

## User Manual

# LON I/O Module DR-M 4DI

Art. No.: MTN880501

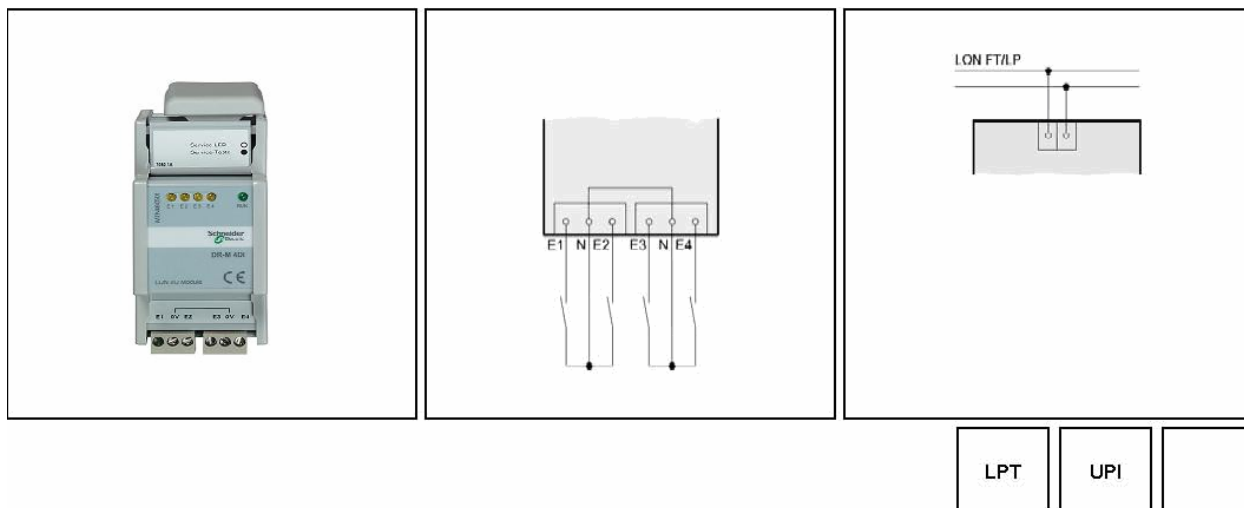
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# LON I/O Module DR-M 4DI

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## 1. Description



- connection of devices with floating contacts
- four inputs
- status LED per input
- pluggable screw-type terminals
- DIN rail mounting according to EN 50 022
- width of device: approx. 45 mm (2.5 pitch)
- software application according to LonMark profile "Switch (3200)", "Scene Panel(3250)" and "Occupancy Sensor (1060)" for light or sunblind control including configurable pulse-edge evaluation

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### 2. Function

The input module converts switch or pushbutton signals on the inputs into network messages.

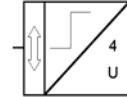
According to the changed input level of a rising or a falling edge, configurable data content is transmitted.

One LED per input indicates its state.

The input module is suited for the connection of floating door / window contacts, switches, and so on.

Service and RUN LED indicate the general device state.

The application software corresponds to the LonMark Interoperability Guidelines.



### 3. Mounting

The I/O-module is for mounting on DIN rails according to EN 50 022.

Apart from the network voltage, no further power supply is required.

The inputs provide a contact voltage of approximate DC 9 V.

All inputs are collected to one reference ground.

The network is connected via a 2-pole pluggable bus terminal included in delivery which allows up to 4 pairs of wires to be connected.

The terminal is suited for conductor cross-sections of 0.6 .. 0.8 mm<sup>2</sup>.

To guarantee the safety clearance between the bared network wires and AC 230 V mains, the cable cover included in delivery has to be plugged onto the bus terminal clamp.

The input cables (terminals "E1" .. "E4") and the reference level (terminal "ground icon") are connected via pluggable screw-type terminals.

They are suited for conductor cross-sections of 0.5 .. 2.5 mm<sup>2</sup>.

