



**Index:**

[Introduction](#)

[Recommended modems](#)

[Setting up the remote](#)

[Remote modem configuration Strings](#)

[Cable Section](#)

[Local modem setup](#)

[Configuring the Link in Directsoft32](#)

[Troubleshooting](#)

**Introduction**

AutomationDirect.com products are used in many different types of remote applications. Oil and water pump stations, international pipelines, power stations, and many more. Instead of the user having to fly or drive out to the site, he can use a standard modem to call the remote modem connected to the PLC. This allows the user to retrieve valuable data and /or make needed programming changes from a remote location.

Modem Communications have changed with the new release of Directsoft32 Software version 3.x. In the past; the modem setup for the 16 bit 2.x version of the software was treated as a direct serial link. The modem was controlled and configured with Directsoft alone. We now are using TAPI version 1.4 (Telephony Application Programming Interface). This allows applications to control modems or other telephony devices for operations such as dialing, answering, or hanging up a connection, in a standard way. TAPI-aware applications no longer need to provide their own modem support list because interaction with a modem is now centralized by the Operating system such as Windows.

You will now use the Windows95/98/NT modem setup utilities to configure the modem. This should simplify the setup of the modems and allow you select the latest and best drivers for your modem. Most of you are already using your modem for Internet access and/or faxing. In order to communicate to our PLC's we are going to have to disable some features that your modem will try to use during the connection. (*Error control and compression*)

**We are not going to make any changes to the modem settings that you are using for other software packages.** We will recommend that you install the same modem a second time. Windows will change the name by adding a number to the name each time. The name will look like "modemname#2" or "modemname#3". This will create a second "logical" modem on your PC, although you will physically have only one modem. If you are installing your modem for the first time, follow the instructions included with your new modem to install the "first logical" modem. After you have installed the first one, add the "second logical" modem.

To add the "second logical" modem, do the following:

1. Bring up the modem control panel:  
"Start->Settings->Control Panel..." Double-click on the **Modems** icon
2. Make a note of the name and manufacturer of your "first" modem.
3. Click on the "Add..." button. This will launch the **Install New Modem** wizard.
4. Check the "Don't detect my modem; I will select it from a list".
5. Hit the "Next" button to bring up the Manufacturers/Model selection dialog.
6. First, find the manufacturers name, then the model type that you noted in step 2. If you find it, hit the "Next" button and finish the installation wizard. Be sure to install it on the same COM port as you did the first time. If you cannot find it and you have the installation disk that came with your modem, hit the "Have Disk..." button. Follow the installation instructions for this modem. If you cannot find your modem, you can install a Standard 9600bps Modem (under Manufacturers, select "**Standard Modem Types**", then under Models select **Standard 9600 bps Modem**). This should work with most modems since you cannot utilize any advanced features anyway when communicating point-to-point with a PLC.

You should now have a second logical modem installed with the name of your modem followed by #2, or something else designating it differently from the first installed modem.



### Recommended modems

We recommend that you buy an *external* modem; not because it is inexpensive, but because it has a good reputation, and we have found that it can be harder to troubleshoot an internal modem. This will be the less expensive solution in the end. We have also learned that *internal* modems, which do not have status indicator lights, are much harder to debug when things don't work correctly. With today's prices, it is possible to buy a high quality modem for a reasonable price. We have established communications between a personal computer and our PLC's using the following brands of modems:

[MultiTech](#) (ZDX and Multi-Modem II)

This modem has proven reliable and it can be configured remotely.

