Fiber Optic Application in Sports Venues

Fiber optics plays a key and integral role in the transmission of video and audio signals in the sports environments. Typical sporting events in fixed venues (stadiums, arena, etc) utilize video and audio for such applications as CCTV surveillance, digital signage, video distribution, announcements, broadcast signal feeds, and security.

Fiber offers a number of advantages over traditional copper solutions in these rather hostile environments. These include:

• Longer distances than copper – In any sporting venue, cables generally take a very circuitous route from the source to its destination. Line of sight and actual cable distances are generally quite different. A key advantage of fiber is that the quality of the signal, whether video or audio, does not degrade with distance. The performance remains the same, high quality, whether the distance is a short 10 meters or as long as several kilometers. Unlike a copper infrastructure, fiber does not contribute to any loss of video quality or audio fidelity. As we all know, the quality of a signal transmitted over copper will degrade as a function of distance. Fiber eliminates this problem as well as the need for the engineers and cable deployment team to concern themselves with cable distance, termination resistance, or quality of the connectors at each end of the cable.

• Total Immunity to Electrical Interference - Sporting venues are filled with many types of electrical cable systems from simple audio/video cables to switching high voltage, high power cables for lighting, HVAC, etc. These applications and associated cables can generate high levels of electrical noise inducing unwanted noise in the AV cables. Being immune to all types of electrical signals and interference, fiber is the perfect medium for transporting a pure undisturbed signal in these environments.

• Small Size/Light Weight – In many sporting venues cables need to be deployed quickly in various locations and under some unique and difficult circumstances. Speed and stability are paramount in these systems. Fiber presents extremely low drag on the system and allows the camera to traverse the entire field easily while still transmitting exceptionally high quality, stable video signals.

• Signal Type Agnostic – Whether the sporting event calls for a fixed or temporary cable infrastructure, fiber allows the users to transmit any type and quantity of signals over a single fiber or fiber cable. Broadcasters, internal video/audio distribution systems or any other user need to be aware of only the type of fiber, singlemode or multimode. A copper infrastructure requires the users to know the type of signals to be transmitted, the cable system deployed and, depending on their signal requirements, may have to deploy additional or alternative copper cables specific to their signal needs. Being signal agnostic, fiber eliminates this and again represents a perfect transport system.

• No Ground Loops – Anyone who has ever used fiber in some of these harsh sporting venues recognizes the advantage of fiber when it comes to ground loops. Because of the unique and varied equipment/signal grounds, copper systems are very prone to ground loops resulting in audio hum and video distortion. Many hours can be spent trying to isolate and correct ground loops in copper systems only to reappear if the electrical conditions change. Fiber eliminates these troublesome loops and allows easy, fast and noiseless installations.

• Future-Proof Infrastructure – Fiber has the unique ability to future-proof your system. The same fiber infrastructure can support your video signals as they grow from composite through VGA and component all the way up to HDSDI and beyond. Running one 6 or 12 pair fiber cable gives the facility room to expand without the need for larger or additional copper cables. Copper falls short in this capability in that not only might the type of cable change but the quantity as well to support the various video signal types. Fiber allows your system to grow and expand simply by changing the transmission equipment – not the infrastructure.