User Manual

Model HX-PB16

Push-Button Hub

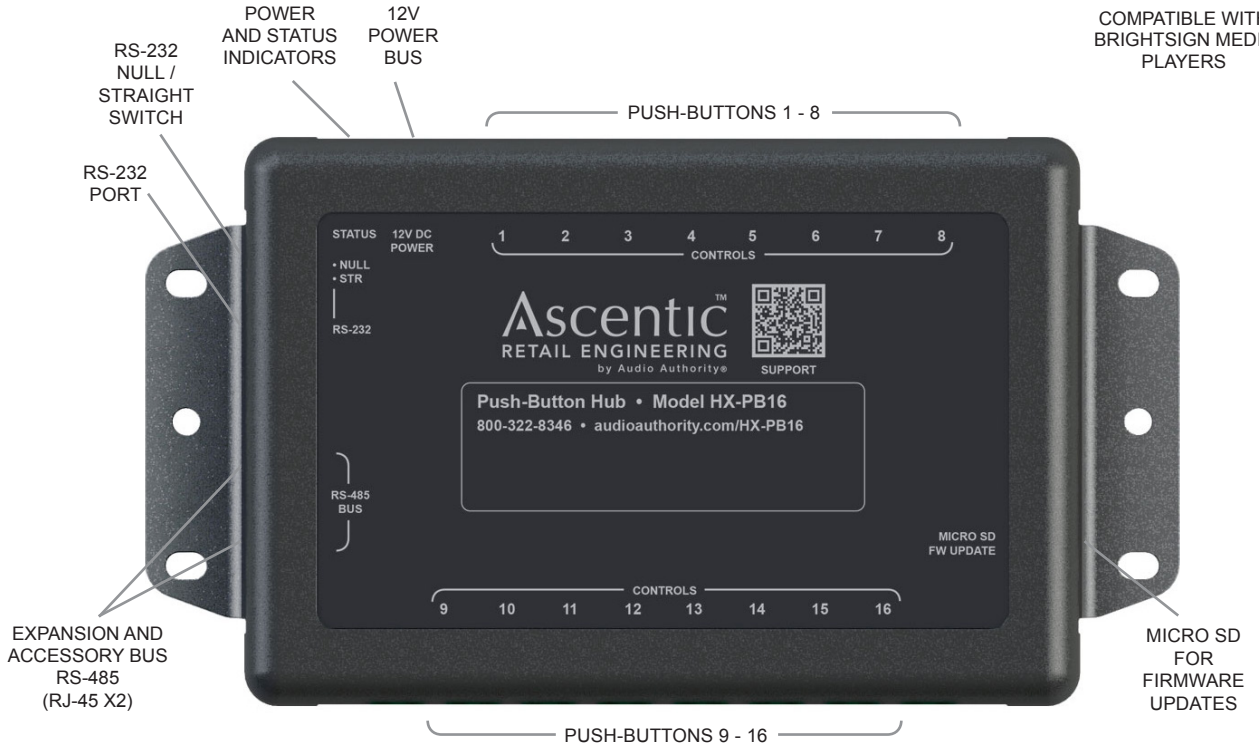
Compatible with Ascentic Push-Buttons or AirSelect Touchless Sensors

Ascentic®
RETAIL ENGINEERING
by Audio Authority®

Push-Button Hub

The Ascentic® HX-PB16 Push-Button Hub provides a flexible way to control a compatible media player, such as a BrightSign® Model XD1033, with up to 16 push-buttons or sensors. Each HX-PB16 controls sixteen buttons or sensors and may be expanded to 256 positions. Each position may be used for product selection or other commands (see page 4).

COMPATIBLE WITH BRIGHTSIGN MEDIA PLAYERS



Button Control Functions

Demonstration is controlled by push-buttons with RJ9 connectors, such as the Model 013-100. Button behavior such as LED blink, LED lit solid etc. are assigned by serial commands to each button press (*see page 4*).

RS-232 Port

HX-PB16 communicates with third party devices such as Brightsign players via RS-232. The RS-232 Baud rate is 115200 and may be set for Null or Straight using the switch located beside the RS-232 port. By default it is set to null modem. The port is a modular RJ-45; adapter cables are available for 3.5mm or DB-9 serial ports. For commands and protocol, see page 4.

RS-485 Communication Bus

The RS-485 communication pathway links compatible Ascentic devices such as Ascentic MediaHubs. It is also used to daisy-chain multiple HX-PB16 modules in one system (*see Module ID below)*.

Module ID

You may expand the system by linking multiple button hubs together via RS-485. Each hub must have a unique Module ID, which can be assigned via RS-232 commands. To assign a new module ID, disconnect the HX-PB16 from all devices via RS-485. Connect a programmer via RS-232 and use the command “[DEV=916,1;DEV=#]” to assign a unique address. Use numerals 0 through 256 for each ID.

