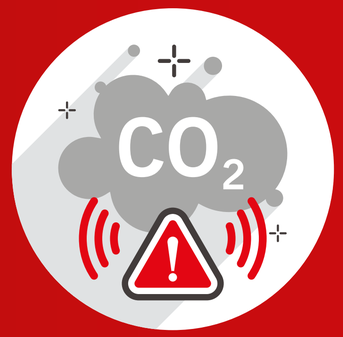
Advanced

Audio



Carbon Monoxide Alarm

Multiple Command Centres

Smoke Control

Axis AX

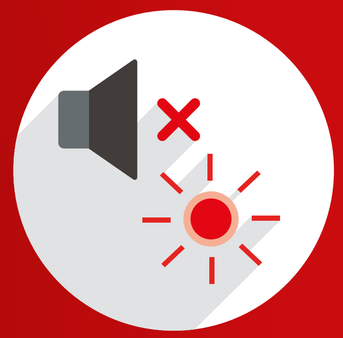
UL 864 10th Edition

CERTIFIED

New features and changes in 10th Edition Axis AX control panel software

Networking

Telephone Panel



General

Contact

New features and changes in UL 10th Edition Axis AX control panel software

This document contains information on the key changes made to Axis AX control panel software to meet UL 10th Edition approval.

If you have any questions, please don't hesitate to contact us **enquiries@advancedco.com**

Advanced

Audio

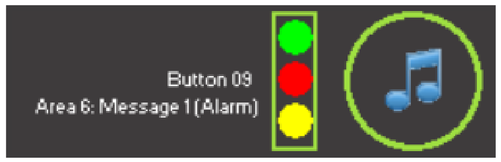
Advanced

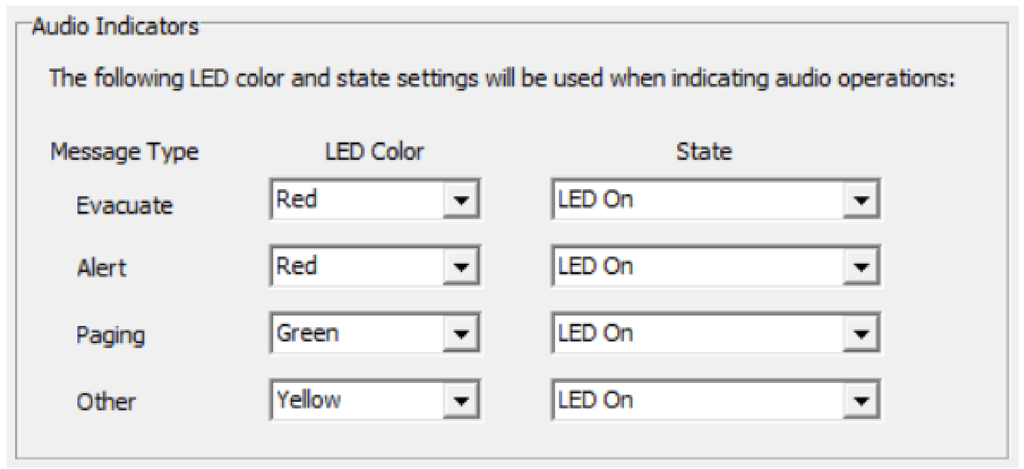
Audio

New features

Audio/page area LED colour and status

For paging/playing audio areas, the default settings for the three LEDs associated with a button on the AX-ASW16 switch/LED card are configured as follows:





The default values are set to UL/ULC requirements, but you can change the settings.

‘Ready to Page’ or ‘Ready to Play’ indication

Page/play LED flashing status is now available, whereas previously the LED was continuously on. The green LED will now start flashing within 2 seconds of pressing the page button and will turn continuously on within 5 seconds provided a pre-announcement tone is not in use. This means the area is ready to talk.

The red LED will start flashing within 2 seconds of pressing the play button. It will turn continuously on within 5 seconds provided a pre-announcement tone is not in use. This means that the audio message will start to play.

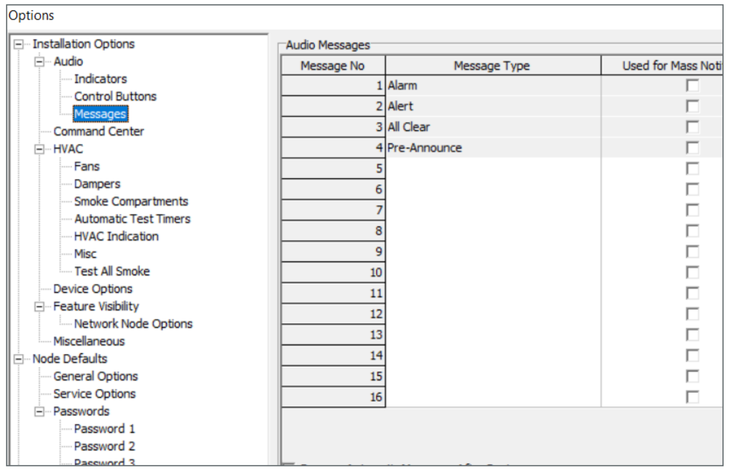
Advanced

Audio

New features

Ability to play a pre-announcement tone

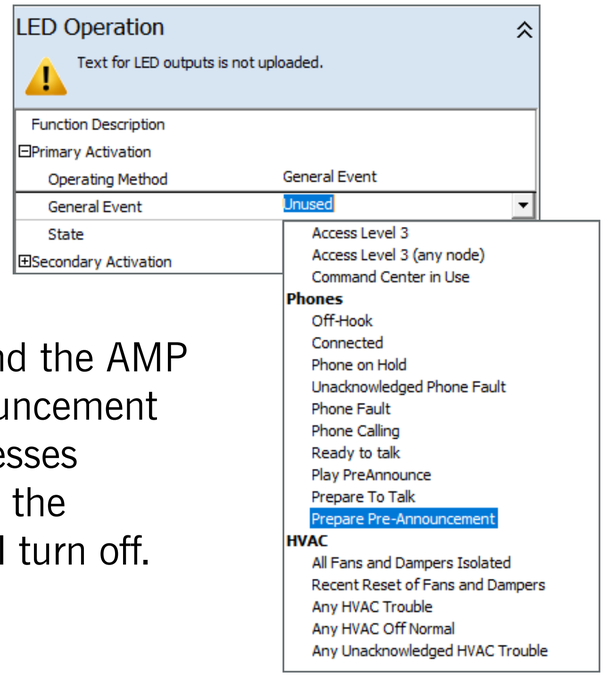
A pre-announcement message/tone has been introduced. The message is defined as message/tone number 4 in the PC ConfigTool (version 7.67). The default value is for the pre-announcement tone to be selected.



