Disabling Sound Masking in an Emergency

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Overview

Sound masking systems work by decreasing the intelligibility levels of human speech by using a specifically shaped random noise signal in listener locations throughout a building / facility. The maximum sound pressure level of this sound masking signal should never exceed 48dBA at the listener, thus making it unlikely that sound masking signals will interfere with emergency notifications being directed towards building occupants. Still, there may be certain jurisdictions and/or situations at the request of an "Authority Having Jurisdiction" (AHJ), where it is deemed necessary to disable the sound masking system. All CSM sound masking systems have a method where sound masking may be disabled in the event of an emergency announcement. This document describes a code compliant method whereby this feature may be implemented when requested.

Method to Disable Sound Masking QtPro

QtPro sound masking processors have rear connection point consisting of two contacts which readily accept a "normally open" (N.O.) dry contact closure which when closed disables sound masking. Additionally, multi zone sound masking processors such as the Qt300 and Qt600 have a second set of "normally open" dry contacts which disables "Audio Input B" source in cases where a music signal may be present.

When these contacts are shorted by an appliance providing the emergency notification signal, such as a fire alarm control panel (FCAP) relay, sound masking and/or audio input B are silenced. Figure 1 denotes connection for the Qt 100 model sound masking processor. Figure 2 denotes connection for the Qt300/600 sound masking processor.

