

Infowave setup instructions

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See infowave.pdf (for version VG0), CommandSet-C0.doc (version VCO, my version) or CommandSet-C5.doc (version VC5) for details of the WM commands. Which document you use is according to the version of your modem, to tell what version of modem you have use the WML command and look at Version xxxxxx.VG0 or VCO or VC5. There may be newer versions since I wrote this.

You can control the Infowave modem by using the WM commands by sending commands through the serial port.

See pn_table.txt for pin table listing.

The software that comes with the modem is not used in robotics application. Below are the steps that need to be taken to work with the modems directly without the software that comes with it.

Steps

1. Using a communication program hook up the modem that will be connected to the PC. Use 115200 baud 8n1 (actually it will take whatever baud rate the communication package is set at). Turn on the modem and it needs to be in the DCE mode with the DTE led off. It should come up in the command mode.
2. Type WML <return>, not case sensitive. You should get a listing of information. Remember the PN code and the 6 digit ID code. The PN code is long but there really is only about 18 of these so only the first few characters are significant. **IMPORTANT!** The PN and ID must be exactly alike on each modem or they won't work with each other. This is where I spent all my time before it was explained to me.
3. Disconnect this modem and connect your other modem to your communication program. Turn on the modem and again it must be in the DCE mode. Type WML <return>. Look at the listing, the PN and ID must be exactly the same as your other modem. If not do the following step. If it is the same, skip this step and go to the step after skip section.

----- Skip this section if ID and PN are same on each modem-----

4. I only did this once and don't want to go back and try it again. What this will do is program the modems to have the same PN and ID. While a modem is in command mode (if not sure turn off and on). Type WM&0 <return>. Now do the WML command and note ID and PN. Hook up the other modem and do the same thing. Now both the modems should have the same ID and PN, make sure.

Note: can set the ID and PN to something else so collisions will not take place.

For versions VCO and VC5 there is another way to set the ID and PN. You would use the WMI and the WMP commands. I have not actually tried this, but it should work.

-----Skip section end -----

5. Now you need to choose one modem to be the base and one to be on the robot. On the base modem do the WML command. Note its My address. It should be 1. If not type WMM1 <return>. It should be 1 now. Now hook up the robot modem. Type WML and note its My address, it should be 2 (actually any number 2-254). Set it to 2 by WMM2 <return>, check it using the WML command. I believe either modem can be any number 1-254 as long as it is not the same number as another modem in the same vicinity. Using these My addresses, you could have several robotics talking to one another. Each can only talk to another robot or base one at a time. A base can not broadcast a command to several robotics at a time.
6. Test if connection works by typing WMS2 <return> on the base modem. It will say connecting and will tell you if it connected or failed. You can hook each modem to a computer at 115000 and transfer data back and forth. To disconnect, type |||<return>. Now should be in command mode again.

----- Setting baud rate -----

7. In operation and hooking up to robot you may need to run at lower rate than 115200, mine is 38400. On each modem you can setup a default baud rate by typing WMB3 <return> (for 38400, see table for other baud rates). This will set up the default rate to your choosing. See infowave.pdf for table for baud rates and what number to use. WMB3 sets it to 38400. You can

run base at one speed and robot at another. Suggest run base at 115kb and whatever robot will take for other. Note, the modem will set itself to the correct rate of the modem by sensing the baud rate of the first WM command sent to it.

----- Hooking to robot -----

Your robot maybe DTE as mine was, but later I rewired it to be DCE which gives you more flexibility with the modem. Being in the DCE mode allows the robot to control the modem. So you need to switch the DTE switch when connected to the robot to the appropriate setting. Also the modem expects certain lines like DTR and RTS to be hooked up. When I first hooked up mine with only TXD and RXD it only transmitted but didn't receive. So if this is the case for you, connect DTR and DSR together, and hook RTS and CTS together.

Signal	DB 9 connector	25 pin connector	Notes
TXD	3	2	
RXD	2	3	
DTR	4	20	Hook DTR and DSR together By soldering connector on robot
DSR	6	6	
RTS	7	4	Hook RTS and CTS together
CTS	8	5	

Note, on my modem I noticed that it has about a 2 second boot up period where the on light will blink until it is ready. On mine if you send data to the modem before the blinking stops it hangs up the modem and power will have to be turned off then on again. You can feed DTR/DSR into a port and wait until it goes high and then your program will know the modem is ready.

How To boot load at one speed and communicate at another.

For this example I am loading my program into the robot at 9600 and running the program and communicate with base at 38400.

Set the robot modem default speed set at 9600 by the command WMB5.

When modem is turned off and on it will go back to default speed.

When new program is run and modem has been turn on and off the robot would set the port for 38400 and send the WMS1<return> and wait for an OK. It will connect at new speed and connect to base, but the robot must be wired in the DCE mode not DTE to send the WMS1 command.

Note WMSx command tells you to find and connect to that x modem. With Base being 1 and robot being 2 you can do the following;

When I connect from the PC to the robot (this is usually done when I am using the boot loader on my 68HC912B32 MCU. I send a connect command from the PC to the robot modem using the WMS2<ret> command. I have this programmed into a function key in my communication program (Qmodem). That tells the modems to connect to one another. When the robot is starting up I have it do the command to connect to the PC. It sends a WMS1<ret> command and now the robot connects itself to the PC modem. You could have 254 robots each talking one on one to each other by connecting to each other under their own control.

See rmodem.lib for Sbasic code example of initializing the modem.