



DSX-LAN. Interface Module

Overview

The DSX-LAN(M) module is typically used to connect a Master Controller to the Comm Server PC over a Local or Wide Area Network. The WinDSX software is inherently TCP/IP capable and can redirect communications that would normally be transmitted out a serial port, over a LAN/WAN to a particular IP address. The DSX-LAN(M) module receives that communication and converts it to RS-232 or RS-485 that connects directly to the Master Controller.

The DSX-LAN(M) module is sold in two different configurations. With the DSX-LAN, IP communications is the only method of connectivity. The DSX-LAN(M) has dial-up modem backup. The DSX-LAN module must be ordered with the (M) option along with the DSX modem to support the dial-up backup feature. The DSX-LAN (M) requires WinDSX 3.7/4.7 or higher software.

Other Applications

The DSX-LAN can also be used at Slave Controllers with the use of the PC Master Software. PC Master is a DSX software application that emulates a Master Controller. PC Master gets its download from the Comm Server PC and communicates with all the SUBs just like a Master Controller does. What is different about the PC Master software is its ability to communicate with each SUB Controller via TCP/IP or with a serial port connection. This allows SUB Controllers to be placed on the LAN and each one or each group of Controllers to have a LAN connection using a DSX-LAN Module. Modem backup is not available for SUB Controller communication.

Dial-up Modem Backup

The DSX-LAN(M) module has a 9-pin serial port that is used to connect a DSX modem for communications redundancy. When the DSX-LAN(M) module determines a loss of network connectivity it switches to "Modem Mode" which

allows the Master Controller to call the Comm Server or Host PC via the modem when necessary. When the Network connection is re-established, the Master Controller reconnects over the LAN. The modem and the DSX-LAN(M) module are powered from the Controller and are connected to each other via the supplied serial cable.

Start Here

Programming the System and the DSX-LAN module is broken down into Three phases. The First is the WinDSX Configuration. The Second is the DSX-LAN Module Programming and the Third is Commissioning the Module.

I. WinDSX Software Configuration

Configuring the WinDSX software for IP communications to a Location Master Controller is simple and requires just a few steps.

1. In DataBase - Edit the *Location* and select the *Numeric Options Tab*.
2. Set the *Connect Type* to **Direct** and click on OK to save.

3. In DataBase select *System/Setup* and then *Comm Ports*.
4. Define (add) a Comm Port above the Range of physical ports. For example, greater than 4.
5. Set the *Port Type* to **LAN (TCP/IP)**.
6. Enter the static IP Address to be assigned to the DSX-LAN module in the *TCP/IP Address* field. Consult with the Network administrator for this address.

7. Enter the *TX IP Port #* that will be programmed into the DSX-LAN module. WinDSX will communicate to the DSX-LAN module that is programmed with the TCP/IP Address and TX IP Port Number defined here.
8. The *RX IP Port #* can be used if desired. If left at 0 the Comm Server will use the next available port to communicate with the DSX-LAN module and will expect a reply to that port. By specifying exactly what ports are used, unused ports can be blocked for security reasons.

II. DSX-LAN Module Programming

Programming the DSX-LAN module is very simple and easy to do. Connect to the unit with a PC or Laptop and program the unit with KB2CW.exe through a serial port. This is the recommended method of programming the unit.

Programming Through a Serial Port Connection

1. Connect the Master RS-232 port of the DSX-LAN module to a serial port on a PC or Laptop running KB2CW.exe. Power the module with 12VDC from either the Master Controller or other source.
2. From within the WinDSX folder double click on KB2CW.exe.
3. Select *Comm Ports / Define Ports* and enter the port number that the DSX-LAN module is attached to. Use all other defaults and click on OK.
4. Once the Port information is displayed, type!!! (3 exclamation points). If properly connected through a working serial port the unit will return a message of:

“Please Type Password followed by the Enter Key”

Enter **123456** and press Enter.

5. Now Press the number **2** and the unit will prompt you to enter its *IP Address*. Enter the static or reserved address for this unit including the dots between each octet. (example = 173.26.17.183) Press Enter and then press Enter a second time to confirm the entry.
6. Now Press the number **3** and the unit will prompt you to enter its *IP Port Number*. Enter the port to be used (between 4001 and 5000). This must be the same IP Port number that was previously entered for the Comm Port definition under the *TX IP Port #* field. Press Enter and then press Enter a second time to confirm the entry.
7. Now Press the number **4** and the unit prompt you for the Comm Servers IP Address. By setting the Comm Servers address here and setting number **5** to Static the LAN module will only reply to that address. When using Hot Swap Comm Server leave this blank (0.0.0.0) and set number 5 to Dynamic. Press Enter and then press Enter a second time to confirm the entry.
8. Now Press the number **5** and the unit will prompt you to enter it into the *Static or Dynamic mode*. Press 1 to set it for Dynamic and Press Enter and then press Enter a second time to confirm the entry. Dynamic is used for Hot Swap (backup) Comm Servers or where the customer wants to be able to change the IP address of the Comm Server without reprogramming this module.
9. Now Press the number **6** and the unit will prompt you to enter a new *Password*. Enter 6 alphanumeric characters that will be required to reprogram the unit. Press Enter and then press Enter a second time to confirm the entry. For Complex Passwords see step 11.
10. Now Press the number **7** and the unit will prompt you to enter a *Link Type*. Leave at 0 for Auto-negotiation, 1 = 100Mb/Full Duplex, 2 = 10Mb/Full Duplex, **[Select 1 or 2 for Cisco routers]** Press Enter and then press Enter a second time to confirm the entry. For more information see next page.