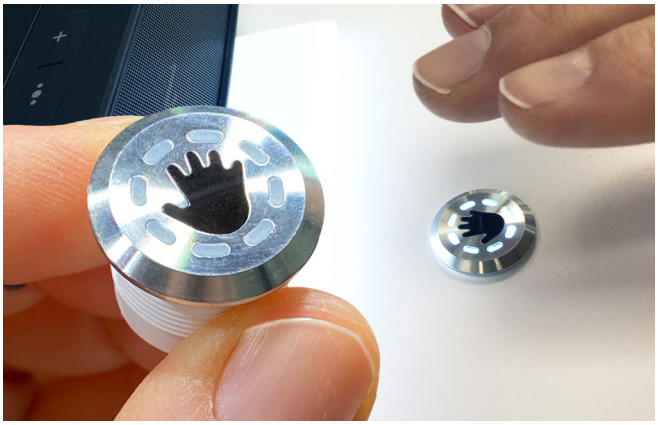
Power

Connect the 12V power adapter (included) to the jack marked 12V DC Input. The Power Bus port may be connected to a MediaHub, or other device sharing the power adapter, provided the power supply is sized correctly for the load.

Installation

- Attach the player and the HX-PB16 modules to a flat surface with the screws provided.
- Connect push-buttons. Push-buttons can be RJ9 momentary switches or PX-100 touchless sensors.
- If multiple HX-PB16 modules are used in the same system, first assign unique module ID to each device, then connect them via Cat 5/6 using the RS-485 ports.
- Connect the serial cable from the HX-PB16 to a compatible media player. If using RS-232, set the port's Null/Straight switch to the desired setting for the connected device.
- Connect the power adapter to AC power, then to the HX-PB16 power port, and power other devices.
- Call or email our tech support team with questions that are not addressed in this manual.

Push-Buttons
The RJ9 connector push-button shown is the 013-100 with blue LED ring; other colors include white, green and red.



Touchless Sensors
The PX-100 sensor connects to an RJ9 port just like a button. See Touchselect documentation for serial commands.

Serial Command Protocol

The Model HX-PB16 has the default device ID 916, address 1. It can send and receive serial commands via RS-485 at 57600 Baud, 8-N-1, and half-duplex; and via RS-232 at 115200 Baud, 8-N-1, and full-duplex. Both configuration ports utilize a modular RJ-45 jack with the following pinouts:

RS-485 Pinout:

Pin #	Function	Pin #	Function
P1	Orange White - Ground	P5	Blue White - Power Bus (12V Devices Only)
P2	Orange - Ground	P6	Green - Data B Negative
P3	Green White - Data A Positive	P7	Brown White - Ground
P4	Blue - Power Bus (12V Devices Only)	P8	Brown - Ground

RS-232 Pinout:

Pin #	Function	Pin #	Function
P1	Orange White - Ground	P5	Not Connected
P2	Orange - Ground	P6	Green - RX or TX
P3	Green White - TX or RX	P7	Brown White - Ground
P4	Not Connected	P8	Brown - Ground

RS-232 Command Reference

The HX-PB16 supports serial communication via RS-232 using a consistent message format. Messages are categorized as SET, QUERY, or RESPONSE / EVENT, and follow the structured syntax below.

General Format

- SET Command Format: [DEV=916,1;COMMAND]
- QUERY Command Format: [DEV=916,1;COMMAND?]
- RESPONSE / EVENT Format: (DEV=916,1;RESPONSE)

Basic Control Commands

Command Name	Type	Function	Command Format
REBOOT	SET	Reboots the device	[DEV=916,1;REBOOT]
RESET DEFAULTS	SET	Restores factory defaults and reboots	[DEV=916,1;RESET;DEFAULT]

Button LED Control

Command Name	Type	Function	Command Format
BUTTON LED ON	SET	Turns on specified LED (or all with *)	[DEV=916,1;BTN=$;LED=ON]
BUTTON LED OFF	SET	Turns off specified LED (or all with *)	[DEV=916,1;BTN=$;LED=OFF]
BUTTON LED BLINK	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;LED=BLINK]
BUTTON LED BLINK FAST	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;LED=FAST]
BUTTON LED BLINK SLOW	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;LED=SLOW]
PRESSED BUTTON LED ON	SET	Turns on specified LED (or all with *)	[DEV=916,1;BTN=$;PRLED=ON]
PRESSED BUTTON LED OFF	SET	Turns off specified LED (or all with *)	[DEV=916,1;BTN=$;PRLED=OFF]
PRESSED BUTTON LED BLINK	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;PRLED=BLINK]
PRESSED BUTTON LED BLINK FAST	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;PRLED=FAST]
PRESSED BUTTON LED BLINK SLOW	SET	Blinks specified LED (or all with *)	[DEV=916,1;BTN=$;PRLED=SLOW]

