



**DSX Access Systems, Inc.**

## **Protocol and Bandwidth**

### **DSX Polling Protocol**

DSX IP Communications take place between the Comm Server PC and Master Controller using a DSX-LAN appliance. This module is an appliance not a Network Card or PC. It is assigned a static TCP/IP Address and a Port number. The port number ranges between 4000 and 5000. This is the UDP Port that the Comm Server is sending to at the IP Address of the module.

The module is listening for communications from the Communications Server PC that are directed at the mutually agreed port number. When the module breaks down the packet from the Comm. Server it sends the DSX proprietary protocol packet to the Master Controller. If the Master Controllers address is correct along with other qualifying factors the controller replies to the LAN module. The LAN module then sends the reply from the controller in a reply to the Comm. Server. The proprietary DSX protocol has its own error checking and retry logic built in. The module speaks UDP and should only answer to polls from the Comm Server directed to the Port agreed upon.

The DSX protocol has the error checking and retry logic. Nothing is ever sent in the clear in the data exchanges from the Comm. Server to the controller. There are no names, titles or other pertinent information that can be read in the data exchange. For higher security application AES-256 can be implemented between the Comm Server and the Controllers. The DSX-LAN is protocol independent and can successfully pass the encryption without an upgrade to it.

The Workstation program polls the Comm Server program in a similar fashion to the way the Comm Server program polls the Master Controllers. The Workstation uses the TCP protocol and requests an available port from Windows. It then directs a poll to port 22223 at the Comm Server IP Address. The Comm Server replies to the poll. When the Comm Server program replies to Workstation, "Primary Online" will appear in green in the bottom right corner of Workstation.

# Bandwidth

## Bandwidth

A communications connection between the WinDSX Comm Server and a Location Master Controller uses approximately 4800 bits per second of bandwidth. Size of database is not relevant.

## Poll Frequency

The Poll Frequency adjusts how often the PC will poll the Master Controller through this port connection. This allows the timing to be adjusted to best suit the method of communication and bandwidth usage. This can be especially useful for LAN/WAN - TCP/IP communications and for RF or radio link to the Master Controller.

Starting with Versions 3.7.133 \ 4.8.92 the Poll Frequency sets how often the Comm Server sends an empty poll or one that does not contain payload data. When there is data to be uploaded or downloaded the Comm Server will poll as fast as possible. When there is no data to be sent in either direction the communication supervision polls will be sent according to the poll frequency. This is set in milliseconds.

## Timing

The time adjustments are made in milliseconds. 0 = poll as fast as possible, 500 = twice a second, 1000 = poll once a second, 5000 = poll once every 5 seconds.

Default = 500

For Direct and Dial-up Modem communications set the Poll Frequency to 0.

For LAN (TCP/IP) Communications set the Poll Frequency to 500.

## Packet Size

Data packets between the PC and the Master Controller vary in size. The majority of the packets are empty polls and are only 18 bytes long. The longest packet is 200 bytes long.