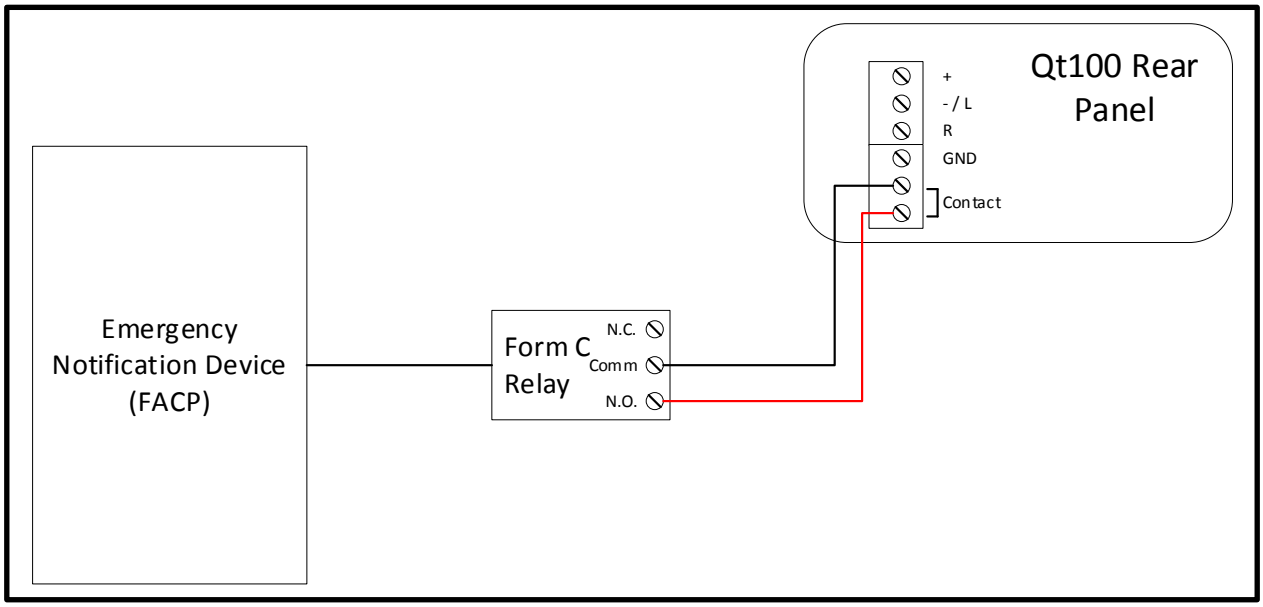

Figure 1

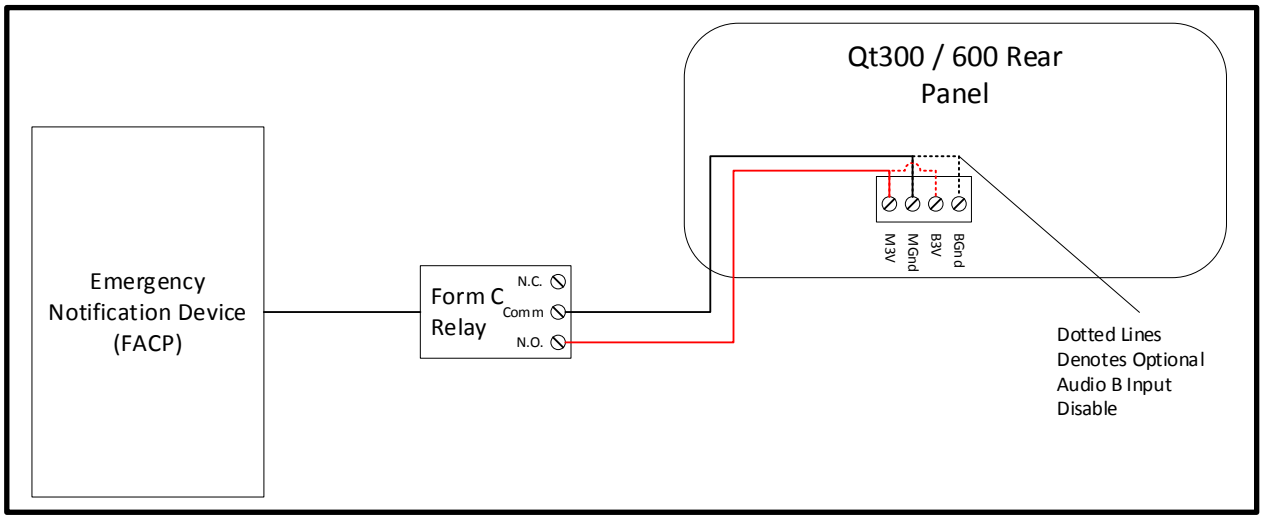

Figure 2

Method to Disable Sound Masking DynasoundPro Networked System

DynasoundPro Networked sound masking systems may be disabled using an optional contact interface (Part No DS-CP8200) which will accept a “normally open” (N.O.) dry contact closure from the emergency notification device relay. This interface is connected to the DSTS10PoE touch panel interface and when the contacts are closed it disables the sound masking signal.

It is important to note that the DS-CP8200 interface has multiple connection pins available. Connection to PIN# 14 and PIN# 24 are used to disable sound masking. Figure 3 shows a one-line diagram depicting connection.

Privacy Manager software must be configured to allow this functionality to be activated. You can refer to the Privacy Manager software manual for guidance on this software configuration.

