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Elevator/Lift Hall Lantern : 140.12



LONMARK[®]

Functional Profile:

Vertical/Conveyer Transportation

Elevator/Lift Hall Lantern

Overview

This document describes the Functional Profile of a Hall Lantern Object. Use of the standard Node object is implied. The node will most likely include other objects such as Position Indicator and Car Direction Lantern.

The Hall Lantern is used in an elevator system to indicate the next intended direction of travel of the Elevator Car after it leaves the landing. The lantern is activated only at the landing where the car is stopping.

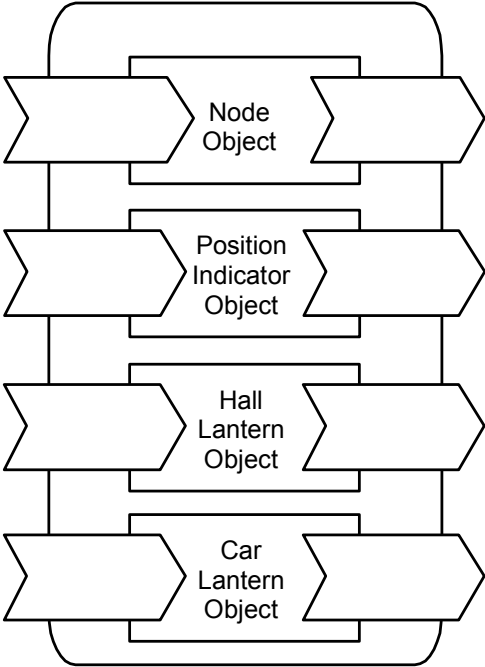


Figure 1 Node Concept

Example Usage

The first example mirrors the system where there are separate connections for each lantern at each opening, and the Elevator Control Object has nvoUpHall and nvoDownHall outputs for each opening. Each of these outputs is bound only to the nviUpHall and nviDownHall of the appropriate Lantern object.

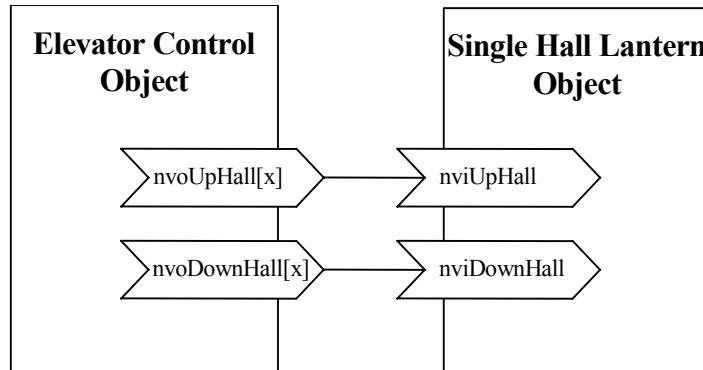


Figure 2 Example Usage of the Object with individual bindings

The second method reduces the number of output connections (and network variables) by sending common up and down signals in conjunction with information about which landing is to be served. This is catered for with single nvoUpHall and nvoDownHall variables for the whole elevator, and nvoFloorLevel to indicate the landing. All three variables are bound to every Hall Lantern and every Hall Lantern has a configuration variable, which specifies the level where it is fitted.