[USRobotics](#) (Sportster) (NOT Sportster Si)

[Hayes](#) (Optima/Accura)

[Signet](#) VT-Modem-2 allows Auto dial out using PLC output to initiate

### Setting up the remote modem and PLC

#### 1) **PLC Setup:**

You should make sure that the remote modem has a dedicated phone line and that there are no devices that may answer before the plc modem does (like fax machines). You should configure your PLC communication port for **9600 baud, 8 data bits, and NO PARITY**. The important part is the parity setting. Most popular modems cannot transmit an odd number of bits per character frame. If parity were enabled with 8 data bits, each character would consist of 1 start bit, 8 data bits, 1 parity bit and 1 stop bit, making a total of 11 bits per character frame. . If you want parity enabled, you must use 7 DATA BITS, ODD or EVEN PARITY, and DIRECTNET protocol in ASCII mode. Neither HEX MODE nor K-SEQUENCE protocol will work with just 7 data bits. The remainder of this document will presume you are using 8 DATA BITS, NO PARITY, 1 STOP BIT. It is possible that a faster baud rate can be used. 9600 baud is proven to work very well. If you call with problems, we will request that you try 9600 baud.

#### 2) **Remote Modem Setup:**

You must use a terminal program of some kind, such as the Windows Terminal or HyperTerminal application, to configure the remote modem. You should set the terminal program for the same speed that you have configured your communications port. We usually use 9600 baud so **use 9600, 8, None, 1 and hardware handshaking**. Now you must configure the remote modem to:

- Auto Answer
- Use baud rate adjustment, or use a fixed Serial port baud rate of 9600
- Turn compression OFF
- Turn error correction OFF. (You may have to enable error correction if your telephone line is noisy but you may have some problems executing tasks due to communication delays).

Write these settings to the Non-Volatile RAM by using the "&W0" command. This will save the settings in the modem so that when it is power cycled it will use these settings.

Please refer to the configuration command lines examples below in the [modem configuration section](#).

[Back to Index](#)



**3) Cables:**

The best way to connect between the modem and the PLC is using the AutomationDirect.com programming cable along with a [NULL-MODEM adapter](#). You will most likely have to get a 9-25 pin adapter also since our programming cables are made to fit into 9-Pin serial ports. You may be able to find a 9 to 25 pin adapter that is also a NULL modem adapter. The [cable section](#) of this document shows the pin-out description for these cables. If you are close to a Radio Shack store you could purchase items 26-264 (DB9 Null Modem Adapter) and 26-1388 (DB25 male / DB9 male).

**Modem Configuration Setup Strings**

**Supra Fax Modem 14.4k V.32**

---

Remote Modem: AT&F0 N0 S37=9 %C0 \N3 &C1 &K0 &Q5 &R1 &Y0 S0=1 &W0  
 Local Modem: AT&F0 N0 S37=9 %C0 \N3 &C1 &K0 &Q5 &R1 &Y0 &W0  
*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

**US Robotics Sportster**

---

Remote Modem: Use default switch settings except for 1 & 5. 1, 3, 8 should be down  
 AT&F1&B0&N6&D0&H1&R1&I0&K0&M4&W0  
 Local Modem: Use default switch settings  
 AT&F1&D0&M0&W0  
*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

**Hayes Accura 336/56K**

---

Remote Modem: AT&F&W0  
 ATS0=1  
 AT&D0%C0%E0&K0S37=9N0N1  
 AT&W0  
 Local Modem: AT&F0N0S37=9S46=136&C1&K0&Q5&R1&Y0&W0  
*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

**Hayes Optima 9600**

---

Remote Modem: AT&F N0 S37=9 S46=136 &C1 &K0 &Q5 &R1 &Y0 S0=1  
 AT Q1 &W0  
 Local Modem: AT&F N0 S37=9 S46=136 &C1 &K0 &Q5 &R1 &Y0 &W0  
*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

[Back to Index](#)



### Multi-Tech MT932EAB or Multi-modem II

This modem is no longer available from Multi-Tech. The newer Multi-Modem II models should work with the same configuration.

Use the default DIP switch settings except set switch 1 to force DTR ON and switch 5 to Auto Answer mode.

