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SX-510

Serial Device Server Family

Installation Guide



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Part number 140-00188-150 Rev A

Introduction

The SX-510 Serial Device Server allows sharing of RS-232/422/485 serial devices on 802.11a/b/g wireless or Ethernet wired networks.

Package Contents

- Serial Device Server
- Power supply adapter with power cord
- Serial Device Server Installation CD
- Installation Guide (this document)

Network Requirements

To use the Serial Device server on either a wireless or a wired network, you will need:

- DHCP server on your network OR a static IP address, subnet mask and router address.

When used on a wireless network, the Serial Device Server can operate in either one of the following modes:

- Infrastructure mode (with 802.11a/b/g wireless access point or router; this is the most commonly-used mode)
- Ad-Hoc mode (direct communication with other wireless devices without an access point)

To configure the Serial Device Server on a wireless network, you will need the following information from your wireless network administrator:

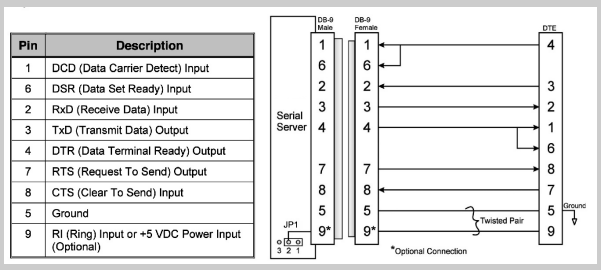
- Wireless mode used on your network (Infrastructure or Ad-Hoc)
- The SSID for your wireless network.
- The Radio Frequency Channel of the wireless network (required for Ad-Hoc mode only).
- Wireless Security Settings (encryption type, authentication type, WPA password, WEP keys, 802.1x EAP settings, etc.)

Hardware Installation (for wired or wireless operation)

Follow the steps below to install the Serial Device Server:

1. Make sure you have installed and set up your serial device as described in the documentation that came with the device.
2. Write down the 12-digit MAC address printed on the label located on the bottom of the Serial Device Server (for example, 00:80:92:01:4A:27).
3. Connect the Serial Device Server to your serial device. If you are using RS-232, you may use standard PC cabling (you should normally use a null modem crossover cable). The 9-pin connector pinouts and cabling are as follows:

Pin	Description
1	DCD (Data Carrier Detect) Input
6	DSR (Data Set Ready) Input
2	RxD (Receive Data) Input
3	TxD (Transmit Data) Output
4	DTR (Data Terminal Ready) Output
7	RTS (Request To Send) Output
8	CTS (Clear To Send) Input
5	Ground
9	RI (Ring) Input or +5 VDC Power Input (Optional)



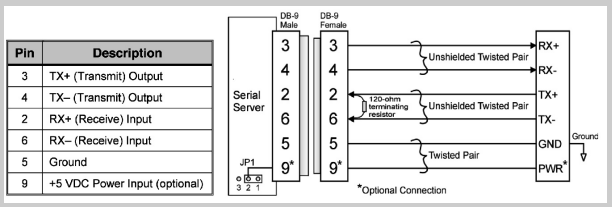
RS-232 connector pinouts and cabling

If you are using RS-422 or RS-485 in full-duplex or half duplex modes, you will need a special cable. In addition, if the Silex Serial Device Server is the last one in a chain, then a 120-ohm resistor should be placed between pins 2 and 6 (for full-duplex mode) or pins 4 and 5 (for half-duplex mode).

Important: *If you are using RS-422, RS-485, or RS-485 half-duplex, you MUST set the serial port line mode as described in the* Setting the Serial Port Parameters *section later in this manual.*

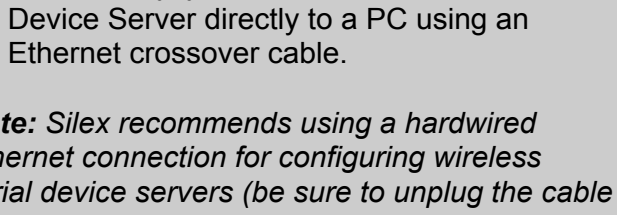
The RS-422 and RS-485 pinouts and cabling are shown in the following diagrams:

Pin	Description
3	TX+ (Transmit) Output
4	TX– (Transmit) Output
2	RX+ (Receive) Input
6	RX– (Receive) Input
5	Ground
9	+5 VDC Power Input (optional)



RS-422/485 full-duplex connector pinouts and cabling

Pin	Description
3	TX+/RX+ (Bi-Directional)
4	TX–/RX– (Bi-Directional)
5	Ground
9	+5 VDC Power Input (optional)