The pre-announcement message/tone requires a visual indication on the panel and two new general events have been added:

1. **Prepare Pre-Announcement:**
   LED flashing
2. **Play Pre-Announcement:**
   LED continuously on

When the pre-announcement tone is in use, the pre-announcement LED will flash when the page button is pressed. After 5 seconds, the LED will turn continuously on and the AMP card will play the pre-announcement message. Once the user presses the key on the microphone, the pre-announcement LED will turn off.



When an area is playing a pre-announcement message/tone, its green paging LED will flash. It will only become continuously on after the microphone key has been pressed. The pre-announcement message/tone needs to be programmed in the AMP card.

Audio

New features

Paging ‘System Ready’ indication

Each paging button has its own fixed green LED to indicate if an area is ready to talk, by either flashing (during preparation) or being continuously on when the area is ‘Ready to Talk’.

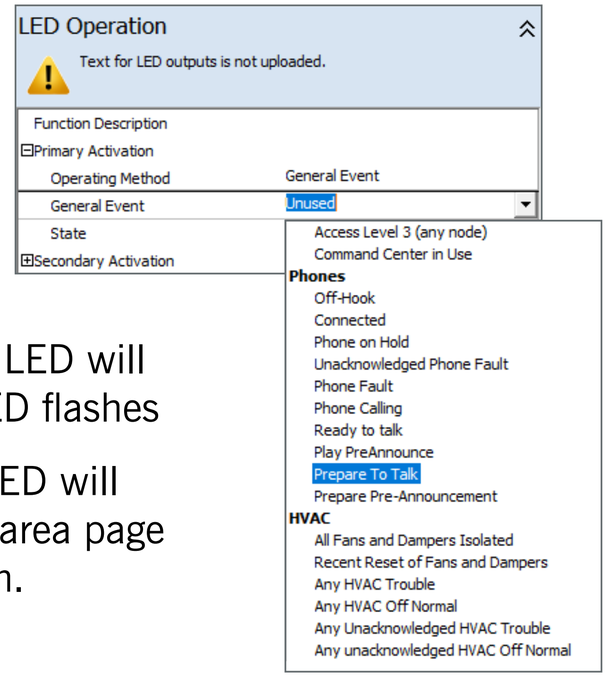
In order to provide a system paging status in line with ULC S527 / can-ulc-s527-19-en requirements, two new general events have been introduced so that LEDs can be programmed to show that an area is ‘Preparing to Talk’ and ‘Ready to Talk’:

1. **Prepare to talk:**
   LED flashing
2. **Ready to talk:**
   LED continuously on

An overall system indication can be provided using the two new general events.

The system will indicate as follows:

- System ‘Prepare to Talk’ LED will flash if any area page LED flashes
- System ‘Ready to Talk’ LED will be continuously on if all area page LEDs are continuously on.



Advanced

Audio

New features

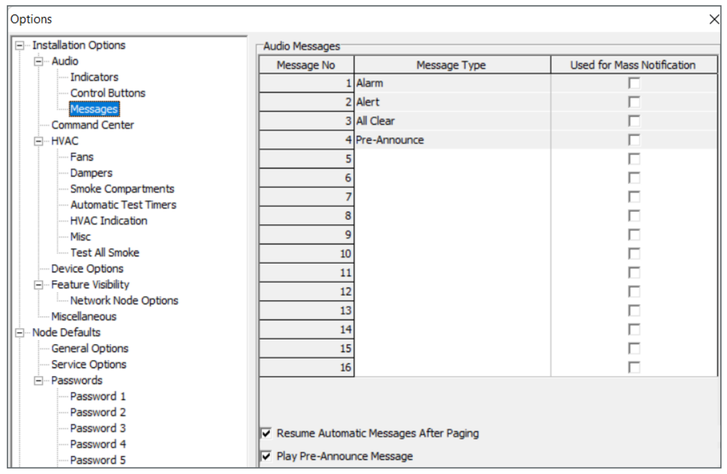
Resumption of automatic messages

Previously, a message would automatically stop playing when the page button was pressed and resume playing when the page button was pressed again. Resuming the automatic message is now optional. It can be configured from the PC ConfigTool (version 7.67).

The default setting is to resume playing the automatic message and this applies to the fire system and not per panel. To change the setting, go to:

Options > Settings > Audio > Messages

Tick/untick the option to ‘Resume Automatic Messages After Paging’ as required.