Remote Modem:           AT&W1&F1  
                              ATQ1\$BA0\$MB9600\$SB9600  
                              AT&E1&E3&E7&E12&E14&W0

Local Modem:            AT&W1&F1  
                              ATQ0\$BA0\$MB9600\$SB9600  
                              AT&E0&E3&E7&E12&E14&W0

*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier*

**Odd parity:** If you are using a port configured for ODD parity, such as the programming ports on our PLC's, then use the following:

Remote Modem:           AT&W1&F1  
                              ATQ1\$BA0\$MB9600\$SB9600  
                              AT&E1&E3&E7&E12&E14  
                              AT\$EB1#P1&W0

Local Modem:            AT&W1&F1  
                              ATQ0\$BA0\$MB9600\$SB9600  
                              AT&E0&E3&E7&E12&E14  
                              AT\$EB1#P1&W0

*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier*

[Back to Index](#)



### Multi-Tech MT1932ZDX and MT2834ZDX (see note)

Note: For ODD parity applications, the *MT2834 ZDX* modems will work if they have a firmware revision of 3.13A or older. (We have been told by some of our customers that the newer versions of the firmware, 1998 vintage, have the odd parity support again, so you might try the configuration and see if it works.) Multi-Tech has removed the odd parity support on the newer modems in order to incorporate other features. Their technical support group is willing to send you the firmware with odd parity support if you need that feature. This is only a problem if you want to use the ZDX modems for programming a port that has been configured for ODD parity, such as the programming ports on the 105, 205 and 405 PLC's.

**NOTE:** A modem set for ODD parity will only communicate with other modems set for ODD parity.

#### NO PARITY modem setup:

Remote Modem:           AT&F8&W0  
                              AT&F0  
                              AT&F9&W0  
                              AT&D0S0=1  
                              AT#F0\$BA1\$MB9600\$SB9600  
                              AT&E0&E3&E7&E12&E14  
                              ATE0Q1&W0     (you will get NO response from modem)

Local Modem:    Use the same settings except use Q0 instead of Q1 and E1 instead of E0.  
**Note:** If you have Multi-tech firmware version 3.13a you may have to use this line to make sure modem is set for NO parity ---- AT\$EB0#P0 (Sets 10 bit mode NO parity)

*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

#### ODD PARITY modem setup (for use with most of the 'programming' ports):

Remote Modem:           AT&F8&W0  
                              AT&F0  
                              AT&F9&W0  
                              AT&D0S0=1  
                              AT#F0\$BA1\$MB9600\$SB9600  
                              AT&E0&E3&E7&E12&E14  
                              AT\$EB1#P1     (Sets 11 bit mode Odd parity)  
                              ATE0Q1&W0             (NO response from modem)

Local Modem:    Use the same settings except use Q0 instead of Q1 and E1 instead of E0.  
*(Local settings not needed with v3.x Directsoft32 unless you have installed your modem as a "standard 9600 modem", or with any modem used with the 16 bit version 2.x and earlier)*

[Back to Index](#)



**Six-Net VT-Modem-1**

Remote Modem:	AT&F&W0	Set modem to factory settings
	ATS0=1	Sets the modem to auto-answer
	AT&V	Use this to verify changes
	AT&D0	Tells modem to ignore DTR
	AT%C0	Disables data compression
	AT%E0	Disables internal line Quality Check
	AT%K0	Disables flow control
	ATS37=9	Set Modem to Modem baud at 9600
	ATN0	Forces modem to modem baud setup in S37
	AT+H0	Turns OFF Rockwell Chipset
	ATN1	Sets the Operating Mode of the modem to direct asynchronous communications, no send/receive buffers and no error checking
	AT&W0	Store settings to user profile 0
	AT&Y0	(Optional) Loads profile 0 on power up

Sixnet has an application note for the VT-modem used with a 250 CPU.  
 Go to their web site for info at [sixnetio.com](http://sixnetio.com) and Select Technical Note #614

**Modem to PLC cable selection**

The following PLC's can be used remotely:

Series 405:

DL450	Port 1	<a href="#">Cable #1</a>
DL450	Port 2 (RJ-12 port)	<a href="#">Cable #2</a> or <a href="#">Cable #3</a>
DL440	Port 2	Cable #1
DL430	Port 2	Cable #1
D4-DCM	25 pin female port	Cable #1
TI435	Port 2	Cable #1