RS-485 half-duplex connector pinouts and cabling

4. Plug the Serial Device Server power supply adapter into a suitable AC receptacle, and then plug the power supply cable into the Serial Device Server. The Serial Device Server will run through a sequence of power-up diagnostics for a few seconds. When the startup is complete:
   - The orange LED will be on (power).
   - Both the yellow and green LEDs will be on if the wireless network is active (note that the wireless connection will be disabled if an Ethernet cable is plugged in).
   - The green LED will be on and the yellow LED will be off if there is a 100Base-T connection.
   - The yellow LED will be on and the green LED will be off if there is a 10Base-T connection.
5. Connect the Serial Device Server to your network through a switch or hub using a category 5 (CAT5) Ethernet cable. Alternatively, you can connect the Serial Device Server directly to a PC using an Ethernet crossover cable.

Note: *Silex recommends using a hardwired Ethernet connection for configuring wireless serial device servers (be sure to unplug the cable after you have finished the configuration). If you cannot use an Ethernet connection, then refer to the User's Reference Guide (available on the included CD-ROM or on the Silex website) for setting up the serial device server using Ad-Hoc wireless mode.*

6. The Serial Device Server's IP address must be configured before a network connection is available. If your network offers DHCP, the Serial Device Server will automatically an IP address (make sure that your system manager has configured the length of the DHCP lease so that the IP address of the Serial Device Server does not change).
7. If your network does not offer DHCP, a static (fixed) IP address must be assigned. Refer to the *Manually Configuring the IP Address Using ExtendView* section later in this document.

Management and Configuration Methods

Silex offers a variety of methods to conveniently configure and monitor the wireless and wired operation of the Serial Device Server. These include:

- *ExtendView*. ExtendView is a powerful but easy to use graphical management utility for Windows computers.
- *Internal Web Pages.* Silex Serial Device servers can be configured using any standard web browser.
- *Internal Command Console.* This capability, which is accessible via TELNET, provides an extensive command line interface that can be used by an administrator or directly controlled by a computer through the serial port.

- *Compatibility with TCP/IP utilities and protocols.* The Serial Device Server can be managed and/or configured via SNMP, DHCP, BOOTP, arp, rarp, tftp and FTP.

ExtendView and the internal web pages are described in the next sections. The other management and configuration methods are described in the *User's Reference Guide* on the included CD-ROM.

Manually Configuring the IP Address using ExtendView

Note: *Skip this section if you are using a DHCP server to configure the IP address*

There are a number of ways to manually configure the IP address of the Serial Device Server if you do not have a DHCP server. The simplest method is to use the ExtendView utility on a Windows PC as described in the following steps. Other methods are described in the First-Time IP Configuration section in Chapter 3 of the *User's Reference Guide*.

1. Insert the CD-ROM supplied with the Serial Device Server into your CD-ROM drive, and click on ***Install Software***.
2. Select ***ExtendView***, and then click on ***Install***. Follow the prompts in the installation wizard.
3. Start the ExtendView utility by clicking on ***Star***t, ***Programs***, ***silex technology,*** and then ***ExtendView***.
4. If you are running ExtendView for the first time, you will see the Welcome screen (this screen will not appear after the first time). Click ***Next***, choose any name for your View Name, select ***Automatically create a view with default settings*** (or configure the view to your preferences), and then click ***Finish***.
5. Right-click on the Serial Device Server that you want to configure from the displayed list, and then left-click on Configuration. The default Serial Device Server name is SLX*xxxxxx* (where *xxxxxx* is the last six digits of the MAC address from the label that is affixed to the Serial Device Server).
6. If you do not have a DHCP server, you will be asked to manually enter an IP address. Click ***OK*** when you are finished
7. The Server Configuration window will appear. Check the IP address setting to make sure it is correct. If necessary, change the Subnet Mask and Gateway. If you have a WINS server, enter its address or click ***Use DHCP to Locate WINS Server***.
8. Power the Serial Device Server off and then on again to make the new IP address take effect.

Configuring Wireless Parameters and Security

The wireless parameters and security options must be configured before the Serial Device Server can communicate on a wireless network. The configuration procedure is as follows:

1. Log on to the web browser interface of the device by entering its IP address on the web browser. Click on ***Login*** and enter the configuration password (default is *access*)

Note: *If you cannot connect the Serial Device Server, you may have an invalid IP address. Refer to the Troubleshooting section at the end of this document.*

2. Once logged in, select ***Wireless*** on the Left Hand Menu item list.
3. Enter the SSID of your network and select either AD-HOC (peer-to-peer) or INFRASTRUCTURE (if you are using an access point) as the Mode. If you are using AD-Hoc mode, select the Channel number used on your network. Click ***Submit*** to save the changes.
4. Click ***Configure Network Security.*** Select the encryption and authentication type used on your network. If necessary, select other network security parameters relevant to your network (refer to the help information in the bottom window of the browser screen or to Appendix A in the *User's Reference Guide* for more information).
5. Click ***Submit*** to save the changes, and click on the link to reset the Serial Device Server to make the changes take effect.

