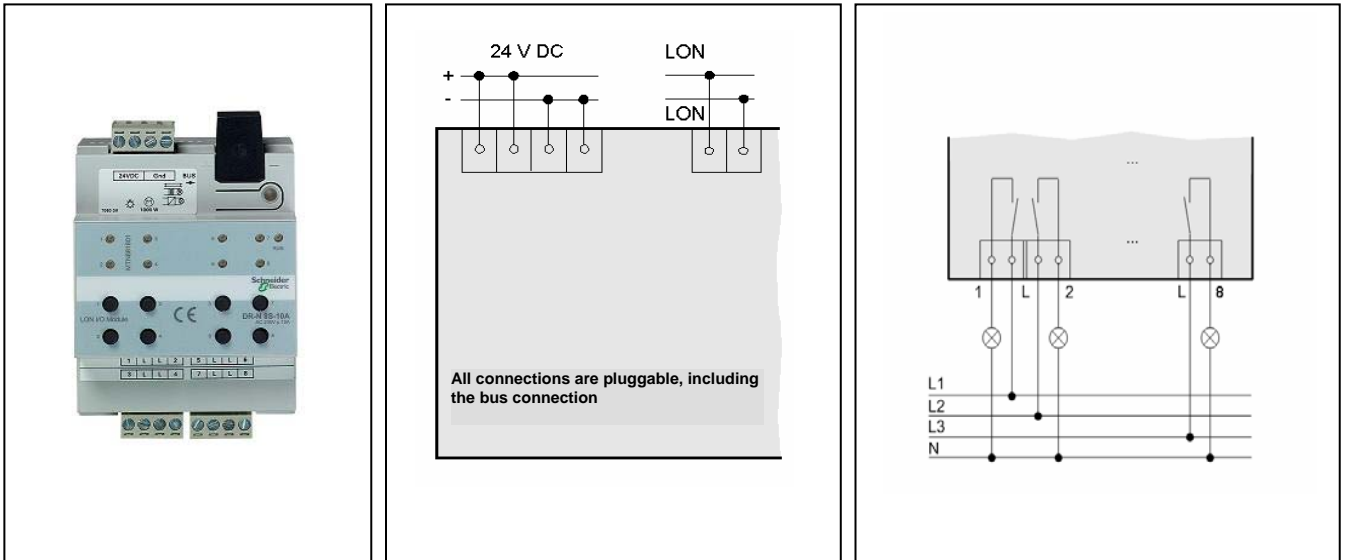
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# LON I/O Module DR-N 8S-10A

Art. no.: MTN881801

## 1. Description



- Independent switching of eight load groups
- Eight relay outputs (NO, 10 A)
- Manual operation and status indication per output
- Power-down detection
- Supply voltage: DC 24 V
- Pluggable screw-type terminals
- Device width: approx. 72 mm (4 pitch)
- DIN rail mounting according to EN 50 022
- Software application for control of eight independent consumer loads according to the LonMark profile "Lamp Actuator (3040)" with timers, prioritised control, logic operation, configurable reaction of the outputs to power-up/bus reset and two "Scene Controller (3251)" objects

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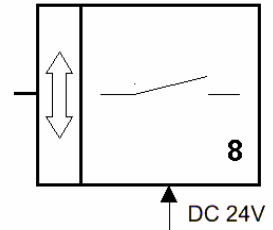
### 2. Function

The LON I/O Module DR-N 8S-10A has eight independent, potential-free relay outputs for switching of lighting components and other electrical consumer loads.

The device requires a 24 V DC power supply for operation. The potential-free outputs switch 230 V AC /10 A.

The general device state is displayed by a service and operation LED.

The application software conforms to the LonMark guidelines.



### 3. Installation

The LON I/O Module DR-N 8S-10A in a DIN rail housing is intended for installation on DIN top-hat rails according to the EN 50 022 standard.

The power supply cables are connected via screw-type terminals. The plug terminals can be screwed onto the cables before installation of the device and then plugged in later.

The consumer cables are connected via screw-type terminals.

All devices mounted next to the I/O module must be equipped with basic insulation at a minimum.

The green RUN LED does not illuminate until the application program has been correctly loaded into the device.

Pressing the service button sends the Neuron ID of the device. The Service LED shows the programming status.

An application program is required to operate the device.

A separate tool is needed to load the application into the device.

