LONMARK®
Functional Profile:
Scene Controller

Overview

This document describes the profile for a scene controller object. There is no required hardware for this object.
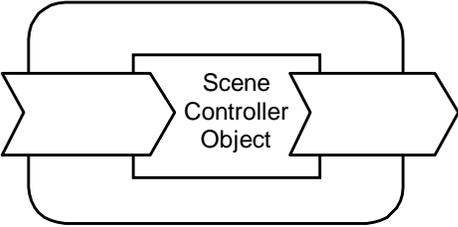

Figure 1.1 Scene Controller Functional Profile

Example Usage

The scene panel output is connected to the scene controller input. Each lamp or group of lamps have their own controller. An optional control input is used for "manual" scene adjustment (master fade). Local control of a lamp can be done with a switch. When lamps are adjusted manually, a new scene can be stored using "learn current" configuration property. Configuration properties are not shown in this example.
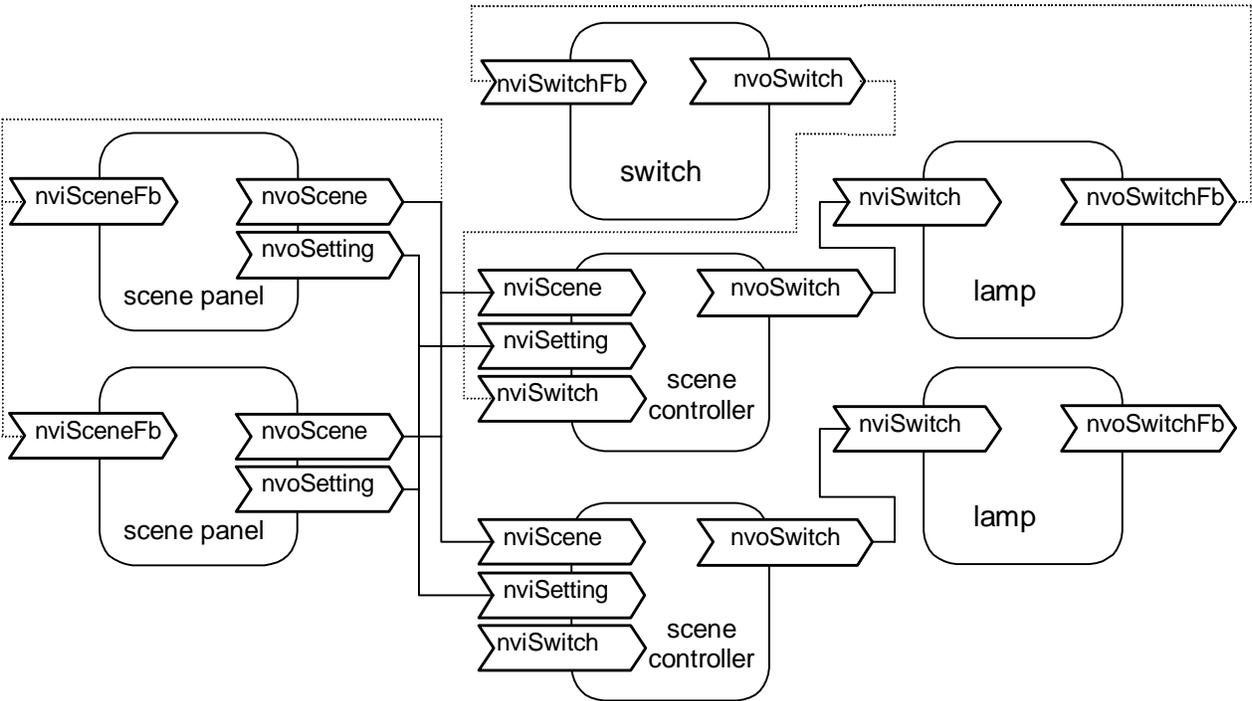
Figure 1.2 Example

