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**DSX Modem Installation Manual**

**April 2009**

## Compliance Information

Information contained within this document was known to be true at the time of printing. This information is subject to change any time without notice.

DSX is a registered trademark of DSX Access Systems Inc, WinDSX is a trademark of DSX Access Systems Inc.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This document is a team effort by the Technical Support and Engineering Group at DSX Access Systems, Inc.

All DSX manufactured products are warranted against defects in materials and workmanship for two (2) years from date of shipment. Products not manufactured by DSX are warranted for one (1) year. DSX Access Systems, Inc., will repair or replace products that prove defective and are returned to DSX freight prepaid within the warranty period. The foregoing warranty shall not apply to defects resulting from misuse, accident, alteration, neglect, improper installation, unauthorized repair, or Acts of Nature. DSX shall have the right of final determination as to the existence and causes of the defect.

No other warranty, whether written or oral is expressed or implied.

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**Note///** DSX  Modems are the only modems that are guaranteed to work with your DSX system. Other modems may or may not function properly with the WinDSX Software or Controllers. Please do not call DSX for modem assistance if you are not using DSX Modems.

## Modem Operation Overview

The DSX System is capable of communicating with multiple remote locations via dial-up phone modems. A baud rate of 9600 is required for DSX Intelligent Controllers. Each location may be treated as a separate system, or locations may be grouped together to form a larger access control system. Since the system is fully distributed and does not require a PC for operation, there is no loss of performance in systems using dial-up phone modems. All controllers retain all capabilities including card access, anti-passback, and Linking Logic.

The PC may be programmed to routinely poll each modem-controlled remote location from 10 to 65,534 minutes. Poll Times set lower than 10 minutes can affect the performance of the system. Routine Polls provide verification that communications are still functioning and the collection of history logs. If the PC fails to connect with a modem location on three consecutive attempts, a Location Communications Loss alarm is generated at the PC and an optional action message can be displayed instructing the operator on what action to take.

If the PC is not programmed to routinely poll the location Master, the Master controller can be programmed to automatically store all transactions until the history buffer reaches 80% of capacity. When the buffer is at 80%, the Master controller calls the PC to upload all transactions.

If an alarm event occurs, the Master will initiate a call to the PC to report the alarm event regardless of its buffer status. If the Master controller is reset for any reason, it will automatically call the PC and request a full parameter download to ensure proper operation.

When database changes occur, the system will initiate a call to the remote site at the earliest time possible when the modem and phone line are available. The System can be programmed to delay downloads for a programmable number of minutes or set for after hours downloading which defers downloads until the first convenient time between the hours of 1:00 and 5:00 AM.

## Modem Recommendation

DSX recommends the DSX series modems for dial up phone line communications. This series of modems are small dial up phone modems that may be powered from the 12VDC Reader Port 12V output of the DSX Controller. By powering the modem from the controller, the modem is battery backed up so that communications will occur even during an AC power loss.

DSX configures and initializes all modems before shipping. They are shipped with everything necessary for installation. These are the only modems DSX will support. Other modems may or may not work properly.

## Phone Call Description

During an incoming call at the PC, the PC modem will turn on the RING led to indicate that the line is ringing. The PC then commands the modem to go off-hook. The two modems form a link by transmitting a carrier tone through the phone line. At this time, the modem will turn on the DCD led. Communication will then proceed between the Master and the PC at the baud rate of 9600. The PC is always responsible for dropping the connection (hanging up the phone). The Master's modem hangs up when the connection is dropped.
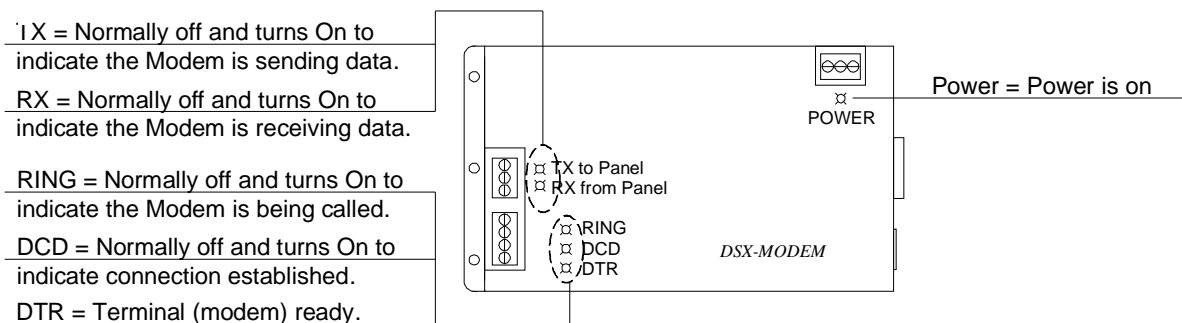
The PC modem must be initialized before it will function properly. Each time the communications program is started, and before each outbound call, the modem is automatically initialized. If the modem loses power, or is turned off and then back on, it must be re-initialized. To manually re-initialize the modem, perform a manual connect and disconnect or exit the WinDSX software and return.