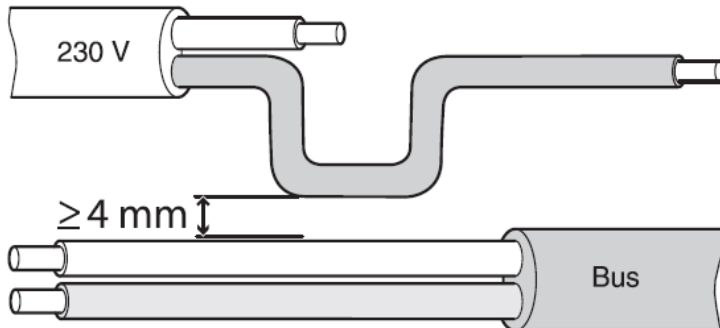
#### **!Warning:**

Safety clearances according to DIN VDE 0110 Part 1 must be maintained. A clearance of at least 4 mm must exist between individual 230 V conductors and the bus cables.

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### **!Danger to life due to electric current:**

Even when the manual switch is in the "OFF" position, a BUS telegram can switch power to the connections at any time. Always deactivate/remove the upstream fuses before working on the device.

### **Output connections:**

#### **! Danger to life due to electric current:**

Vibration during transport can switch on the outputs. Voltage may appear at the outputs when mains voltage is applied!

To switch off outputs:

After commissioning, use bus telegrams to perform a switching cycle (on/off) or set the manual switch to "OFF".

#### **! Warning:**

Switching actuators might be damaged. Secure the switching contacts with an upstream 10 A circuit breaker.

Connect the device according to the connection example. The consumer cables and the mains voltage (L1, L2 or L3) are connected using screw terminals rated to a maximum of 10 A.

### **Notes**

Installation and mounting of electrical devices may only be done by a skilled electrician.

When planning and installing electrical equipment, the applicable norms, guidelines, rules and regulations for the respective country are to be followed. Beyond this, the device specifications are also to be followed. Detailed specialised knowledge of LON technology is a prerequisite for project work, installation, and commissioning.

The functioning of the device is software dependent.

The installer has the responsibility of ensuring that the loaded application programs, and the parameters defined within this, agree with the external connections of the device. This applies especially to situations where several application programs for different applications are available for the device.

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## 4. Technical data

### Power supply

Operating voltage: 24 V DC (+/-10%)

Current consumption: max. 30 mA

### Bus connection

Transceiver type: LON Free Topology Transceiver (TP/FT-10)

Via pluggable bus connection terminals

### Outputs

Number: 8

Type: Relays (NO), potential-free

Rated voltage: 230 V AC, 50 to 60 Hz

max. Load current: 10 A

### Operating elements

Service button: Sends the Neuron ID

Pressing the service button during a hardware reset places the device in the "unconfigured" state

Manual control buttons (1-8): Manual switching of the outputs

### Display elements

RUN LED: ON: Device is working normally; OFF: No application loaded, no voltage

Service LED: OFF: Device is working normally; BLINKING: Device is unconfigured; ON: Device has no application loaded

### Connections

Power supply, outputs: Pluggable screw-type- terminals for cross-sections of 1.5 .. 2.5 mm<sup>2</sup>

Bus: Standard bus connection terminals (2-pole for connection to 4 conductor pairs)

### Housing

Dimensions: 68 x 72 x 90 mm (H x W x D), 4 pitch according to DIN 43 880

Type of protection: IP20 (EN 60 529/IEC 144)

### EMC specification

Noise immunity: according to EN 50 090-2-2

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Application: 881801I\_01B

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### 5. Application description

The application "881801I\_01A" is used for controlling eight independent consumers connected to the relay outputs of the LON I/O Module DR-N 8S-10A. It reflects the LonMark profiles "Lamp Actuator (#3040)" (8x) and "Scene Controller (#3251)" (2x). In addition to the functions specified in these profiles, the application also allows timer functions for every switched output and controlling using different priorities. The "Global Control" object allows a definable group of outputs to be switched on and off together. The current status of the outputs is displayed above the corresponding switch positions on the upper side of the housing.

#### Function

##### Central control and visualisation

The "Global Control" allows actuator channels to be switched by a central binding. The "Global Control" affects the actuator channels through internal bindings. This allows implementation of group switching or lighting effects.

The "Global Control" object also shows the status of the outputs to be displayed via an output variable (`nvoGCdeviceState`).

At the `nviGCscene` input, freely definable scenes can be called up that define a separate switching value for each actuator channel. The priority of the individual scenes with regard to the "Lamp Actuator" inputs `nviLALampValue` and `nviLAMANOverride` can be adjusted. For temporal correction of central switching commands, the activation of the requested scenes can be parameterised with a configurable random period (`UCPTmaxRandomDelay`).

The variable `nviGCoccupancy` refers to the internal scene storage, in a similar manner to `nviGCscene`. Assignment of the input values (`SNVT_occupancy`) to the scene numbers is done in the parameter `UCPToccToScene`. The stored scenes for the actuator channels are switched according to the building state (e.g. Occupied, Standby, etc.).