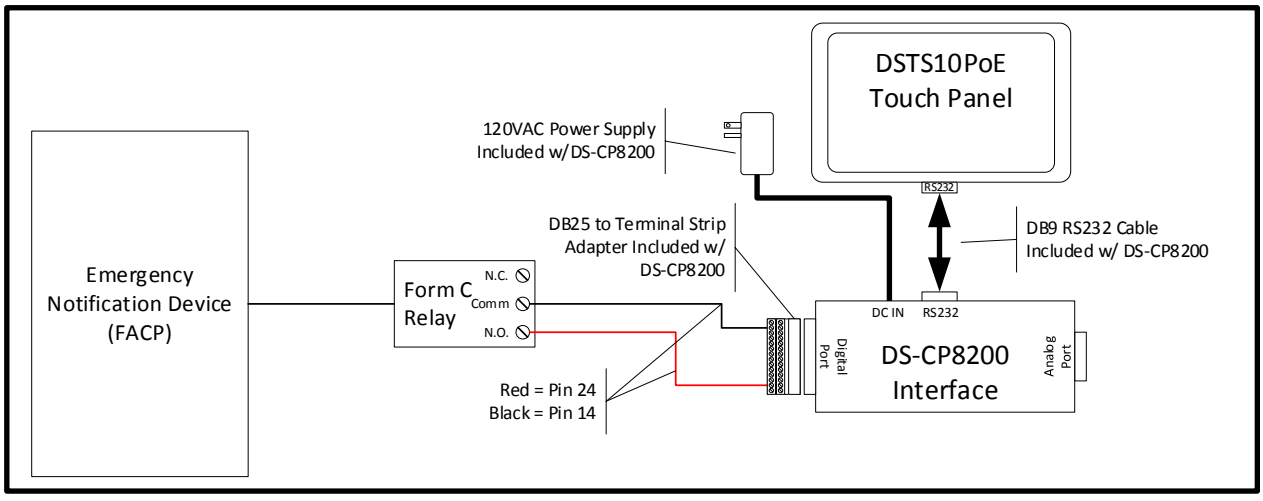

Figure 3

Method to Disable Sound Masking DynasoundPro 70 Volt Systems

Dynasound Pro 70 volt sound masking systems may be disabled using virtually any 120VAC relay controlled receptacle similar to the Lowell Manufacturing Part# RPC-15. These relay-controlled receptacles are commonly used for the emergency shutdown of many types of professional audio systems including sound masking. This method disconnects AC power from the power amplifier using a "Normally Closed" (N.C.) dry contact closure from the emergency notification device.

The relay-controlled receptacle is connected to a AC power source using its attached cord/ NEMA 5-15R plug. The amplifier is plugged into the 15-amp receptacle on the relay-controlled receptacle. In the event of an emergency signal/announcement, the emergency notification device opens the contact and the connected amplifier is disconnected from its power source. See Figure 4.

Please note that this arrangement also disables any music or paging sources present.

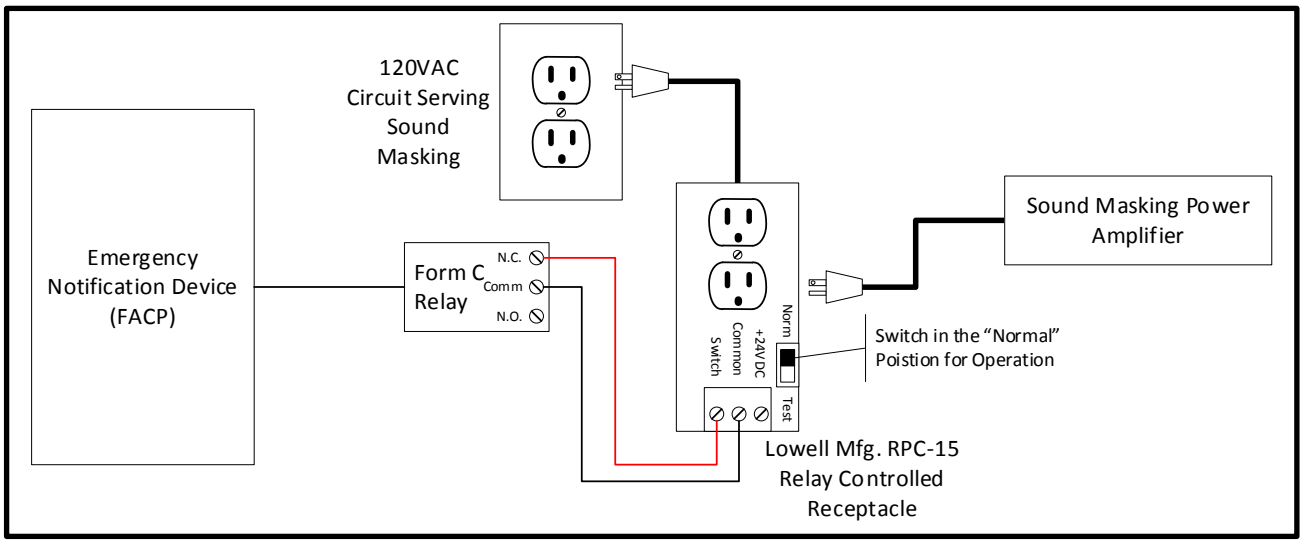

Figure 4

Connection to Emergency Notification Devices

In most cases the actual connection to the initiating emergency notification appliance (e.g. fire alarm control panel) must be carried out by a technician qualified for life safety systems (fire alarm provider) licensed by jurisdiction. This means that coordination with a licensed fire alarm provider will most likely be necessary should the request for the disabling of sound masking be required by an AHJ.