Series 305:

DL350	Port 2	Cable #1
DL340	Port 1 and Port 2 / DCU	Cable #2
DL330	DCU	Cable #2
D3-DCM	25 pin female port	Cable #1
DL330P	DCU	Cable #2
TI335	programming port / DCU	Cable #2
TI330	DCM	Cable #2
TI320	DCM	Cable #2

Series 05 – 105 - 205

DL250	Port 2	Cable #2 , <a href="#">Cable or #4</a> or Cable#5
DL240	Port 2	Cable #2 or #3
DL05-105-230	Port 1 only with MultiTech modems (ODD parity only)	<a href="#">Cable #2</a> or <a href="#">Cable #3</a>
DL05	Port 2	Cable #2 or #3

\*If using an H2-WinPLC or an H2-EBC, then please refer to [www.thinkndo.com](http://www.thinkndo.com) for the latest application notes on how to connect to these devices. We will have more information as we try new ways to connect.

[Back to Index](#)



**CABLE DIAGRAMS**

**Cable #1: Modem (DB25) to Series 405 Port 1 (DB25) cable**

The D3-DSCBL Programming cable and a null-modem adapter can be used.

DB25-Male (To Modem)			DB25-Male (To 405)			DB25-Male (To 405)	
TXD	2	-----	2	TXD			
RXD	3	-----	3	RXD			
GND	7	-----	7	GND			
RTS	4	---+	+	4	RTS		
CTS	5	---+	+	5	CTS		
DSR	6	---+	+	6	DSR		
DCD	8	---+	+	8	DCD		
DTR	20	---+	+	20	DTR		

**Cable #2: DB9 to DB25 Null Modem Adapter for connection to programming cables**

This connector is used in conjunction with a programming cable to connect to the modem.

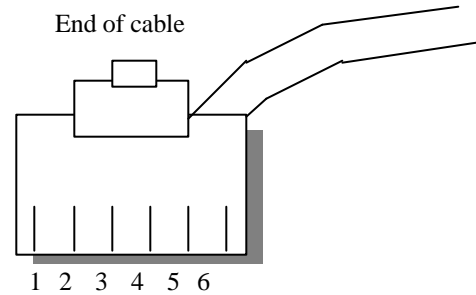
DB9-Male (To Cable)			DB25-Male (To Modem)			DB25-Male (To Modem)	
RXD	2	-----	2	TXD			
TXD	3	-----	3	RXD			
GND	5	-----	7	GND			
RTS	7	---+	+	4	RTS		
CTS	8	---+	+	5	CTS		
DCD	1	---+	+	6	DSR		
DTR	4	---+	+	8	DCD		
DSR	6	---+	+	20	DTR		

[Back to Index](#)



**Cable #3: DL-240 to DB25 Modem Connector**

	RJ-12		DB25-Male		
TXD	4	-----	2	TXD	
RXD	3	-----	3	RXD	
GND	1	-----	7	GND	
			+	4	RTS
			+	5	CTS
			+	6	DSR
			+	8	DCD
			+	20	DTR



**DL-250 port 2**

If you are close to a Radio Shack Store you can purchase the 15pin-SVGA Male connector.  
The part number is **276-1501**

**Modem Connectors**

**Cable #4: DL-250 to DB25 modem port**

DB-25 Pin Modem		MODEM	
PLC Port 2		DB25-Male	
15pin-SVGA			
Male			
TXD	2	-----	2 TXD
RXD	3	-----	3 RXD
GND	7	-----	7 GND
RTS	5	-+ +-	4 RTS
CTS	4	-+ +-	5 CTS
		+-	6 DSR
		+-	8 DCD
		+-	20 DTR

**Cable #5: DL-250 to DB9 Modem port**

DB-9 Pin Modem		MODEM	
PLC Port 2		DB9-Male	
15pin-SVGA			
Male			
TXD	2	-----	3 TXD
RXD	3	-----	2 RXD
GND	7	-----	5 GND
RTS	5	-+ +-	7 RTS
CTS	4	-+ +-	8 CTS