All actuator channels can be controlled at lower priority or without delays using `nviGCdirectInput` (`SNVT_state`).

##### Switching consumers

Switch-on/off delays and automatic switch-offs (stairwell function) can be parameterised in every lamp actuator object. The reaction to different power supply events (loss of power, power switch-on, restart) is configurable. It is also possible to define group control membership.

The behaviour of the actuators after a restart is definable using the variables `UCPTdefaultLampValue[i]`.

The input `nviLALampValue[i]` switches the corresponding output (at low priority). The temporal behaviour of the output can be defined using the variables `UCPTonDelay[i]` (switch-on delay), `UCPToffDelay[i]` (switch-off delay) and `UCPTautoOffTime[i]` (stairwell automation).

This input can be monitored. If no telegram is received within the time defined in `UCPTlaMaxRcvTime[i]`, then the associated channel is switched to the value defined in `UCPTrcvFailureLampValue[i]`.

Telegrams to prioritised inputs `nviLAMANOverride[i]` directly switch the associated outputs (without delays). To release the output once more, the `.state` part of the associated `nviLAMANOverride[i]` variable must be set to -1. The output then switches to the value defined in `UCPTafterReleaseManOverride[i]`.

Alternatively, the input `nviLAMANOverride[i]` can be used as a logically linked input to `nviLALampValue[i]`. The desired logical linking is defined in the parameter `UCPTlogicFunction[i]`.

## LON I/O Module DR-N 8S-10A

### Application: 881801I\_01B

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The feedback value of the output is sent to `nvoLALampValueFb[i]` with the delay time specified in `UCPTfeedbackDelay[i]`, it can also be cyclically sent in the time period specified in `SCPTmaxSendTime[i]`.

#### Working with scenes

The room scene controller can store complex room scenes defining lighting values, occupancy states, and positional information for blinds. Up to 20 different room scenes can be stored. After switching on the scene controller via `nviSCSetting[i]` (SET\_ON), the stored scheme can be called up based on the scene number by setting `nviSCScene[i].function = SC_RECALL`, and then output using `nvoSCSwitch[i]`, `nvoSCSetting[i]` and `nvoSCOccupancy[i]`. The room scene storage can be configured in 2 different ways:

- The scene storage can be directly written via the configuration parameter `UCPTsceneKeeperXXX[i][j]`.
- The lighting control scenes can be adopted in the scene storage via `nviSCSwitch[i]` (when bound) under the scene number specified in `nviSCScene[i].scene_number`. This is initiated by setting `nviSCScene[i].function = SC_LEARN` (in general with a long button push).

The variables `nviSCSetting[i]` allow switching the scene controller on and off, thus disabling its functions. After switching off, the outputs are set to the values for scene 20. After being switched on again, the last active scene is recalled.

The cross-fade behaviour of a scene change at output `nvoSCSwitch[i]` can be set using the configuration variables `UCPTsceneKeeperFadeTime[i]`, `UCPTsceneKeeperDimStep[i]` and `UCPTsceneKeeperDelayTime[i]`.

Invalid entries in the scene storage lead to the associated network output not being propagated/sent.

The input `nviSCSceneOffset[i]` whose input value is added to the received scene number is available to allow scene panels to be linked to each other.

#### Display and control elements at the front of the device

The RUN LED displays the operating status. After a restart and in the configured/online state, the RUN LED illuminates. If the node is placed offline then the LED switches off.

The Service LED shows the state of the LON node. If it continuously illuminates then no valid application is loaded into the node. If it blinks then the device is not configured. A blink task also exists. When this is activated the RUN LED blinks for about 20 s.

The outputs can be directly switched using the manual buttons on the upper side of the device, with a loaded application they show the status of the outputs.

### 5.1 System requirements

An LNS-compatible LON management tool is required for the configuration of the application!

"User-defined configuration property types" (UCPTs) are used as parameters in the `DirectMemoryAccess`. To be able to use these parameters, the "Device Resource Files" (DRFs) need to be installed **before (!)** creating a device template.

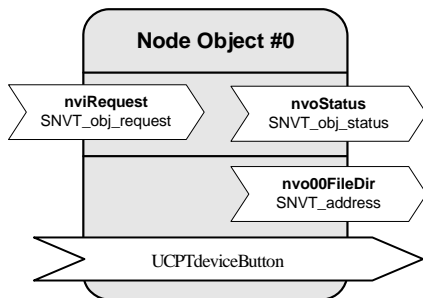
The used LNS must be Version 2.0 or higher.