Fire alarm integrators are required to install this connection based on the code compliance requirements for their local jurisdiction, maintain any records for the

installation, and can make any such connection in accordance with National Fire Alarm and Signaling Code (NFPA 72). The recommended connection method in most cases is to provide a remotely controlled Form C relay device at the location of the sound masking equipment. It is recommended that the Form C relay be provided by the fire alarm installer to ensure compatibility with the type of emergency notification system installed. Dependent on emergency notification appliance, this allows for supervision of the connecting line for "trouble conditions" while isolating the emergency notification appliance electrically from the sound masking system components.

Figure 5 shows the recommended method of attachment.

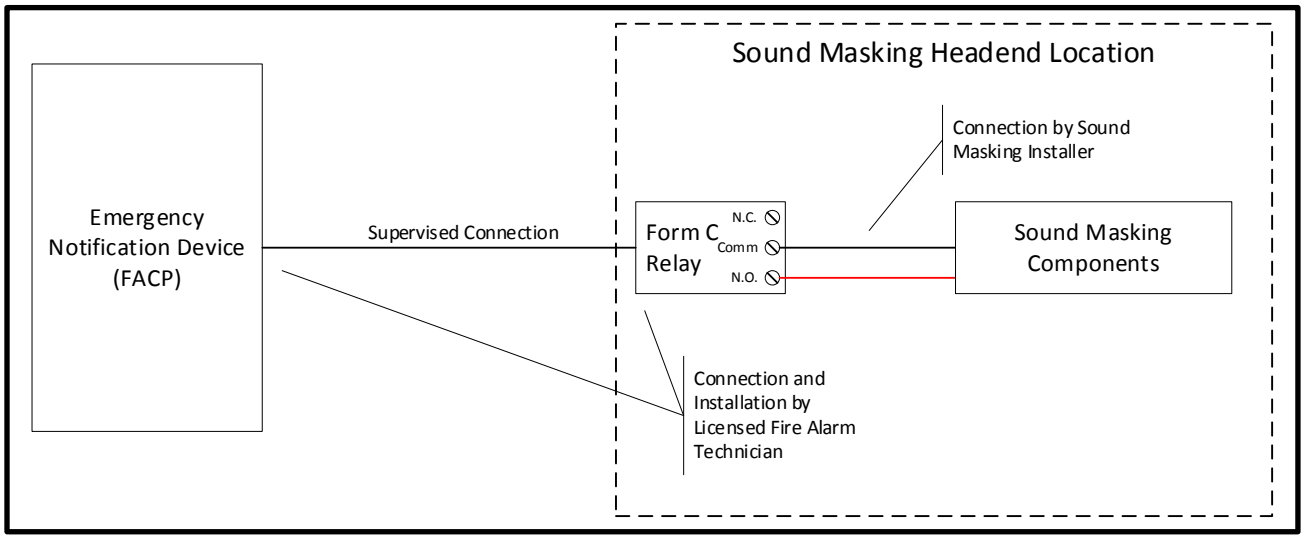

Figure 5

Functionality Testing

It will be necessary to test the connection for operation prior to final connection to the emergency notification device. This can be easily accomplished by either shorting or opening the connected devices where connection to the emergency notification relay device is made.

With cabling connected to the sound masking system components and sound masking operating, simply short the two wires which will be connected to the emergency notification device. Doing so will disable the sound masking system. In the case of a DynasoundPro 70 Volt systems using a 120VAC relay, an open condition will disable the amplifier power source. See Figure 6.

By first performing this test, the expected operation of the sound masking system components can be confirmed prior to final acceptance testing by the fire alarm installer by using the above testing method.

