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.

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.
Timing Description

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

Remark: The HoldOnTime shall be greater than HeartBeat
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.

**Table 1** SNVT Details

<table>
<thead>
<tr>
<th>NV # (M/O)*</th>
<th>Name</th>
<th>In/Out</th>
<th>SNVT Type (SNVT Index)</th>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (M)</td>
<td>nvoOccup</td>
<td>Out</td>
<td>SNVT_occupancy</td>
<td>nv</td>
<td>Occupancy state</td>
</tr>
</tbody>
</table>

* M = mandatory, O = optional

**Table 2** SCPT Details

<table>
<thead>
<tr>
<th>SCPT Index (M/O)*</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 (M)</td>
<td>SCPT_location</td>
<td>Location label</td>
</tr>
<tr>
<td>48 (O)</td>
<td>SCPTheartbeat</td>
<td>heartbeat (state transmission)</td>
</tr>
<tr>
<td>new (O)</td>
<td>SCPTdebounce</td>
<td>debounce time</td>
</tr>
</tbody>
</table>

* 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.

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No optional network variables.

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**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)
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**
SCPHeartbeat (#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.