

Stewart Signs Daystar Communication Methods, Wired Solutions

Will sign be tied into existing network	No, Sign to be wired directly to a singular PC				Yes, Sign to be tied to Existing Network	
Distance of signal run	Up to 50 cable feet		Up to 4000'	Unlimited	4000'	10,000'
Excluded Models	None	None	None	Color	None	None
Connection Short Description	Laptop to Sign	PC to sign via Serial	PC to Sign via CAT5E Cable	Telephone Modem	PC to Network to Sign via Cat5E Cable	PC to Network to sign via Fiber Optic Cable
Required Device	NEMA Box, included.	None	Signal Converter from 232 to 485, included.	Two Modems. One at PC, not included. One at Sign, included.	Network device, included.	Media Converter(s), not included.
Cable Type	Outdoor Serial Cable. (Cable Included.)	Outdoor Serial Cable (Cable not included)	Outdoor grade CAT 5E (Cable not included.)	Telephone Line (Cable not included.)	Outdoor grade CAT 5E (Cable not included.)	Fiber Optic. (Cable not included.)
Detailed Description, Requirements & Comments	User connects laptop at base of sign to upload messages. Requires customer provision of capable laptop with serial port. Allows for conversion to different communication method at later date. The 50' maximum is the cable's measurement from laptop connection to processor inside display, including up leg if applicable.	Direct connection from PC to sign. Conduit for data may or may not be required, see specifications for cable selected. This is primarily used for wall-mount displays. The 50' maximum is the cable's measurement from laptop connection to processor inside display, including up leg if applicable.	Direct connection from PC to sign up to 4000'. Only one computer can control the sign. See comment 1 & 2 below.	Telephone Modem in PC communicates with telephone modem in sign through phone lines. This requires dedicated ANALOG line at PC and at sign. PC must have phone modem & phone access. CAUTION: Phone lines today are often digital and are not compatible with this mode of communication. See comment 2 below.	Sign is wired into existing local area network. This allows control of sign from any PC on the network if software is on PC. If off-site access to the network is available sign can be programmed remotely. See comment 1 & 2 below.	Sign is wired into existing network via Fiber Optics. This allows control of sign from any PC on the network if software is on PC. If off-site access to the network is available, sign can be programmed remotely. Media Converter(s) (Not Included) are required to connect sign to fiber optic cable. Data can share conduit with electric. Unaffected by electrical surges. Requires specialty installer of fiber optics and additional cost of media converter(s) 1 if connecting to existing fiber optics, or 2 if not.
Added Sign Cost	None	None	None	None	None	None
Signal Type	RS232	RS232	RS485	Telephone	RS485	Duplex 62.5/125 Multimode

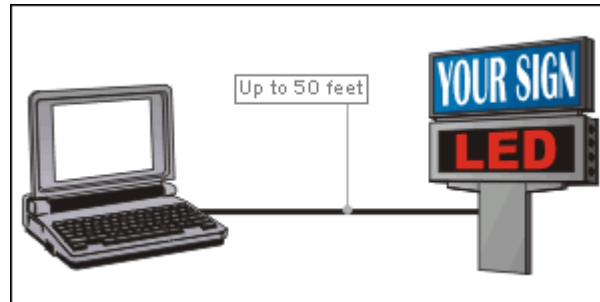
Comment 1: Stewart Signs recommends data cable & electric be in separate conduits and separated by at least 6". For distances up to 200', Serial & CAT5 Cable may share the same conduit as electric & need not be separated by 6".

Comment 2: The longer the data cable run the more susceptible to electrical surges caused by lightning.

Daystar 3D Message Center Connectivity Options

Laptop to Sign via Serial Cable

A serial cable in a weather-proof box located at the base of the sign. User connects Windows laptop to upload messages. Requires customer provision a capable laptop with serial port.



Distance: Connecting cable not to exceed 50 feet. This distance includes a cable run up the sign leg to the processor inside the display.

Advantages

- No trenching.
- Use of scheduler inside sign reduces inconvenience of trips to sign for programming.