Button Press Events

Event Name	Function	Event Format
BUTTON PRESS	Reports button press	(DEV=916,1;BTN=$;PRESS)
BUTTON RELEASE	Reports button release	(DEV=916,1;BTN=$;RELEASE)

System Queries

Command Name	Type	Function	Command Format	Response Format
APP VERSION	QUERY	Retrieves application firmware version	[DEV=916,1;APP;VERSION?]	(DEV=916,1;APP;VERSION=$)
BOOTLOADER VER	QUERY	Retrieves bootloader firmware version	[DEV=916,1;BOOT;VERSION?]	(DEV=916,1;BOOT;VERSION=$)
APP NAME	QUERY	Retrieves hardware version information	[DEV=916,1;APP;NAME?]	(DEV=916,1;APP;NAME=$)
RS232 DEVICE ID	QUERY	Retrieves device ID for 1st RS-232 device	[DEV=0;DEV?]	(DEV=916,1;DEV=1)

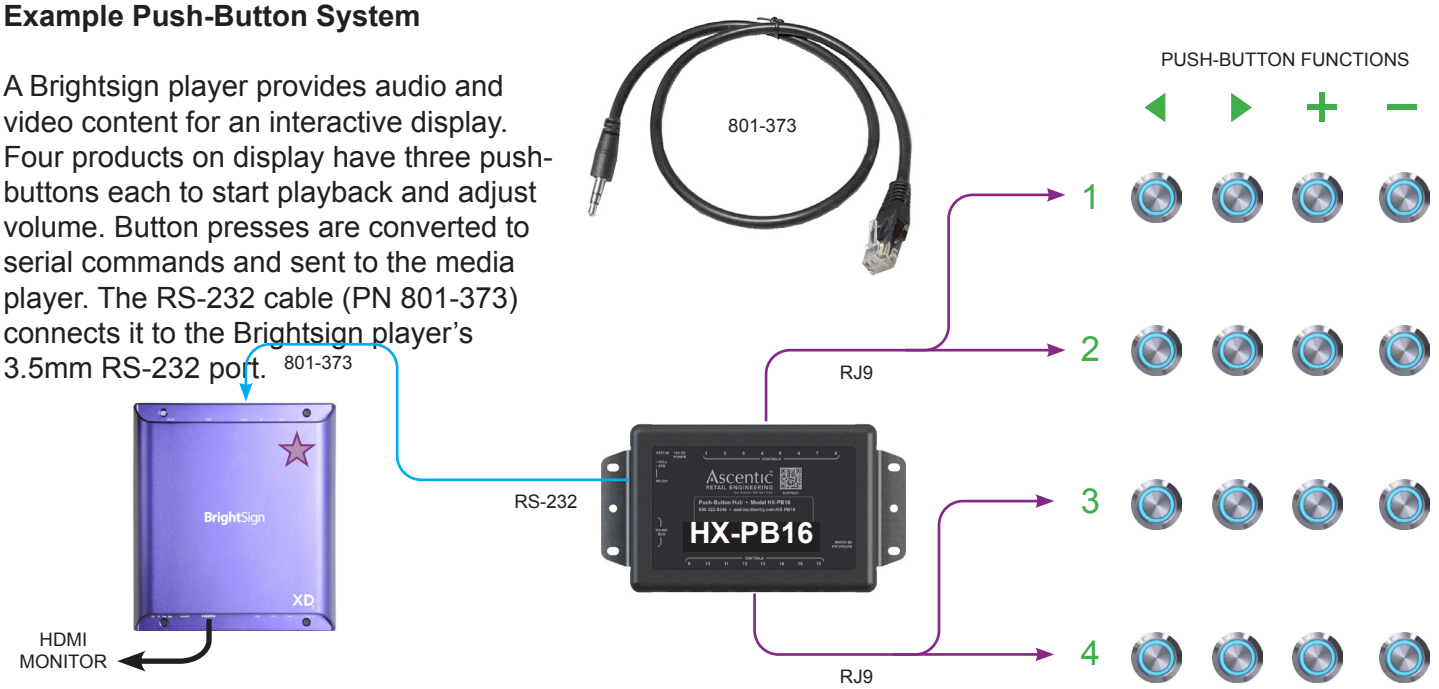
LED Commands:

The structure is "[DEV=#;BTN=$;LED=%]"