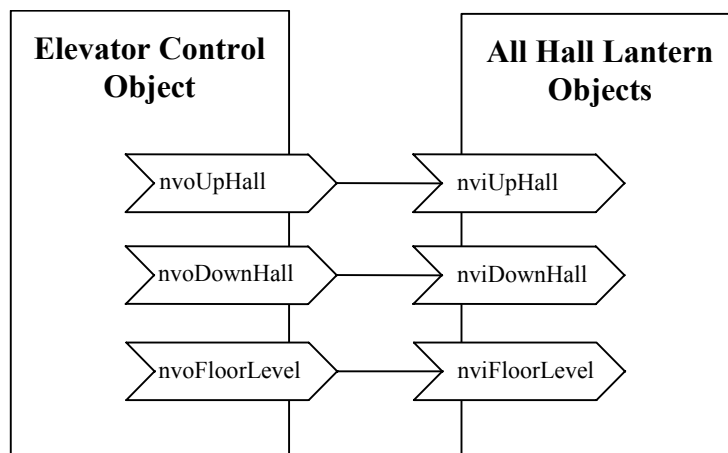


Figure 3 Example Usage of the Object with group bindings

Object Details

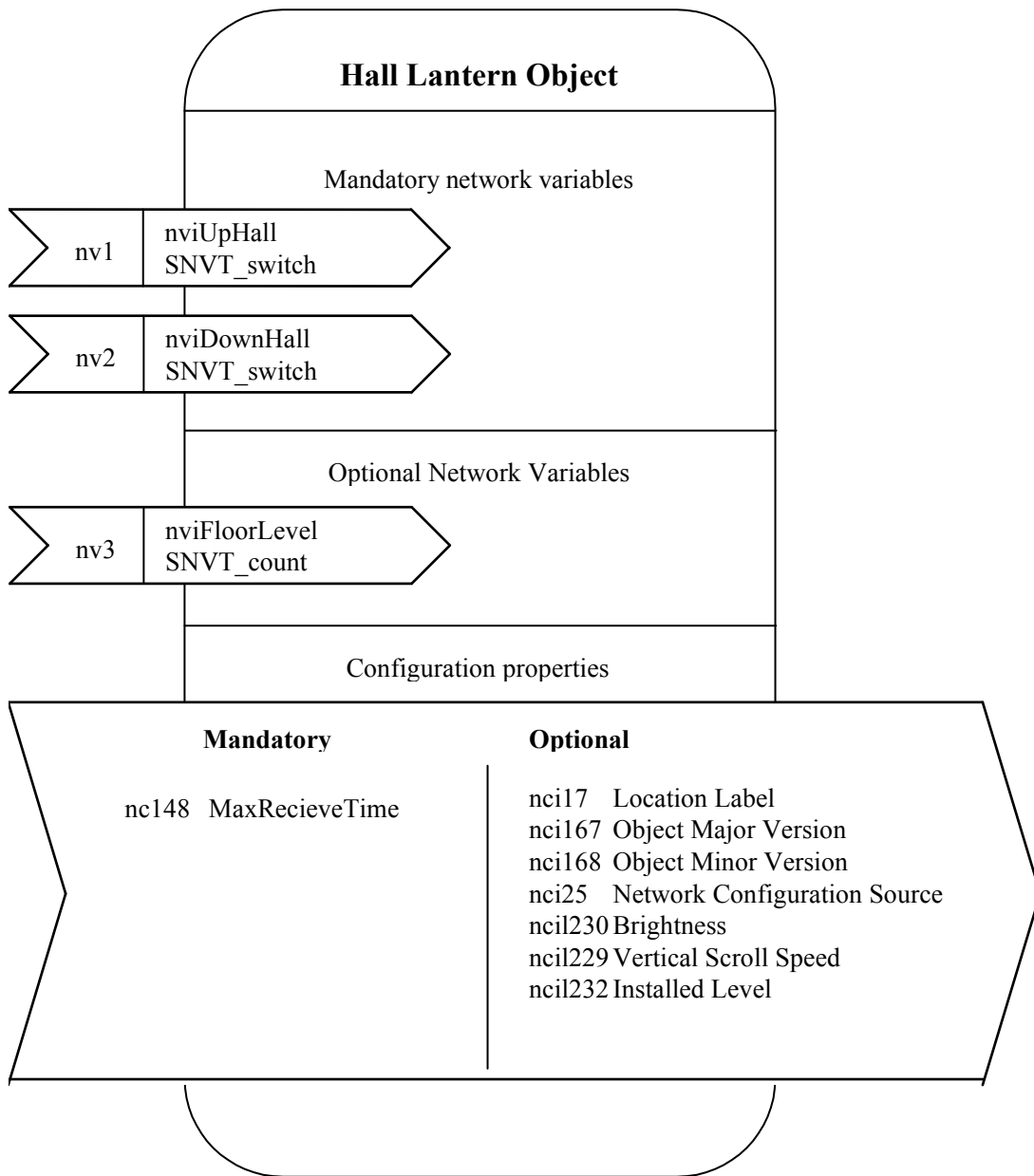


Figure 4 Object Details

Table 1 SNVT Details

NV # (M/O)*	Variable Name	SNVT Name	SNVT Index	Description
1 (M)	nviUpHall	SNVT_switch	36	Up Direction Signal
2 (M)	nviDownHall	SNVT_switch	36	Down Direction Signal
3 (O)	nviFloorLevel	SNVT_count	8	Location of Elevator Car