## Communication Security Password  (Location Password)

WinDSX downloads the Communication Security Password (Location Password) into the non-volatile memory of the Master Controller. Once the Master Controller is downloaded with the Location Password, the password is required for all dial-up modem communications to that location. The Location Password entry is located under Location in Database. In the WinDSX Software the Location Password is not downloaded into Direct Connected Masters.

Changing the password requires knowledge of the password and communication with the Master Controller using KB2CW.exe. This terminal emulation program will prompt the operator to enter the password and then allow the operator to change it by issuing the PW command. To change the password without exiting the DSX program requires completely resetting the controller by powering the controller down and up.

## DSX Modem LED Operation



TX = Normally off and turns On to indicate the Modem is sending data.

RX = Normally off and turns On to indicate the Modem is receiving data.

RING = Normally off and turns On to indicate the Modem is being called.

DCD = Normally off and turns On to indicate connection established.

DTR = Terminal (modem) ready.

Power = Power is on

POWER

TX to Panel
RX from Panel

RING
DCD
DTR

DSX-MODEM

## PC Baud Rate

At the Host or Comm Server PC, set the communications port baud rate to 9600.
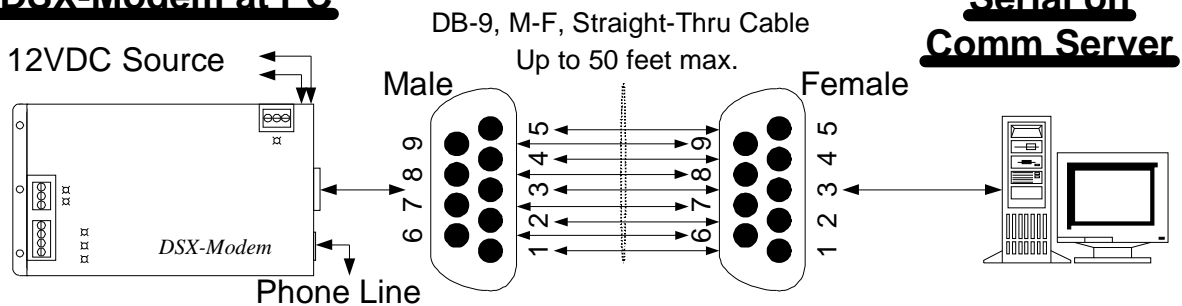
## Modem Power Sources

The DSX- Modem will accept DC power from either the supplied transformer or from the Reader Port of a DSX Intelligent Controller. The DSX-Modem requires 12VDC and a minimum of 250ma. When the DSX-Modem is placed at the PC use the supplied transformer.

**NOTE///** The striped wire represents DC+ voltage.

## Modem to PC Connections

**DSX-Modem at PC**

12VDC Source

DSX-Modem

Phone Line

DB-9, M-F, Straight-Thru Cable
Up to 50 feet max.
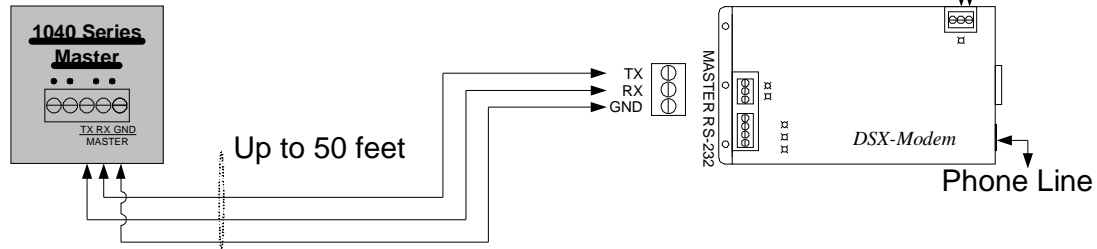
Male