- # is the device ID (916,1)
- $ is the single, multiple, or all button positions
  - Single = single integer, 1-20
  - Multiple = comma separated integers, 1-20
  - All = *
- % sets the LED state
  - OFF
  - ON
  - BLINK (NORMAL SPEED)
  - FAST
  - SLOW

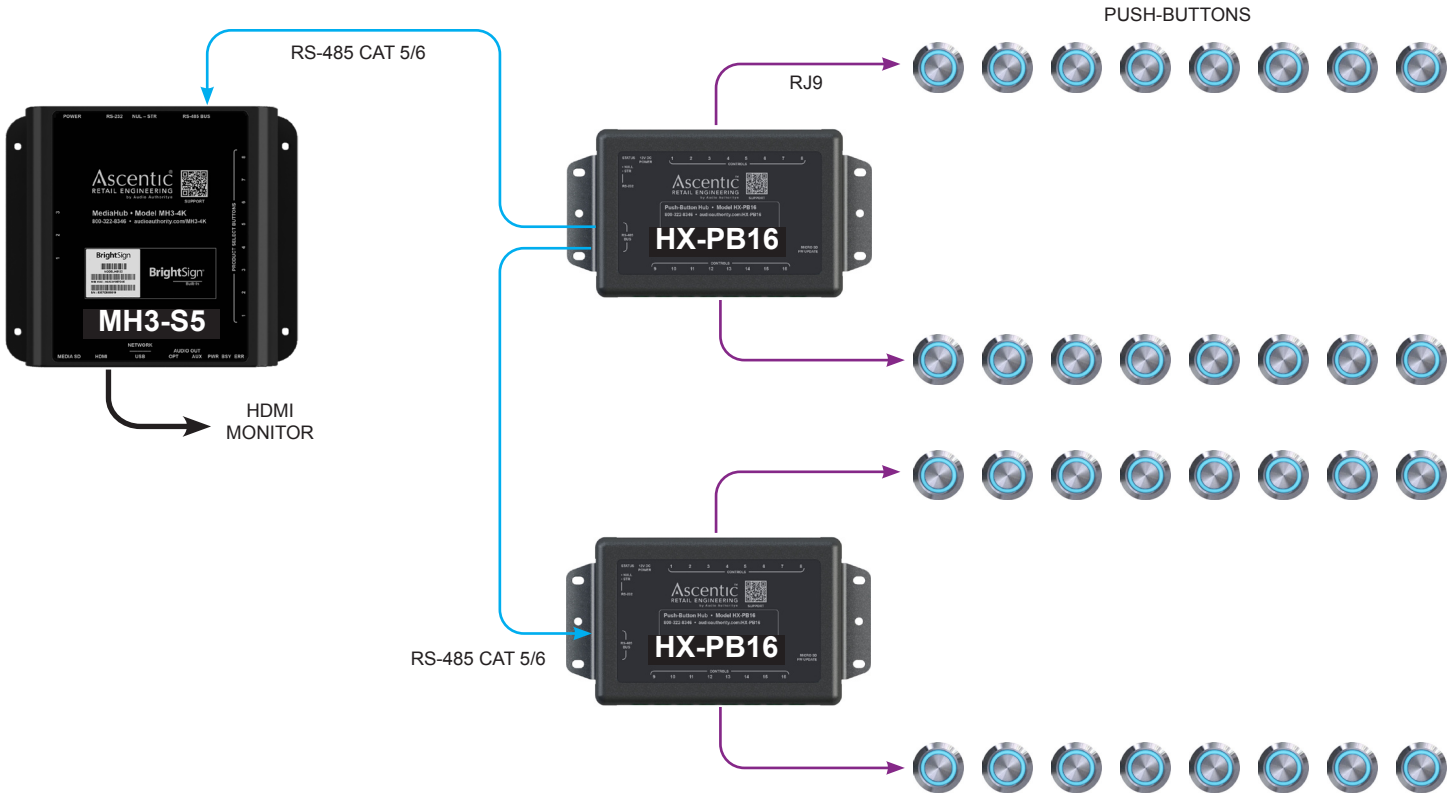
Example Push-Button System

A Brightsign player provides audio and video content for an interactive display. Four products on display have three push-buttons each to start playback and adjust volume. Button presses are converted to serial commands and sent to the media player. The RS-232 cable (PN 801-373) connects it to the Brightsign player's 3.5mm RS-232 port.



Example Expanded System

An Ascentic MediaHub with Brightsign core provides audio and video content for an interactive display. 32 products on display have push-buttons to start playback. The buttons are connected to positions 1-16 on each HX-PB16. Each HX-PB16 has a unique module ID (see page 2). The RS-485 cable (CAT 5 / 6) connects the first Push-Button Hub to the MediaHub's RS-485 bus port.



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