The I/O-module propagates its Neuron-ID by pressing the service pin.

The service LED indicates the programming state.

For the right operation of the I/O-module an appropriate application program is needed.

### 4. Remarks

Installation and assembly of electrical devices may take place only by an electrical specialist.

When planning and installing electrical systems the relevant standards, guidelines and regulations of the respective country are to be considered. Beyond that the device specifications are to be kept. For project engineering, assembly and line-up detailed expertise of the LON technology is presupposed.

The function of the device is software dependent. Only application programs may be loaded, which are approved for this device.

The system integrator has to carry ensuring that the loaded application program and the configured parameters in it correspond with the outside wiring of the device. This applies in particular if for different use several application programs for a device are available.

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### 5. Technical Data

#### Power supply

Power consumption (max.):  $\leq 285$  mW (1 LPU) at DC 42.8 V network voltage

#### Network interface

Transceiver type: LON Link Power Transceiver (LPT-11)

Insulation voltage: AC 4 kV (network/inputs)

#### Inputs

Number: 4 (E1 .. E4)

Open circuit voltage: DC  $< 9.1$  V

Closed circuit current:  $< 0.8$  mA

Switch-on threshold:  $< 3$  kOhm

Switch-off threshold:  $> 7.5$  kOhm

Wire length: max. 100 m

#### Controls

Service pin: Propagates the Neuron ID

#### Indicators

RUN-LED (green): lit: operating power-on, module configured

Service LED (red): lit: network access error

flashes: module unconfigured

Status LED (E1 .. E4, yellow): "lit: input voltage with ""1""-signal

OFF: any other state"

#### Connections

Bus: 2-pole plug-in and branch terminal (Type: WAGO 243)

In-/outputs: 2 x 3 pluggable screw-type terminals with a cross-section of  $0.6 \dots 2.5$  mm<sup>2</sup> (solid)

#### Housing

Dimensions: 90 x 45 x 65 mm (H x W x D), 2.5 pitch acc. to DIN 43 880

Protection class: IP20 (EN 60 529/IEC 144)

#### EMC

Interference immunity: acc. to EN 50 090-2-2

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Application: 880501I\_11B

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## 6. Application description

The application “880501I\_11B” is for reception of digital input states from four floating contacts. It contains the LonMark profiles “Switch (3200)” (4x), “Scene Panel (3250)” (1x) and “Occupancy Sensor (1060)” (1x). The inputs can be used for lighting, blind and as well as for scene control. LEDs on the device’s front site indicate the most recent state of the inputs.

### 6.1. System requirements

For the configuration of the application a LNS-compatible commissioning tool is needed! All properties are used as “User-defined Configuration Property Types” (UCPT’s) by Direct-Memory-Access. For use of these properties, the Device Resource Files” (DRF’s) have to be installed **before (!)** a device template is created.

The used LNS must be version 2.0 or higher.

#### Function

##### Switch Object

##### Configuration of the Switch Object/Digital Input

The Switch Object can be configured in a very flexible way to provide the user the opportunity to meet all requirements of his project.

By use of the UCPTcmdXXX[i] parameters, messages can be assigned arbitrarily to the outputs nvoSWswitch[i] and nvoSWsetting[i] for every switching event. By default, the Switch Object is configured for one-fold switch control. Therefore the names “FirstEvent” and “SecondEvent” signify the alternating switching events at the digital input.

##### Assigning the switching events to the digital inputs

To assign the switching events to the digital inputs the parameters UCPTbuttonMapFirstEvent[i] and UCPTbuttonMapSecondEvent[i] are used.

During every switching event, up to four messages can be generated. The commands the messages contain can be defined individually. If a message shall not be transmitted, the .function element of the corresponding UCPTcmdXXX[i] parameter has to be set at SET\_NO\_MESSAGE.

