



# NQ-S1810CT-T1 VoIP Ceiling Speaker

## Installation and Use Guide

With the Nyquist S1810CT-T1 VoIP Ceiling Speaker, there is no need for external amplifiers, traditional intercom wiring, or transformer taps to manually set or adjust. Connect the speaker via Cat5-or-better cabling to a Power-Over-Ethernet (PoE) Switch or PoE Injector, and it is ready to use.

The speaker features an integrated 10W power amplifier, a CAN Bus interface, a MEMS digital microphone for superior talkback audio, a 25V- or 70V-output-capable transformer for supporting up to four additional loudspeakers\*, and a Form C SPDT-type 2A dry-contact relay for controlling/overriding third-party devices like AV sources.

\* **Note:** The secondary 25V/70V loudspeakers do not support talkback.

The speaker also allows DHCP deployment for easy installation. You can let your Nyquist server automatically discover and configure your speaker, or you can manually configure it through the speaker's web-based user interface (web UI). The web UI also allows easy updating of firmware and setting of parameters for Digital Signal Processing (DSP). For more information about the web UI, refer to the **Nyquist Gen-2 VoIP Speakers Configuration Manual**.

### Speaker Layout

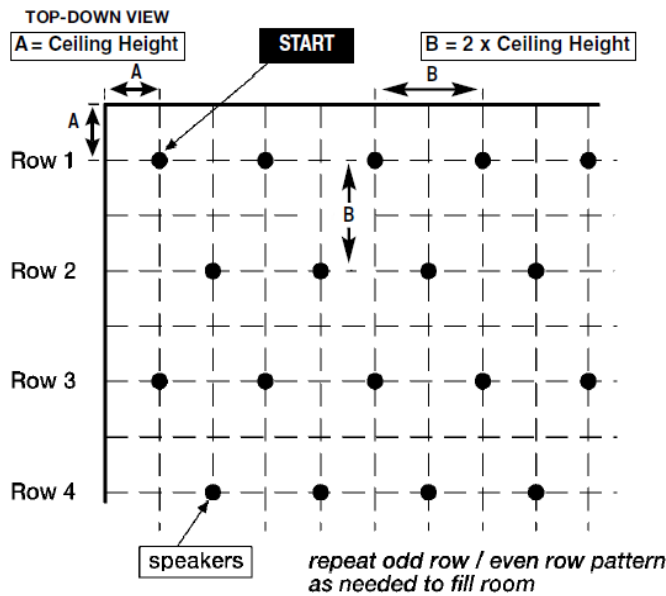
The layout of the speakers should be planned before installation begins. Layout starts in one corner of the room. The first speaker should be positioned from each wall spaced a distance approximately equal to the ceiling height of the room.

The next speaker in row 1 should be spaced a distance approximately equal to twice the height of the ceiling. Each additional speaker in the row should use this same spacing.

Row 2 starts at twice the ceiling height distance from row 1 and twice the ceiling height from the wall. The other speakers in this row are also spaced at twice the ceiling height.

Row 3 is again spaced at twice the ceiling height from the previous row. The first speaker starting this row is positioned at one ceiling height distance from the wall (similar to row 1).

Continue this pattern of alternating rows until the room is covered. The spacing of the speakers can be adjusted so that the speakers are evenly spaced in a row and are aesthetically pleasing.



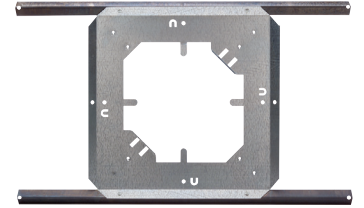
## RE84 Recessed Enclosure

The RE84 is an optional back box for ceiling speakers. UL Listed for use where ceiling plenum is part of an air handling system, the RE84 also includes attachment tabs, allowing the enclosure to be supported from structures other than the actual ceiling grid.



## TB8 Tile Bridge

The TB8 supports the weight of the speaker and recessed enclosure. This is also the item to which the speaker mounting screws attach. The TB8 is required for each speaker assembly installed.



## MR8 Mounting Ring

The MR8 Mounting Ring is a cold-rolled steel unit, which will mount any of the Bogen ceiling grilles for installations where the RE84 is not used.



## Speaker Installation

1. Remove the tile from ceiling and center the TB8 tile bridge on the back. Use the tile bridge to trace out and then cut an 8½" square hole.

**Note:** It may be more efficient to stack multiple ceiling tiles and then cut the speaker opening in a number of them at one time.

