ST-HUB and ST-HUB-EN

CueStation Universal Network Hub Installation and Setup Guide

Introduction

The ST-HUB CueStation Universal Network Hub (the CueStation Hub) is used to power and communicate with an array of digital CueStations (both 2-Wire and 4-Wire types).

The ST-HUB communicates with the host controller via an RS-232 serial interface, and the ST-HUB-EN (Ethernet option) can communicate with the host controller by both RS-232 as well as Ethernet messages.

Although the CueStation Hub is designed to integrate directly with the CueServer family of lighting control processors, it can also be used for custom projects that do not involve CueServer. The communication protocols are freely available from our web site.

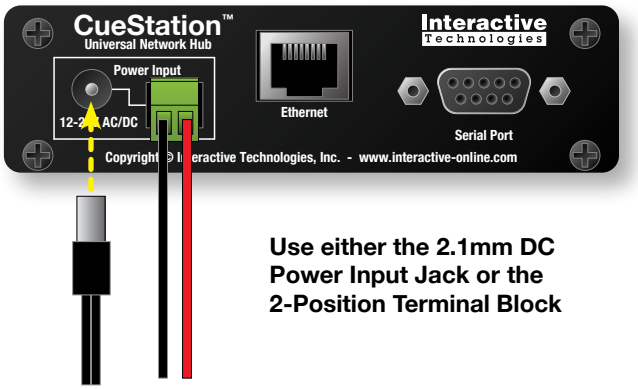
Connecting the Hardware

This section describes the various connections made to the CueStation Hub.

Power Supply

The CueStation Hub requires it's own local power supply, from 12 to 24 volts, either AC or DC. The amount of current required can be calculated by using one of the following equations (the current is dependent on the number of CueStations connected to the Hub):

- 4 Watts + 0.6 Watts per 2-Wire Station + 1.5 Watts per 4-Wire Station
- 333mA + 50mA per 2-Wire Station + 125mA per 4-Wire Station (using 12V)
- 167mA + 25mA per 2-Wire Station + 63mA per 4-Wire Station (using 24V)



Use either the 2.1mm DC Power Input Jack or the 2-Position Terminal Block

There are two power input jacks on the Hub, a 2.1mm DC Input Jack and a 2-Position Terminal Block. You can use either one, but not both. If the 2.1mm DC Input Jack is used, it electrically disconnects the circuit from the Terminal Block input.

The standard power supply typically provided with the CueStation Hub outputs 850mA at 12VDC, which is typically enough current to handle up to 10 CueStations connected to the Hub.

Ethernet Jack

If the Hub is outfitted with the optional Ethernet option (ST-HUB-EN), you can connect a standard CAT-5 type Ethernet cable to the Ethernet jack. The opposite end of the Ethernet cable should be connected to the appropriate networking equipment, such as an Ethernet Switch or Router, etc.

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Serial Port

If the Hub is to be used with a serial device, it can be connected in one of two different ports. The Hub provides a standard Female DB-9 connector on the front of the device as well as a 3-Position Terminal Block on the rear of the device. Either one of these ports may be used, but not both at the same time (the two ports are internally connected directly together and cannot accept signals from two different devices simultaneously).

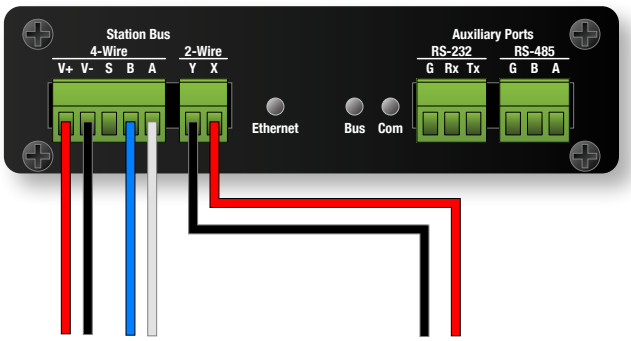
The following diagram shows the pinout of the Female DB-9 as well as the corresponding position of the RS-232 Terminal Block:

Signal	DB-9 Pin	RS-232 Port Pin
Serial Tx (to external device)	2	Tx
Serial Rx (from external device)	3	Rx
Ground	5	G

CueStation Bus

CueStations of both the 2-Wire and 4-Wire type can be connected to the Hub simultaneously. They are connected to the 2-Position and 5-Position Terminal Blocks available on the rear of the unit (the center pin of the 5-Position Terminal Block is for a cable shield, if present, which is not typically used).

Each station has a station address, which is set by a group of dip switches on the back of each station. Each station must have a unique address. Please see the documentation for each station type to determine the appropriate dip switch settings.