Interpretation of the .function element of UCPTcmdXXX at nvoSWswitch[i]

The parameters UCPTcmdXXX[i] specify the output value of nvoSWsetting[i]. The nvoSWswitch[i] output is adjusted according to the following scheme:

nvoSWswitch[i].state is adjusted to UCPTcmdXXX[i].function as follows:

```
.function = SET_ON, SET_UP, SET_DOWN, SET_STATE ⇒ .state = 1
.function = SET_OFF ⇒ .state = 0
.function = SET_NUL ⇒ .state = -1
```

nvoSWswitch[i].value is adjusted to UCPTcmdXXX[i].function as follows:

```
.function = SET_ON ⇒ .value = SCPTmaxOut[i] after restart resp.
                    nviSWswitchFb[i].value
                    (last value before switching-off)
.function = SET_OFF ⇒ .value = 0
.function = SET_UP, SET_DOWN ⇒ .value = .value +/- .setting
.function = SET_NUL, SET_STATE ⇒ .value = .setting
```

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The Switch Object provides a memory function. If it is switched on by a SET\_ON command, the nvoSWswitch[i] output adopts the last feedback value received.

#### One-fold switch control

One of the digital inputs initiates the first as well as the second switching event. Therefore, UCPTbuttonMapFirstEvent[i] as well as UCPTbuttonMapSecondEvent[i] have to be assigned to this input by setting the corresponding bit = 1.

#### Switching by push button

If a push button is connected to the digital input, ON and OFF commands shall be transmitted alternately with every rising edge (e. g. a push at a push button). For this purpose, the parameters have to be configured as follows:

```
UCPTcmdPushFirstEvent[i]      = {SET_ON; x; x}
UCPTcmdPushSecondEvent[i]    = {SET_OFF; x; x}
All other UCPTcmdXXX[i]      = {SET_NO_MESSAGE; x; x}
```

If the output network variable value shall be lowered to a value different from zero, this value has to be defined in UCPTcmdPushSecondEvent[i].setting in combination with .function = SET\_STATE. If the output network variable value shall be switched with every falling edge (e. g. a push at a break contact element), values have to be defined in UCPTcmdReleaseFirstEvent[i] and UCPTcmdReleaseSecondEvent[i], all other UCPTcmdXXX[i] are set at {SET\_NO\_MESSAGE; x; x}.

#### Switching by switch device

*Remark: The second switching event is not needed. All bits of UCPTbuttonMapSecondEvent[i] have to be set at 0.*

The switching event of a switch device connected to the digital input resembles a very long hold of a pushbutton (releasing the button = OFF). ON commands shall be transmitted with every rising edge and OFF commands with every falling edge. As it is not necessary to distinguish between push and hold of the button, the UCPTpressTimeThreshold[i] parameter has to be set at 0. The other parameters have to be configured as follows:

```
UCPTcmdPushFirstEvent[i]      = {SET_ON; x; x}
UCPTcmdReleaseLong[i]        = {SET_OFF; x; x}
All other UCPTcmdXXX[i]      = {SET_NO_MESSAGE; x; x}
```

#### Switching/Dimming by digital input / push button

If a push button is used for switching and dimming, the UCPTpressTimeThreshold[i] parameter defines a time that distinguishes between push and hold of the button.

ON and OFF commands are transmitted alternately with every falling edge that follows a short pulse (when the button is released after a push). With every long pulse (hold of the button), the dimming level is raised/lowered alternately.

The fade starts as soon as the press time threshold has been exceeded. The values defined in UCPTcmdHoldFirstEvent[i] resp. UCPTcmdHoldSecondEvent[i] are transmitted consecutively until the input is opened again whereas the corresponding .setting element contains the dim step value.

