Version 1.0
Partition Wall Controller: 3252

LONMARK
Functional Profile:
Partition Wall Controller

Overview

This document describes the profile for a simple partition wall controller. The profile is used in lighting control systems in rooms and in spaces which can be divided into smaller sections with partition walls. A partition wall controller passes the data to the area next to it if the wall is open (no partitioning). If the room is divided, then the light switch data is not passed to the other side of the separating wall.

Typically partition wall systems are used in big conference rooms and gymnasiums which - if required - can be divided into two or three separate rooms. In all configurations the local light switch or push button panel is only allowed to control the lamps in the same area, not on the other side of the wall.

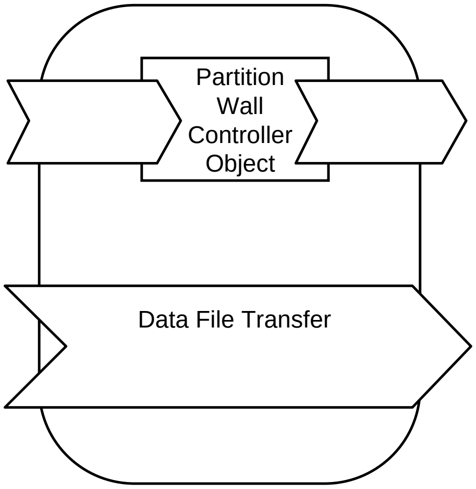


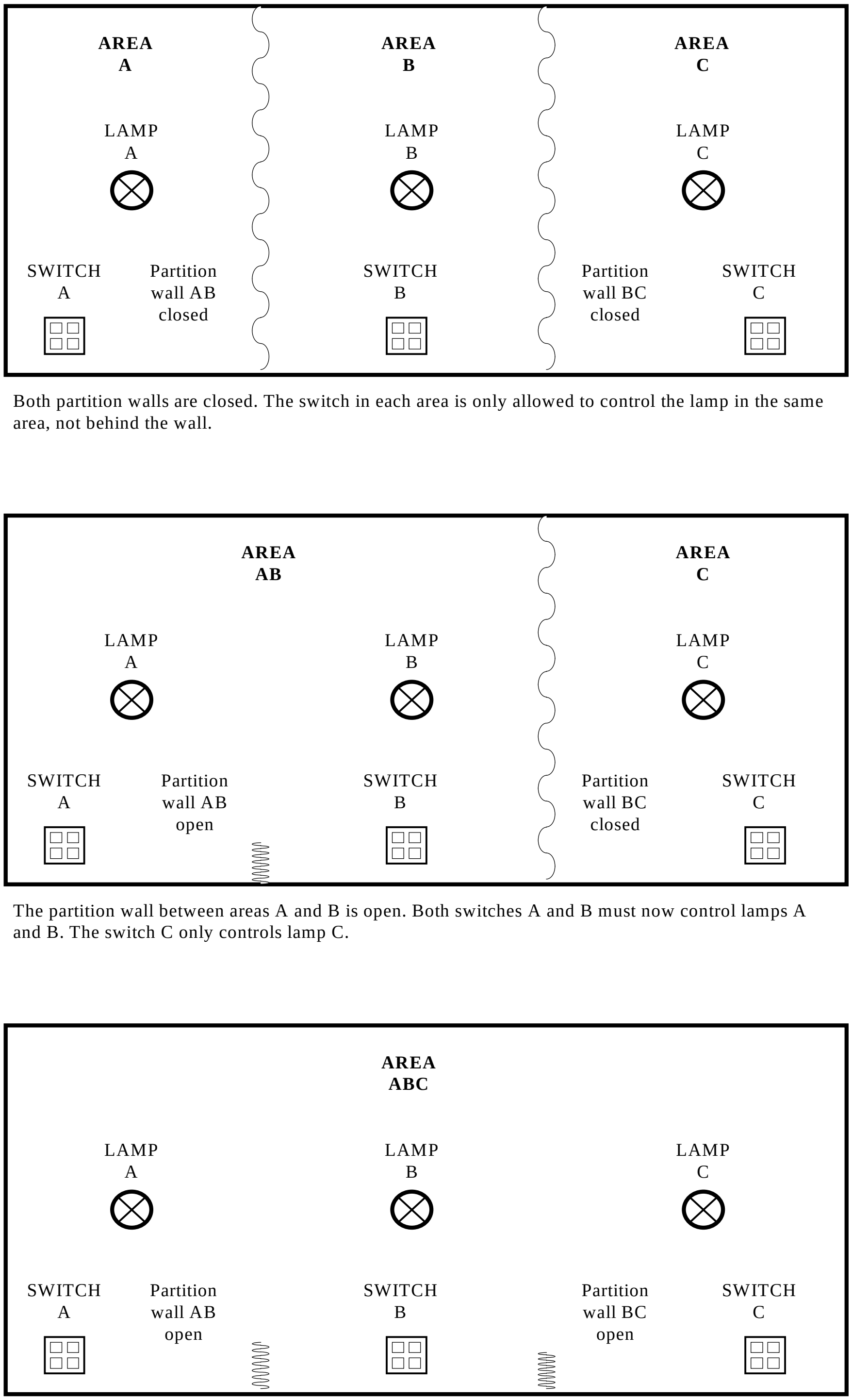
Figure 1 Functional Profile

Example Usage