\*Used with the VT-modem

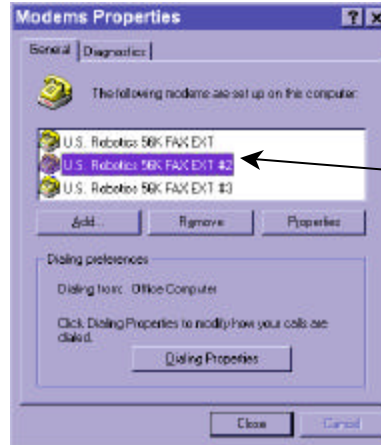
[Back to Index](#)





### Setting up the local modem

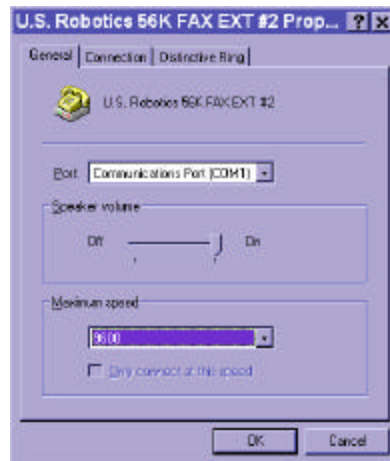
1. We are going to assume that you have followed the documentation for the modem you have and successfully installed the Modem. If your modem is going to be used access other devices, you will need to install a copy of the modem a second time. When completed, you will find the second modem with a number beside it as in the image below.



Shows second install of same modem driver. Attaches # to

(modemname#2)

2. Highlight the modem you want Directsoft32 to use call out with. Now click the Properties button. Select the Com port that your modem is using and then select **9600** baud for the maximum speed. (The exact appearance of the properties box depends on the modem driver).



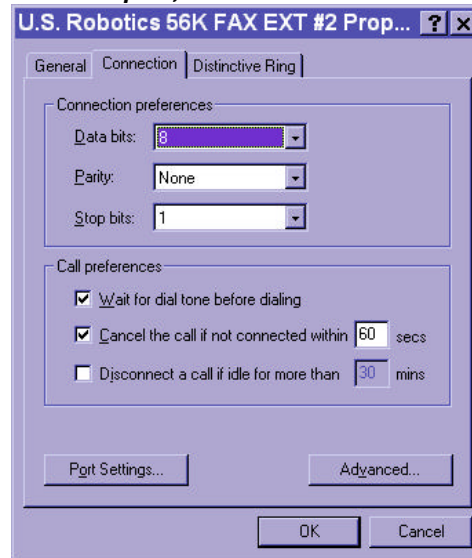
Select Com port  
Select 9600 baud

\*9600 baud; or less, is the recommended baud rate for remote connections via modem.

[Back to Index](#)



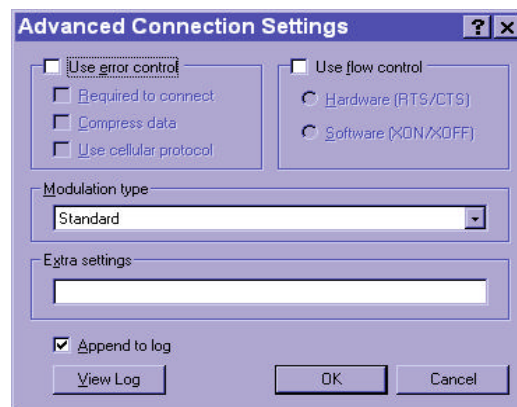
- Select the "Connection" tab and you will see the Connection preferences items. Most all modems will require an even number of bits per character frame to be selected. However, there are a few modems that support an Odd number of bits when needed. These modems are only required when the plc port being used, is fixed at Odd parity. (Refer to [remote modem setup strings](#)). We recommend using one of the secondary configurable ports on the PLC and 8 data bits, No parity. This is the most common setting for most modems. You should select **ONE stop bit**, and **wait for dial tone** should be selected. The Time to wait



- 8 data bits
- Parity None (odd with special modems)
- 1 stop bit
- Wait for dial tone
- Cancel the call if not connected in 60 sec.  
This can be reduced if needed.

before canceling the call if not connected is left up to you. You should start with **60 seconds** until you prove everything is working, as it should. Now click on the "Advanced" button to setup the most important features.