The parameters have to be configured as follows:

```
UCPTcmdReleaseFirstEvent[i]   = {SET_ON; x; x}
UCPTcmdReleaseSecondEvent[i] = {SET_OFF; x; x}
UCPTcmdHoldFirstEvent[i]     = {SET_UP; 5 %; x}
UCPTcmdHoldSecondEvent[i]    = {SET_DOWN, 5 %; x}
All other UCPTcmdXXX[i]      = {SET_NO_MESSAGE; x; x}
```

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### Two-fold switch control

One of the digital inputs initiates the first switching event. The other input initiates the second. Both inputs cause always the same command. Therefore the UCPTbuttonMapFirstEvent[i] parameter has to be assigned to the one input, UCPTbuttonMapSecondEvent[i] to the other by setting the bit corresponding to the chosen input = 1.

### Switching by rocker switch

If a rocker switch is connected to two digital inputs, ON commands shall be transmitted with every rising edge at the one input and OFF commands shall be transmitted with every rising edge at the other input. For this purpose, the parameters have to be configured as follows:

```
UCPTcmdPushFirstEvent[i]      = {SET_ON; x; x}
UCPTcmdPushSecondEvent[i]     = {SET_OFF; x; x}
All other UCPTcmdXXX[i]       = {SET_NO_MESSAGE; x; x}
```

If the network variable output shall be switched with every falling edge (e. g. push at a break contact element), values have to be defined in UCPTcmdReleaseFirstEvent[i] and UCPTcmdReleaseSecondEvent[i], all other UCPTcmdXXX[i] are set at {SET\_NO\_MESSAGE; x; x}.

### Switching/Dimming by rocker switch

The UCPTpressTimeThreshold[i] parameter defines a time that distinguishes between push and hold of the button when fades are controlled.

The network variable output value is switched on with every falling edge (that follows a short pulse) at the one input. It is switched off with every falling edge at the other input.

The dimming level is raised with every long pulse at the one input. It is lowered with every long pulse at the other input.

The fade starts as soon as the press time threshold has been exceeded. Then, the values defined in UCPTcmdHoldFirstEvent[i] resp. UCPTcmdHoldSecondEvent[i] are transmitted consecutively until the input is opened again whereas the corresponding .setting element contains the dim step value. The SCPTminSendTime[i] parameter defines the minimum period of time between two consecutive dim commands. The parameters have to be configured as follows:

```
UCPTcmdReleaseFirstEvent[i]    = {SET_ON; x; x}
UCPTcmdReleaseSecondEvent[i]   = {SET_OFF; x; x}
UCPTcmdHoldFirstEvent[i]       = {SET_UP; 5 %; x}
UCPTcmdHoldSecondEvent[i]      = {SET_DOWN; 5 %; x}
All other UCPTcmdXXX[i]        = {SET_NO_MESSAGE; x; x}
```

### Sunblind Control by rocker switch

For sunblind control, the UCPTpressTimeThreshold[i] parameter defines a time that distinguishes between push and hold of the button.

The sunblind is raised completely with every rising edge at the one input. It is lowered completely with every rising edge at the other input. It can be stopped by a falling edge that follows a short pulse (by releasing the button after a push). For this purpose, the parameters have to be configured as follows:

```
UCPTcmdPushFirstEvent[i]       = {SET_UP; 100 %; x}
UCPTcmdPushSecondEvent[i]      = {SET_DOWN; 100 %; x}
UCPTcmdReleaseFirstEvent[i]     = {SET_STOP; x; x}
UCPTcmdReleaseSecondEvent[i]    = {SET_STOP; x; x}
All other UCPTcmdXXX[i]         = {SET_NO_MESSAGE; x; x}
```

The required drive commands may vary according to the used motor control unit.

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### Scene Panel Object

The `UCPTbuttonRslSceneCmd[i]` and `UCPTbuttonFslSceneCmd[i]` parameters assign a scene number to the digital inputs. The messages transmitted by `nvoSPscene` can be configured individually for every input by use of these configuration properties.

