LONMARK
Functional Profile: Audible Fire Indicator
**Overview**

This document describes the use of the Audible Fire Indicator Object for fire alarm notification function. The Fire Indicator object is assumed to reside in devices within the fire system. The role of the Node Object in alarm reporting for Fire Indicator devices is also described in this document.

![Diagram of Node Object, Fire Indicator Object, and Fire Indicator Object](image)

**Figure 1 Fire Indicator Objects**

**Example Usage**

The primary purpose of Fire Alarm systems is to notify occupants in case of a fire condition. Fire Initiator devices perform the function of detecting conditions that accompany fire such as smoke, heat, or manual action (in case of a pull station etc). When a fire has been detected, the fire alarm system notifies the occupants of the fire condition via an audible or visible device as listed below (this profile applies to the devices marked AUDIBLE below):

- Horn (activated by a DC signal) - AUDIBLE
- Chime (activated by a DC signal) - AUDIBLE
- Bell (activated by a DC signal) - AUDIBLE
- Electronic Sounder (powered locally at the device) - AUDIBLE
- Speaker (activated by an AC signal, typically a series of tones or voice messages) - AUDIBLE
- Strobe (activated by a fixed DC signal, can be synchronized or non-synchronized) - VISIBLE

Each device has an audible or visible output rating, and an input voltage/power requirement specification. Indicating devices can also be supervised, and therefore capable of detecting faults, thereby generating trouble conditions.
Node Object

The Node object can be used to provide additional alarm reporting, via the nvoAlarm network variable, in devices using Fire objects. The Node object is fully described in the LONMARK Application Layer guidelines. Details of the use of the nvoAlarm network variable in Fire devices are provided below.

nvoAlarm

network output sync SNVT_alarm nvoAlarm;

This output network variable transmits alarm data for each object on a node to a monitoring node. A message containing all the data relating to the alarm condition is sent whenever an alarm condition occurs, or is cleared, and upon the object receiving an RQ_UPDATE_ALARM request via the nviRequest network variable on the node Object (see the LONMARK Application Layer guidelines for complete details). The structure definition for SNVT_alarm is described in the SNVT Master List and Programmer’s Guide (005-0027-01) however further definition is provided below for its use for Indicator fire conditions.

Valid Alarm_type enumerations are as listed below:

<table>
<thead>
<tr>
<th>Enum #</th>
<th>Alarm_type Field</th>
<th>Notes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>AL_FIR_TRBL</td>
<td>Trouble (fault) condition with an object</td>
</tr>
<tr>
<td>0xFF</td>
<td>AL_NUL</td>
<td></td>
</tr>
</tbody>
</table>

Valid priority_level_t enumerations are as below:

<table>
<thead>
<tr>
<th>Enum #</th>
<th>Alarm_type Field</th>
<th>Notes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>PR_4</td>
<td>Trouble (fault) condition with an object</td>
</tr>
<tr>
<td>0xFF</td>
<td>PR_NUL</td>
<td></td>
</tr>
</tbody>
</table>

When Transmitted

It is transmitted when an alarm condition occurs and also upon receiving an RQ_UPDATE_ALARM request via the nviRequest network variable.

Valid Range

The valid range for the value field is any value within the defined limits of the SNVT_alarm output.

Default Service Type

The default service type is acknowledged.
Fire Indicator Object

The Fire Audible Indicator Object provides basic ON, OFF capability via SNVT_switch for use by Audible Indicators.

![Diagram of Fire Audible Indicator Object]

**Figure 2 Audible Fire Indicator Object Details**
Mandatory Network Variables

**nviFireAudible**

network output SNVT_switch nvoFireAudible;

This input network variable receives the status (ON or OFF) request (command) for an audible indicating device. It can be bound to the nvoAlarm network variable(s) of initiating device(s).

**When Transmitted**

nviFireAudible is not transmitted.

**Valid Range**

The valid range for the value field is any value within the defined limits of the SNVT_switch.