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## Network interface / LonMark objects

### 5.2 Node object (LONMARK® profile #0)



#### Input variables

##### nviRequest

|                |  |
|----------------|--|
| Type:          | SNVT_obj_request   |
| Value range:   | Valid object ID in combination with<br>RQ_NORMAL,<br>RQ_UPDATE_STATUS,<br>RQ_REPORT_MASK |
| Default value: | RQ_NORMAL  |
| Description:   | Input used to initiate the node status messages.   |

#### Output variables

##### nvoStatus

|                |   |
|----------------|---|
| Type:          | SNVT_obj_status   |
| Value range:   | The status bits supported by the object:<br>.report_mask,<br>.invalid_id,<br>.invalid_request |
| Default value: | All bits =0   |
| Description:   | Is transmitted when an update to nviRequest is received.                                      |

##### nvo00FileDir

|                |  |
|----------------|--|
| Type:          | SNVT_address                             |
| Value range:   | 16,384 ... 64,767                        |
| Default value: | Undefined                                |
| Description:   | Is required for internal functionality ! |

#### Configuration variables

##### UCPTdeviceButton - Device buttons

|              |                                |
|--------------|--------------------------------|
| Type:        | UNVT_enabled                   |
| Range:       | DISABLED, ENABLED              |
| Default:     | ENABLED                        |
| Description: | To disable the device buttons. |

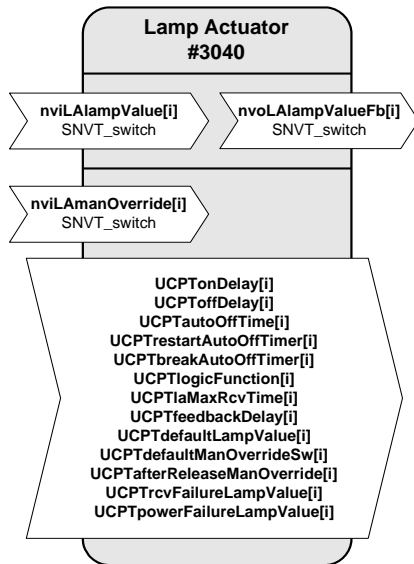


## LON I/O Module DR-N 8S-10A

Application: 881801I\_01B

### 5.3 Lamp Actuator (LONMARK® profile #3040)

Output A (Index=0) to H (Index=7)



#### Input variables

##### `nviLampValue[i]`

|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0 |
| Default value: | UCPTdefaultLampValue[i]  |
| Description:   | Control input for switching the output channels  |

##### `nviLamanOverride[i]`

|                |   |
|----------------|---|
| Type:          | SNVT_switch   |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1, -1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0<br>Deactivated: .state = -1  |
| Default value: | UCPTdefaultManOverrideSw[i]   |
| Description:   | Control input with a higher priority than <code>nviLampValue[i]</code> . After deactivation (.state = -1, invalid value) the switching channel adopts a status depending on the setting in <code>UCPTafterReleaseManOverride[i]</code> .<br>Alternatively, this input can be logically linked with <code>nviLampValue[i]</code> . The linking is selected using the parameter <code>UCPTlogicFunction[i]</code> . |

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### Output variables

#### nvoLAlampValueFb[ i ]

|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0   |
| Default value: | UCPTdefaultLampValue[ i ]  |
| Description:   | The current value/status of the switching channel is sent to the network here; either immediately upon being changed or after a delay defined in UCPTfeedbackDelay[ i ]. Switch-on and switch-off delays are regarded as being complete. This output can be cyclically sent over the period specified in SCPTmaxSendTime[ i ]. |

### Configuration variables

#### UCPTonDelay[ i ] - Switch-on delay

|                |   |
|----------------|---|
| Type:          | UNVT_time_sec   |
| Value range:   | 0 ... 65,535 s (increment: 1 s)   |
| Default value: | 0 (deactivated)   |
| Description:   | Switch-on delay of the output after arrival of an ON telegram at nviLAlampValue[ i ]. |

---

#### UCPToffDelay[ i ] - Switch-off delay

|                |   |
|----------------|---|
| Type:          | UNVT_time_sec   |
| Value range:   | 0 ... 65,535 s (increment: 1 s)   |
| Default value: | 0 (deactivated)   |
| Description:   | Switch-off delay of the output after arrival of an OFF telegram at nviLAlampValue[ i ]. |

---

#### UCPTautoOffTime[ i ] - Automatic switch-off time

|                |   |
|----------------|---|
| Type:          | UNVT_time_sec   |
| Value range:   | 0 ... 65,535 s (increment: 1 s)   |
| Default value: | 0 (deactivated)   |
| Description:   | The output is automatically switched off (without receiving an OFF telegram) after this time has expired. The time begins as soon as an ON telegram is received at nviLAlampValue[ i ]. |