- The "Advanced" features will need to be disabled. Modem Error Control and Flow control will **not** be used with communications to the PLC. Directsoft uses K-sequence or DirectNet protocols to handle the data transfer and error checking. The modems need to be transparent to the protocols. The modulation type should remain **Standard**. The Extra



- No error control
- No flow control
- Standard modulation
- No extra settings
- Select "append to log"

settings provides a space for you to type additional modem initialization strings. These are sent to your modem after all the other settings are sent, so they override previous settings. Most modems will not need extra settings but check the settings for your modem later in this document.



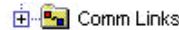
The "**Append to log**" feature can be your friend in times of trouble. This will log the modem status and allow you to see the transactions taking place between your software package and the modem. This text file updates every time it is opened. It will be named after your modem that you have selected. Some thing like: ("U.S. Robotics 56K FAX EXT #2.log"). and is located in your Windows directory. To view it, just click on the **View Log** button.



If you call our Tech support line with a strange problem, We will most likely ask you to send this log file to us.

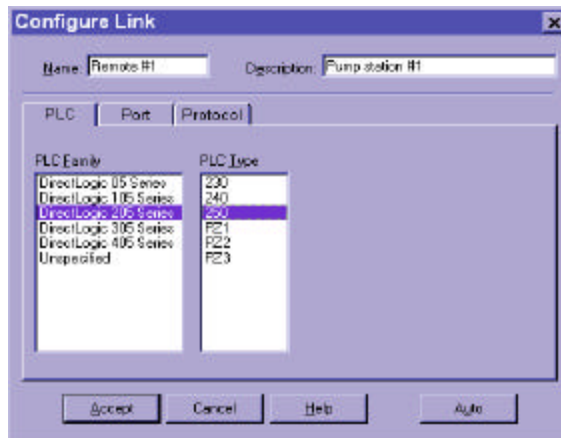
5. Select the last "Distinctive rings" tab and make sure that there is nothing selected. Now you are ready to use the Directsoft Link Wizard to set up the Modem link to be used.

**Configuring the Link in Direcsoft32**



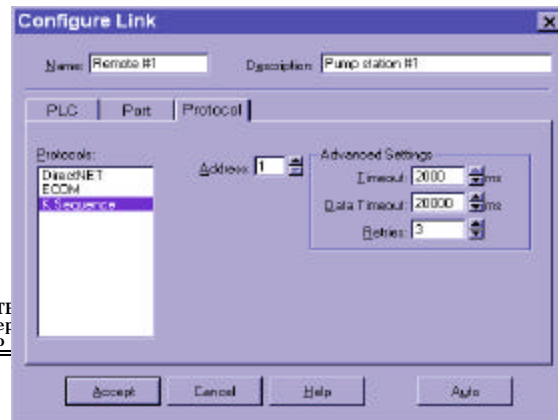
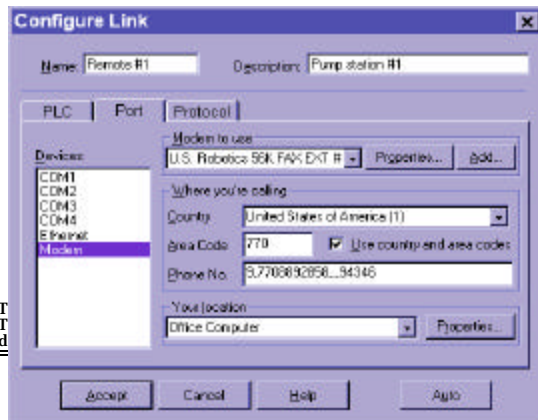
1. From the

DSLlaunch window right click on the **Comm Links** and select "Add Link". The **Link Wizard** will come up. Under the Ports list, select the **Modem** device, and hit the **Next** button. The Configure link screen will appear and prompt you to select the needed elements to make the connection to the PLC.