The following table describes the encoding of SNVT_switch for fire alarm conditions:

<table>
<thead>
<tr>
<th>state</th>
<th>val %</th>
<th>general purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>No audible (OFF)</td>
</tr>
<tr>
<td>1</td>
<td>1-100</td>
<td>Audible (ON)</td>
</tr>
</tbody>
</table>

The typical indication object will make use of the state value contained in the SNVT_state above to turn its output ON or OFF as requested.

**Default Service Type**

The default service type is acknowledged.

**nvoFireTrouble**

network output SNVT_switch nvoFireTrouble;

This output network variable transmits initiator trouble information for use by simple Indicators.

**When Transmitted**

nvoFireTrouble is transmitted when an indicator failure condition occurs. A trouble condition can include any fault/trouble that can be detected by the device.

**Valid Range**

The valid range for the value field is any value within the defined limits of the SNVT_switch output.

The following table describes the encoding of SNVT_switch for Trouble condition reporting:

<table>
<thead>
<tr>
<th>state</th>
<th>val %</th>
<th>general purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>general purpose</td>
</tr>
</tbody>
</table>
Depending on the Indicator receiving the information it can make use of only the state field of SNVT_switch or also the value field of SNVT_switch.

**Default Service Type**
The default service type is acknowledged.

### Optional Network Variables

**nvoFireAudible**

network output SNVT_switch nvoFireAudible;

This output network variable transmits the feedback status (ON or OFF) of indicating device.

**When Transmitted**
nvoFireAudible is not automatically transmitted.

**Valid Range**
The valid range for the value field is any value within the defined limits of the SNVT_switch output.

The following table describes the encoding of SNVT_switch for various fire alarm conditions:

<table>
<thead>
<tr>
<th>state</th>
<th>val %</th>
<th>general purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>No audible (OFF)</td>
</tr>
<tr>
<td>1</td>
<td>1-100</td>
<td>Audible (ON)</td>
</tr>
</tbody>
</table>

A device such as an operator interface device can make use of the value field for its display, logging etc.

**Default Service Type**
The default service type is acknowledged.
Configuration Properties

Node Location Label

network input config SNVT_str_asc nciNodeLocation;
This configuration property contains the location of the object, and is entered into the device at installation and/or configuration time.

Valid Range
The valid range for this configuration property is any value within the defined limits of the SNVT_str_asc network variable type.

Default Value
No text strings specified.

SCPT Reference
SCPTlocation (17)

Receive Heartbeat

network input config SNVT_time_sec nciMaxReceiveT;
This configuration property, defines the maximum period of time that should expire, before the indicator device is deactivated.

Valid Range
Defined by SNVT_time_sec.

Default Value
Disabled.

SCPT Reference
SCPTmaxSendTime (48)

Send Heartbeat

network input config SNVT_time_sec nciMaxSendTime;
This configuration property contains the maximum amount of time that may elapse between successive indications from nvoFireAlm to its bound network variables.

Valid Range
The valid range for this configuration property is any value within the defined limits of the SNVT_time_sec network variable type.

Default Value
No value specified.

**SCPT Reference**

SCPTmaxSendTime (49)

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**OEM Label**

network input config SNVT_str_asc nciOEMLabel;

This configuration property contains the manufacturer specific information, is factory set, and is read only.

**Valid Range**

The valid range for this configuration property is any value within the defined limits of the SNVT_str_asc network variable type.

**Default Value**

No text strings specified.

**SCPT Reference**

SCPToemType(61)

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**Zone Number**

network input config SNVT_zone_num nciZoneNum;

This configuration property contains the zone number for the indicator.

**Valid Range**

0..65,535

**Default Value**

No value specified.

**SCPT Reference**

SCPTzoneNum (141)

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**Installation Date**

network input config SNVT_time_stamp nciInstallDate;

This configuration property contains the date of installation for the indicator, and is entered into the device at installation and/or configuration time.

**Valid Range**

The valid range for this configuration property is any value within the defined limits of the SNVT_time_stamp network variable type.
Default Value
No value specified.