---

#### UCPTrestartAutoOffTimer[ i ] - Automatic switch-off time extendable

|                |  |
|----------------|--|
| Type:          | UNVT_boolean   |
| Value range:   | TRUE, FALSE  |
| Default value: | TRUE   |
| Description:   | Defines whether the automatic switch-off time (UCPTautoOffTime[ i ]) is restarted on receipt of every ON telegram (TRUE) or not reset (FALSE). |

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### Configuration variables

**UCPTbreakAutoOffTimer[i]** - Automatic switch-off interruptible

|                |  |
|----------------|--|
| Type:          | UNVT_boolean   |
| Value range:   | TRUE, FALSE  |
| Default value: | FALSE  |
| Description:   | Defines whether the automatic switch-off time (UCPTautoOffTime[i]) is interrupted on receipt of an OFF telegram (TRUE) or not (FALSE). |

**UCPTlogicFunction[i]** - Logic function

|                |   |
|----------------|---|
| Type:          | UNVT_logic_fnc  |
| Value range:   | LF_OVERRIDE, LF_AND, LF_OR, LF_XOR, LF_NAND, LF_NOR, LF_NXOR  |
| Default value: | LF_OVERRIDE   |
| Description:   | This parameter can be used to define a logical linking of the inputs nviLAlampValue[i] and nviLAmanOverride[i] according to the truth table below. The following assignments apply: |

```

1    = On (.state = 1 and .value > 0)
0    = Off (.state = 0 or .state = 1 and .value = 0)
-1   = invalid (.state = -1)
DLV  = Value defined in the UCPTdefaultLampValue[i].
!DLV = UCPTdefaultLampValue[i] inverted
DMO  = Value defined in UCPTdefaultManOverrideSw[i].
!DMO = UCPTdefaultManOverrideSw[i] inverted

```

| nviLAlampValue[i] | nviLAmanOverride[i] | AND | OR  | XOR | NAND | NOR  | NXOR |
|-------------------|---------------------|-----|-----|-----|------|------|------|
| 0                 | 0                   | 0   | 0   | 0   | 1    | 1    | 1    |
| 0                 | 1                   | 0   | 1   | 1   | 1    | 0    | 0    |
| 1                 | 0                   | 0   | 1   | 1   | 1    | 0    | 0    |
| 1                 | 1                   | 1   | 1   | 0   | 0    | 0    | 1    |
| 0                 | -1                  | 0   | DMO | 1   | 1    | !DMO | 0    |
| 1                 | -1                  | DMO | 1   | 1   | !DMO | 0    | 0    |
| -1                | 0                   | 0   | DLV | 1   | 1    | !DLV | 0    |
| -1                | 1                   | DLV | 1   | 1   | !DLV | 0    | 0    |
| -1                | -1                  | 0   | DLV | 0   | 1    | !DLV | 1    |

The temporal behaviour of the outputs is not affected by the logical linking, but is parameterised according to the result of the linking.

Under standard parameterisation LF\_OVERRIDE nviLAmanOverride[i] is prioritised with regard to nviLAlampValue[i].

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Application: 881801I\_01B

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### Configuration variables

**SCPT1aMaxRcvTime[ i ]** - Maximum reception pause

|                |   |
|----------------|---|
| Type:          | SNVT_time_sec   |
| Value range:   | 0 ... 6,553.5 s (increment: 0.1 s)  |
| Default value: | 0 (deactivated)   |
| Description:   | An update to <code>nviLAlampValue[ i ]</code> must be received within the time period defined here, otherwise the output is set to the value defined in <code>UCPTrcvFailureLampValue[ i ]</code> . |

---

**UCPTfeedbackDelay[ i ]** - Feedback delay

|                |   |
|----------------|---|
| Type:          | UNVT_time_msec  |
| Value range:   | 0 ... 65,535 ms (increment: 1 ms)   |
| Default value: | 0 (deactivated)   |
| Description:   | The transmission of the feedback value via <code>nvoLAlampValueFb[ i ]</code> is delayed by the value specified here. The time is restarted on every value/status change. |

---

**UCPTdefaultLampValue[ i ]** - Default lamp value

|                |   |
|----------------|---|
| Type:          | SNVT_switch   |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0                                  |
| Default value: | .value = 0<br>.state = 0  |
| Description:   | The value adopted by <code>nviLAlampValue[ i ]</code> after the power supply is restored or after a restart. This normally reflects the output value. |

---

**UCPTdefaultManOverrideSw[ i ]** - Default override control

|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1, -1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0<br>Deactivated: .state = -1 |
| Default value: | .value = 0<br>.state = -1  |
| Description:   | The value automatically adopted by the input after the bus voltage is restored or after a reset.   |