### **Recalling scenes**

Caused by a short switch pulse (generally initiated by a short push on a make-contact element), a recall command `nvoSPscene.function = SC_RECALL` and the scene number of the particular input `nvoSPscene.scene_number = UCPTbuttonRslSceneCmd[i]` are transmitted via the `nvoSPscene` output. The scene number defined in `UCPTbuttonFslSceneCmd[i]` is send when the input reopens (pushbutton is released). Thus, the scene controller operates the corresponding scene settings. A scene number zero is not transmitted.

### **Storing scenes**

Caused by a long switch pulse, which exceeds the time threshold defined in the `UCPTsceneLearnDelay` property, a learn command `nvoSPscene.function = SC_LEARN` and the scene number of the particular input `nvoSPscene.scene_number = UCPTbuttonRslSceneCmd[i]` are transmitted. Thus, the current scene settings are stored in the controller memory under the given scene number.

### Occupancy Sensor

All digital inputs can also be used as presence input.

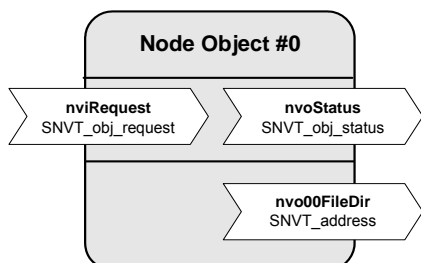
The telegrams to be send at the `nvoOSoccupancy` can be configured in the parameters `UCPTbuttonRslOccCmd[i]` and `UCPTbuttonFslOccCmd[i]` individually for every input.



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### 6.2 Node Object (LONMARK® profile #0)



#### Input Variables

##### **nviRequest**

Type:	SNVT_obj_request
Valid Range:	Valid Object-ID: RQ_NORMAL, RQ_UPDATE_STATUS, RQ_REPORT_MASK
Default Value:	RQ_NORMAL
Description:	Input, which is used to initiate status messages from the node.

#### Output Variables

##### **nvoStatus**

Type:	SNVT_obj_status
Valid Range:	The supported Status-Bits are: .report_mask, .invalid_id, .invalid_request
Default Value:	All bits = 0
Description:	Is sent, when an update occurs in <b>nviRequest</b> .

#### Configuration variables

##### **nvo00FileDir**

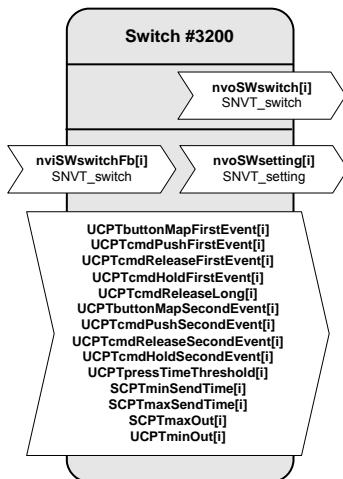
Type:	SNVT_address
Valid Range:	16,384 .. 64,767
Default Value:	Not defined
Description:	For internal function only!

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### 6.3 Switch Object (LONMARK® profile #3200)

Digital Input E1 (Index=0) to E4 (Index=3)



#### Input Variables

**nviSWswitchFb[i]** – Switch feedback input

Type:	SNVT_switch
Valid Range:	.value: 0 .. 100 % .state: 0, 1 On: .state = 1 and .value > 0 Off: .state = 0 and .value = x or .state = 1 and .value = 0
Default Value:	.value = 0 .state = 0
Description:	Provides the feedback from other devices to realise two-way circuits. Also used to adapt the current dimming level .value of the actuator for dimming.

#### Output Variables

**nvoSWswitch[i]** – Switch output

Type:	SNVT_switch
Valid Range:	.value: 0 .. 100 % .state: -1, 0, 1 On: .state = 1 and .value > 0 Off: .state = 0 and .value = x or .state = 1 and .value = 0
Default Value:	.value = 0 .state = 0
Description:	This output variable is used to control switching and dimming actuators. Its function is specified by the configuration properties UCPTbuttonMapXXX and UCPTcmdXXX.