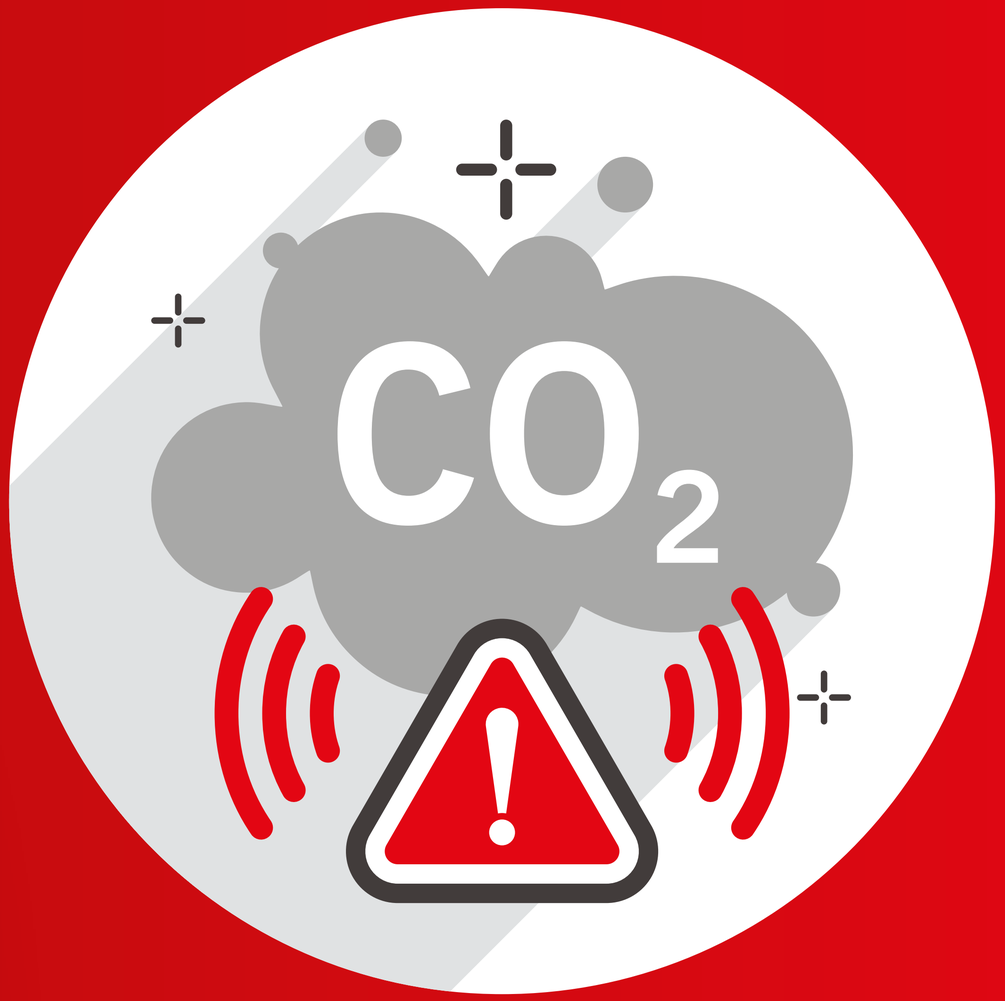


Live voice paging

It is a new requirement that the signal silence inhibit feature is not overridden by live voice paging or automated voice messaging.

Advanced

Carbon Monoxide Alarm



Advanced

Carbon Monoxide Alarm

New features

T4 carbon monoxide signal

The 10th Edition panels now support carbon monoxide as a new life safety event. A CO alarm event has a priority just below a fire alarm but above all other events. This is reflected in the panel display and audio signals.

In the event of a CO alarm, the temporal Code 4 (T4) audible pattern is required for a responder to take proper action. The UL Standard states:

Where the combination system activates audible alarm signals, the system shall be capable of signalling the following patterns:

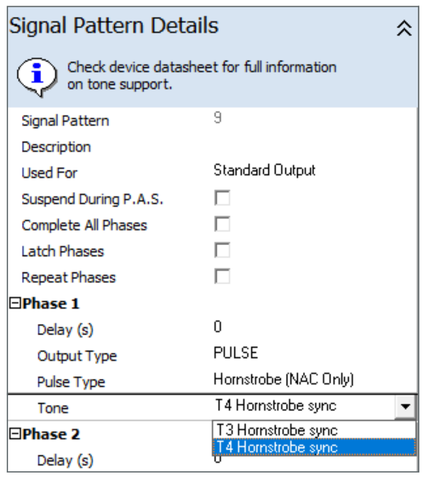
a) A single and tone pattern consisting of four cycles of 100ms +/-10% ON and 100ms+/-10% OFF, followed by 5 sec +/-10% OFF

b) After the initial 4 min of alarm, the 5 sec OFF time shall be permitted to be changed to 60 sec +/-10%

c) The alarm signal shall be repeated in compliance with (a) and (b) until the alarm is reset or the alarm signal is manually silenced.

The panel provides a synchronisation signal according to the protocol (Gentex, Potter, Wheelock and System Sensor) for the hornstrobe to generate a T3 signal. In 9th Edition panels,, when a hornstrobe is activated, it only sounds in a temporal-3 evacuation pattern, which consists of **three audible pulses with a 0.5 second on phase and a 0.5 second off phase. The three pulses are then repeated after a 1.5 second delay off,** and repeats in this sequence.

The panel can now provide a synchronisation signal for Gentex to generate a T4 signal. This option is provided in the ringing style setting in the PC tool.
No code change is required for Wheelock T4 support as the signal pattern is set with the device DIP switch. There is no requirement for Porter and System sensor devices to support a T4 signal.



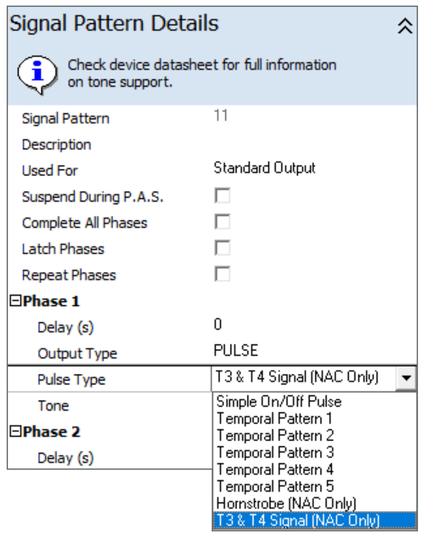
Advanced

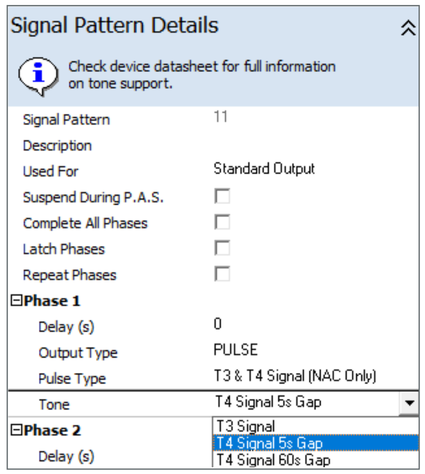
Carbon Monoxide Alarm

New features

For on-board NACs, the current PC tool provides the user with different pulse types including five temporal patterns. These patterns can be edited with 0.5 second precision and a T3 signal can be created for the panel to drive on-board NAC.

The panel and PC tool now provide additional tones to drive on-board NACs in T3 and T4 signal patterns. These signals are fixed and cannot be changed.





Both T3 signal (fire alarm) and T4 signal (CO alarm) are now synchronised across the network.

New carbon monoxide event

As a life safety event, the panel will process a CO alarm event in a similar way to processing a fire alarm:

- A new input action ‘CO Alarm’ allows the panel to generate a CO alarm event
- The CO event is reported on the status display
- The CO alarm can be viewed on the panel using the **VIEW > CO ALARM menu**
- There are two new zone statuses: **ZONE_IN_CO_ALARM and ZONE_IN_CO_FAULT**
- There are two new CO alarm general events: **ANY_CO_ALARM and UNACKNOWLEDGED_CO_ALARM**
- There are two new CO fault general events: **ANY_CO_FAULT and UNACKNOWLEDGED_CO_FAULT**
- The CO alarm is now a single zone qualifier
- The CO alarm event will be logged
- The CO alarm event can be printed out
- The CO alarm will activate the panel buzzer with the same tone as the fire alarm.

Please note: A CO alarm is not a fire alarm, and will **NOT** illuminate the red fire alarm LED on the front of the panel.