Disadvantages

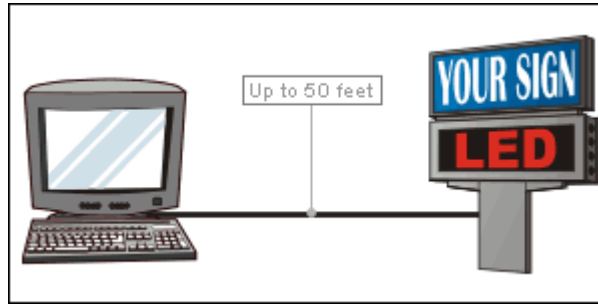
- Requires individual to be at the sign to connect a serial cable to the sign each time a message is downloaded to sign.
- Distance may not exceed 50 cable feet. This distance includes a cable run up the sign leg to the processor inside the display.

Cost Consideration:

- Least expensive option for connectivity to the sign, but inconvenient for the end user.

PC to Sign via Serial Cable

RS 232 serial cable connects the computer directly to the LED display.



Distance: Less than 50 feet from laptop connection to processor inside display, including up leg of sign (if applicable).

Advantages

- Simple and inexpensive.
- Ideal for signs that are in very close proximity to the user's computer.
 - o Great solution for most wall mount displays.

Disadvantages

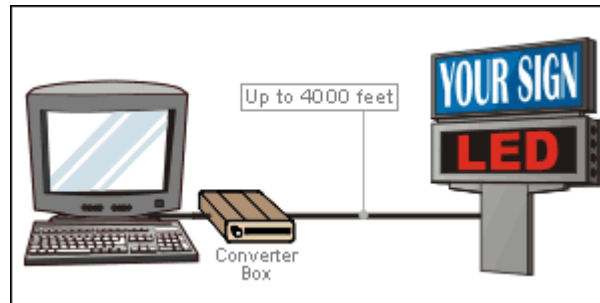
- Less than 50 feet distance (maximum **cable length** is 50 feet).
- Moderate EMI (Electro-magnetic Interference) tolerance. Note: Placing the data cable within a metal conduit will limit EMI problems.
- Only 1 computer per location can be used to program the LED sign.
- Infrequently used because the total length of the cable can not exceed 50 feet, requiring the sign to be installed within 25-30' of the computer. This distance includes a cable run up the sign, underground and up the wall into to room where the PC is located, then to the PC itself.

NOTE: Stewart Signs recommends data cable & electric be in separate conduits and separated by at least 6".

Cost Consideration: Very inexpensive. Primary cost includes trenching, 50' of cable and metal conduit (if required).

PC to Sign via CAT5E Cable

RS232 signal from PC is converted to RS485 via converter box, then sent to sign via outdoor grade underground cable, up to 4000'. (Stewart Signs recommends Belden 7919A or Belden 1594A). Please specify USB or serial port connection at PC.



Distance: Cable can be run for a distance of up to 4,000 feet.

Advantages

- Extremely reliable and fast data transfer rate.
- Placing the data cable within a metal conduit will improve EMI tolerance.

Disadvantage

- Only one computer per location can be used to access and program the LED sign.
- Moderate EMI (Electro-magnetic Interference) tolerance.
- Limit to distance.

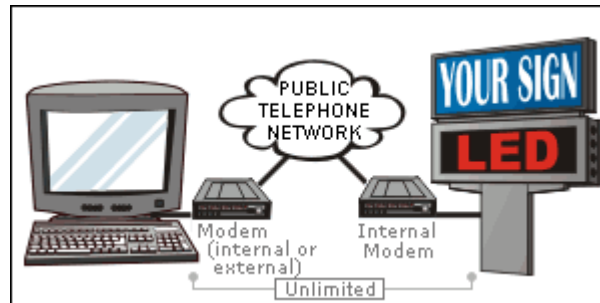
Cost Consideration:

- Trenching costs for data cable need to be considered, especially if running cable across a paved parking lot.
- Cost associated with the purchase of cable should be assessed through a local supplier.

NOTE : *Stewart Signs recommends data cable & electric be in separate conduits and separated by at least 6".*

Telephone Modem

Signal is sent from modem at PC through public telephone network to modem inside sign. Modem in sign is supplied by Stewart Signs. Modem in PC is supplied by customer.



Distance: Unlimited

Advantages

- Any computer with a telephone modem, Complay software, and dial up access can control the LED sign.
- Very Reliable.
- Allows Stewart Signs customer support to perform remote diagnostics of sign by dialing into your sign.