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### nvoSWsetting[i] – Setting Output

Type:	SNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NUL .setting = 0 .rotation = 0
Description:	This output variable is used to activate controllers, sunblind and dimming actuators. Its function is specified by the configuration properties UCPTbuttonMapXXX and UCPTcmdXXX.

### Configuration variables

#### UCPTbuttonMapFirstEvent[i] – Button Map First Event

Type:	SNVT_state
Valid Range:	.bit0 .. .bit[n] with $n \leq 15$ : 0, 1
Default Value:	.bit[i] = 1 (The bit which number corresponds to the object's index is 1) all other bits = 0
Description:	This parameter defines which hardware input initiates the first switching event by setting the bit which corresponds to the input at 1. The .bit0 to .bit[n] of this parameter are dedicated to the digital inputs.

#### UCPTcmdPushFirstEvent[i] – Command Push First Event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_ON .setting = 100 % .rotation = 0
Description:	This command is transmitted via nvoSWsetting[i] with every rising edge of the first switching event (e. g. first push at a make-contact element). For interpretation at nvoSWswitch[i] see functional description.

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**UCPTcmdReleaseFirstEvent[i]** – Command Release First Event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NO_MESSAGE .setting = 0 .rotation = 0
Description:	This message is transmitted via <code>nvoSWsetting[i]</code> with every falling edge that occurs in the first switching event before the <code>UCPTpressTimeThreshold</code> has been exceeded (when the button is released after the first push). For interpretation at <code>nvoSWswitch[i]</code> see functional description.

---

**UCPTcmdHoldFirstEvent[i]** – Command hold first event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NO_MESSAGE .setting = 0 .rotation = 0
Description:	This message is transmitted via <code>nvoSWsetting[i]</code> when a long pulse is detected/when the <code>UCPTpressTimeThreshold[i]</code> is exceeded in the first event (when the button is hold for the first time). For interpretation at <code>nvoSWswitch[i]</code> see functional description. If <code>SCPTminSendTime[i] &gt; 0</code> , it defines a time by which the values configured here are transmitted consecutively via <code>nvoSWsetting[i]</code> (for fades). Then, the <code>.setting</code> element of this parameter is adapted by <code>nvoSWswitch[i]</code> where it is used as dim step value.

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**UCPTcmdReleaseLong[i]** – Command release long

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NO_MESSAGE .setting = 0 .rotation = 0
Description:	This message is transmitted via <code>nvoSWsetting[i]</code> with every falling edge that occurs when the <code>UCPTpressTimeThreshold[i]</code> has been exceeded (when the button is released after hold). The values defined here affect the first as well as the second switching event. For interpretation at <code>nvoSWswitch[i]</code> see functional description.

**UCPTbuttonMapSecondEvent[i]** – Button map second event

Type:	SNVT_state
Valid Range:	.bit0 .. .bit[n] with $n \leq 15$ : 0, 1
Default Value:	.bit[i] = 1 (The bit which number corresponds to the object's index is 1) all other bits = 0
Description:	This parameter defines which hardware input initiates the second switching event by setting the bit which corresponds to the input at 1. The .bit0 to .bit[n] of this parameter are dedicated to the digital inputs.

**UCPTcmdPushSecondEvent[i]** – Command push second event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_OFF .setting = 0 .rotation = 0
Description:	This command is transmitted via <code>nvoSWsetting[i]</code> with every rising edge of the second switching event (e. g. second push at a make-contact element). For interpretation at <code>nvoSWswitch[i]</code> see functional description.

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**UCPTcmdReleaseSecondEvent[i]** – Command release second event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NO_MESSAGE .setting = 0 .rotation = 0
Description:	This message is transmitted via <code>nvoSWsetting[i]</code> with every falling edge that occurs in the second switching event before the <code>UCPTpressTimeThreshold[i]</code> has been exceeded (when the button is released after the second push). For interpretation at <code>nvoSWswitch[i]</code> see functional description.

