APPENDIX G
Loading New Software into the Micro908

This section overviews two ways you can load software updates into your Micro908.

BACKGROUND
Increasingly today, microcontrolled kits and projects have an ability to be "field updated" with new capabilities and software updates made available by the designer. So, instead of needing to send your instrument back for re-programming to get these new features, you can now simply download the program update from the Internet and send it to the target hardware and the device automatically updates its internal memory with the new program. What a great way to keep your project completely up to date with the latest features!

m908 Loader is a PC application that simply and conveniently loads new program files onto the Micro908. It runs on a Windows-class PC connected to the target hardware via a 9600 baud serial port. All you need to do is connect a serial cable between your PC and the Micro908, command the current Micro908 software to do an "auto update" and then run the m908 Loader program on your PC. The new program file you previously downloaded from the Internet web site is then selected in m908 Loader and is sent to the Micro908 over the serial port. Within seconds the transfer of the new program to your project will be complete.

PC REQUIREMENTS
- Windows 95, Windows 98, Windows 2000, and Windows XP. It may also work on other Windows versions.
- Works with computers ranging from 33 MHz Intel 486 processors up to 2.4 GHz P4 processors.
- An available RS-232 serial port. (USB-to-RS232 adaptors <u>may</u> work for those computers having only USB-based serial ports.)

INSTALLATION
1. Copy the **m908installation.zip** file from the Micro908 Resource CDROM to a temporary folder on your PC.
2. Extract (Unzip) the file and a new folder called m908 Loader will be created in that temporary folder.
3. In that m908 Loader folder, run **setup.exe**. Accept the default location for the program files (C:\m908loader) and the default program name.
4. At the conclusion of the installation process, you will have a folder called **m908loader** in the C: drive containing:
   a. **m908 Loader.exe** – The program.
   b. **config.dat** – File used to hold the default and last-selected selections for Serial Port and Delay.
   c. **st6unst.*** – Several files used in uninstalling the program from your computer.
   d. ***.s19** – "S-record" files are present with the "s19" filename extension. S-record files represent the binary images of new programs to be serially loaded into the HC908-based target hardware. These S-record files are presented for selection by the user during the Load process. When a new program, or a program update is made available for use on the HC908 Daughtercard-based hardware, you should place that new S-record file in this folder so it may be selected for load when the m908 Loader program is run. The S-record files are provided in the initial installation include:
      - **aa908_v1-0.s19** -- Micro908 Antenna Analyst (and other .s19 files)
5. When the installation has successfully concluded, you may delete the files used in your temporary folder.

USAGE
1. <u>Connect your Micro908 device to the PC</u> using a standard, straight-through male-female DB9-type serial cable. (Do not use a null modem cable that swaps pins 2 and 3 from end-to-end.)
2. <u>Issue the Auto Update command on the Micro908</u>, located as an option under the Config menu. Confirm the operation by selecting "Yes".
3. <u>Start up the **m908 Loader** program</u> on your PC. (Be certain that no other program has control of the serial port – if your Palm HotSync program is running, or if you have a terminal program like Hyperterminal running, you <u>must</u> exit that program to release the serial port for the **m908 Loader**.)
4. <u>Specify the serial port</u> you have on your computer, using the **Select Port** pull-down menu in m908 Loader. If you select the wrong COM port number, an error will be shown when you initiate the Load operation. In that case, just select another port number until you find the available one on your computer. This setting is saved in the **config.dat** file in the m908loader folder, so you only need specify the port number once.
5. <u>Specify the appropriate end-of-line delay</u> to be used for your computer, using the Delay pull-down menu. (The S-record lines of data are sent "open loop" to the Micro908 and a slight delay is required after each line of data is sent to give the HC908 Daughtercard time to program that line of data. The amount of delay depends on the speed

of your computer. The default setting of 40 milliseconds works well even on computers with 2.4 GHz processors, but you may try longer delays if you have faster computers.)

6. Click the Load button to bring up the list of S-record files present in the m908loader folder. (If you have a newly-downloaded program to send to the Micro908, just place it in this folder beforehand.) Selecting the desired filename (e.g., aa908_v1-0.s19) and pressing OK will initiate the loading sequence.
7. You will see the line counter increment in the main m908 Loader window, indicating that lines of S-record data are being sent to the Micro908 device. When complete, END and then READY will be displayed in the window.
8. Disconnect the serial cable and restart the Micro908 (i.e., turn the power off and on again) to start the newly-loaded program. You should note the new version number presented in the LCD sign-on message!

ALTERNATE (MANUAL) LOADING OF SOFTWARE UPDATES

If you have problems using the **m908 Loader** program, you may follow these simple "manual" steps for getting new software onto your Micro908 instrument.

2) Be certain that your serial port is "clear", meaning that no other program is using it. A typical other use of the serial port is the HotSync manager for connecting to PDAs. This program may be turned off by right-clicking its tray icon and selecting "Exit". This will release the serial port for other programs, like Hyperterm, to us.

3) Attach serial cable to PC between the PC and your Micro908, and bring up HyperTerminal, or the TeraTerm program (supplied on the Micro908 Resource CDROM. If not already set up, configure the terminal program as 9600 8N1, no flow control. Make sure that you have the terminal program configured to be using the active serial port in your PC.

4) Get into the Configuration menus of the Micro908 and select "Debug Monitor". See HCmon sign-on message and prompt "HCmon >".

5) Type "C" to clear out memory

6) Type "L" to load new program. See message ""…waiting …"

7) Pull down the Transfer menu and select "Send text file ..."

8) Navigate to where you saved the *.s19 binary program file (i.e., the binary file with a ".s19" extension you are looking to load into the unit.)

9) Once in the folder that you know contains AA_908v3-0.s19 file, pull down the "Files of Type:" item selection and select "All Files (*.*)" to see the target file.

10) Select that binary file and click the Open button. (Be careful to only load .s19 files! If you mistakenly select any other file extension, it is highly likely that you'll mess up the bootstrap loader program.)

11) See line after line of ASCII data displayed in short one-second bursts. This will continue for about 2 minutes until the entire program has been sent to the Micro908 and flashed into the MPU. When it is complete, the "HCmon >" command prompt will be displayed again.

12) Reboot the Micro908 (cycle the power) and see the new version of loaded software reflected in the Main display

SUPPORT
Please check the m908 Loader web page at www.amqrp.org/m908loader for the latest information, capabilities, FAQ list, and newer versions of the m908 Loader program. You may also write to George Heron, N2APB at n2apb@amqrp.org and we'll do our best to answer your questions or help solve any problems you might have using the m908 Loader.

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