



LONMARK[®] Functional Profile: Occupancy Sensor

1060-10 © 1997, LONMARK Interoperability Association

Echelon, LON, LONWORKS, LONMARK, and the LONMARK logo are trademarks of Echelon Corporation registered in the United States and other countries.

Overview

This document describes the functional profile for an occupancy sensor object. This object would be used in a device with a hardware sensor whose output is either in an occupied or unoccupied state. Noise and measuring accuracy is taken care of by the hardware and manufacturer specific parameters.

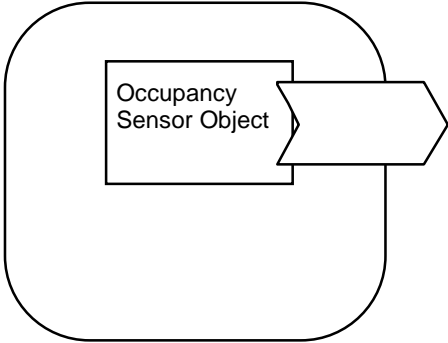


Figure 1.1 Occupancy Sensor Functional Profile

Example Usage

The occupancy sensor object can be used to detect occupancy in a room or an area. The output of the occupancy sensor object is connected to a controller, which is controlling lights. The occupancy controller takes care of the proper action and calculates application delay or hold times as appropriate. The number and type of input variables of the controller may vary.

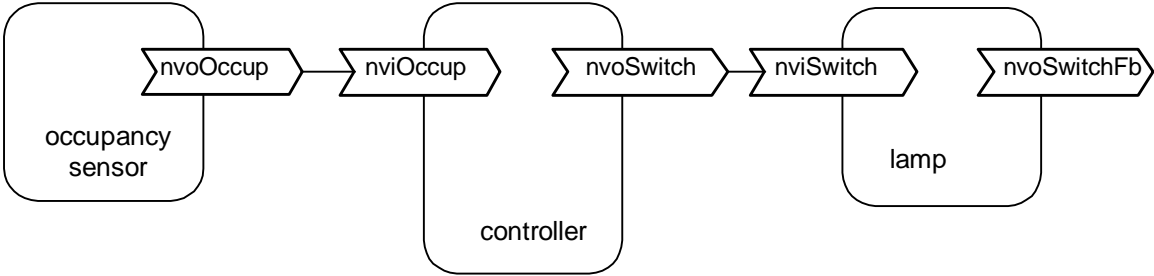
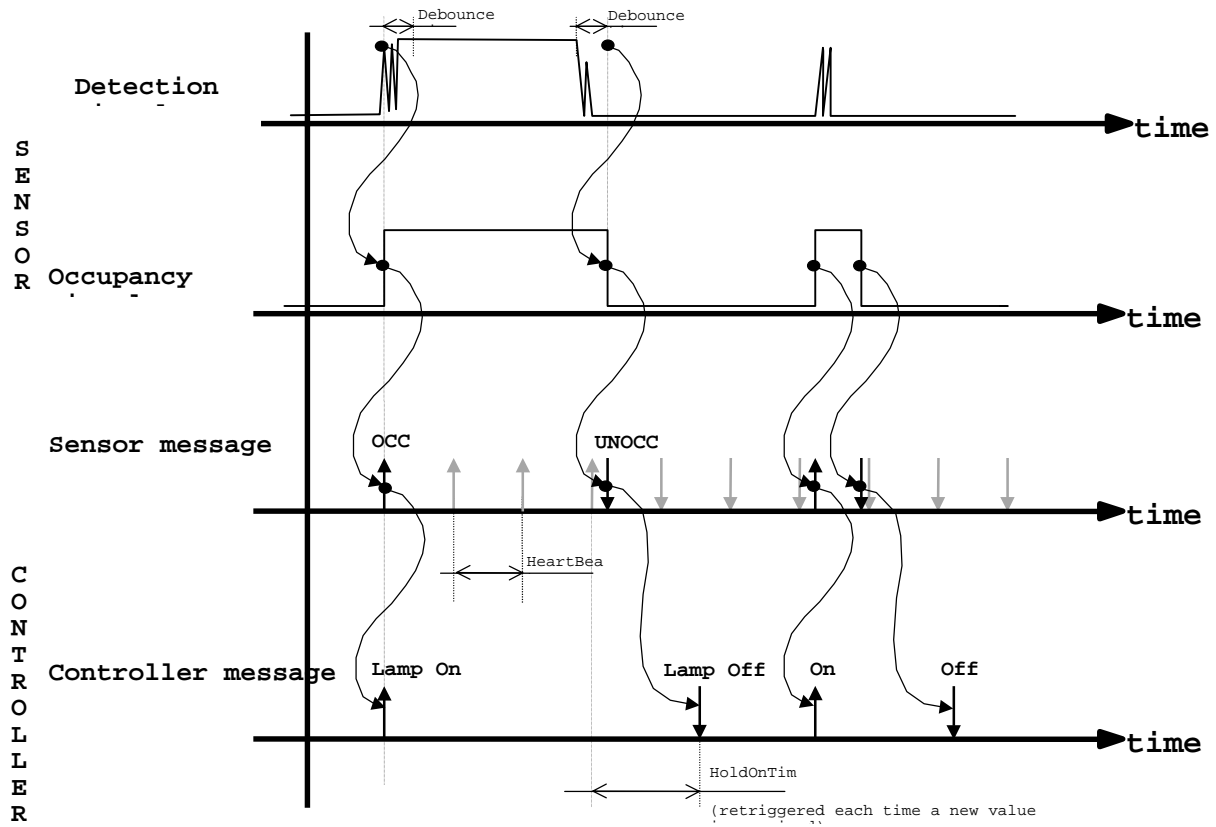