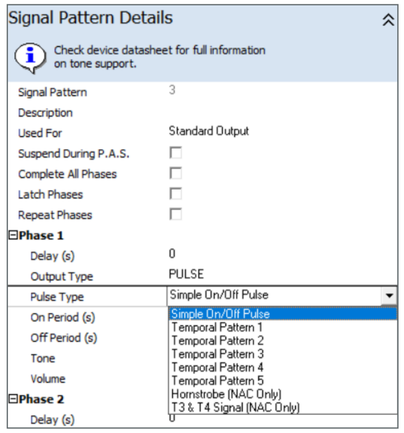
Advanced

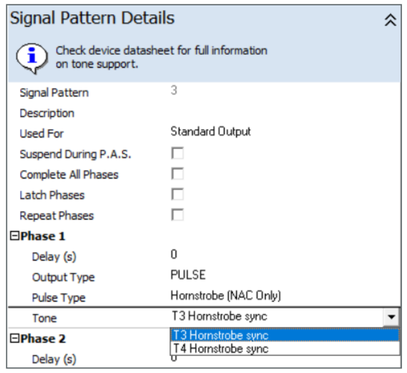
Carbon Monoxide Alarm

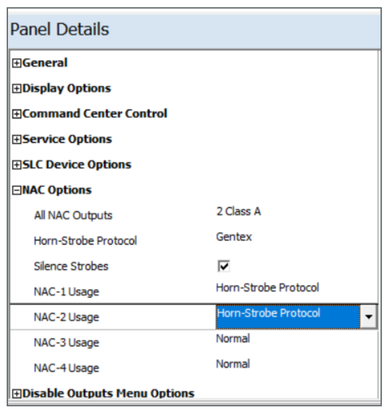
New features

Cause and effect for hornstrobes

There are two additional ‘Pulse Type’ options in the PC ConfigTool (version 7.67). The options appear in **View/Edit Signal Patterns > Signal Pattern Details > Output Type = PULSE**. The hornstrobe signal (NACs only) is for hornstrobes.





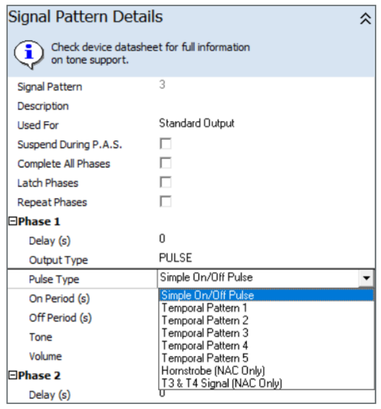


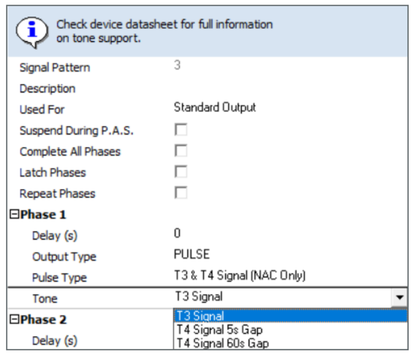
When ‘Hornstrobe (NAC only)’ is selected, there are two tones available: ‘T3 Hornstrobe’ and ‘T4 Hornstrobe Sync’.

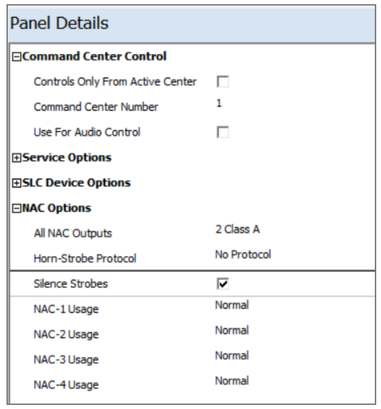
Only the Gentex hornstrobe responds to the T4 tone.

Cause and effect for on-board NACs

There are two additional pulse type options in the PC ConfigTool (version 7.67). These options appear in **Ringing Style > Signal Pattern Details > Output Type = Pulse**.







The pulse types T3 and T4 Signal (NAC only) have three tones: T3, T4 with 5 second gap and T4 with 60 second gap. These are fixed patterns and cannot be changed.

In order for these tones to work, the hornstrobe should be set to ‘No Protocol’ in the NAC Options.

Advanced

Carbon Monoxide Alarm

Improvements

Hornstrobe silenced by default

The default value for ‘Allow Silence’ is now set to ‘True’ on both the panel and the PC ConfigTool.

Advanced

Multiple Command Centres

Advanced

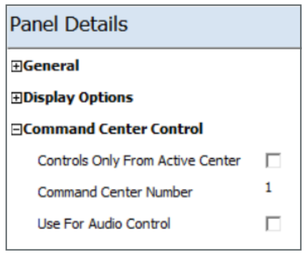
Multiple Command Centres

New features

Command centre control

In most buildings, the manual operation of audio, smoke control and firefighter phones takes place at a designated command centre. Some critical or very large buildings require more than one command centre.

A panel is set up as a command centre by expanding the options for the 'Panel Details' and entering a number for the command centre. See example right. If the building has a single command centre, the panel is set to Command Centre Number 1.



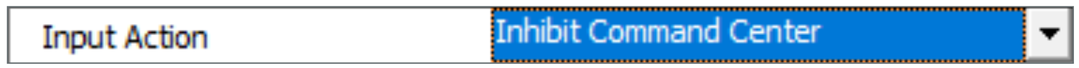
All smoke, audio and/or phone inputs and indicators connected to the panel then become part of Command Centre 1. If a command centre comprises a very large number of manual control switches and/or push-buttons, then it is possible to combine the inputs of more than one panel into a single command centre. This allows more peripheral cards to be used. However, only one panel can be assigned as audio control in a multiple-panel command centre. This is done by selecting the 'Use for Audio Control' box.

The Axis AX system supports a maximum of two command centres.

Inhibiting/enabling a command

Many buildings require manual operations to be available only once a key switch has been inserted in the command centre console and that key switch turned to the 'Enable' position.

This key switch is created by setting the input action as shown below:



When the switch is in the inhibit position the audio, smoke control and phone inputs will not operate in manual mode.

Please note that when several panels are being used to build a very large single command centre, it is only necessary to use one key switch to inhibit/enable the command centre.

Advanced

Multiple Command Centres

New features

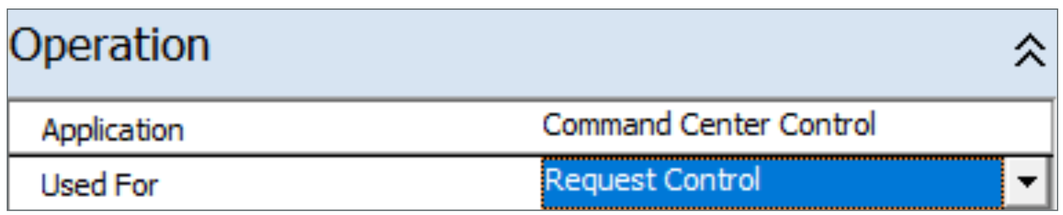
New ‘General Event’

A ‘General Event’ can be used for driving an output to indicate when a command centre is enabled.