* M = mandatory, O = optional

Table 2 SCPT Details

Man. Opt. *	SCPT Name NV Name Type or SNVT	SCPT Index	Associated NVs **	Description
Man	SCPTmaxRcvTime nciMaxReceiveT SNVT_time_sec	48	Entire Object	Used to define how long lantern will wait before switching off.
Opt	SCPTlocation nciLocation SNVT_str_asc (36)	17	Entire Object	Used to provide physical location of the node
Opt	SCPTobjMajVer nciObjMajVer unsigned short	167	Entire Object	Defines the major version number of the Object
Opt	SCPTobjMinVer nciObjMinVer unsigned short	168	Entire Object	Defines the minor version number of the Object
Opt	SCPTnwrkCnfg nciNetConfig SNVT_config_src	25	Entire Object	Defines the source of network configuration information
Opt	SCPTinstalledLevel nciInstLevel unsigned long	232	Entire Object	Defines the level at which the Lantern is installed.
Opt	SCPTbrightness nciBrightness SNVT_switch	230	Entire Object	Defines brightness of display as % of max.
Opt	SCPTscrollSpeed nciVertScroll SNVT_switch	229	Entire Object	Defines rate of vertical floor label scrolling as % of max, or no scrolling

* Man = mandatory, Opt = optional

** List of NVs to which this configuration property applies.

Mandatory Network Variables

nviUpHall

```
network input sd_string("@p|1") SNVT_switch nviUpHall;
```

This input network variable is used to allow an external node to instruct the lantern to display an 'UP' indication.

If the lantern's nciInstLevel configuration is set to non-zero (enabled) then the lantern will only operate if the value of nviFloorLevel matches the value of nciInstLevel.

Valid Range

Value	State	Action
ANY	0	None
0	1	None
>0	1	Show 'UP' indication
ANY	0xFF	Undefined, No Action

Default Value

state = 0 value = 0

Where no data is received within the heartbeat time, the indication will clear. If heartbeat is disabled, the indication will clear after 10 seconds.

Configuration Considerations

The maximum receive time should be configured if the timeout needs to be other than the default 10 seconds.

nviDownHall

```
network input sd_string("@p|2") SNVT_switch  
nviDownHall;
```

This input network variable is used to allow an external node to instruct the lantern to display a 'DOWN' indication.

If the lantern's nciInstLevel configuration is set to non-zero (enabled) then the lantern will only operate if the value of nviFloorLevel matches the value of nciInstLevel.

Valid Range

Value	State	Action
ANY	0	None
0	1	None
>0	1	Show 'DOWN' indication
ANY	0xFF	Undefined, No Action

Default Value

```
state = 0      value=0
```

Where no data is received within the heartbeat time, the indication will clear. If heartbeat is disabled, the indication will clear after 10 seconds.

Configuration Considerations

The maximum receive time should be configured if the timeout needs to be other than the default 10 seconds.

nviFloorLevel

```
network input sd_string("@p|3") SNVT_count  
nviFloorLevel;
```

This optional input network variable is used to allow an external node to inform the Lantern of the location of the elevator car. This is used for the scenario where all the lanterns are bound to the same direction output network variables

Valid Range

As defined for SNVT_count.

Zero=disabled

Default Value

Zero

Configuration Considerations

The nciInstLevel has to be set to a non-zero value for this variable to be active.

Configuration Properties

Receive Heartbeat (Mandatory)

```
network input config sd_string("&1,p,0\x80,48")
SNVT_time_sec nciMaxReceiveT;
```

This input configuration property sets the maximum period of time that can expire before the Object will automatically clear indications generated by either -

nv1 – nviUpHall (Mandatory)

nv2 – nviDownHall (Mandatory)

Valid Range

The valid range is 1.0 to 30.0 seconds.

Values outside this range are invalid and will disable the automatic update mechanism. A value of zero (0) will be used for the internal timer in cases where configured values are above 30.0 seconds.