Figure 1.2 Example Usage of Occupancy Sensor Object

Timing Description

The following timing diagram defines the different timers used in the profile.



Remark : The HoldOnTime shall be greater than HeartBeat

Object Details

The occupancy sensor object is used to detect occupancy and keep the occupied state until no occupancy can be detected. Optionally there can be configuration parameters for debouncing and adjusting the heartbeat frequency.

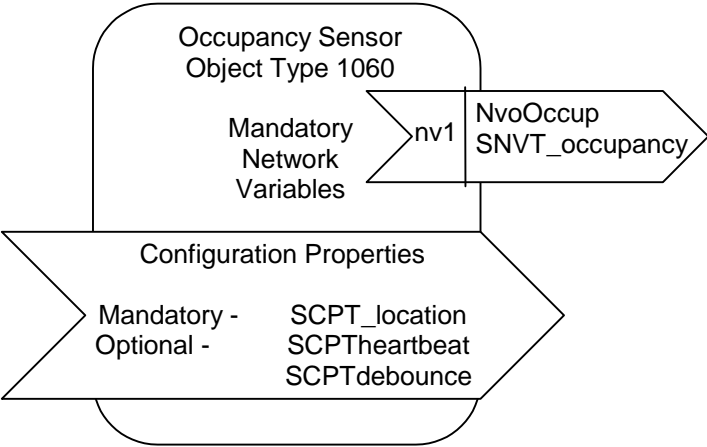


Figure 1.3 Object Details

Table 1 SNVT Details

NV # (M/O)*	Name	In/Out	SNVT Type (SNVT Index)	Class	Description
1 (M)	nvoOccup	Out	SNVT_occupancy (109)	nv	Occupancy state

* M = mandatory, O = optional

Table 2 SCPT Details

SCPT index (M/O)*	Name	Description
17 (M)	SCPT_location	Location label
48 (O)	SCPTheartbeat	heartbeat (state transmission)
new (O)	SCPTdebounce	debounce time

* M = mandatory, O = optional

Occupancy Output

network output SNVT_occupancy nvoOccup;

This output network variable provides the qualified state of the hardware sensor output.

Valid Range

The range of SNVT_occupancy.

When Transmitted

When the occupancy state changes from unoccupied to occupied or when the occupancy state has changed from occupied to unoccupied at the frequency of the heartbeat.

Update Rate

The maximum update rate is fixed by the heartbeat frequency and the minimum update rate is fixed by the debouncing time.

Default Service Type

The default service type is acknowledged.

Opt o

a l

N

No optional network variables.

M n

d a t a

Location Label

network input config SNVT_asc_str nciLocation;

This input configuration network is used to store ASCII text. It provides more space for descriptive location information.

Valid Range

Any NUL terminated ASCII string of 31 bytes total length.

Default Value

An ASCII string containing all zeros.

SCPT Reference

SCPT_location (#17)

Opt o

a l

C

Heartbeat

```
network input config SNVT_time_sec nciheartbeat;
```

This optional configuration network variable defines the repeat period between to value update sent on the bus. The aims of the heartbeat is to be sure that the sensor is alive and to permit a controller to have multiple sensors on the same input SNVT.

Remark : Even if the SCPT heartbeat is optional, the heartbeat functionality shall be implemented in the Occupancy Sensor with a 2 minutes repeat period (default value).

Valid Range

Valid range is 0.0 - 6553.4 by steps of 0.1s.

Default Value

Default value is 2 mn.

SCPT Reference

SCPTheartbeat (#48)

Debounce Time

```
network input config SNVT_time_sec nciDebounce;
```

This mandatory configuration network variable defines the debouncing time to generate the detection envelop and the *OCCUPIED* and *NON OCCUPIED* message.

Valid Range

Valid range is 0.0 - 6553.4 by steps of 0.1s.

Default Value

Default value is 0 sec.

SCPT Reference

SCPTdebounce (New)

Data Transfer

None specified

Power-up State

The sensor must have a manufacturer defined warm-up time in order to secure reliable operation. After that, the function is normal, and the output value is updated to detected state.

Boundary and Error Conditions

None specified.

Additional Considerations

Depending on sensor technology and application, the sensor may have additional parameters.