Disadvantage

- Requires dedicated ANALOG line at sign.
- PC must have phone modem & phone access. Stewart recommends there be a dedicated ANALOG phone line for the sign.
- Data transfer is slower when compared to a data cable connection.
- Telephone Modem is not recommended for the **Daystar 3D Color Message Centers** due to the bandwidth required to transmit images and video in color.

Cost Consideration:

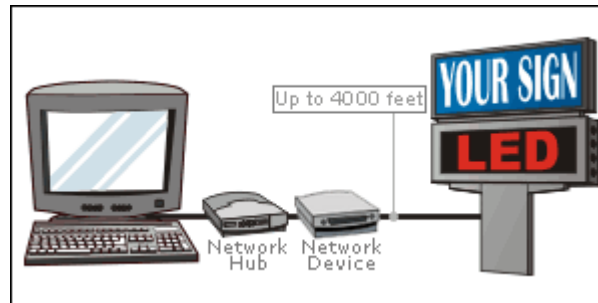
- Additional cost for dedicated phone line for sign.
- Additional cost for recommended dedicated phone line for PC
- Additional cost for modem at PC, if not already equipped.
- Cost associated with trenching for phone line should be assessed, especially if running telephone cable across a paved parking lot.

Recommendation: Contact your local telephone company to discuss the options available to your location for providing a telephone line to your sign. For optimal performance and efficiency, Stewart Signs recommend a dedicated telephone line for your new sign so you do not disrupt your existing phone service whenever you communicate to the LED sign.

NOTE: Stewart Signs requires that the phone line and electric be in separate conduits separated by 6 inches.

PC to Network to Sign via Cat5E Cable

Sign is wired into existing local area network. This allows control of sign from any PC on the network if software is on PC. If off-site access to the network is available sign can be programmed remotely.



Distance: Up to 4000 feet

Advantages

- We will provide the Network Device at no charge.
- Single or multiple signs are assigned an IP address and are accessible from the network.

Disadvantages

- Limit to distance.

Cost Consideration: Costs associated with trenching for data cable could be high, especially if running cable across a paved parking lot. Cost associated with the purchase of cable should be assessed through a local vendor.

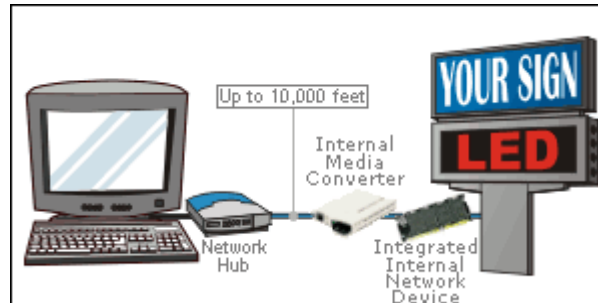
Recommended Outdoor Grade Cable: Stewart Signs recommends Belden 7919A or Belden 1594A cable.

NOTES:

- Comment 1: Stewart Signs recommends data cable & electric be in separate conduits and separated by at least 6". For distances up to 200', Serial & CAT5 Cable may share the same conduit as electric & need not be separated by 6".
- Requires IP address from customer in advance of delivery.

PC to Network to sign via Fiber Optic Cable

The Sign is wired into existing network via Fiber Optics. This allows control of sign from any PC on the network if software is on PC. If off-site access to the network is available, sign can be programmed remotely.



Distance: Virtually unlimited

Advantages

- Sign is accessible on your Local Area Network.
- Fiber Optics cable reduces the possibility of lightning damage.
- Fiber Optic cable can be run in the same trench as the electrical service.

Disadvantages

- None.

Cost Consideration: Costs associated with trenching for data cable could be high, especially if running cable across a paved parking lot. Cost associated with the purchase of Fiber Optics cable should be assessed through a local vendor. Additional cost includes conduit, media converters and fiber optic connectors to the sign.

Note: Media Converters (Not Included) are required to connect sign to fiber optic cable. Data can share conduit with electric. Unaffected by electrical surges. Requires specialty installer of fiber optics and the additional cost of media converters. We suggest that you contact a local Fiber Optics installation specialist for pricing.