11. For Complex Passwords Press the number **8** and the unit will prompt you enter new Password mode...0 = Simple, 1 = complex... Simple Password can include any combination of chars. Complex Password must include Alpha, Numeric and Special chars. (Special Characters are any printable keyboard characters such as ?>.,/) Press 0 or 1 and then Enter then press Enter a second time to confirm the entry.
12. Now Press the letter **S** to Save the changes and exit the programming mode or press **X** to exit without saving the changes.
13. Select **File** followed by **Exit** in KB2CW.

Example of DSX-LAN Programming

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Kb2cW --- DSX Access Systems Inc. ** COMMPORT **
File Comm Port IpClient IpServer IpCommPort Options Commands Help
TYPE: COMMPORT
PORT: 3
BAUD: 9600
WORDLENGTH: 8
STOPBITS: 1
PARITY: N

*****
* WARNING!
* You are attached to a private system intended for business
* proprietary use. Any unauthorized access, use or abuse of
* this system will be prosecuted to the fullest extent of the
* law and may subject you to criminal or civil sanctions.
*
*****

Please type password followed by the ENTER key.
*****

Password validated.

*****
* WARNING!
* You are attached to a private system intended for business
* proprietary use. Any unauthorized access, use or abuse of
* this system will be prosecuted to the fullest extent of the
* law and may subject you to criminal or civil sanctions.
*
*****

DSX-LAN(M) User Menu: Connected via Serial Port
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v4.0

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Key Command/Action Current Setting New Setting
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DSX-LAN MAC Address is: 00-08-66-00-45-67
C.S./Gateway MAC Address is: 00-00-00-00-00-00

1 DSX-LAN(M) Command List
2 Set DSX-LAN(M) IP Address 0.0.0.0 0.0.0.0
3 Set DSX-LAN(M) Port 4444 0
4 Set Comm Server IP Address 0.0.0.0 0.0.0.0
5 Set Comm Server IP Mode 1-Dynamic
6 Set Password *****
7 Set Link Type 0-Autonegotiate
8 Set Password Mode 0-Simple

s Exit Programming Mode, SAVE CHANGES
x Exit Programming Mode, DISCARD CHANGES

*** USER MUST MANUALLY EXIT PROGRAMMING MODE! ***

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When attaching the DSX-LAN module to a Cisco Layer 2 Switch or in a VLAN Scenario it is best to have the network administrator issue a new IP Address for the DSX-LAN module. Also, ensure that the Port we are connected to on the Cisco is set to the same speed as the DSX-LAN module – 10M or 100M but not Auto-negotiate.

III. Commissioning the Module

Once WinDSX is configured and the DSX-LAN module is programmed and installed at the Master Controller there are a few final steps necessary to commission the module.

1. Connect the Master RS-232 Port of the DSX-LAN module to the Master RS-232 Port of the 1040 Series Master Controller. Use the RS-485 port if connecting to a 1020 Series controller. Be sure to cross the TX and RX between the Module and the Master Controller.
2. Close the WinDSX program at the Comm Server.
3. Open a Command Prompt at the Comm Server PC and Ping the DSX-LAN module's IP address. **This Step must be performed at the Comm Server!** If you ping the unit from a different PC you will need to Reset the DSX-LAN to factory defaults (see below) and start completely over.

For Example: (Type the following at the command line. _ = space – (substitute your ip address) **Ping_173.26.17.183** (and then Press Enter.)

If the unit replies, commissioning the unit was successful.

4. Close the Command Prompt and Restart the WinDSX program at the Comm Server.

Resetting the DSX-LAN to factory defaults

To reset the unit and default it to no IP Address and 4444 as the IP Port number – press the Reset Button on the side of the DSX-LAN module and hold it until the LAN TX LED lights up and then extinguishes. Requires reprogramming through serial port.

Q&A

Why don't I need a subnet mask or default gateway?

Because the DSX-LAN Module is an appliance. It is not a network card nor is it a router. It is a device used to communicate with DSX Panels.

The premise here is that the Comm Server talks to the DSX-LAN Module first. Once the DSX-LAN Module receives a packet that was intended for it, the module simply replies to that packet.

Since the DSX-LAN Module does not initiate the conversation, it does not need the typical information that a network pc or a router would require in order to initiate a conversation with another network device.

Can I use this unit on a WAN and on multiple subnets?