Object Details

The scene controller object is used to control scenes and fades. Input from an event triggering source e.g. a scene panel triggers the scene. Fade and delay times, and target values are stored in controller memory. Scene setup is done by sending values or storing current values under given scene number. Current values are obtained internally. Stored values are reported using scene configuration feedback output.
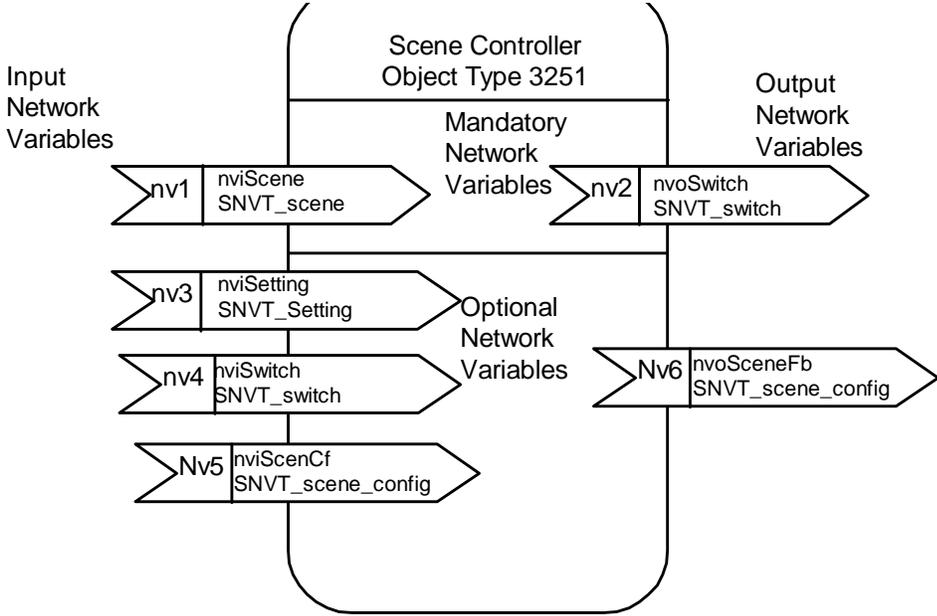
Figure 1.3 Scene Controller Object Details

Table 1.1 SNVT Details

NV # (M/O)*	Name	In/Out	SNVT Type (SNVT Index)	Class	Description
1 (M)	nviScene	In	SNVT_scene (115)	nv	Scene trigger input
2 (M)	nvoSwitch	Out	SNVT_switch (95)	nv	Control output
3 (O)	nviControl	In	SNVT_setting (117)	nv	Master fade control Input
4 (O)	nviSwitch	In	SNVT_switch (95)	nv	Direct control input

5 (O)	nviScenCf	In	SNVT_scene_config (116)	nv	Scene configuration input
6 (O)	nvoScenFb	Out	SNVT_scene_config (116)	nv	Scene configuration feedback

* M = mandatory, O = optional

Table 1.2 SCPT Details

SCPT index (M/O)*	Name	Description
95 (O)	SCPTfadeTime	Default fade time to scene, if time not specified
96 (O)	SCPTdelayTime	Default delay time to scene, if time not specified
52 (O)	SCPTminSendTime	Min. send time for network output

* M = mandatory, O = optional

Mandatory Network Variables

Scene Trigger Input

`network input SNVT_scene nviScene;`

This input network variable triggers a scene or loads the scene preset memory with current values. If the recalled scene number is not found in the preset memory, the controller takes no action. Learn command stores current control value in the preset memory under given preset number (see Boundary and Error Conditions).

Valid Range

The valid enumeration range is RECALL or LEARN with associated scene number (1 to 255). Scene number 0 is not used.

Default Value

The default value is scene number 0 meaning no control action.

Switch Output

`network output SNVT_switch nvoSwitch;`

This output network variable provides the switch output for an actuator.

Valid Range

The valid range is the range of `SNVT_switch`.

When Transmitted

Whenever the change is initiated by the application.

Update Rate

There is no maximum update rate. The default minimum update rate is 100 ms.
Minimum update rate is optionally configurable.

Default Service Type

The default service type is acknowledged.

Optional Network Variables

Master Fade Input

```
network input SNVT_setting nviSetting;
```

This input network variable is used to adjust the scene output. The output is adjusted relative to the stored preset value. Every update adds transmitted value to the current output value. Fade values are accumulated separately thus preventing drift, if output value is adjusted to minimum or maximum limit. This input is provided mainly for manual control and it overrides and stops any ongoing fade. Command OFF shuts down the controller and command ON recalls the last scene. ON and OFF are fast commands overriding fade and delay times.

