Designer Modem Communication – US Robotics Sportster Modems

This Technical Note contains the information required to setup up the Designer to UniOP modem communication using US Robotics Sportster modems.

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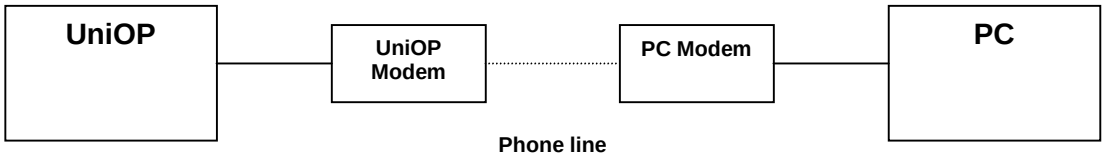
1. Introduction

This document contains a brief introduction to the successful set-up of modem connection with the UniOP operator panels using US Robotics Sportster Modems.
This note describes in detail all the modem configuration option required for the correct communication.
The typical system configuration supported by UniOP is the following:



2. UniOP to Modem Connection

To connect the UniOP to the modem you should use the cable CA148. The wiring diagram is shown in Figure 1 below.

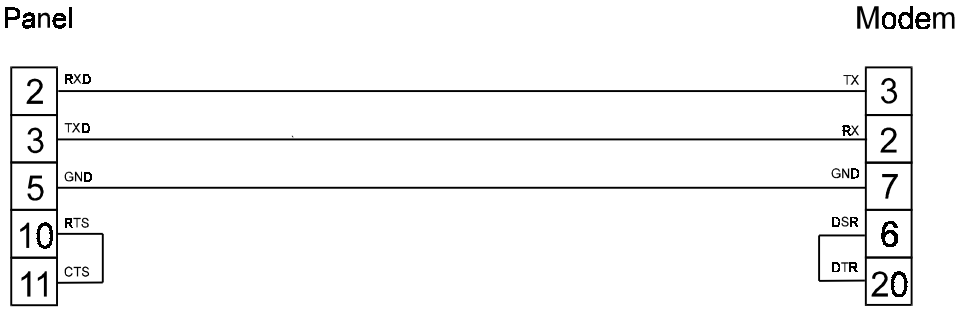


Figure 1. CA148 cable diagram

3. US Robotics Sportster as UniOP Modem

The information contained in the Technical Note TN53 should be used for the general set-up of the system.
Note, however, that the US Robotics Sportster modems require some specific command sequences to perform the expected operations in this context. The command sequences are the following:

AT &F0	Recall factory settings
AT S0=1	Set the auto answer mode
AT &K0	Disable data compression
AT &N6	Set connection speed to 9600bps
AT &D0	DTR override
AT &W	Store parameters in modem's Flash memory

All types of US Robotics modems support the parameter **B*n***; this parameter must be set according to your telephone line specifications. The parameter refers to U.S./ITU-T answer sequence and it has only two allowed values:

B0 ITU-T answer sequence

B1 U.S. answer sequence.

The programmed value must match the properties of the phone lines to which the modem is connected.

Some older types of US Robotics modems, for instance the Sportster 28800, have also some dip-switches that must be set-up correctly for proper operation.

The correct configuration of the dip-switches for UniOP connection is the following:

Switch	Factory Setting	Function	Recommended Setting
1	OFF	Data terminal ready override	ON = Modem ignores DTR
2	OFF	Verbal numeric result codes	OFF = Verbal results
3	ON	Result code display	ON = Enables result codes
4	OFF	Command mode local echo suppression	OFF = Displays keyboard commands
5	ON	Auto answer suppression	OFF = Modem answers on first ring, or higher if specified in NVRAM
6	OFF	Carrier detect override	OFF = Modems send CD signal when it connects with another modem, drops CD on disconnect
7	OFF	Power-on and ATZ reset software default	OFF = Loads Y or Y1 configuration from user-defined non-volatile memory (NVRAM)
8	ON	AT command set recognition	ON = Enables recognition

4. US Robotics as Designer Modem

When you are going to connect a US Robotics Sportster modem to the PC running the Designer software, you can use the same modem configuration described in the previous chapter. The auto answer mode is not necessary but it is compatible also with this connection.
Use a standard modem cable to connect the personal computer to the modem.
The Designer Modem Configuration dialog box should appear like Figure 2.