SCPT Reference
SCPTinstallDate (146)

Maintenance Date
network input config SNVT_time_stamp nciMaintDate;
This configuration property contains the date of last maintenance (cleaning/inspection/test etc) for the indicator, and is entered into the device at test time.

Valid Range
The valid range for this configuration property is any value within the defined limits of the SNVT_time_stamp network variable type.

Default Value
No value specified.

SCPT Reference
SCPTmaintDate (147)

Manufacture Date
network input config SNVT_time_stamp nciManufDate;
This configuration property contains the date of manufacture for the indicator, it is factory set, and is read only.

Valid Range
The valid range for this configuration property is any value within the defined limits of the SNVT_time_stamp network variable type.

Default Value
No value specified.

SCPT Reference
SCPTmanfDate (148)

Fire Text 1
network output config SNVT_str_asc nciFireText1;
This configuration property allows text information relevant to fire conditions to be read from the device. This text is
defined at installation and/or configuration time.

**Valid Range**

The valid range for this configuration property is any value within the defined limits of the SNVT_str_asc network variable type (30 char max). A " >" char at the end of the text string indicates presence of nciFireText2.

**Default Value**

No text strings specified.

**SCPT Reference**

SCPTfireTxt1 (149)

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**Fire Text 2**

network output config SNVT_str_asc nciFireText2;

This configuration property allows text information relevant to fire conditions to be read from the device. This text is defined at installation and/or configuration time.

**Valid Range**

The valid range for this configuration property is any value within the defined limits of the SNVT_str_asc network variable type (30 char max). A " >" char at the end of the text string indicates presence of nciFireText3.

**Default Value**

No text strings specified.

**SCPT Reference**

SCPTfireTxt2 (150)

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**Fire Text 3**

network output config SNVT_str_asc nciFireText3;

This configuration property allows text information relevant to fire conditions to be read from the device. This text is defined at installation and/or configuration time.

**Valid Range**

The valid range for this configuration property is any value within the defined limits of the SNVT_str_asc network variable type (30 char max).
Default Value
No text strings specified.

SCPT Reference
SCPTfireTxt3 (151)

Audible Output

network output config SNVT_sound_db nciAudibleOut;

This configuration property allows sound output specification in dBA to be read from the device. This information is defined at manufacture time, and is read only type.

Valid Range
The valid range for this configuration property is any value within the defined limits of the SNVT_sound_db network variable type. Specific to a market, and code jurisdiction, more restricted ranges may be applied to this parameter.

Default Value
None specified.

SCPT Reference
SCPTaudOutput (144)

Indicator Type

network input config SNVT_fire_indcte nciIndicatorType;

This configuration property contains the indicator type identifier, and is entered into the device at installation and/or configuration time.

Valid Range
The valid range for this configuration property is one of the values within the defined limits of the SNVT_fire_indcte network variable type as shown in the table below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Enum Definition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNVT_fire_indcte</td>
<td>Indicator types for fire notification</td>
<td>typedef file: SNVT_FN.H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>typedef name: fire_indicator_t</td>
</tr>
<tr>
<td>0</td>
<td>Undefined</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Horn- Unsynch</td>
<td>Valid</td>
</tr>
<tr>
<td>Name</td>
<td>Enum Definition</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>4</td>
<td>Chime</td>
<td>Valid</td>
</tr>
<tr>
<td>5</td>
<td>Bell - Unsynch</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>Sounder</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>Speaker</td>
<td>Valid</td>
</tr>
<tr>
<td>9</td>
<td>Horn - Synchronized</td>
<td>Valid</td>
</tr>
<tr>
<td>10</td>
<td>Bell - Synchronized</td>
<td>Valid</td>
</tr>
<tr>
<td>0xFF</td>
<td></td>
<td>Null Value</td>
</tr>
</tbody>
</table>

**Default Value**

Manufacturer defined

**SCPT Reference**

SCPTfireIndcte (153)

**Data Transfer**

No data file transfer is associated with the Fire Audible Indicator Object.

**Power-up State**

None specified.

**Boundary and Error Conditions**

None specified.

**Additional Considerations**

None specified.