A typical usage of the partition wall controller is shown in Figure 2. A big room can be divided into two or three separate rooms. The system needs to have one partition wall controller for each movable wall. Also a switch is needed to tell the controller whether the wall is open or closed.

Figure 4 shows the connections between devices in the example room lighting control system.

The partition wall controller can forward `SNVT_scene` type data and optionally also `SNVT_setting` type information.

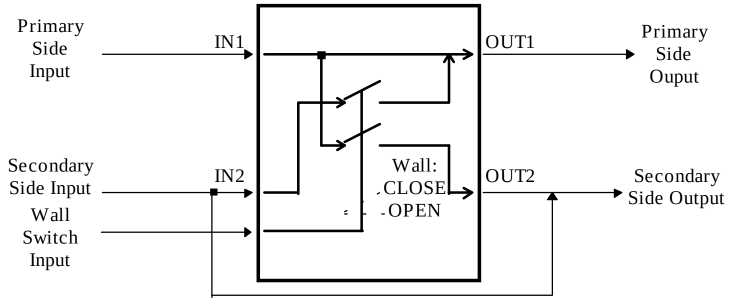


Both partition walls are closed. The switch in each area is only allowed to control the lamp in the same area, not behind the wall.

The partition wall between areas A and B is open. Both switches A and B must now control lamps A and B. The switch C only controls lamp C.

Both partition walls are open. All switches must now control all lamps.

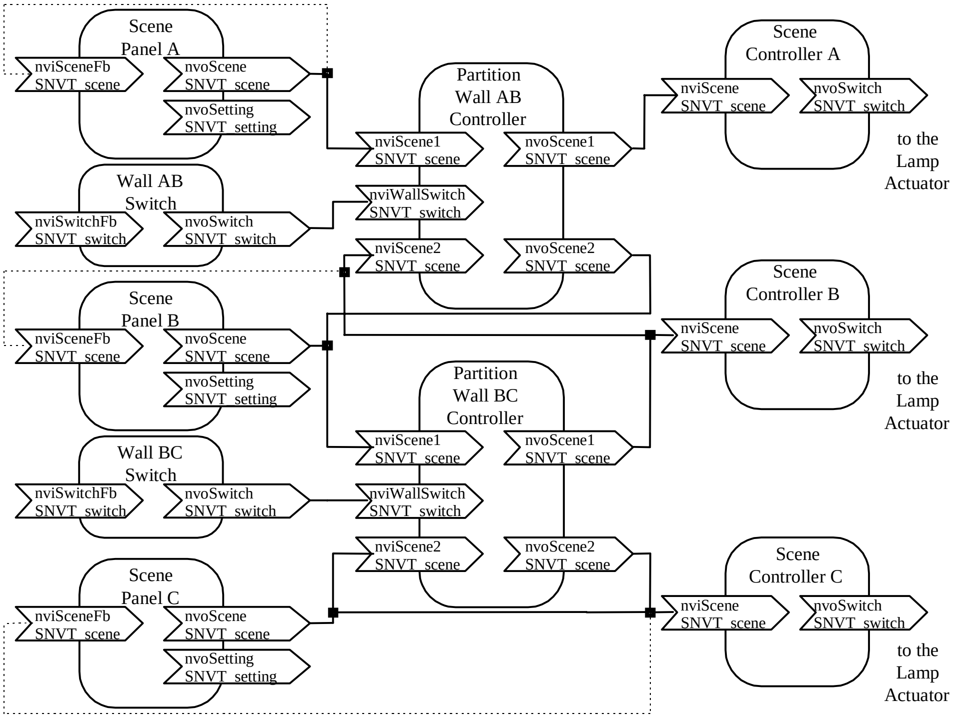
Figure 2 Example: A Room with Two Partition Walls



Routing rules of the controller in case of no partition (wall open):
- OUT1 = IN1 or OUT1 = IN2 (the later update is valid)
- OUT2 = IN1 or OUT2 = IN2 (via external connection)

When the wall is closed:
- OUT1 = IN1
- OUT2 = IN2 (via external connection)

