



BAS Dealer Information Note 11/29/01

Recommended Cabling for BAS Installations

The following are recommendations for cable types and sizes to be used on BAS installations. These recommendations are based on practical experience with existing BAS installations, industry standards for design of electrical systems, UL requirements for listing on the RSC, and National Electrical Code. Cable types and sizes which work well in a typical installation may not work well in all possible applications. The Dealer is responsible for ensuring that all cabling will meet the specific electrical requirements of the project in addition to all applicable codes. Contact BAS for assistance, if necessary, in cable selection.

General

1. Use copper conductors only.
2. All cable shall be Class 2 (CL2) or better. See NEC Article 725 for permitted substitutions.
3. If the cable is to be installed vertically from floor to floor, it must also have a riser rating (CL2R) or better.
4. If the cable is to be installed in a plenum or duct used for environmental air, it must also have a plenum rating (CL2P) or better.
5. Shielding is not necessary on any cables but if used it must be installed properly. The drain wire for a cable shield must be connected to an earth ground at one end only. The earth ground must be electrically sound.
6. Multiple analog inputs, analog outputs, and digital inputs from a single RSC may be run together in a single cable.
7. A cable used for a trunk line must not include any other signal types.
8. A cable used for digital outputs (24 VAC) must not include any other signal types.
9. Optical isolation should be used if a trunk line is used to connect 2 or more buildings, any portion of the cable runs underground, or there is any reason to suspect a more than 1-2 volts difference in potential between the PC and any other point on the trunk line. An optional Comm Port adapter (RS-232/RS-485) with built-in opto-isolation is available from BAS, or a separate opto-isolator may be used.

Trunk Line

Use CAT5 with 4 twisted pairs of 24 AWG solid copper and a CMR rating. Only 1 pair is typically used. 4 pair is recommended because it is cheap, readily available, and provides 3 spare pairs.

Analog Inputs

Use 22 AWG stranded copper with 3 twisted conductors and a CMR rating.

Digital Inputs and Analog Outputs

Use 22 AWG stranded copper with 2 twisted conductors and a CMR rating. To minimize wire inventory, it is also possible to use the same 3 conductor cable that is used for analog inputs.

Digital Outputs

Use 20 AWG solid copper with as many conductors as is necessary for the application (2-10) a CL2 rating.