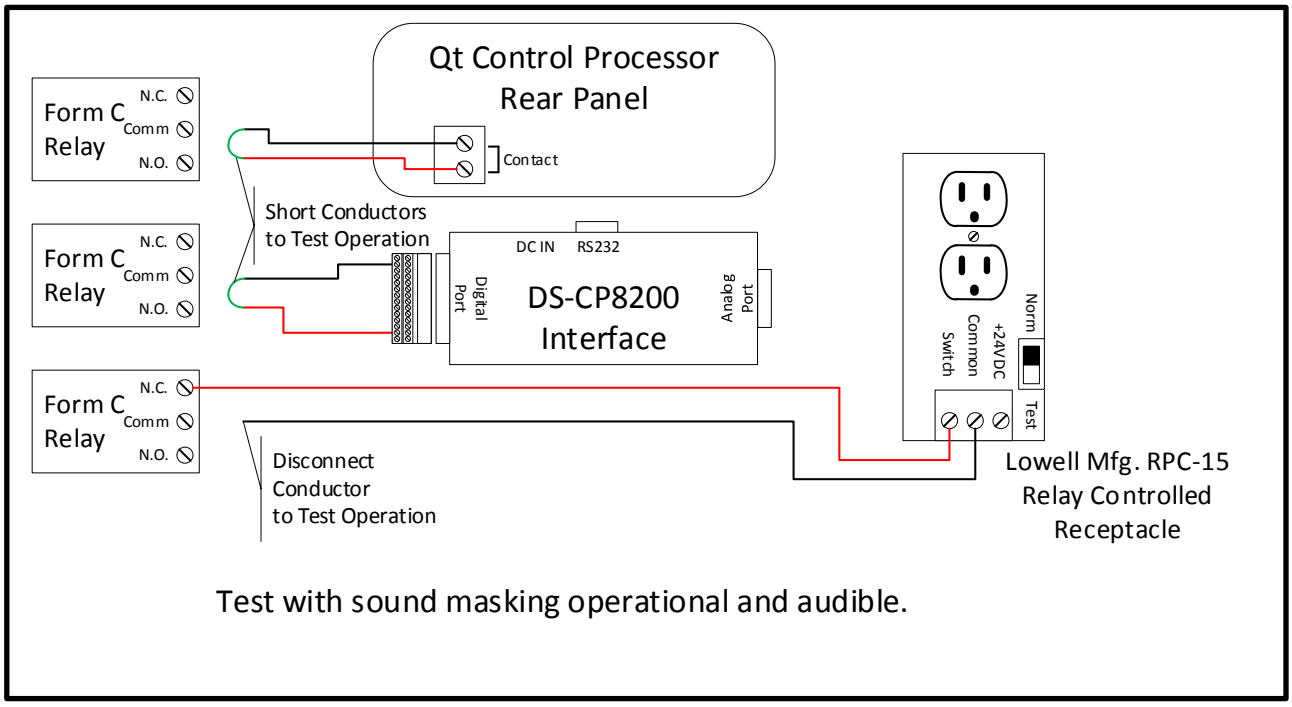

Figure 6

Code Compliance

Sound masking may be disabled utilizing the methods listed which are compliant with national codes such as NFPA 72 -2016 which is prevalent in most jurisdictions.

NFPA 72 -2016 section 23.8.4.7 clearly states:

"If the authority having jurisdiction determines that the information being displayed or annunciated on a combination system is excessive and is causing confusion and delayed response to a fire emergency, the authority having jurisdiction shall be permitted to require that the display or annunciation of information for the fire alarm system be separate from, and have priority in accordance with, 23.8.4.6, over information for the non–fire alarm systems."

Please note that the code does not require shut down of every sound masking system deployed but rather dictates that it may be requested. The code also provides for a method of connection of non-fire related systems to an emergency notification device including a FACP.

NFPA 72 -2016 section 23.8.4.4 through 23.8.4.4.3 states:

"23.8.4.4- For non-fire equipment not listed to the performance requirements specified in 10.3.5, the requirements of 23.8.4.4.1 through 23.8.4.4.3 shall apply."

"23.8.4.4.1 Short circuits or open circuits in the equipment, or between the equipment and the fire alarm system pathways, shall not impede or impair the monitoring for integrity of the fire alarm system or prevent alarm, supervisory, or fire safety control signal transmissions."

"23.8.4.4.2 Grounds in this equipment, or between this equipment and the fire alarm system pathways, shall be reported, annunciated, and corrected in the same manner as grounds in the rest of the fire alarm system."

"23.8.4.4.3 Removal, replacement, failure, maintenance procedures, or ground on this hardware, software, or circuits shall not impair the required operation of the fire alarm system."

The connection methods contained herein meet such requirements.

Conclusion

As stated earlier, the need to disable sound masking is truly at the discretion of the AHJ and solely subject to a specific need on a case by case basis per NFPA 72. In cases where interference from a sound masking system occurs, which is unlikely due to the sound levels involved, the AHJ may require the sound masking system be disabled. The connection methods contained above may then be used when requested.

For further information you may contact our Technical Support staff at 1-800-219-8199 or email techsupport@cambridgesound.com.