Figure 3 Block Diagram



Connections between nodes in a two partition wall system, see fig. 2

Figure 4 Network Variable Connections

Object Details

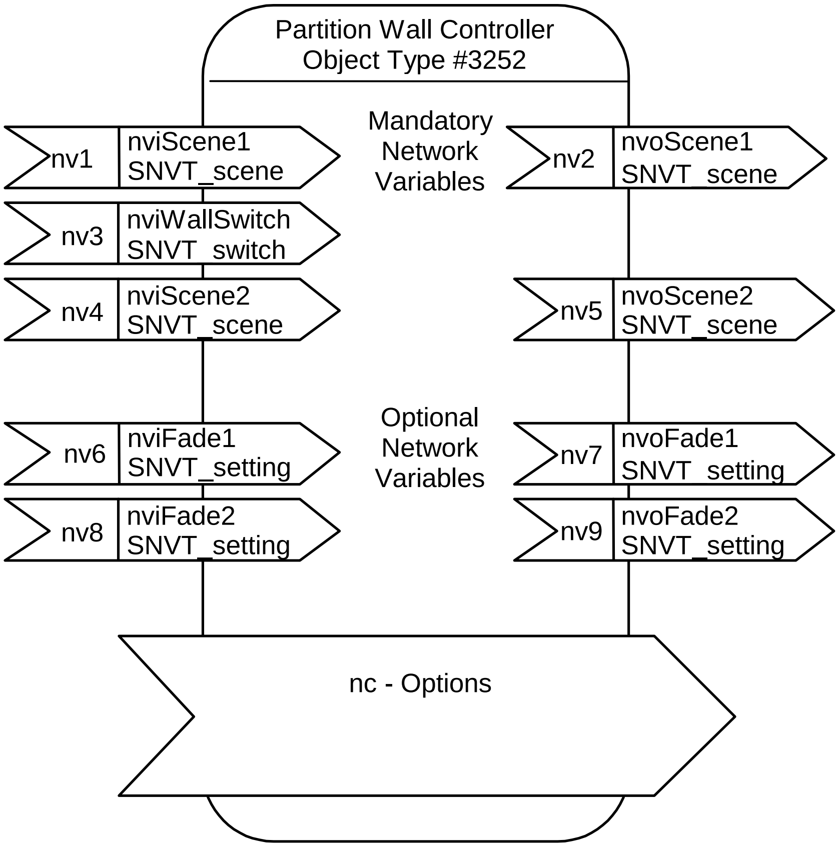


Figure 5 Object Details

Table 1 SNVT Details

NV # (M/O)*	Name	In/Out	SNVT Type (SNVT Index)	Class	Description
1 (M)	nviScene1	In	SNVT_scene (115)		Primary side scene input
2 (M)	nvoScene1	Out	SNVT_scene (115)		Primary side scene output
3 (M)	nviWallSwitch	In	SNVT_switch (95)		Partition wall switch input
4 (M)	nviScene2	In	SNVT_scene (115)		Secondary side scene input
5(M)	nvoScene2	Out	SNVT_scene (115)		Secondary side scene output
6(O)	nviFade1	In	SNVT_setting (117)		Primary side fade input
7(O)	nvoFade1	Out	SNVT_setting(117)		Primary side fade output
8(O)	nviFade2	In	SNVT_setting (117)		Secondary side fade input
9(O)	nvoFade2	Out	SNVT_setting (117)		Secondary side fade output

* M = mandatory, O = optional

Table 2 SCPT Details

SCPT index (M/O)*	Name	Description
17 (O)	SCPT_location	Location label
157 (O)	SCPTsceneOffset	Scene offset from primary side to secondary

* M = mandatory, O = optional

Mandatory Network Variables

Primary Side Scene Input

```
network input SNVT_scene nviScene1;
```

This input network variable reads in data from the scene panels and other sensors of the primary side of the partition wall. The data is passed to the primary side scene controllers via `nvoScene1` and, depending on the partition wall switch position, also to the secondary side scene controllers via `nvoScene2`.

Valid Range

The valid range of the input is the range defined for the `SNVT_scene`.

Primary Side Scene Output

```
network output SNVT_scene nvoScene1;
```

This output network variable provides the scene output to the scene controllers on the primary side of the partition wall.

Valid Range

The valid range of the output is the range defined for the `SNVT_scene`.

When Transmitted

The output is updated whenever the primary side scene input `nviScene1` is requested to change, and also when the secondary side scene input `nviScene2` is requested to change if, at the same time, the partition wall is open as indicated by `nviWallSwitch`. However, in both previous cases the new data is only forwarded to the scene output if it differs from the current one.