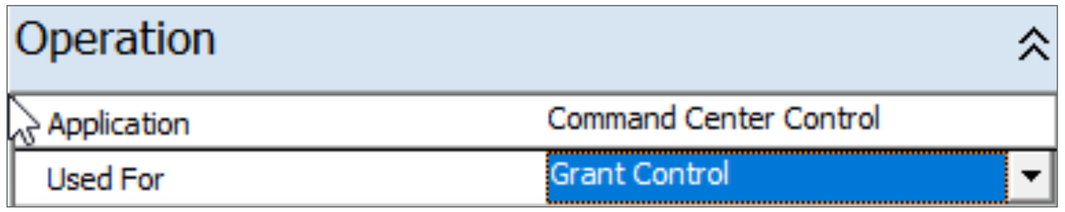
To do this, simply configure the required output (for example an LED) by setting the ‘Operating Method’ to ‘General Event’ and the event to ‘Command Center in Use’. See example below.

Request, grant and deny controls

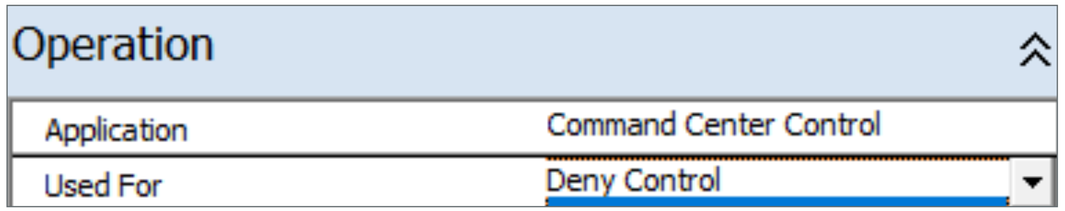
An alternative system of passing control between command centres is by using push buttons. A push button on an AX-ASW16 (PC1118) can be set up by setting the ‘Application’ to ‘Command Center Control’ and then setting ‘User For’ to ‘Request Control’ which instantly passes manual control to that command centre.



If necessary, additional restrictions can be introduced to deny control being taken away from an active command centre. This requires two additional push buttons to be used at each command centre. One push button should be configured as in the image below:



The other should be configured as:



When command centres have been set up in this way, pressing the button to request control will illuminate the yellow LED alongside the button to let the user know that the request is being considered. The yellow LEDs at the side of the ‘Grant and Deny’ push buttons will flash on the command centre in control. The person responsible can then either relinquish control by pressing the ‘Grant’ button or press the ‘Deny’ button to cancel the request.

Advanced

Smoke Control

Advanced

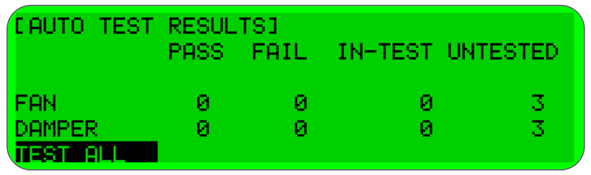
Smoke Control

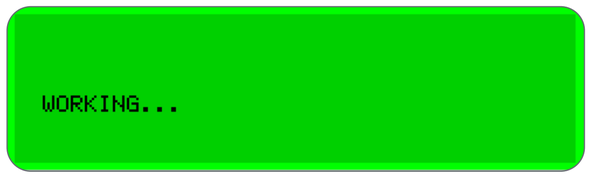
New features

Smoke control

In the previous panel software, a user could test fans and dampers manually via the ‘Fans/Dampers’ menu within the ‘Test HVAC’ menu. A panel could also perform the test automatically using a timeclock, and the test result could be viewed via the ‘Auto Tests’ menu.

In the latest ULC standard, there must be a means of testing all devices in a smoke control system. Therefore, in the ‘Auto Tests’ menu, there is now an additional option – ‘Test All’. When this is selected, the panel will display a dialogue window to ask for confirmation. If ‘Yes’ is selected, all fans and dampers will be tested and on completion of that test, the results will be displayed.





Networking

Advanced

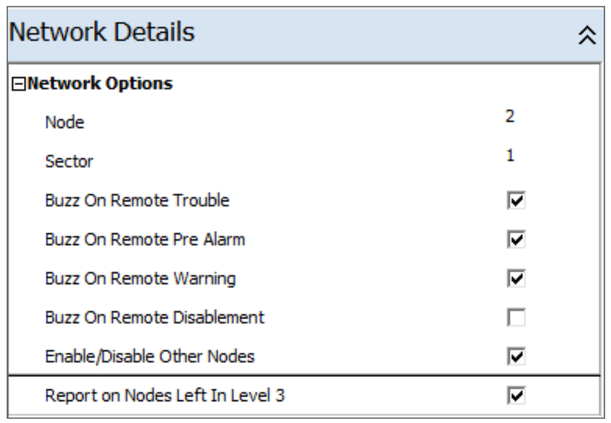
Networking

New features

Network level 3 trouble indication

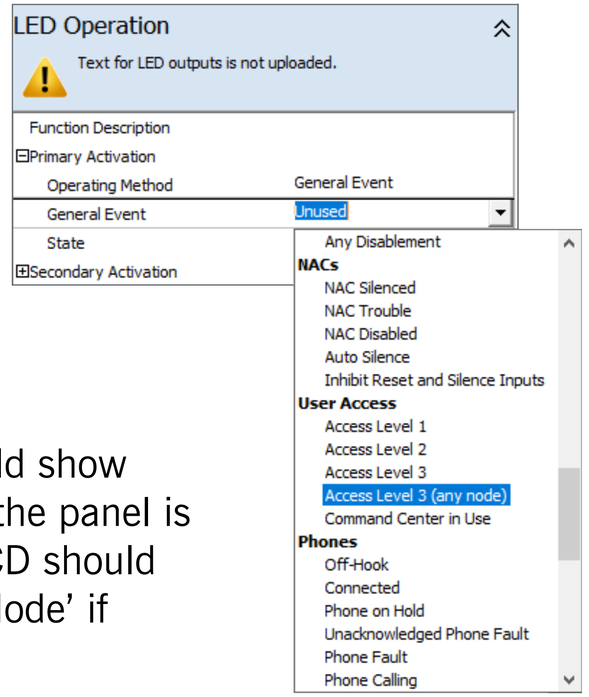
It is a requirement of UL864 that when a panel is in programming mode (i.e. level 3), the system does not fully function as a fire system and a trouble should be reported.

To use this feature, select ‘Report on Nodes Left In Level 3’ in the PC ConfigTool.



A new general event ‘Access Level 3 (any node)’ has been introduced to allow the user to program an LED.

