

## OVERVIEW

NSB is a system of modular button and slider wall station inserts that trigger memories recorded on Cognito<sup>2</sup> and Choreo lighting controllers.

NSB Architectural Gateways provide connectivity for 485 wall stations, allowing the use of legacy multi-drop wiring where PoE a home-run may not be possible, or simply as a way to expand the number of stations connected to a Cognito<sup>2</sup> or Choreo using a single Ethernet connection.

## CONNECTIONS

The gateway features terminal blocks that can be removed from the module to facilitate wiring. Both compression fit and IDC terminal blocks are supplied. Use IDC connectors with solid core cable and compression fit with stranded copper wire.

### POWER

The gateway must be supplied 24 VDC to operate. If your system uses the full 64 insert capacity, you must supply 72 Watts. DO NOT use the IDC connectors on the main power connector.

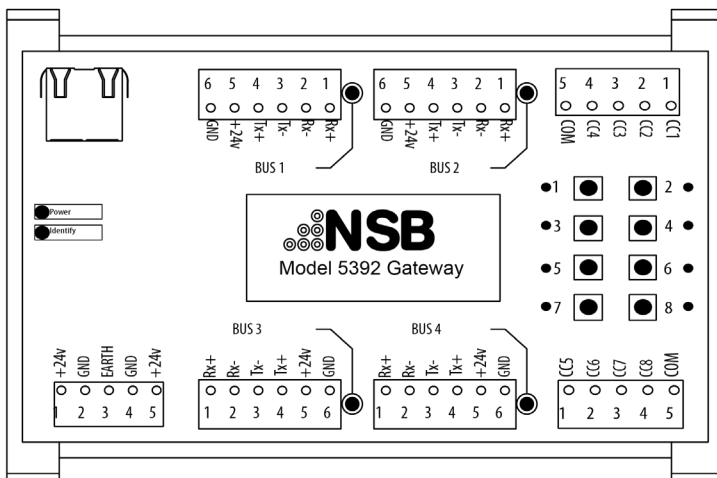
### STATION BUSES

All station bus wiring must be in a continuous run and daisy-chained. No “tees” are permitted. Maximum cable length for category 5 wiring is 500 feet (152 meters). Maximum cable length for Belden 9773 wiring is 1000 feet (305 meters). The last station on the line must be terminated with two resistors with a value of 100 to 120 ohms, between pins 1 & 2 and between pins 3 & 4. Architectural Gateways ship with four pre-terminated IDC connectors.

Each bus can power up to 16 inserts. For example, a wall station comprising of one 4-button master and one dual slider slave counts as 2 inserts. The gateway can power a total of 64 inserts across the four buses. Wall station configuration is done on the Cognito<sup>2</sup> or Choreo controller itself.

### CONTACT CLOSURES

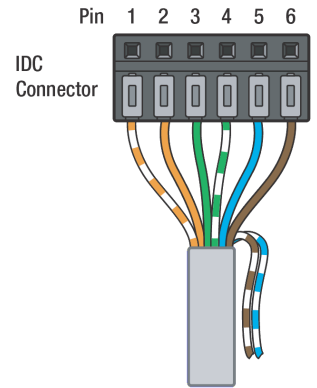
Dry contact closure terminals are provided on gateway model 0700-5392 and 0700-5393 (8 and 16, respectively) for triggering memories with external momentary contacts. Buttons with LED indicators are included on the gateway itself for local control or testing purposes.



## STATION BUS WIRING

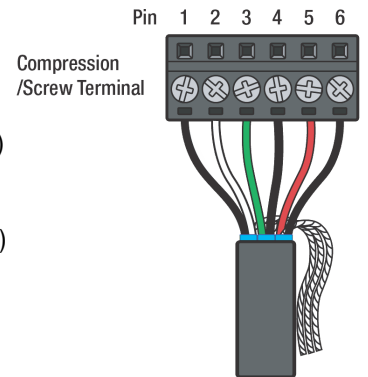
### Category 5 Wiring (using IDC connector)