Female

**Serial on Comm Server**

## Telephone Line Connections

Connect the Dedicated Telephone Line from the RJ-11 termination jack into the connector labeled Line. Do Not share the telephone line with any other equipment such as FAX machines or Elevator Phones. Observe proper phone line polarity. Tip/Green is Positive 48-52VDC. Red/Ring is Negative 48-52DC.
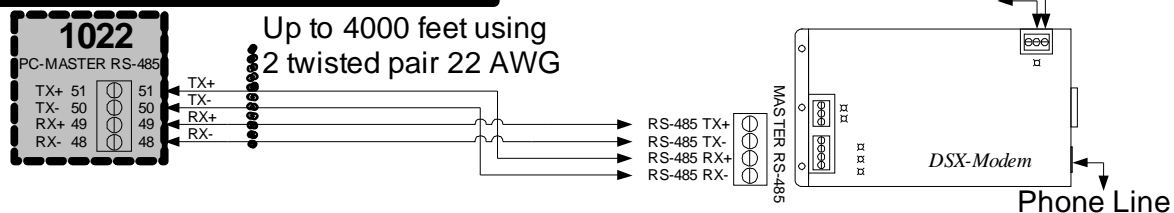
## Modem to DSX-1040 and 1022 Connections

The DSX-Modem provides RS-232 and RS-485 terminations to allow a connection from the Master Controller to the modem.

**PC to Master RS-232 Terminals of DSX-1040 Master Controller**

**DSX-Modem At Master**



**PC to Master RS-485 Terminals of DSX-1022 Master Controller**
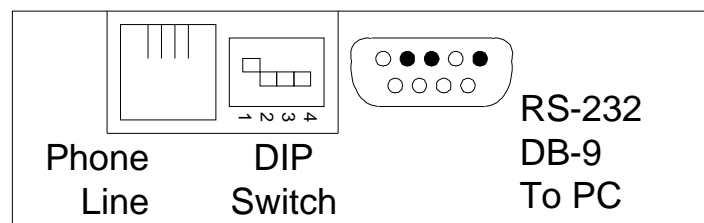
**DSX-Modem At Master**