The LED will illuminate if any node is at level 3. The existing ’System Trouble’ LED should turn continuously on along with the ‘Programming LED’. The panel buzzer should NOT sound.



The panel LCD display should show ‘Programming This Node’ if the panel is at level 3. Otherwise, the LCD should display ‘Programming One Node’ if another node is at level 3.

Taking the panel out of level 3, the ‘Access Level 3 (any node)’ LED, ‘System Trouble’ LED and ‘Programming LED’ should all turn off.

This ‘Access Level 3 (any node)’ indication is available across the network on Axis AX panels and the PENN, but not on the annunciator or BMS interface. No new event is logged in the event log.

Advanced

Networking

New features

Network degraded status

As our network is a distributed system with control units, any control unit unable to communicate with the network must indicate that it is a degraded (partial loss of network communication) or standalone (total loss of network communication) status via a yellow LED. A new feature has been added to meet the ULC requirement that a distributed system, such as Axis AX, needs to support degraded and standalone operation with indicators for:

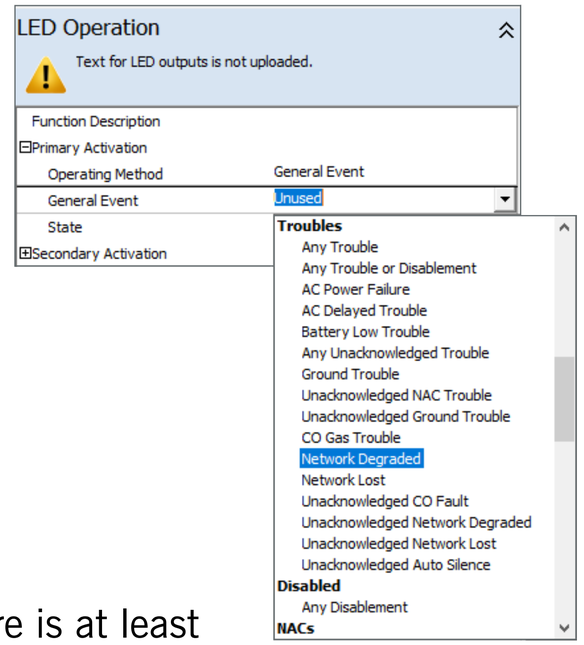
1. **Degraded node:**
   This node cannot communicate with at least one other node on the system.
2. **Standalone node:**
   This node cannot communicate with any other nodes on the system.

Four new general events are now available to program LED indication with the latest PC tool:

- Network degraded
- Network lost
- Unacknowledged network degraded
- Unacknowledged network lost

For fault tolerant networks:

- ‘Network Degraded’ if there is more than one ‘Network Trouble’ on the system.
- ‘Network Lost’ if one node has lost network connectivity completely.



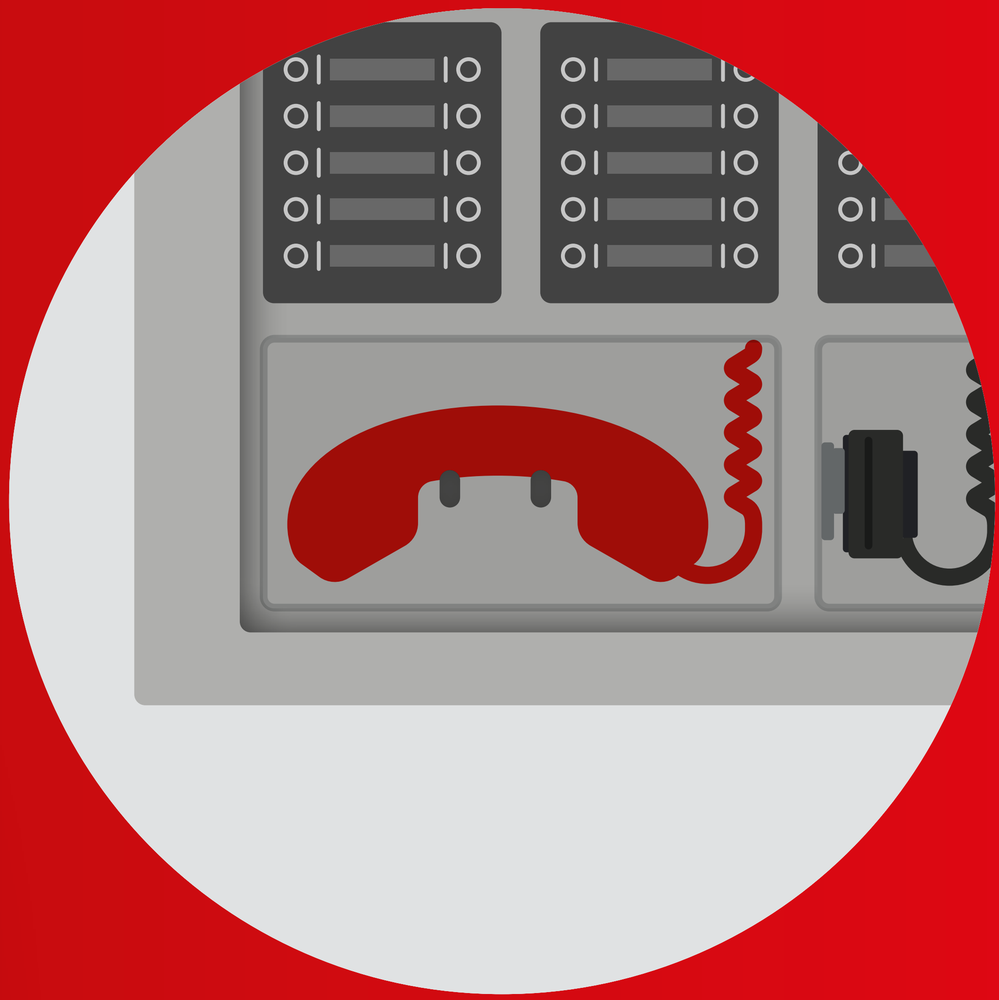
For standard networks:

- ‘Network Degraded’ if there is at least one ‘Network Trouble’ on the system.
- ‘Network Lost’ if one node has lost network connectivity completely.

There is no additional fault for ‘Network Degraded’ which is not logged in the event log. The LEDs should operate fully at level 2.

Advanced

Telephone Panel



Advanced

Telephone Panel

New features

Continuous visual off-the-hook indicator for each warden's phone

Where a 'selective-talk' telephone service is provided, a distinctive visual indicator is required for each selectable circuit so that there is continuous indication that a telephone is off the hook.

Telephone node network trouble annunciation

When a telephone panel is connected to a network system, its buzzer and trouble LED will not respond to events, including troubles from other fire panels on the same network, except for network troubles including remote network troubles from all other nodes.