Setting the Serial Port Parameters

The serial port parameters on the Serial Device Server must be set to EXACTLY match the parameters of your serial device. To configure these parameters:

1. Log on to the Serial Device Server internal web pages by entering its IP address on any web browser. Click on ***Login*** and enter the configuration password (default is *access*).
2. Once logged in, click ***I/O Port*** on the Left Hand Menu. Then set the following:
   - Set the baud rate, bits per character, stop bits, parity and flow control.
   - If you are using RS-422 or RS-485, set the ***Mode*** to ***422***, ***485***, or ***485HD*** (half-duplex).
4. Click ***Submit*** to save the changes, and click on the link to reset the serial device server to make the changes take effect.

Serial Port Emulator (Optional)

The Serial Port Emulator is a PC program that emulates a standard Windows COM port (for example, COM3) to allow existing Windows serial applications to communicate with the Serial Device Server without any modification. To install the Serial Port Emulator, use the included CD-ROM and follow the steps below:

1. Select ***Install Software.***
2. Select ***Serial Port Emulator***, and then click on ***Install.*** Follow the prompts in the installation wizard. After the installation is complete, you can start the Serial Port Emulator utility by clicking on ***Star***t, ***Programs***, ***silex technology,*** and then ***Serial Port Emulator***.
3. Double-Click on the Serial Device Server in the list you want to add.
4. Select the COM port you want to create (for example, COM3). Check the box next to ***Connect port when Windows starts*** and click ***Add.***

You can minimize the Serial Port Emulator software now. The setup is complete. Set up your application to use the COM port created in step 3.

Configuring ECable Mode on Serial Device Servers (Optional)

ECable is a feature that gives the Serial Device Server the ability to automatically initiate a connection to the IP Address and TCP Port Number of a remote TCP/IP device (for example, a PC or another Serial Device Server). This eliminates the need for the host computer application to initiate the connection, and it provides a better emulation of a hardwired cable connection.

Important: *Do not use ECable mode with the Serial Port Emulator software.*

1. Log on to the web browser interface of the device by entering its IP address on the web browser. Click on ***Login*** and enter the configuration password (default is *access*)
2. Once logged in, select ***I/O Port*** on the Left Hand Menu item list.
3. Under ***I/O Port Settings,*** set the ECable mode to ***Enable***, enter the appropriate destination IP address and TCP port (when connecting to another Silex Serial Device Server, the default TCP port is 9100).
4. You can also modify the time between ECable connection attempts (in seconds) by changing the ***Connection Attempt Time*** field. The default value is 30 seconds.
5. Click ***Submit*** to save the changes, and click on the link to reset the serial device server to make the changes take effect.
6. You must also set the remote TCP/IP device to listen on the specified TCP port (refer to the instructions for that device).

Troubleshooting

1. *Verify the serial connection.* If your serial device is capable of printing or displaying ASCII characters, then the communication between the Serial Device Server and the serial device can be verified by pressing the **Reset** button on the Serial Device Server.
   - If communication has been successfully established between the two devices, the serial device will display or print a test page with the Serial Device Server's configuration data.
   - If no data is displayed or printed, verify that both devices are powered ON, are properly connected using a suitable serial cable, and that the baud rate, bits per character, stop bits, parity and flow control are identical on both devices.
   - If you are using RS-422 or RS-485, verify that you have set the serial port line mode as described earlier in this document.

   The two most common serial communication problems are due to either bad cabling and/or mismatched serial port parameters.

2. *Verify the network connection*. If possible, print a test page as described above and check the IP address. If this not possible, try pinging the Serial Device Server from the command prompt of your operating system (for example, *ping 192.168.2.23*).

   If the IP address is not correct, check your network cabling and try powering the Serial Device Server off and then on again. Repeat the IP address configuration steps if necessary.

If you are still having problems, contact Silex Technical Support (see contact information below).

Finishing the Configuration Process

If you have been configuring a wireless Serial Device Server using a wired connection, you MUST unplug the Ethernet cable (the Serial Device Server automatically disables the wireless connection if it detects that an Ethernet cable is plugged in).

Need More Detailed Information?

For more detailed information regarding configuring the Serial Device Server, please refer to the *User's Reference Guide.* This guide is available on the included CD-ROM or at the Silex website (www.silexamerica.com).

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This product is certified to comply within the limits for a Class B digital device Part 15 of the FCC Rules, CE Directives 89/336/EEC,73/23/EEC and 99/5/EC, and Industry Canada. See *User's Reference Guide* for more information.

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