Default Value

The default value is 10.0 (default 10 second time).

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTmaxSendTime (48)

Location Label (Optional)

```
network input config sd_string("&1,p,0\x80,17")
SNVT_str_asc nciLocation;
```

This configuration property can be used to provide the location of the Object/node, where **p** is the Object index. The above code declaration is for providing the location of the Object. If it is preferred, the location of the node can be represented with the following code declaration:

```
network input config sd_string("&0,,0\x80,17")
SNVT_str_asc nciLocation;
```

Valid Range

Any NULL-terminated ASCII string up to 31 bytes of total length (including NULL). The string must be truncated if the length does not allow the 31st character to be the NULL (0x00).

Default Value

The default value is an ASCII string containing all zeroes.

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference

SCPTlocation (17)

Object Major Version (Optional)

```
network input config sd_string("&1,p,0\x84,167")
unsigned short nciObjMajVer;
```

This configuration property can be used to provide the major version number of the Object when implemented on a device.

Valid Range

Any integer number from 1 to 255. Only 1-byte of information is accepted.

Default Value

The default value is one (1).

Configuration Requirements/Restrictions

This CP is a constant (const_flg). It is not to be modified except that it is allowable to modify the value in a download of new code to the device.

SCPT Reference

SCPTobjMajVer (167)

Object Minor Version (Optional)

```
network input config sd_string("&1,p,0\x84,168")
unsigned short nciObjMinVer;
```

This configuration property can be used to provide the minor version number of the Object when implemented on a device.

Valid Range

Any integer number from 0 to 255. Only 1-byte of information is accepted.

Default Value

The default value is zero (0).

Configuration Requirements/Restrictions

This CP is a constant (const_flg). It is not to be modified except that it is allowable to modify the value in a download of new code to the device.

SCPT Reference

SCPTobjMinVer (168)

Network Configuration Source (Optional)

```
network input config sd_string("&l,p,0\x80,25")
SNVT_config_src nciNetConfig;
```

All nodes that support self-installation must provide this configuration property to allow a network tool to also install the node.

Valid Range

When a node is self-installed this variable should be set to CFG_LOCAL when the node is manufactured. A variable set to CFG_EXTERNAL signifies that a network tool will assign network addresses for the node.

Default Value

For a self-installed node the default value is CFG_LOCAL.

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time. If a change is made from External to Local (unlikely), the node will need to be reset.

SCPT Reference

SCPTnwrkCnfg (25)

Installed Level(Optional)

```
network input config sd_string("&l,p,0\x80,232")
unsigned long nciInstLevel;
```

This configuration property is used to specify the level at which the Hall Lantern is installed.

If it is intended to use the nviFloorLevel input variable, then this property must be present and set to the appropriate non-zero value.

Valid Range

Zero = disabled

Default Value

Zero

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

Brightness (Optional)

```
network input config sd_string("&l,p,0\x80,230")
SNVT_switch nciBrightness;
```

This configuration property can be used to adjust the brightness level of the display of a Hall Lantern.

Valid Range

Value	State	Action
ANY	0	Display OFF
0	1	Display OFF
>0	1	Minimum Brightness, (0.5% to 100%)
200	1	Maximum Brightness, (100%)
ANY	0xFF	Undefined, No Action

Default Value

not defined

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

Vertical Scrolling Speed (Optional)

```
network input config sd_string("&l,p,0\x80,229")
SNVT_switch nciVertScroll;
```

This configuration property can be used to adjust the speed at which the display of a Hall Lantern scrolls floor labels vertically. Any Hall Lantern, which supports vertical scrolling, must include this configuration property

Valid Range

Value	State	Action
ANY	0	Display OFF
0	1	Display OFF
>0	1	Min Scroll Speed, (0.5% to 100%)
200	1	Max Scroll Speed, (100%)
ANY	0xFF	Undefined, No Action

Default Value

not defined

Configuration Requirements/Restrictions

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

Key for Unresolved References

p is this Object's index relative to the node `sd_string` declaration, when implemented.

Power-up State

There is no immediate network action on Power-up State.

There will be no indication until an input is received.

Boundary and Error Conditions

None specified.

Additional Considerations

None specified.

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