The telephone will report all network faults, whether those are local or remote.

Advanced

Telephone Panel

Improvements

Incoming call buzzer tone

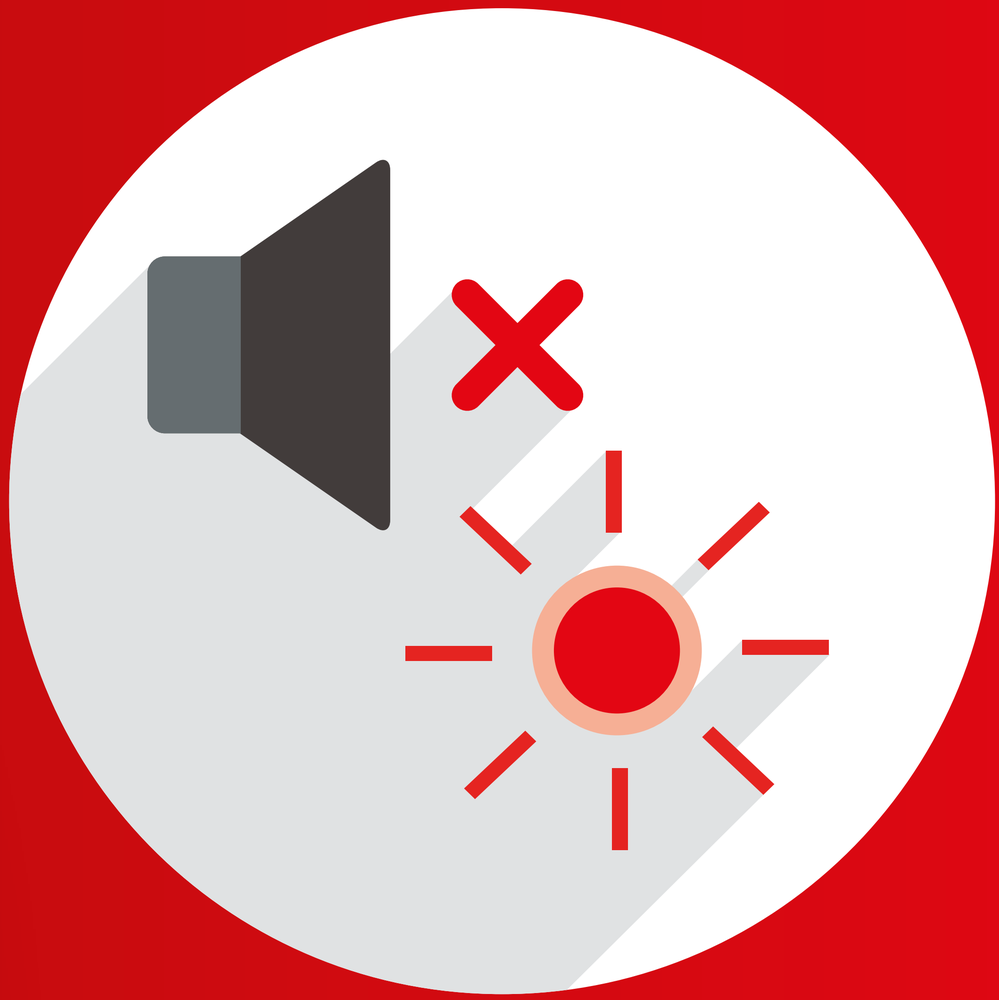
It is a new requirement that the incoming call tone should be distinct from any other alarm, supervisory or trouble signal and that a when a remote telephone is calling into the command centre, an audible tone can be heard on the handset that is calling in.

The buzzer on an Advanced panel currently supports four patterns: Off, on, 0.5 seconds on/off and 1 second on/off. The on pattern is for fire, the 0.5 seconds pattern for fault, the 1 second pattern for supervisory and pre-alarm.

Previously the buzzer sounded using a 0.5 second pattern both when there was an incoming call and also for a trouble. This pattern is now reserved for incoming calls only. The 1 second on/off pattern is used for all other non-fire events.

The ASW16 card has a programmable on-board buzzer which can be configured via the PC ConfigTool for all four patterns.

Advanced



General

Advanced

General

New features

Alarm re-activation

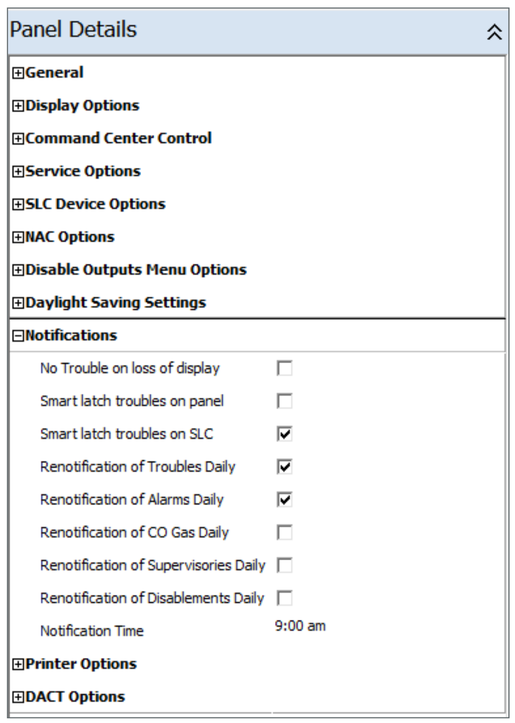
There is a new requirement for re-announcing silenced yet active alarm signals at the operator interface every 24 hours. This applies to the following alarms: Fire, CO, supervisory, trouble and plant pre-alarm.

Once an event has been acknowledged, reactivation should happen every 24 hours at level 1 or 2 until the event is removed. Upon reactivation, the event status LEDs should flash and the panel buzzer should pulse.

The re-activation does NOT activate sounders.

To enable this feature, select multiple event types for daily re-notifications. The list can be found in:

Panel details > Notifications and it is per panel.



Disablement at access level 2

Disablement actions performed via the panel menu currently require a level 2 password before the action is carried out. There is a new requirement for all disablement actions, including those instigated using programable pushbuttons, to require a level 2 password to be entered at the panel.

BMS shows CO alarms

The BMS interface can now indicate the presence of a CO alarm on the network through a ‘Device Status’ message.

Enable ServiceTool compatibility for AX-Penn

The ServiceTool can now be connected to an AX-Penn so that the panel information and logs can be downloaded.