---

**UCPTcmdHoldSecondEvent[i]** – Command hold second event

Type:	UNVT_setting
Valid Range:	.function: SET_OFF, SET_ON, SET_DOWN, SET_UP, SET_STOP, SET_STATE, SET_NO_MESSAGE, SET_NUL .setting: 0 .. 100 % .rotation: -359.98° .. +360.00°
Default Value:	.function = SET_NO_MESSAGE .setting = 0 .rotation = 0
Description:	This message is transmitted via <code>nvoSWsetting[i]</code> when a long pulse is detected/when the <code>UCPTpressTimeThreshold[i]</code> is exceeded in the second event (when the button is hold for the second time). For interpretation at <code>nvoSWswitch[i]</code> see functional description. If <code>SCPTminSendTime[i] &gt; 0</code> , it defines a time by which the values configured here are transmitted consecutively via <code>nvoSWsetting[i]</code> (for fades). Then, the <code>.setting</code> element of this parameter is adapted by <code>nvoSWswitch[i]</code> where it is used as dim step value.

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**UCPTpressTimeThreshold[i]** – Press time threshold

Type:	SNVT_time_sec
Valid Range:	0.0 .. 64.0 s
Default Value:	1.0 s
Description:	Distinguishes between long and short pulse. Is this time 0, the command of <code>UCPTcmdReleaseLong[i]</code> is always transmitted when the contacts have been opened.

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**SCPTminSendTime[i]** – Minimum send time

Type:	SNVT_time_sec
Valid Range:	0.0 .. 64.0 s
Default Value:	0.2 s
Description:	<p>Defines the minimum period of time between two consecutive transmissions of the current value. Provides a way to tailor the transmission rate to reduce bus load during fades.</p> <p>If the values defined in UCPTcmdHoldFirstEvent[i] resp. UCPTcmdHoldSecondEvent[i] shall be transmitted consecutively via nvoSWsetting[i] resp. nvoSWswitch[i] when UCPTpressTimeThreshold[i] has been exceeded, this parameter has to be set at &gt; 0.</p>

---

**SCPTmaxSendTime[i]** – Maximum send time

Type:	SNVT_time_sec
Valid Range:	0 .. 6,553 s
Default Value:	0 (disabled)
Description:	<p>Defines the maximum period of time between consecutive transmissions of the current value. If this value &gt; 0 the current values of nvoSWswitch[i] and nvoSWsetting[i] are transmitted automatically/consecutively when this time expires.</p>

---

**SCPTmaxOut[i]** – Maximum output value

Type:	SNVT_lev_cont
Valid Range:	0 .. 100 %
Default Value:	100 %
Description:	<p>Determines the maximum value limit of nvoSWswitch[i].value for when it is switched on or the dimming level is raised via nvoSWswitch[i] and nvoSWsetting[i].</p>

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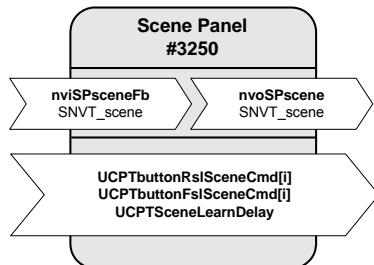
**UCPTminOut[i]** – Minimum Output Value

Type:	SNVT_lev_cont
Valid Range:	0 .. 100 %
Default Value:	5 %
Description:	<p>Determines the minimum value limit of nvoSWswitch[i].value for when the dimming level is lowered via nvoSWswitch[i] and nvoSWsetting[i]. When it is switched off, {0; 0} is always propagated independently of the value defined in this parameter.</p>

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### 6.4 Scene Panel Object (LONMARK® profile #3250)



#### Input Variables

**nviSPsceneFb** – Scene feedback input

Type:	SNVT_scene
Valid Range:	.function: SC_RECALL, SC_LEARN, SC_NUL .scene_number: 0 .. 255
Default Value:	.function = SC_NUL .scene_number = 0 (undefined)
Description:	Provides the feedback from other scene panels (generally without any effect).