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### Configuration variables

**UCPTafterReleaseManOverride[ i ]** - Default manual override release

|                |   |
|----------------|---|
| Type:          | UNVT_switch_cfg   |
| Value range:   | .function: SW_NUL, SW_HOLD, SW_VALUE<br>.value: 0 ... 100 %   |
| Default value: | .function = SW_NUL<br>.value = 0  |
| Description:   | The value adopted by the output after <code>nviLamanOverride[ i ]</code> is released.<br><br>SW_NUL: Current value of the <code>nviLAlampValue[ i ]</code> input is adopted.<br>SW_HOLD: Current value of the actuator channel is retained.<br>SW_VALUE: The actuator channel adopts the value parameterised in <code>.value</code> . |

**UCPTrcvFailureLampValue[ i ]** - Lamp value in case of reception failure

|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1, -1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0<br>Deactivated: .state = -1               |
| Default value: | .value = 0<br>.state = -1  |
| Description:   | The value adopted by the output after the time specified in <code>SCPTlaMaxRcvTime[ i ]</code> has expired. If <code>.state = -1</code> the output is not changed. |

**UCPTpowerFailureLampValue[ i ]** - Lamp value in case of power failure

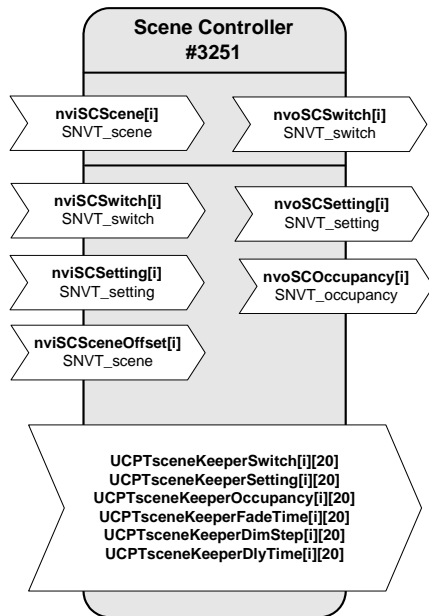
|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: 0, 1, -1<br>ON: .state = 1 and .value > 0<br>OFF: .state = 0 or .state = 1 and .value = 0<br>Deactivated: .state = -1 |
| Default value: | .value = 0<br>.state = -1  |
| Description:   | Value adopted by the output when the power fails. If <code>.state = -1</code> the output is not changed.   |

## LON I/O Module DR-N 8S-10A

Application: 881801I\_01B

### 5.4 Scene controller (LONMARK® profile #3251)

(SceneCtrl) 1 (Index=0) to 2 (Index=1)



#### Input variables

##### nviSCScene[i]

|                |  |
|----------------|--|
| Type:          | SNVT_scene   |
| Value range:   | .function: SC_RECALL, SC_LEARN<br>.scene_number: 1 ... 20  |
| Default value: | .function = SC_NUL<br>.scene_number = 255  |
| Description:   | Recalling (SC_RECALL) and storing (SC_LEARN) scenes. There are 20 storage locations available. In SC_RECALL mode, the settings are transferred to the output variables according to the selected .scene_number. In SC_LEARN mode, the current values of nviSCSwitch[i] are stored in the storage location specified by .scene_number. Fading and delay times for nvoSCSwitch[i] are taken from the current values in UCPTsceneKeeperFadeTime[i] and UCPTsceneKeeperDelayTime[i]. |

##### nviSCSwitch[i]

|                |  |
|----------------|--|
| Type:          | SNVT_switch  |
| Value range:   | .value: 0 ... 100 %<br>.state: -1, 0, 1  |
| Default value: | .value = 0<br>.state = -1  |
| Description:   | Direct setting of a value in nvoSCSwitch[i]. This allows manual entry of scene values. |

## LON I/O Module DR-N 8S-10A

Application: 881801I\_01B

### Input variables

#### nviSCSetting[i]

|                |   |
|----------------|---|
| Type:          | SNVT_setting  |
| Value range:   | .function: SET_OFF, SET_ON  |
| Default value: | .function: SET_ON<br>.setting: 0<br>.rotation: 0  |
| Description:   | Variable for switching the controller on (SET_ON) and off (SET_OFF). After switching on, the last selected scene is active. After switching off, scene 20 is active. Repeated reception of SET_ON has no effect |

#### nviSCSceneOffset[i]

|                |   |
|----------------|---|
| Type:          | SNVT_scene  |
| Value range:   | .function: SC_RECALL<br>.scene_number: 1 ... 20   |
| Default value: | .function = SC_RECALL<br>.scene_number = 255  |
| Description:   | The value stored at .scene_number is added to the .scene_number values of nviSCScene[i]. For invalid values (addition of both scene numbers > 20), a value of 0 is assumed. |

