



DSX Access Systems, Inc.

DSX Cable Specifications

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All DSX system wiring must be done in compliance with the National Electrical Code, ANSI / NFPA 70 regulations, and recommendations for U.S. Installations. Canadian Installations must be done in accordance with the Canadian Electric Code C22.1 and require a minimum of 18 Ga. wire for all cables used. The wiring part numbers listed are for example only; use these to cross reference to another manufacturer if needed.

RS-232

RS-232 communications are used from Host PC to Master controller when the Master is of the DSX-1040 Series of DSX Controllers. All RS-232 communications require 3 conductors with an overall shield and have a maximum distance of 50 feet.

The recommended cable is:

PVC - Belden 8723 - 22 AWG 2 pair shielded, 50 feet max.

Plenum - Belden 82723 - 22 AWG 2 pair shielded, 50 feet max.

RS-485

RS-485 is used for controller-to-controller communications. RS-485 is an optional method of communications for the PC to DSX-1040 Series Master. Two DSX-MCI Modules can be used to extend the distance to 4,000 feet between Master and Host PC. All RS-485 communications require two twisted pairs and have a maximum distance of 4,000 feet.

The recommended cable is:

PVC - Belden 9744 - 22 AWG 2 twisted pair, 4,000 feet max.

Plenum - Belden 82741 - 22 AWG 2 twisted pair, 4,000 feet max.

Readers and Wiegand Keypads

Card readers and DS-400 Keypads require a 3 pair 22 or 20 AWG cable with an overall braided shield. Maximum distance from the DSX controller to the reader is 250 feet with 22 AWG wire and 500 feet with 20 AWG wire. 3 Pair cable provides: 1 pair for power, 1 pair for Data, and 1 pair for two separate LED control lines. Motorola Readers with optional buzzer require 7 conductors. If there is any question on how many conductors are required for a specific reader or keypad, reference the wiring diagram for that reader in this manual. If greater distances are required, the DSX-220 Module will provide up to 1,500 feet for Wiegand or Clock and Data type outputs with 18 AWG wire.

The recommended cable is:

PVC - Belden 9942 or 8777 - 22 AWG 3 pair shielded, 250 feet max.

Plenum - Belden 82777 - 22 AWG 3 pair shielded, 250 feet max.

PVC - Belden 9873 - 20 AWG 3 pair shielded, 500 feet max.

Plenum - Belden 83606 or 85164 - 20 AWG 3 pair shielded, 500 feet max.

Note /// All 5Volt powered Readers and Keypads that draw 50ma or more should have a minimum of an 18 AWG cable.

Locks

12-24 Volt Lock wire from door to controller. All locks require a 16 AWG 2 conductor cable and have a maximum distance of 500 feet.

The recommended cable is:

- PVC - Belden 8471 - 16 AWG 1 pair, 500 feet max.
- Plenum - Belden 1862A - 16 AWG 1 pair, 500 feet max.
- PVC - Belden 8461 - 18 AWG 1 pair, 250 feet max.
- Plenum - Belden 82740 - 18 AWG 1 pair, 250 feet max.

Inputs

Input wire from monitored device to controller. All inputs require a 22 AWG 2 conductor cable and have a maximum distance of up to 1,000 feet. (Shielded cable is required for UL installations.)

The recommended cable is:

- PVC - Belden 8451 - 22 AWG 1 pair, 1,000 feet max.
- Plenum - Belden 82761 - 22 AWG 1 pair, 1,000 feet max.

AC Transformer

AC power wire from transformer to controller. Primary AC power to the controller from the transformer requires an 18 AWG 1 pair cable with a maximum distance of 25 feet.

The recommended cable is:

- PVC - Belden 8461 - 18 AWG 1 pair, 25 feet max.
- Plenum - Belden 82740 - 18 AWG 1 pair, 25 feet max.

Elevator Cable

Elevator Travel Cable for Card Readers requires a 20 AWG 3 Pair stranded elevator travel cable with an overall foil braided shield. It is very important that the cable is designed for use as an elevator travel cable. Normal stranded cable cannot withstand the constant flexing caused by the elevator movement.

The recommended cable is:

- BIW - 626PR04-00S - 20 AWG 4 pair, 500 feet max. Stranded Steel Center Core

It may be necessary to contract the additional cable to be installed by a certified elevator company. If using pairs of wires in existing travel cables, the outer pairs of the cable in reference to the inner core are preferable. Under harsh conditions, induced voltages or signals may prevent the readers in an elevator or other application from working. This can possibly be overcome with the use of the DSX-220 Module.

LAN

LAN cable is used for PC-to-PC communications. Ethernet Coax has a maximum distance of 600 feet. 10Base T has a maximum distance of 300 feet per run. The type of LAN and configuration dictates the topology and wire to be used.

The recommended cable is:

- PVC - Belden 1583A- 24 AWG 4 pair, 10Base T, 300 feet max.
- Plenum - Belden 1585A- 24 AWG 4 pair, 10BaseT, 300 feet max.