Valid Range

The valid enumeration range is OFF, ON, DOWN and UP.
DOWN and UP range is 0,5 to 100%.

Default Value

The default value is OFF. This value causes no action after power up.

Direct Control Input

```
network output SNVT_switch nvoSwitch;
```

This optional input network variable provides a direct control method for the output (`nvoSwitch`). This input overrides other inputs or ongoing fades. It can be used for scene adjusting when "learn current" function is used.

Valid Range

The valid range is the range of `SNVT_switch`.

Default Value

The default value is state OFF, value 0.

Scene Configuration Input

`network input SNVT_scene_config nviScenCf;`

This optional input network variable is used to change scene setup and to read stored scene values. Enumerations:

SAVE   saves the preset.

CLEAR   clears the memory for given preset mumber.

REPORT   updates the configuration output with memory content.

SIZE   is used to report total number of scenes available in the controller.

FREE   is used to report number of free (unconfigured) scenes.

An alternative way of scene setting is file transfer or any type of local setting (eg. slide potentiometers).

Valid Range

The valid enumeration range for request type is SAVE, CLEAR and REPORT with associated scene number (1 to 255). Scene number 0 is not used. When SIZE or FREE is used, scene number is ignored.
The valid value to go to is SNVT_switch value. Invalid value 255 is stored as OFF-state.
The valid fade time is 0,1 to 6553,5 seconds.
The valid delay time before fade is 0,1 to 6553,5 seconds.

Default Value

The default value is scene number 0 meaning no action.

Scene Configuration Output

`network output SNVT_scene_config nvoScenFb;`

This optional output network variable provides the scene configuration output. It is updated with the memory content of requested preset. If requested scene is not found in memory, enumeration is CLEAR and ohter fields, exept scene number are cleared.

Valid Range

The valid enumeration range for request type is SAVE, CLEAR and REPORT with associated scene number (1 to 255). Scene number 0 is not used.
The valid value to go to is SNVT_switch value.
The valid fade time is 0,1 to 6553,5 seconds.
The valid delay time before fade is 0,1 to 6553,5 seconds.

When Transmitted

Whenever scene configuration input is updated.

Update Rate

There is no maximum update rate.

Default Service Type

The default service type is unacknowledged.

Configuration Properties

Default Fade Time

```
network input config SNVT_time_sec nciFadeTime;
```

This input configuration network variable is used to set fade time, if the time is set to 0 or learn current functionality is used. It is possible to learn scenes with different fade times by changing this configuration value for each scene before learn command is used.

Valid Range

The valid range is 0,1 to 6553,5 seconds.

Default Value

The default value is 1 sec.

SCPT Reference

```
SCPTfadeTime #95
```

Default Delay Time

```
network input config SNVT_time_sec nciDelayTime;
```

This input configuration network variable is used to set delay time, if the time is set to 0 or learn current functionality is used. It is possible to learn scenes with different delay times by changing this configuration value for each scene before learn command is used.

Valid Range

The valid range is 0,1 to 6553,5 seconds.

Default Value

The default value is 0 sec.

SCPT Reference

```
SCPTdelayTime #96
```

Minimum Send Time

```
network input config SNVT_time_sec nciMinSendTime;
```

This input configuration network variable is used to set the minimum time between subsequent updates of network output (nvoSwitch).

Valid Range

Min.   0,1 seconds
Max.   2,0 seconds

Default Value

0,1 seconds

SCPT Reference

SCPTminSendTime #52

Data Transfer

Manufacturer specific.

Power-up State

The object does not update any output values after power-up or reset.

Optional master fade input ON-command is undefined, if no scene has been recalled after power up. A default scene for this condition can be defined by the manufacturer. If no scenes are defined, output should go to max. value.

Boundary and Error Conditions

If the controller has not reached the target value when next preset is requested, previous target is ignored and new ramp is started from the current value.

When scene setting is done with nviScenCf, the controller accepts new scene numbers as long as it has capacity. If the controller memory is full, it ignores any further store commands. An error condition is reported using nvoScenFb with enumeration CLEAR and requested scene number indicating, that requested scene number is not stored in the memory.

Additional Considerations

Manual inputs for master fade and direct control will override and stop any fade in progress.