### Output variables

#### nvoSCSwitch[i]

|                |   |
|----------------|---|
| Type:          | SNVT_switch   |
| Value range:   | .value: 0 ... 100 %<br>.state: -1, 0, 1                                     |
| Default value: | .value = 0<br>.state = -1   |
| Description:   | Output of the active scene value configured in UCPTsceneKeeperSwitch[i][j]. |

#### nvoSCSetting[i]

|                |   |
|----------------|---|
| Type:          | SNVT_setting  |
| Value range:   | .function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NUL<br>.setting: 0 ... 100 %<br>.rotation: -359.98° ... 360° |
| Default value: | .function: SET_NUL<br>.setting: 0<br>.rotation: 0   |
| Description:   | Output of the active scene value configured in UCPTsceneKeeperSetting[i][j].  |

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### nvoSCOoccupancy[i]

|                |  |
|----------------|--|
| Type:          | SNVT_occupancy   |
| Value range:   | OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NUL                      |
| Default value: | OC_NUL   |
| Description:   | Output of the active scene value configured in UCPTsceneKeeperOccupancy[i][j]. |

### Configuration parameters

#### UCPTsceneKeeperSwitch[i][j] - Scene storage for nvoSCSwitch[i]

|                |  |
|----------------|--|
| Type:          | UNVT_switch_cfg  |
| Value range:   | .function: SW_NUL, SW_HOLD, SW_VALUE<br>.value: 0 ... 100 %  |
| Default value: | .function = SW_HOLD<br>.value = 0  |
| Description:   | Configuration of the scene values for nvoSCSwitch[i].<br><br>SW_NUL: nvoSCSwitch[i].value is adopted from .value<br>nvoSCSwitch[i].state is set to -1<br>SW_VALUE: nvoSCSwitch[i].value is adopted from .value<br>nvoSCSwitch[i].state is set to 1 when .value > 0,<br>and set to 0 when .value = 0<br>SW_HOLD: no telegram is generated |

#### UCPTsceneKeeperSetting[i][j] - Scene storage for nvoSCSetting[i]

|                |  |
|----------------|--|
| Type:          | UNVT_setting   |
| Value range:   | .function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE,<br>SET_NO_MESSAGE, SET_NUL<br>.setting: 0 ... 100 %<br>.rotation: -359.98° ... 360° |
| Default value: | .function: SET_NO_MESSAGE<br>.setting: 0<br>.rotation: 0   |
| Description:   | Configuration of the scene values for nvoSCSetting[i]. If a value with .function = SET_NO_MESSAGE is stored here, then the value is not propagated.    |

#### UCPTsceneKeeperOccupancy[i][j] - Scene storage for nvoSCOoccupancy[i]

|                |  |
|----------------|--|
| Type:          | SNVT_occupancy   |
| Value range:   | OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NUL  |
| Default value: | OC_NUL   |
| Description:   | Configuration of the individual scene values. If a value of OC_NUL is stored here, then the value is not propagated. |

#### UCPTsceneKeeperFadeTime[i][j] - Scene storage cross-fade time for nvoSCSwitch[i]

|                |   |
|----------------|---|
| Type:          | UNVT_time_msec                                      |
| Value range:   | 100 ... 65,535 ms                                   |
| Default value: | 0 (deactivated)                                     |
| Description:   | Cross-fade time for scene change to nvoSCSwitch[i]. |



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**UCPTsceneKeeperDimStep[i][j]** - Scene storage dimming step size for nvoSCSwitch[i]

|                |   |
|----------------|---|
| Type:          | SNVT_lev_cont   |
| Value range:   | 0 ... 100 %   |
| Default value: | 3.5 %   |
| Description:   | Step-size of the cross-fade for a scene change to nvoSCSwitch[i]. |

---

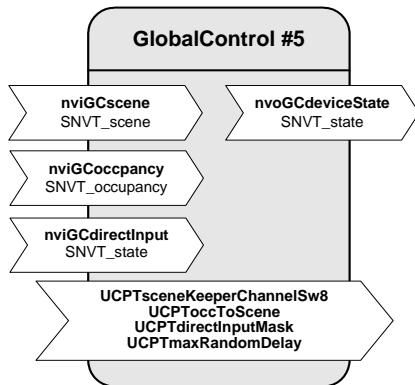
**UCPTsceneKeeperDelayTime[i][j]** - Scene storage delayed scene change for nvoSCSwitch[j]

|                |  |
|----------------|--|
| Type:          | SNVT_time_sec  |
| Value range:   | 0 ... 6,553.4 s  |
| Default value: | 0  |
| Description:   | Delay time for activating the new scene at nvoSCSwitch[i]. |