#### Output Variables

**nvoSPscene** – Scene output

Type:	SNVT_scene
Valid Range:	.function: SC_RECALL, SC_LEARN, SC_NUL .scene_number: 0 .. 255
Default Value:	.function = SC_NUL .scene_number = 255
Description:	Used to control a scene controller. Caused by a short switch pulse (generally initiated by a short push on a make-contact element), this output transmits the particular scene number ( <code>nvoSPscene.scene_number = UCPTbuttonRslSceneCmd [i]</code> ) and recalls all corresponding scene settings by <code>nvoSPscene.function = SC_RECALL</code> . The scene number defined in <code>UCPTbuttonFslSceneCmd[i]</code> is send when the input reopens (pushbutton is released). When the time threshold defined in the <code>UCPTsceneLearnDelay</code> parameter is exceeded (by a long pulse), a learn command ( <code>nvoSPscene.function = SC_LEARN</code> ) is transmitted, so that all current scene settings are stored in the controller memory under to the given scene number.



## LON I/O Module DR-M 4DI

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### Configuration Variables

**UCPTbuttonRs1SceneCmd[i]** – Scene command assignment to a close contact

Type:	SNVT_scene
Valid Range:	.function: SC_RECALL, SC_LEARN, SC_NUL .scene_number: 0 .. 255
Default Value:	.function = SC_NUL .scene_number = 255
Description:	Used to assign a scene command to every input/button if the contact is closed.

**UCPTbuttonFs1SceneCmd[i]** – Scene command assignment to a open contact

Type:	SNVT_scene
Valid Range:	.function: SC_RECALL, SC_LEARN, SC_NUL .scene_number: 0 .. 255
Default Value:	.function = SC_RECALL .scene_number = i+1
Description:	Used to assign a scene command to every input/button if the contact is opened.

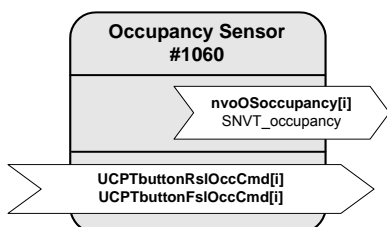
**UCPTsceneLearnDelay** – Scene learn delay

Type:	SNVT_time_sec
Valid Range:	0.0 .. 64.0 s
Default Value:	10.0 s
Description:	Defines a time threshold to distinguish between recalling (RECALL) and storing (LEARN) scenes. The learn command <code>nvoSPscene.function = SC_LEARN</code> is transmitted when this time threshold is exceeded by a long switch pulse.

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### 6.5 Occupancy Sensor (LONMARK® profile #1060)



#### Output Variables

**nvoOSoccupancy[ i ]** – Occupancy Output

Type:	SNVT_occupancy
Valid Range:	OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NUL
Default Value:	Value of UCPTdefaultOccCmd[ i ].
Description:	Provides the qualified state of the hardware sensor. OC_OCCUPIED is transmitted when a motion is detected. The value transmitted in an unoccupied status can be defined in the UCPTunoccupiedOccCmd[ i ] property.

#### Configuration Variables

**UCPTbuttonRs1OccCmd[ i ]** – Occupancy command assignment to a close contact

Type:	UNVT_occupancy
Valid Range:	OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NO_MESSAGE, OC_NUL
Default Value:	OC_NO_MESSAGE
Description:	Used to assign a occupancy command to every input/button if the contact is closed.

**UCPTbuttonFs1OccCmd[ i ]** – Occupancy command assignment to a open contact

Type:	UNVT_occupancy
Valid Range:	OC_OCCUPIED, OC_UNOCCUPIED, OC_BYPASS, OC_STANDBY, OC_NO_MESSAGE, OC_NUL
Default Value:	OC_NO_MESSAGE
Description:	Used to assign a occupancy command to every input/button if the contact is opened.