Pin 1: Rx+	White/Orange
Pin 2: Rx-	Orange
Pin 3: Tx-	Green
Pin 4: Tx+	White/Green
Pin 5: +24V	Blue
Pin 6: GND	Brown
NC:	White/Blue
NC:	White/Brown



### Belden 9773 Wiring (using compression fit)

Pin 1: Rx+	Black (White pair)
Pin 2: Rx-	White
Pin 3: Tx-	Green
Pin 4: Tx+	Black (Green pair)
Pin 5: +24V	Red
Pin 6: GND	Black (Red pair)
NC:	Shield foil
NC:	Drain wire

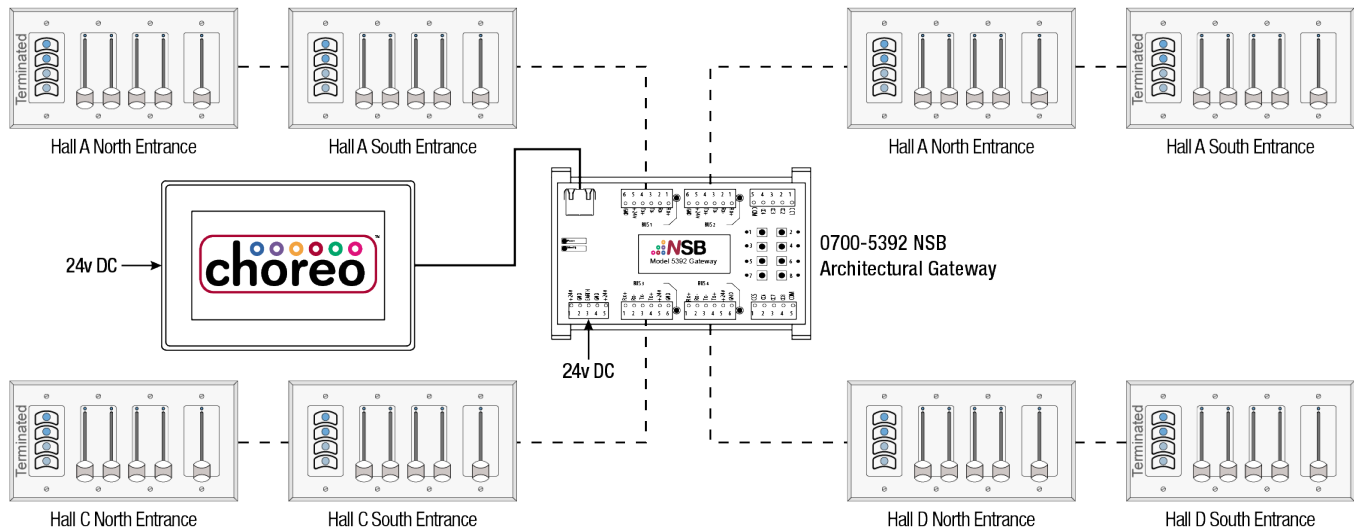


NOTE: Terminate both ends of the wire identically, as per above (wall station and gateway)

## STATUS INDICATORS

- POWER**      Glowing steadily red indicates power supply is OK; off indicates no power.
- IDENTIFY**    Will flash blue when Pathscope software is identifying the gateway. Without Pathscope connected, you will not see this indicator light on.
- BUS**            Bus lights will flash red when the gateway receives data from the inserts on the bus. Likewise, the Link LED on the back of the master inserts will blink when they receive data from the gateway.
- RJ45 LEDs**    The RJ45 Ethernet jack has two green LEDs. One will glow steady when the link is up and the other will flash with activity.
- CONTACT CLOSURE LEDs**    Will glow a dim blue when associated memory is inactive; will glow bright blue when memory is active. If there is no recorded memory to trigger, the LED will be off.  
  
These LEDs will also flash when Pathscope is identifying the gateway.

## 0700-5392 NSB485 Gateway in Divisible Ballroom



## CONFIGURATION

### Step 1

Ensure all your wall stations are wired per the guide on the reverse of this page and the last station in the bus is terminated. When the gateway is powered, you should see BUS activity on the wired bus terminal at the gateway and on rear of each station.