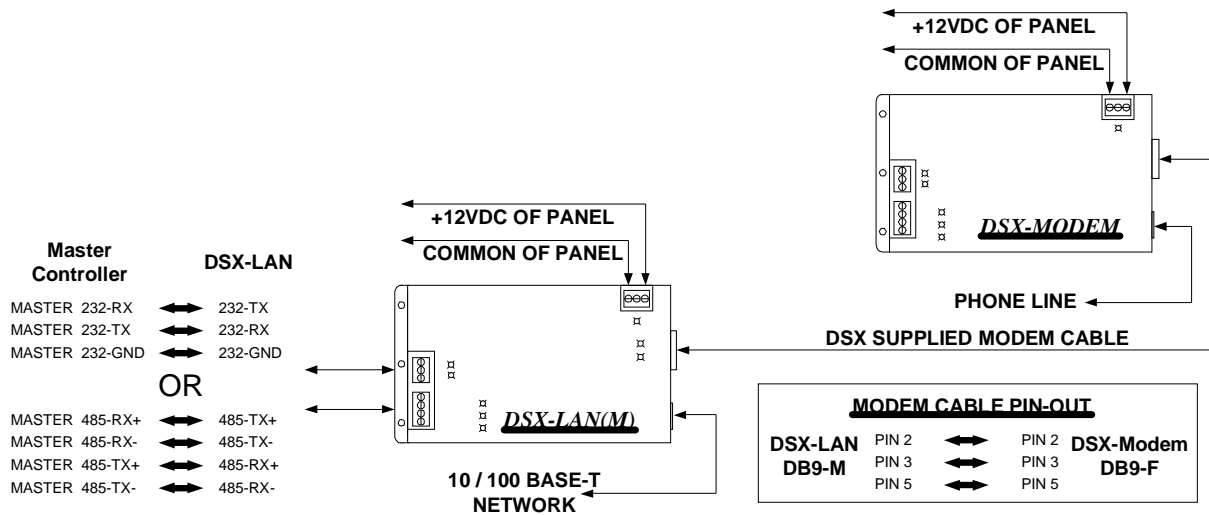## Modem Mounting in DSX Enclosures

When the DSX-Modem is used with a DSX-1040 enclosure it can be mounted on the mounting stud on the door. Loosen the nut with an 11/32" nut driver and place the modem on the stud and tighten the nut. Another mounting option includes setting the modem in the bottom of the DSX-1040 or DSX-1022 enclosure.

## DSX-Modem Dip Switches

The dip switches control Modem Location and Speaker Mode. Located on the right side of the modem is a set of 4 switches. The switch 1 up enables the speaker; switch 1 down disables the speaker. If the DSX-Modem is located at the PC the 3 switches to the right (2-4) should be up. If the DSX-Modem is located at the Panel the 3 switches to the right (2-4) should be down.
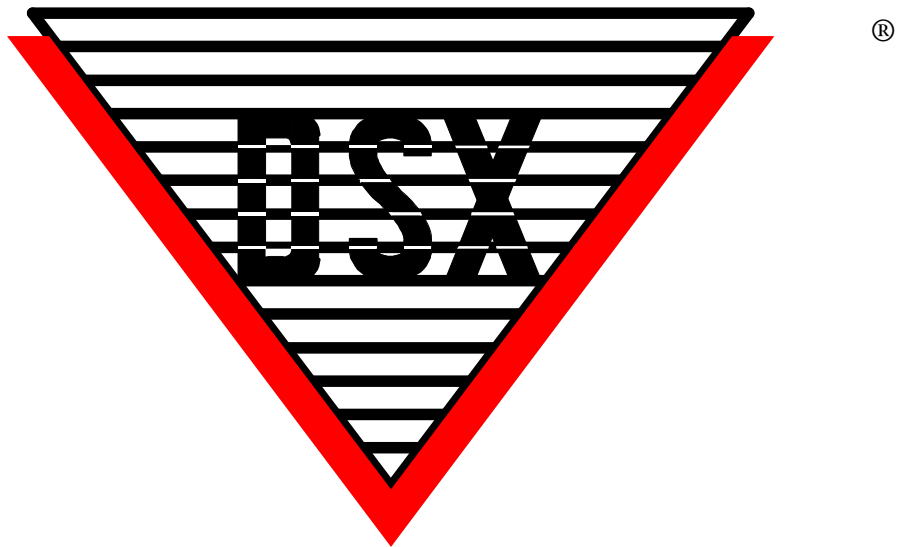
## DSX-LAN(M) with Modem Backup Connections



+12VDC OF PANEL
COMMON OF PANEL

DSX-MODEM

PHONE LINE

DSX SUPPLIED MODEM CABLE

Master Controller | DSX-LAN

MASTER 232-RX ⬌ 232-TX
MASTER 232-TX ⬌ 232-RX
MASTER 232-GND ⬌ 232-GND

OR

MASTER 485-RX+ ⬌ 485-TX+
MASTER 485-RX- ⬌ 485-TX-
MASTER 485-TX+ ⬌ 485-RX+
MASTER 485-TX- ⬌ 485-RX-

+12VDC OF PANEL
COMMON OF PANEL

DSX-LAN(M)

10 / 100 BASE-T NETWORK

**MODEM CABLE PIN-OUT**

DSX-LAN DB9-M | PIN 2 ⬌ PIN 2 | DSX-Modem DB9-F
| PIN 3 ⬌ PIN 3 |
| PIN 5 ⬌ PIN 5 |

## DSX-Modem Backup Configuration

1. Connect DSX-Modem to DSX-LAN(M) as shown above.
2. Add PC Phone Number and Panel Phone Number in the Location General tab.
3. Within Location, Numeric Options tab, Connect Type must be Direct. Consider the following configuration choices for a connection via modem: Auto Poll and Download, After Hours Auto Download, Poll Frequency, Delay Download and Modem Online Alarm settings.

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