- PLC**  
Name the link  
Select PLC type
- Port**  
Select Modem  
Enter Phone Number
- Protocol**  
Select Protocol  
Address  
Raise Timeout to 2000ms  
Retries to 5

[Back to Index](#)





## 2. PLC Type

Enter a unique name for the Link and select the PLC type that you will be connecting too.

## 3. Port Selection and Configuration

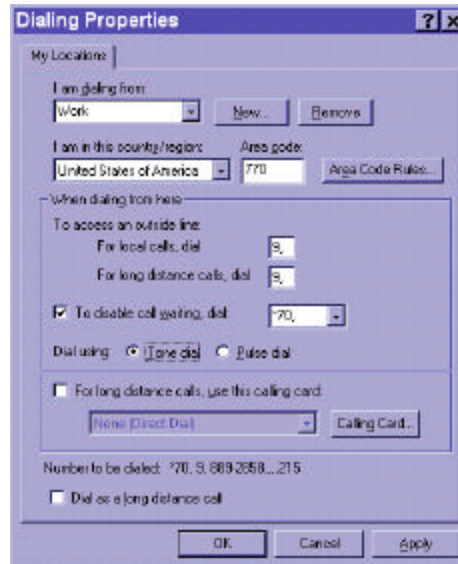
- 1) Select the **"Port"** Tab.
- 2) Select **"Modem"** under the **"Devices"** list
- 3) Select the correct modem under the **"Modem to use"** drop-down box.
- 4) Select the country under the Country **"drop-down"** box.
- 5) Enter the area code.
- 6) Enter the Phone number. *Commas* can be used in the Phone number when extensions are needed. A *comma* is equal to about 2 seconds, and this will come in handy when you need to dial extension number. If this is an internal, private company PBX, you can deselect the **Use country and area codes**.

### Dialing Properties

You may need to configure dialing properties for your location if ANY of the following situations applies to you:

- 1) To access an outside line, you must dial 9 or some other dialing sequence.
- 2) To disable call waiting – you must do this for any modem connections because the audible call- waiting signal that you hear can wreak havoc to a modem connection. The modem can become confused causing temporary loss of data or even hang-up the connection totally.
- 3) Your phone service uses pulse dialing – you do not have touch tone service.
- 4) You wish to use a calling card to bill your call automatically.
- 5) Some exchanges or phone numbers in your local area code are toll calls and so you must dial 1 followed by the area code.

If you have already configured your dialing properties to account for any of the issues listed above, be sure to select the proper location under the **"Your location"** drop-down box. Otherwise, hit the **"Properties"** button in the **"Your location"** group to bring up the **"Dialing Properties"** dialog to configure the dialing rules for your location. You should see a dialog similar to the one below:



Minimally, create a new location by pressing the **"New..."** button, then type in the location name in the **"I am dialing from:"** edit box. In this example, we named the location **"Work"**. Configure the remainder of this dialog based on your requirements from the dialing properties issues list above. Microsoft has online help regarding this



"Dialing Properties" dialog, see

<http://support.microsoft.com/support/windows/ServiceWare/Win95/>

### Phone Number

The "Phone No." field in the "Configure Link-Port-Modem" dialog box and the various fields in the "Dialing Properties" dialog box allows you to store special commands which may be required if the number dialed is in the same area code, long distance, or an international number. The following lists the single character codes followed by an explanation of the command:

- , Wait for two seconds
- ? Display a prompt, telling the user to continue dialing
- \$ Wait for the calling card prompt tone (Note: not all modem support this feature)
- @ Wait for a ring followed by a pause of five seconds
- E Country code
- F Area code
- G Local number to call
- H Calling card number
- W Wait for a second dial tone

Companies that use internal PBX telephone systems may need to enter the following dialing rules:

- Calls within the same area code: G
- Long distance calls: FG
- International calls: 011EFG

### Protocol:

Choose the protocol that the PLC port is setup for and then select the address of the PLC port (1-99). ECOM protocol is only supported by Ethernet devices and NOT supported by modems.