### Step 2

Connect the gateway to the lighting network via the Ethernet port. On your Cognito<sup>2</sup>/Choreo controller, go to the Setup menu and choose the NSB tab. To add new stations, press the “Add Station” button at the bottom of the screen.

### Step 3

All connected NSB stations (and gateways with contact closures) should appear in the “Discovered Stations” list. If any devices are missing, double-check wiring as per Step 1, or use Pathscape to discover and reconcile any IP addressing issues.

### Step 4

The stations are listed in the following format: Serial Number, Name, and button/slider configuration. For example, a 4-button + 2 slider station named “Hall A North” with a serial number “1234567” would show up as “1234567,Hall A North,bbbbff”. The “bbbbff” means the station is configured as 4 buttons (“bbbb”) and two sliders (faders, “ff”).

To add the station, touch the “Apply” checkmark. You can also press the “Add All” button to add all stations shown. If you are unsure which station is which, press the “Identify Station” button, which will flash the LEDs on the selected station.

### Step 5

The new station(s) will now be in the Assigned Stations list. To configure the station, select it and press the “Edit Station” button.

### Step 6

You can now edit the station name, assign the station to a

room (default is “Global”), and choose the memory page and button and/or slider offset. Choose the memory page you’d like the station to drive. Then choose the button and/or slider offset to map the buttons and sliders to the appropriate memories. Touch the “Apply” checkmark to confirm your settings.

### Step 7

Touch the “X” to exit the NSB menu and return to the main Cognito<sup>2</sup>/Choreo screen. Touch the “Play” button on the main toolbar, and choose the memory page you mapped the NSB wall station to in Step 6.

### Step 8

Press each button and move each slider on the station individually while checking recorded memories on the Cognito<sup>2</sup>/Choreo screen. Ensure each button and slider is triggering the intended memory.

### Step 9

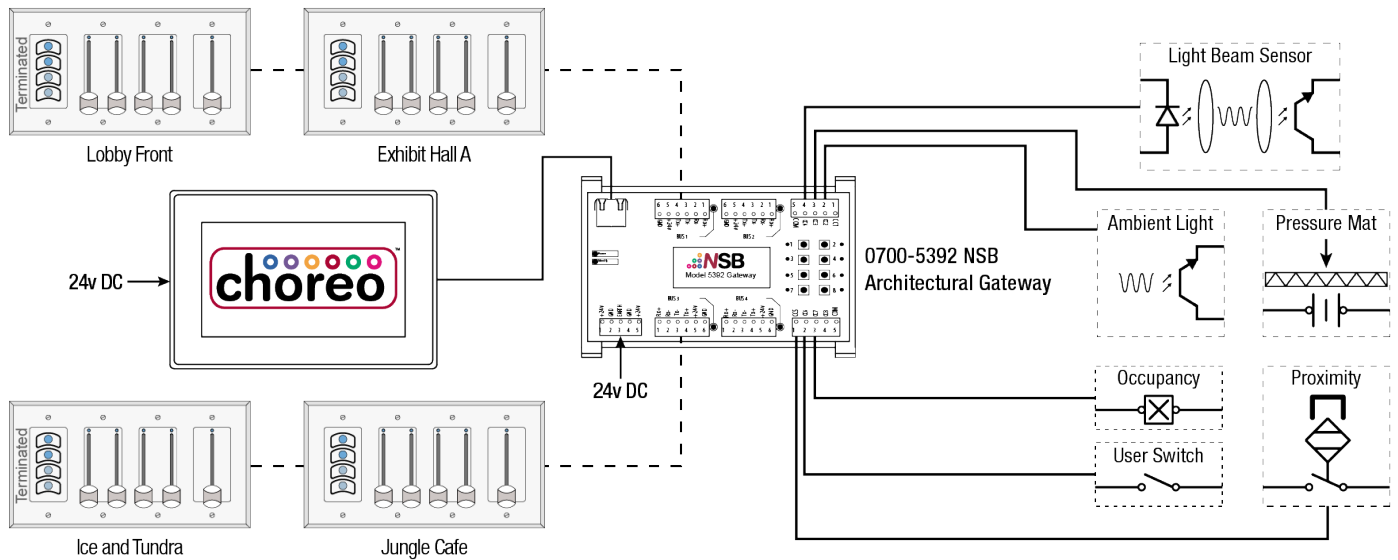
Return to the Setup menu, and repeat Steps 5 through 8 for all remaining stations.