2. If using the optional RE84 Recessed Enclosure, bend up the four horseshoe tabs (Figure 1) on the TB8.

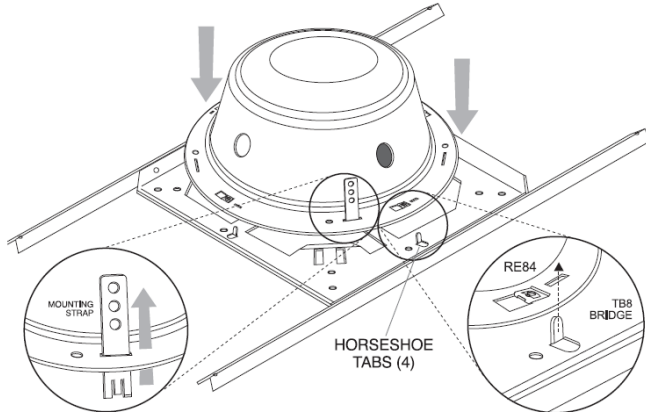


Figure 1

3. Position the TB8 over the hole in the tile and push down the locator tabs
4. Using the four supplied screws, attach the speaker to the TB8 using the four clips in the corners of the opening on the TB8 as nuts.

**NOTE:** Only tighten the screws until the grille is snug against the tile. Over-tightening will cause the screws to dimple the grille.

5. When applicable, use the pluggable CAN bus connector to attach one or more NQ-E7020-G2 Digital Call Switches to the Nyquist VoIP Module 820-00071-00, as shown in Figure 3.

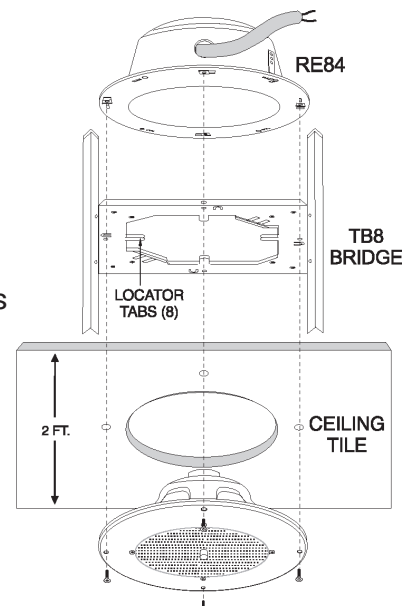


Figure 2

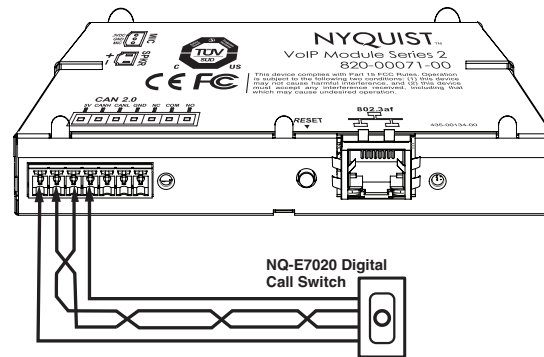


Figure 3

6. If the CAN Bus is to be used, ensure CAN\_H and CAN\_L use Cat5-or-better 10/100 twisted pair cable.
7. To connect a third-party device to the dry-contact relay output, do one of the following:
  - a. If the device is configured as normally open, connect the device using the NO and COM terminals.
  - b. If the device is configured as normally closed, connect the device using the NC and COM terminals.

**NOTE:** Use of relay contacts is optional, and only recommended for connection to 12V/24V circuits, not for 120/240 VAC mains circuits.

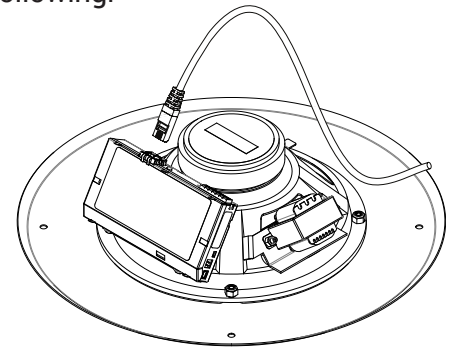


Figure 4

8. Make the electrical connections using Cat5-or-higher Ethernet cable with an RJ-45 connector. The power is supplied by PoE using an 802.3af-compliant network switch or PoE injector.
9. If the NQ-S1810CT-T1 is to be used with auxiliary speakers, all the auxiliary speakers should be configured for either 25V or 70V taps. The maximum power output of the NQ-S1810CT-T1 auxiliary transformer is 4W. The recommended loudspeakers are Bogen Series S1810T725PG8W.