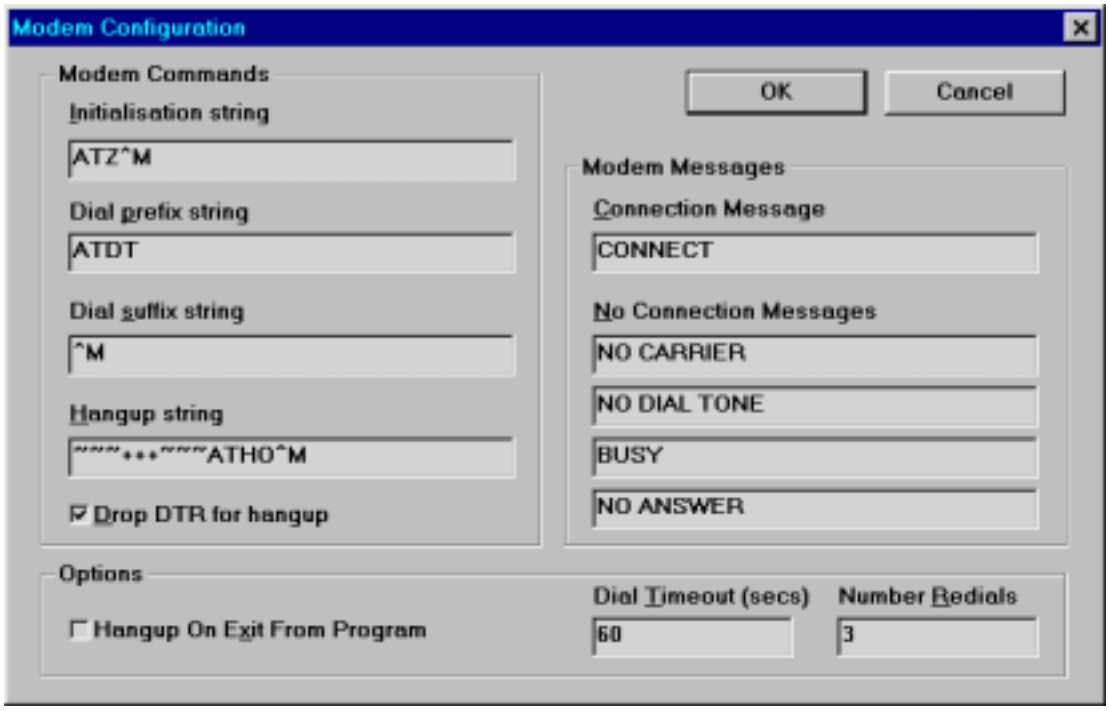


Figure 2. Modem Configuration dialog box

4.1 Dialling

When using the Designer software as dialler you should set the communication options as shown in Figure 3.

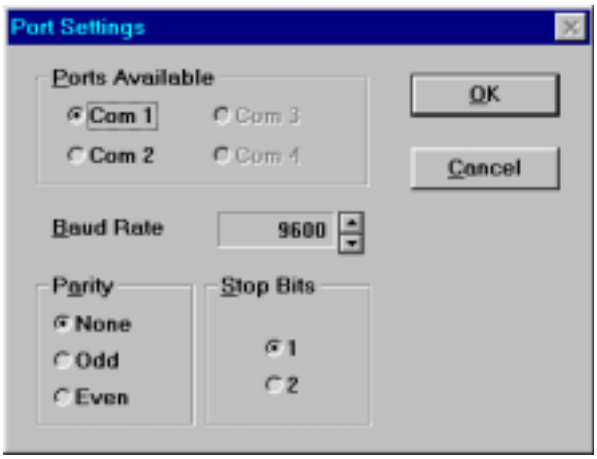


Figure 3. Port settings dialog box.

4.2 Passthrough Applications

Special considerations apply when the UniOP Passthrough function is used.
The Designer software does not allow changing the setting of the number of data bits in the Designer-UniOP communication.
Since there is no AT standard command to set the number of data bits, the only way for the modem to detect the number of data bits in the communication is receiving at least one AT command. The dialler is actually setting the modem communication parameters sending the dial command string.
Using Designer as a dialler it is not possible to establish the proper link for pass through applications whenever the line parameters must be different from default 9600 bps, No parity, 8 data bits 1 stop bit.

There is a simple workaround to this problem. Using a terminal emulator program like Norton Commander or Telix with direct connection to the current serial port it is possible to set the required conditions.
After the line setting has been completed, the terminal emulator program can be used to dial up the telephone number. The dial string should be something like the following:

ATDT123456
or
ATX3DT123456

In the latter case the modem is also set to 'No Dialtone'.
Once the terminal receives the message CONNECT, it is possible to send to UniOP the command string required to activate the passthrough mode and display the UniOP response to that command..
At this point the terminal program can be closed and start to work with the PLC programming software.
At the end of the passthrough operation it is necessary to start again the terminal emulator program in order to stop the passthrough mode in UniOP by sending the appropriate command string.

Note: *Make sure that the modem will remain online when closing the terminal emulator program. In order to achieve this condition it is possible to erase all hang-up strings in the terminal setting dialog box.*