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## 5.5 GlobalControl (LONMARK® profile #5)



### Input variables

#### nviGCscene

|                |   |
|----------------|---|
| Type:          | SNVT_scene  |
| Value range:   | .function: SC_RECALL<br>.scene_number: 1 ... 10   |
| Default value: | .function = SC_NUL<br>.scene_number = 255   |
| Description:   | Input for central activation/deactivation of functions (ON/OFF) of the individual actuator channels. UCPTmaxRandomDelay can be used to define a device-specific random delay to avoid load peaks in the central control system. |

#### nviGCoccupancy

|                |  |
|----------------|--|
| Type:          | SNVT_occupancy   |
| Value range:   | OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NUL  |
| Default value: | OC_NUL   |
| Description:   | Input to the central presence/absence controller. The states to be activated are defined in an assignment table UCPToccToScene that maps the values received here to the specified scene numbers. On arrival of a telegram, the scene entered for the corresponding occupancy state is called up. UCPTmaxRandomDelay can be used to define a device-specific random delay to avoid load peaks in the central control system. |

#### nviGCdirectInput

|                |  |
|----------------|--|
| Type:          | SNVT_state   |
| Value range:   | .bit0 ... .bit3: 0, 1 reflects channel A ... D   |
| Default value: | All bits = 0   |
| Description:   | Input variable for direct control of the actuator channels using a priority according to nviLAlampValue. Channels that should not be controlled via this variable can be hidden using UCPTdirectInputMask, by specifying 0 for the appropriate channel. The delay UCPTmaxRandomDelay has no effect here. |

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### Output variables

#### nvoGCdeviceState

|                |  |
|----------------|--|
| Type:          | SNVT_state   |
| Value range:   | .bit0 ... .bit3: 0, 1 reflects channel A ... D                     |
| Default value: | All bits = 0   |
| Description:   | This output reflects the status of the individual module channels. |

### Configuration parameters

#### UCPTsceneKeeperChannelSw8

|                |   |
|----------------|---|
| Type:          | UNVT_skc_8  |
| Value range:   | .scene: 1, 2 ... 255;<br>.priority: 0, 1<br>.channel[j]: SW_NUL, SW_HOLD, SW_OFF, SW_ON   |
| Default value: | .scene = i+1<br>.priority = 0<br>.channel[j] = SW_OFF   |
| Description:   | Storage for controlling the individual actuator channels, with the following functions: <ul style="list-style-type: none"> <li>.scene: Received scene number</li> <li>.priority: Priority in relation to the input at the "Lamp Actuator" object <ul style="list-style-type: none"> <li>1 = affects nviLAmanOverride</li> <li>0 = affects nviLAlampValue</li> </ul> </li> <li>.channel[j]: SW_NUL = Release nviLAmanOverride at .priority = 1</li> <li>SW_HOLD = Retain existing channel state</li> <li>SW_OFF = Channel OFF</li> <li>SW_ON = Channel ON</li> </ul> |

#### UCPTocccToScene

|                |  |
|----------------|--|
| Type:          | UNVT_os_scene  |
| Value range:   | .oc_occupied: 1, 2 ... 255<br>.oc_unoccupied: 1, 2 ... 255<br>.oc_standby: 1, 2 ... 255<br>.oc_bypass: 1, 2 ... 255<br>.oc_nul: 1, 2 ... 255 |
| Default value: | .oc_occupied = 1<br>.oc_unoccupied = 2<br>.oc_standby = 3<br>.oc_bypass = 4<br>.oc_nul = 5   |
| Description:   | Assignment of the occupancy state to a scene.  |

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### Configuration parameters

#### UCPTdirectInputMask

|                |   |
|----------------|---|
| Type:          | SNVT_state  |
| Value range:   | .bit0 ... .bit3: 0, 1 reflects channel A ... D  |
| Default value: | All bits = 1  |
| Description:   | Parameter for hiding actuator channels from the central control via <code>nviGCdirectInput</code> . <code>.bitx = 0</code> means that the associated channel is not taken into account. |

---

#### UCPTmaxRandomDelay

|                |   |
|----------------|---|
| Type:          | SNVT_time_sec   |
| Value range:   | 0 ... 6,553.5 s (increment 1 s)   |
| Default value: | 0 (deactivated)   |
| Description:   | When an actuator is controlled via <code>nviGCscene</code> or <code>nviGCoccupancy</code> this maximum value is used to generate a random time that delays the activation of the scene values. This helps to avoid current peaks in the central control system.<br>The delay time also affects switch-on delays on restoration of power or after a reset, but is limited to a maximum value of 64 s.<br>Reception of a new telegram at one of the two inputs starts the delay anew. |