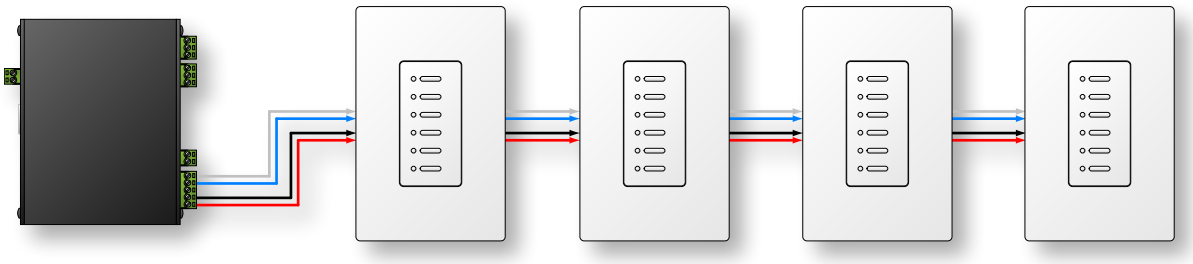
4-Wire Station Bus **2-Wire Station Bus**

4-Wire Station Bus Wiring

The 4-Wire CueStation Bus uses a 4-conductor 22/18 AWG Multi-Media Cable (Belden 1502 or similar). The network topology may be run in “daisy-chain” style only and all four conductors must be wired through without reversing polarity of the data lines.

A maximum of fifty (50) 4-Wire stations can be connected to a single CueStation Hub. The maximum distance from the Hub to the farthest 4-Wire Station is 4000 feet (1220m).

4-Wire Station Bus Wiring Example

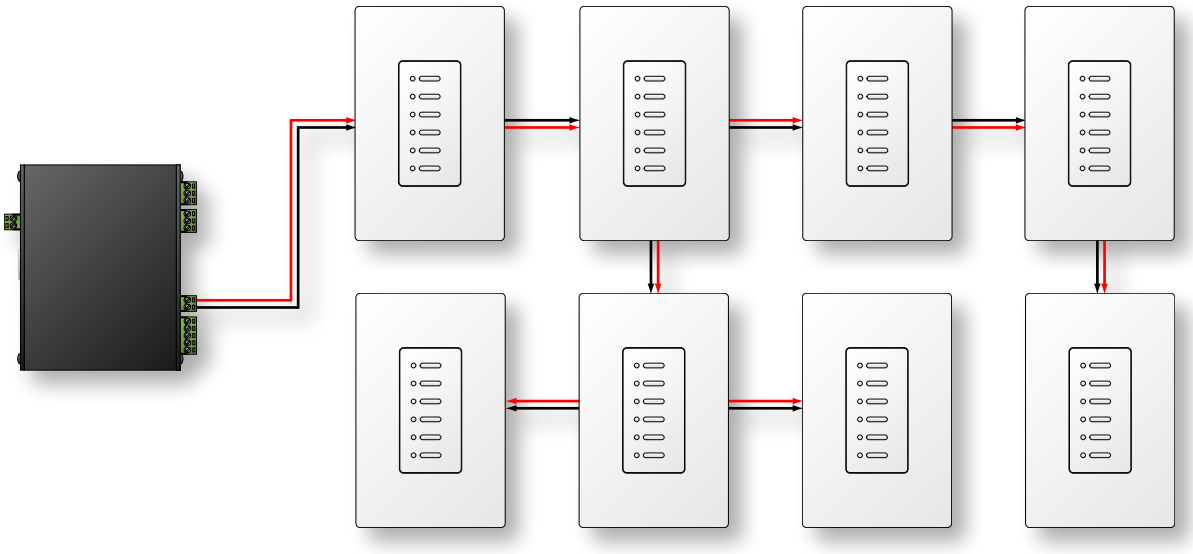


2-Wire Station Bus Wiring

The 2-Wire CueStation Bus uses a 2-conductor 18 AWG cable (Belden 9740 or similar) to carry both power and data to and from each station location. The network is both topology free (meaning a random combination of “star” and “daisy-chain” connections may be used) and polarity free (meaning it does not matter if the conductors are reversed at any station).

A maximum of ten (10) 2-Wire stations can be connected to a single CueStation Hub. The maximum distance from the Hub to the farthest 2-Wire Station is 500 feet (150m).

2-Wire Station Bus Wiring Example



RS-485 Port

The terminal block port marked “RS-485” is not used at this time. Do not connect anything to this port.

Configuring Stations

Each station must be configured by setting a series of DIP Switches on the back of the station. These switches set various options as well as assign the station address. Each station connected to the same hub must be given a unique station address.

Please refer to the specific 2-Wire or 4-Wire Station Guides for information on how to set the DIP Switches on each station.