For WANs and multiple subnets, it is Required that that a packet be routable from the Comm Server to the LAN module. Once the routing is established a poll or ping from the Comm Server will get to the module where a reply will be sent back using the same routing information that got it there. Yes, it is that simple.

Can I use a DSX-LAN Module even though I have a DHCP server?

Yes, but the DSX-LAN Module must have a fixed IP address just like the DSX Comm Server. The address that you use for the DSX-LAN Module must be excluded from your DHCP scope or reserved.

How to Reprogram the DSX-LAN (M)

Once the DSX-LAN Module is operational and communicating with the WinDSX system it is sometimes necessary to reprogram the Module to assign it a new IP Address or IP Port number, to change its Mode, or Link Type. Follow these instructions to reprogram a functional DSX-LAN Module over the network connection.

If you want to change the IP Address or IP Port number of the DSX-LAN Module start with step 1 below and make those changes in the WinDSX database first. If you want to change the Mode or Link Type of the Module only skip to step 2.

These changes must be performed at the DSX Comm Server ONLY!

1. In the DataBase program (db.exe) on the Comm Server PC make the following changes. Select System/Setup/Comm Ports. Delete the existing Comm Port associated with the DSX-LAN module. Add a new a new port giving it the new IP Address and/or the Tx IP Port Number and click OK to save. Repeat this for all of the DSX-LAN Modules to be reprogrammed.
2. It is necessary to close (File-Exit) the WinDSX program on the Comm Server PC and if Comm Server (CS.exe) is running as a Service the "DSX Comm" Service must be Stopped!
3. In the WinDSX folder on the Comm Server PC locate the KB2CW.exe program and double click on it. (red and blue arrow shortcut)
4. Select IP Client and click on Connect. Enter the existing IP Address of the module. Enter the existing IP Port number and click on OK.
5. Type - !!! (three exclamation points) and the Module should prompt you for a Password. The default password is 123456.
6. See page 2 for programming information. Change the IP Address (2) LAN Module IP Address, (3) IP Port Number, (4) Comm Server IP Address, (5) Comm Server IP Mode, (6) Password, (7) Link Type, (8) Password Mode, (S) to Save. Be sure to Save your changes.
7. Select File and Exit from KB2CW.exe.
8. If you have changed the IP Address or IP Port number be sure and Ping the new IP Address from the Comm Server PC ONLY!
9. Once these changes have been made restart the WinDSX program on the Comm Server and/or restart the DSXComm Service.

Note !!! Do Not Ping the DSX-LAN Module from any PC but the Comm Server.

DSX-LAN Module to 1040 Master Controllers – RS-232

DSX-LAN	1042	1043	1044
Tx	4	16	4
Rx	3	15	3
Gnd	5	17	5

DSX-LAN Module to 1040 SUB Controllers via CDM – RS-485 - PC Master **

DSX-LAN	CDM
Tx+	Rx+
TX-	RX-
Rx+	Tx+
RX-	Tx-

DSX-LAN Module to 1020 Master Controllers – RS-485

DSX-LAN	1022	1021	1032
Tx +	49	51	55
Tx -	48	52	56
Rx +	51	49	53
Rx -	50	50	54

DSX-LAN Module to 1020 SUB Controllers – RS-485 – PC Master**

DSX-LAN	1022	1021	1032
Tx +	57	43	43
Tx -	56	44	44
Rx +	59	41	41
Rx -	58	42	42

** PC Master uses the connections above listed for SUB Communications.

Wiring the DSX-LAN Module to the PC for Programming

DSX-LAN	DB-9	DB-25	DSX-USB
Tx	2	3	Rx
Rx	3	2	Tx
Gnd	5	7	Gnd

DSX-LAN Module Power

The DSX-LAN module requires 12VDC at 300ma from the 12V reader power of the controller or the 12V output of the DSX-1040 CDM.

Mounting the DSX-LAN

The DSX LAN Module can be located inside the 1040E or 1022E equipment enclosure. The Module conveniently fits in the bottom of the enclosure of the panel it is connected to. There are mounting studs located on the inside of door to the 1040E enclosure that will allow the DSX-LAN module to be mounted using the holes located on the mounting flange of the Module.

Connecting the Dial-up Modem

The DSX LAN (M) module and DSX Dial-up Modem should be powered from the DSX Controller or CDM board. Use the supplied modem cable to connect the LAN(M) Module to the modem.

With the equipment powered down connect the Modem to the LAN(M) Module and the LAN(M) Module to the Master Controller. Leave the network cable unplugged from the LAN(M) Module. Power the equipment up. Connect the network cable to the DSX-LAN(M) Module. In the DataBase program under Location/General Tab - enter the phone number of the modem and the Comm Server. On the Numeric Options tab program, the modem options that apply to your application and the way you want the dial-up operation to work when the network is offline.

Redundant WinDSX Comm Servers

The DSX LAN (M) Module must be programmed with the "CS IP set to "0.0.0.0" and the "Comm Server IP Mode" set to "Dynamic".