Frequently Asked Questions

Installing Your New Daystar 3D Message Center

What to consider:

First, identify the best location for your new sign. You will want to check with zoning before taking the next steps. Ensure that your sign can be easily viewed and is in a prime location for your intended audience.

Do you have an existing power source at this spot?

If yes - typically, our clients are replacing an existing sign, which is currently run on a single circuit. The **Daystar** 3D Message Center requires (1) circuit for each message board plus (1) circuit for the identification cabinet. A typical double sided requires 3 circuits.

If no – you will be required to run the appropriate number of circuits to your new sign. Contact us for requirements specific to your sign.

Can I create one trench and drop both the electric and data cable into it?

The data cable and electrical lines must be a minimum of 6" apart, unless the data cable is placed inside a metal conduit. You will want to gauge the cost of metal conduit vs. the cost of trenching so there is 6" of distance between the data and electric. Also, check your local zoning regulations regarding running lines underground or consult a licensed professional.

What if the electrical run is a very long distance? Do I have other options?

You may have options. If the sign is near the road, and in close proximity to a power line, you may want to contact your local electric company to see if they can provide electrical service from the street, rather than from your building. This could potentially save the cost associated to trenching long distances or under parking lots.

What about a long run for a telephone line from our building? Do I have other options?

You may have options. Contact your telephone service provider. Perhaps they can provide a telephone connection from the street, rather than from your building. This could potentially save the cost associated to trenching long distances or under parking lots.

Why consider an RF Modem or Wireless Network Bridge?

Most of our customers that choose a wireless solution do so because they have an existing or easy access to a power supply at the sign and do not want the cost to trench and run cable to the sign. This makes sense if the cost of the wireless solution is less than the cost of trenching and cable.

Do you offer other options for connectivity to our Daystar 3D Message Center?

Technology is always changing, and as advancements are made or new options are offered, Stewart Signs will continue to provide as many options as possible to our customers. If you have something in mind that is not listed, please let us know.

How much will it cost to trench?

This is a very common question, but there is no standard set price in the market. We highly recommend that you contact a contractor to assess your property and offer a quotation for the option that will best meet your needs. Most of our customers will option quotes from 2-3 local contractors. In turn, Stewart Signs will support your installation effort and ensure that you and your contractor have the information you require for a successful installation.

Don't hesitate to contact us at 1-800-237-3928. We are here to help!

Belden 7919A Category 5e Voice & Data - 4 Pair / Shielded / Outdoor


(Model # 7919A)



4 pair TP (shielded twist pair) cable, 24 AWG solid bare copper, polyolefin insulated singles, flexible PVC jacket. Jacket is sequentially marked at two foot intervals.

Features:

- Temperature Range: -40 to 75 degrees C
- Insulation Material: Polyolefin
- Jacket Material (Black): PVC
- Max. Pulling Tension: 25 lbs.
- Min. Bend Radius: 1.0"
- Nom. Diameter: .260"

	1594A 4 Pair UV - Outdoor Jacket	Paired- DataTwist® Category 5e Suitable Applications: Premise Horizontal Cable, Gigabit Ethernet, 100BaseTX, 100BaseVG ANYLAN, 155ATM, 622ATM, NTSC/PAL Component or Composite Video, AES/EBU, Digital Video, RS-422 Number of Pairs: 4 Total Number of Conductors: 8 AWG: 24 Stranding: Solid Conductor Material: BC - Bare Copper Insulation Material: PO - Polyolefin Outer Shield Material: Unshielded Outer Jacket Material: PVC - Polyvinyl Chloride Plenum (Y/N): N Plenum Number: 1585A Non-Plenum Number: 1583A Applications: Category Cables, Category 5e
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When running cable to your sign, please note the following:

Freestanding Daystar 3D Message Centers include a support structure consisting of two separate legs. One leg will contain the Data Line and the other will contain the Electrical Line. Both legs include an access plate near the bottom of the leg, so be sure to consider which side of the sign you will run the electrical and which side you will run the cable. Your concrete footing and conduit should match up to the sign when installed.

Note: Data and electrical lines should not be run up the same leg of your sign to prevent electrical interference with the data transmission.

Please contact your Regional Manager should you have any questions or special requirements.