### Step 10

To configure the contact closures on the gateway, repeat steps 5 through 8. The contact closure inputs are treated as buttons in the software, so configure them as you would a button station. To test, use the provided buttons on the gateway itself.

Wire the contact closure terminals as per the silkscreen on the gateway: all grounds/common to the COM (pole 5 of terminal block), and each contact to the appropriate pole/CC# of the terminal block (CC1 for button/memory 1, CC2 for button/memory 2, etc). Contacts 1-4 are wired through the top terminal block, and 5-8 on the bottom.

## 0700-5392 NSB485 Gateway for Remote Wallstations and Interactive Triggers



### ADDITIONAL NOTES

Before testing the stations, release all active cues and memories on the Cognito2/Choreo controller. This ensures only the NSB stations will activate memories.

You may find it easier to identify and name the stations via Pathscape on a PC attached to the lighting network, prior to configuring them in the Cognito2/Choreo menus. By default, the NSB stations are named according to their IP addresses, so it may not be obvious which station is which in the Cognito2/Choreo menu. It is still possible to identify and name them using the controller UI, but it may be faster to do so using Pathscape software.

You may freely mix NSB PoE with NSB 485 + Architectural Gateway on the same network. Configuration of both variants is identical.

The button and sliders offsets may be set differently, or may overlap. For example, on a 4-button + 2 slider + 2 slider station, you may wish for the 4 buttons to activate memories 1-4 as an on/off toggle, and the 4 sliders to allow for dimming control of those same 4 memories. To do this, set both the button and slider offsets to 1. Note that in this scenario, the buttons have priority; if button 1 is pressed and you attempt to modify the level with slider 1, nothing will happen until you press button 1 again to deactivate it.

Alternatively, you may want, as an example, buttons 1-4 to activate memories 11-14 and the sliders to activate memories 7-10. In this case, set the button offset to 11, and the slider offset to 7.

By default, button offset is always 1, and slider offset is calculated dynamically based on the number of buttons in the wall station. For example, on a 4-button and 2-slider station, the slider offset would be 5. On an 8-button and 2-slider station, the slider offset would be 9. On a station comprised of sliders only, the slider offset will default to 1. Slider offset properties are not shown on stations without physical sliders.

Buttons and sliders are functionally contiguous, starting at their respective offset, even if they are not physically contiguous. For example, in a station configured as (left-to-right) 4 button + 2 slider + 2 button + 1 slider and with a button/slider offset of 1:7, the buttons will trigger memories 1-6, even if there are 2 sliders between the 4 button insert and the 2 button insert. Likewise, the sliders would trigger memories 7-9 even though the 2 button insert is between them.

If your application requires the buttons/sliders to operate non-contiguously (ie. the first 4 buttons trigger memories 1-4, next 2 sliders trigger memories 5-6, next 2 buttons trigger memories 7-8, and so on) you must physically build this wall stations as two discrete stations with their own masters. They may of course occupy the same wall box, but logically they must be discrete. It is not possible to offset both sets of buttons or sliders by different values.

You can also record memories without attributes (blank memories) and add Actions to trigger other memory virtual bump buttons or run cues or any other function supported by Actions.

## ELECTRICAL INFORMATION

- Gateway only: 24VDC 10W maximum
- Power supply: 24VDC 72W maximum
- Bus inserts: 1W maximum per insert; 62W maximum across all buses (15.5 W per bus)
- Bus power: 24V DC over Cat5 or three-pair cable (Belden 9773 or equivalent)
- Bus wiring:
  - Using IDC Connectors: Cat5 or solid wire, 22-24 AWG
  - Using Compression fit: three-pair stranded (Belden 9773 or equiv), 14-30 AWG
- Class 2 Device