Default Service Type

The default service type is `unacknowledged`.

Partition Wall Switch Input

```
network input SNVT_switch nviWallSwitch;
```

This input network variable reads in data from the partition wall switch.

Valid Range

The valid range of the input is open (state ON) and closed (state OFF). Other enumerations of the state are discarded. Value field has no effect.

Secondary Side Scene Input

```
network input SNVT_scene nviScene2;
```

This input network variable reads in data from the scene panels and other sensors of the secondary side of the partition wall. Depending on the partition wall switch position, the data is passed to the primary side scene controllers via `nvoScene1`.

Valid Range

The valid range of the input is the range defined for the `SNVT_scene`.

Secondary Side Scene Output

```
network output SNVT_scene nvoScene2;
```

This output network variable provides the scene output to the scene controllers on the secondary side of the partition wall.

Valid Range

The valid range of the output is the range defined for the `SNVT_scene`.

When Transmitted

The output is updated whenever the primary side scene input `nviScene1` is requested to change if, at the same time, the partition wall is open as indicated by `nviWallSwitch`. However, the new data is only forwarded to the scene output if it differs from the current one.

Default Service Type

The default service type is `unacknowledged`.

Optional Network Variables

Primary Side Fade Input

```
network input SNVT_setting nviFade1;
```

This input network variable reads in data from the scene panels and other sensors of the primary side of the partition wall. The data is always passed to the primary side scene controllers via `nvoFade1` and, depending on the partition wall switch position, also to the secondary side scene controllers via `nvoFade2`.

Valid Range

The valid range of the input is the range defined for the `SNVT_setting`.

Primary Side Fade Output

```
network output SNVT_setting nvoFade1;
```

This output network variable provides SNVT_setting type output to the scene controllers on the primary side of the partition wall.

Valid Range

The valid range of the output is the range defined for the SNVT_setting.

When Transmitted

The output is updated whenever the primary side setting input nviFade1 is requested to change, and also when the secondary side setting input nviFade2 is requested to change if, at the same time, the partition wall is open as indicated by nviWallSwitch. However, in both previous cases the new data is only forwarded to the setting output if it differs from the current one.

Default Service Type

The default service type is unacknowledged.

Secondary Side Fade Input

```
network input SNVT_setting nviFade2;
```

This input network variable reads in data from the scene panels and other sensors of the secondary side of the partition wall. Depending on the partition wall switch position, the data is passed to the primary side scene controllers via nvoFade1.

Valid Range

The valid range of the input is the range defined for the SNVT_setting.

Secondary Side Fade Output

```
network output SNVT_setting nvoFade2;
```

This output network variable provides SNVT_setting type output to the scene controllers on the secondary side of the partition wall.

Valid Range

The valid range of the output is the range defined for the SNVT_setting.

When Transmitted

The output is updated whenever the primary side setting input nviFade1 is requested to change if, at the same time, the partition wall is open as indicated by nviWallSwitch. However, the new data is only forwarded to the setting output if it differs from the current one.

Default Service Type

The default service type is unacknowledged.

Optional Configuration Properties

Location Label

```
network input config SNVT_str_asc nciLocation;
```

This configuration property can optionally be used to provide more descriptive physical location information than can be provided by the Neuron Chip's 6 byte location string. The location relates to the lamp actuator object and not the node.

Valid Range

Any NULL terminated ASCII string of 31 bytes total length.

Default Value

An ASCII string containing all zeroes.

SCPT Reference

```
SCPT_location (17)
```

Scene Offset

```
network input config unsigned nciSceneOffset;
```

This configuration property provides an offset for the scene number. The offset is added to the scene number when data is forwarded from a primary side input to a secondary side output. The offset is subtracted from the scene number when data is forwarded from the secondary side input to the primary side output. The application should take care of possible overflows and underflows of the 8-bit scene number.

Valid Range

Valid range is 0 - 255.

Default Value

The default value is 0.

SCPT Reference

```
SCPTsceneOffset (157)
```

Data Transfer

Manufacturer specific.

Power-up State

The wall switch input state is closed after the device reset.

Boundary and Error Conditions

None

Additional Considerations

The use of partition wall controller will increase network traffic. An update to the primary side input will always generate another message on the primary side output and if the wall is open, the secondary side output will also send a message. The default service type of the output network variables is defined to be unacknowledged to minimize the additional network traffic. Also SNVT_scene type variables are not wasteful of bandwidth, because recalling a scene will only require one message from a sensor to the scene controller (which most likely is physically located in the same device as the lamp actuator). Care should be taken when SNVT_setting type variables are used to create slow fades. The scene controller needs to get repetitive updates, and when a partition wall controller is used in the system, number of messages is at least doubled.