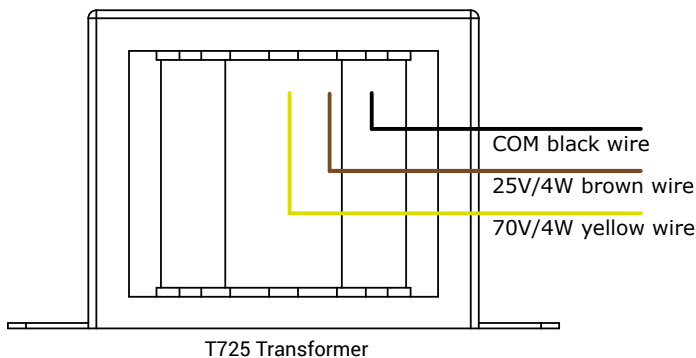


Figure 5

For 25V taps, connect the auxiliary speakers to the brown and black wires on the auxiliary transformer, observing polarity on your connection to the S1810T725PG8W input transformers. For 70V, connect the auxiliary speakers to the black and yellow wires. The rest of the wires on the NQ-S1810CT-T1 transformer are capped off and not to be used.

*Only one 25V or 70V tap should be used. Never connect speakers to both 25V and 70V taps simultaneously.*

Alternatively, two auxiliary speakers tapped at 2W each or one auxiliary speaker tapped at 4W is acceptable, as long as the NQ-S1810CT-T1 transformer's 4W power limit is not exceeded.

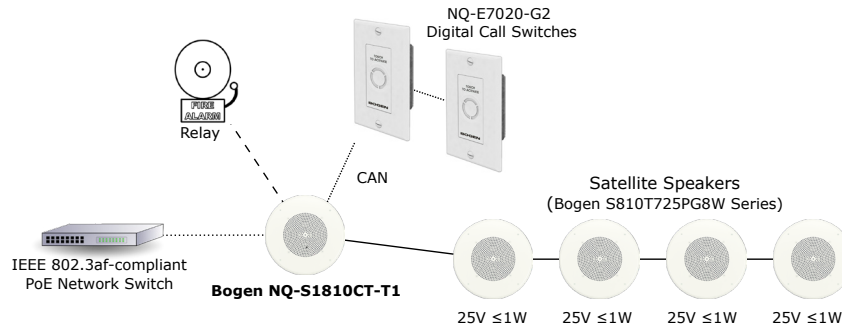
10. Place the entire assembled ceiling tile back into the ceiling grid.

**NOTE:** Refer to the Nyquist VoIP Speaker G2 Configuration Guide or the System Administrator Guide for detailed instructions on how to configure these speakers.

The maximum operating temperature for the NQ-S1810CT-T1 is 35 °C.

**Additional Accessories**

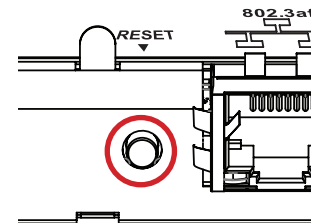
The Nyquist NQ-S1810CT-T1 VoIP Ceiling Speaker can be used with the Nyquist Digital Call Switch NQ-E7020. Refer to the *NQ-E7020 Digital Call Switch Quick Start Guide*.



**Figure 6**

**Using the Reset Button**

The Reset button allows you to either reboot the VoIP speaker or to reset the appliance's configuration settings to the factory default settings. For more information about resetting configuration settings, refer to the *Nyquist VoIP Speaker G2 Configuration Guide*.



**Figure 7**

## Compliance

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference; in which case, the user will be required to correct the interference at his own expense.

## Limited Warranty, Exclusion of Certain Damages

The NQ-S1810CT-T1 is warranted to be free from defects in materials and workmanship for five (5) years from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the warranty period will be repaired or replaced by Bogen, at Bogen's option, with new or refurbished product, provided the product is shipped insured and prepaid to: Bogen Factory Service Department: 4570 Shelby Air Drive, Suite 11, Memphis, TN 38118, USA. Repaired or replacement product(s) will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW. Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by Bogen Factory Service Department -- same address as above or call 201-934-8500, at owner's expense. Returned products which do not qualify for warranty service, may be repaired or replaced at Bogen's option with a previously repaired or refurbished items. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All parts and labor charges as well as shipping charges will be at the owner's expense.

All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

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