### Timeout:

The amount of time the software will wait for a response from the plc before it will try to communicate again.

With modems, you will need to raise the Timeout to the maximum of **2000ms**. We raise the timeout to the maximum to allow for noise on the lines or delays that may occur.

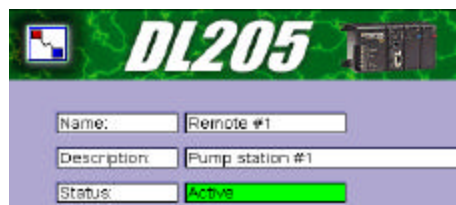
When the status is turned on in the ladder view or you are loading a program to the PLC, the data packets are large. The protocol needs more time to handle the data or it will keep giving communication errors.

### Retries:

The number of times the software will retry a communication after receiving an error. This should be set to at least **5 retries** when a modem is used

### Verifying Your Link:

Now click the "Accept" button and the software will ask you if you want to test the link. Select "Yes" and the modem will dial the number that you listed and try to connect to the PLC. If it connects to the PLC with out a problem it will hang up and close the window, and show the link as "Active" in the launch window. If not you will need to check your link



setup again.





## Trouble Shooting

If you cannot connect then you can refer to our web site where we will be posting FAQ's. Also, check the following before calling Tech Support:

### Frequent Reasons for not connecting:

1. Remote Modem will not answer:
  - The auto answer switch on the modem is not on and the modem "number of rings to answer on" has not been set.
  - Remove the cable connecting the modem to the plc from the plc side first and then call the modem. Then try removing the cable from the modem side. You may have a short in the cable or port problems.
2. Remote modem answers and connects but the PLC does not respond:
  - The Phone line may be noisy.
  - PLC port has not been configured correctly.
  - Check the remote modem settings again ( you can do this with a terminal program). When connected just type ("AT14" or "AT&V" or "ATL5" ). Check your manual for the correct string that will display the modem settings.
  - First, try connecting to the remote modem from Hyper-terminal or some other terminal software. If the modem answers and connects at the right baud rate and parity then the phone line is good and the modems are most likely working properly. Check the PLC port settings with Directsoft32 and then check the remote Modem settings again. Raise the timeout and retries in the link setup, if you have not already done so.
  - The remote modem answering the call may not be the modem connected to the PLC. This takes place more than one would think. The line that the PLC modem is on is shared with other devices, such as; faxes, network modems, or switch boxes. Most often you can listen to the modem sounds and tell if it is a fax machine. With Network modems will be harder to tell the difference. Double check with the owner of the phone line to verify that there are not other devices active on the phone line. A quick way to test this is to turn off the modem at the PLC. If you call and still connect then you know that something, somewhere in the universe is answering that should not be. Find it and remove it.
  - The remote modem is not on a dedicated line. PBX (*Private Branch Exchange*) lines do not always work with other software packages.
3. The PLC connects but I am loosing the connection intermittently. This may occur when the program status is turned on or during a program upload or download with the PLC.
  - The Phone line may be noisy. Make sure that it is separated from high voltage lines and away from any devices, that may generate high RF signals.
  - Poor cable properties or the cable is too long. Rs-232 standards specify 50 ft. as the maximum length. The industrial environment can effect this dramatically.
  - Raise the timeout and retries in the link editor.
  - Call AutomationDirect.com Technical Support Team if you have any questions or if you have information that we can add to this document that you may feel in needed. We will be glad to assist you. We can be reached at :

## By Phone / FAX

Call 1-770-844-4200 or  
FAX 1-770-886-3199

Our technical support hours are from 9am to 6pm Eastern Standard Time Monday through Friday.

## Online

[tech@automationdirect.com](mailto:tech@automationdirect.com)



End Of Document

[Back to Index](#)