Advanced

General

New features

Flash programming restrictions

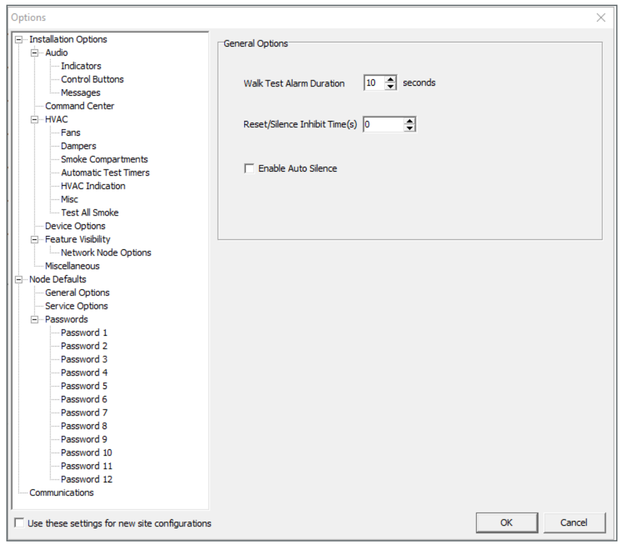
UL-approved software can no longer be loaded onto ETL-approved panels and vice versa. When using the flash programming tool to re-flash a panel, the tool will indicate that it is not possible to flash if the ID code in the panel does not match the ID code in the hex file that has been loaded into the flasher tool.

Signal silence inhibit

The ConfigTool can be used to configure a site-wide time period, after the first alarm, where any ‘Reset’ or ‘Silence’ input is inhibited whilst in level 1 or level 2.

This option can be found in the ConfigTool by navigating to:

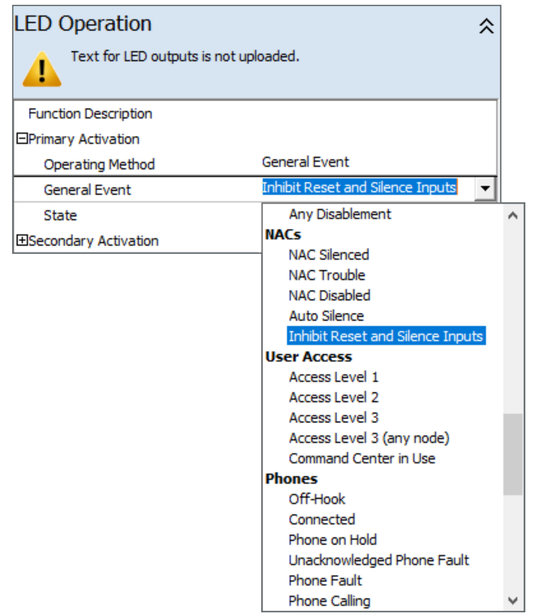
Options > Settings > Node Defaults > General Options



The range of the inhibit time is 0 to 300 seconds, with 0 indicating that the inhibit time is disabled.

‘Reset’ and ‘Silence’ inputs are not inhibited in level 3 or on subsequent alarms.

Its is also possible to configure an LED to indicate that ‘Reset’ and ‘Silence’ inputs are currently inhibited.



Advanced

General

Canadian requirements

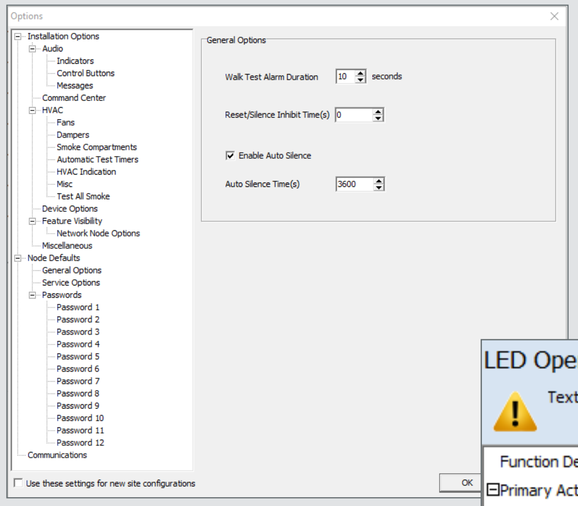
The Canadian National Building Code specifies that the panel needs an automatic signal silence to turn off any activated sounders after a specific time period. That time period can be between 5 to 20 minutes prior to automatic silencing. A separate programmable LED must be available to indicate automatic silencing. Upon auto silencing, NACs should turn off and the NAC silence LED should turn on. The panel buzzer will continue to sound and the general fault LED should be illuminated. An ‘Auto Silence’ event should be recorded in the panel event log.

If another alarm occurs during auto silence, the sounders should resound and the auto silence LEDs should turn off. The general fault LED should turn off if there are no other faults. If multiple alarms happen before the auto silence timeout, the NACs will not turn off until after the configured auto silence time, as measured from the last alarm.

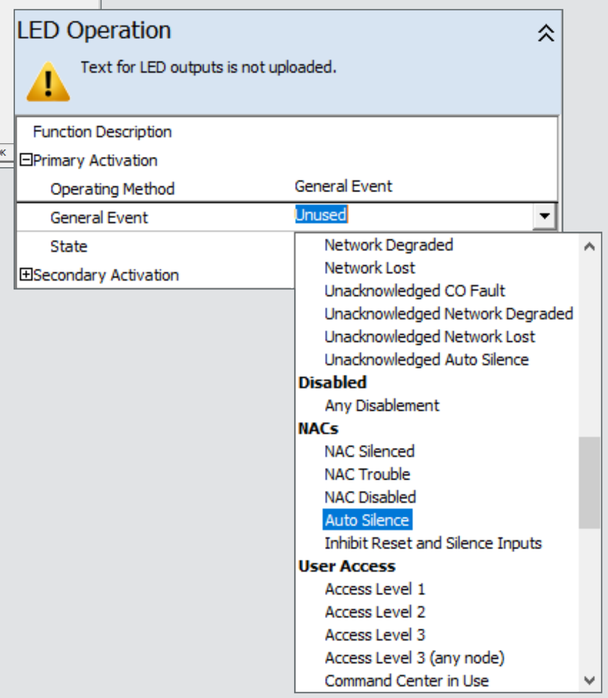
If the manual silence button is pressed before the auto silencing timeout, the NACs should be off and NAC silence LED should turn on. Auto silencing should NOT happen at the end of the auto silence timeout. The latest Axis AX PC ConfigTool is required to enable this feature.

The ‘Auto Silence’ tick box can be found in:
Options menu > Node Defaults > General Options

This setting is for the whole system and NOT per individual fire panel. The maximum time period before silence is 60 minutes and the minimum is 5 minutes.



Two new general events ‘Auto Silence’ and ‘Unacknowledged Auto Silence’ are available to program LEDs for automatic silencing indication.



Contact

The Advanced team of fire safety experts is on hand to help you achieve fire safety peace of mind.

Simply **get in touch** to discuss your needs.