

**Part 1            General**

**1.1                SECTIONS INCLUDED**

- .1      Public Address Cable
- .2      70 Volt Constant Voltage Speakers

**1.2                PUBLIC ADDRESS CABLE**

- .1      Operating Temperature Range -20°C to 75°C
- .2      Maximum recommended pulling tension 130 lbs.
- .3      Minimum bend radius (install) 2.6 in.
- .4      NEC/(UL) Specification CMR, CL3R
- .5      CEC/C(UL) Specification CMG
- .6      UL Flame Test UL 1666 Vertical Shaft
- .7      CSA Flame Test FT4
- .8      Nom. Inductance .16 uH/ft
- .9      Nom. Capacitance Conductor to Conductor @ 1KHz 19.9 pF/ft
- .10     Nominal Velocity of Propagation 66%
- .11     Nom. Conductor DC Resistance @ 20 Deg. C 4.0 Ohms/1000 ft
- .12     Max. Operating Voltage - UL 300 V RMS
- .13     Max. Recommended Current 9 Amps per conductor @ 25°C
- .14     1 pair 16 AWG shielded.
- .15     Acceptable Product: Belden.

**1.3                70 VOLT CONSTANT VOLTAGE SPEAKERS**

- .1      Factory assemblies shall be comprised of an Atlas Sound Model F104, 4” high, 70.7V transformer and baffle or approved equal.
  
- .2      Loudspeaker shall have wide angle sound distribution with 135° dispersion (-6dB, 2kHz octave band). The cone shall be a damped, high compliance type with smooth extended response over a range of 150Hz to 17kHz and a power rating of not less than 10 watts program. The magnet shall be a 10 ounce (283g) ceramic type. The 1” (25mm) voice coil shall operate in a magnetic field of at least 10,500 gauss. Voice coil impedance shall be 8 ohms. Sensitivity shall be 94dB (measured 1W/1M). Free air resonance shall be 101 Hz.

- .3 Loudspeaker shall include pre-mounted 70.7V transformer with power taps of .25, .5, 1, 2, 4. Transformer frequency response shall be +/- 1.5dB @ 100 Hz to 10KHz. Insertion loss shall not exceed +1.5dB.
- .4 Enclosures shall be Model 96-4 and shall be listed by Underwriters Laboratories (UL 1480 General Signaling and accepted under UL 2043 for use in air handling “plenum” spaces). Assemblies with support rails shall include pre-mounted brackets and shall transfer the loudspeaker package weight to the ceiling system support rails.
- .5 Acceptable Product: Atlas Sound BT720-4 with 96-4 Baffle enclosure or approved equal.

#### **1.4 GENERAL INSTALLATION REQUIREMENTS**

- .1 Install all systems as per the CEC and manufacturers recommended installation procedures.
- .2 All cabling shall be contained in EMT Conduit..
- .3 Test cable and equipment for sound quality and intelligibility.
- .4
- .5 Provide the following separation from Electrical Power systems installed in conduits:
  - .1 50mm from circuits of 300Volt and less.
  - .2 600mm from circuits 300Volt and higher.
  - .3 2 Metres from Circuits between 600V and 15KV.
  - .4 3 Metre for circuits above 15KV.
  - .5 Electrical systems cannot share the same pathway.
  - .6 Provide all material to provide a complete and operational
  - .7 System; contractor shall visit the site to at existing system operation.

#### **1.5 PAGING CABLING INSTALLATIONS**

- .1 Install connectors approved for use on the applicable manufacturer’s cable.
- .2 Provide colour coded zone indication on all PA Cables at each speaker box.

- .3 Solder and heat shrink all connections at speaker to ensure connectors do not short out.
- .4 All connections to the splices to the speakers shall be made at the pull box.
- .5 Install all cabling in Conduit to each speaker in ceiling space and flexible conduit to the speaker enclosure.
- .6 Follow all guidelines for installation and bend radius as indicated in voice data cabling installation requirements.
- .7 Install all PA Cabling in direction pull; it is not acceptable to come out of the side of the pull box.

#### **1.6 SPEAKER INSTALLATION**

- .1 Install speakers centre in the ceiling tile as indicated in the design, coordinate with electrical and mechanical contractors to ensure speakers are placed in locations shown in design.
- .2 Alterations of the locations will require design calculations to ensure acceptable sound pressure to the audience.
- .3 Connect Flexible liquid tight conduit from speaker back box to conduit system.
- .4 Use Factory Manufactured T-bar supports with speakers provide additional bracing as required.

END OF SECTION