
**Guide for Upgrading the Firmware
on the ASX-1400 and ASX-1600
Autosamplers**

This guide describes the necessary steps for upgrading the firmware on the ASX-1400 and ASX-1600 autosamplers.

Download the Software and Firmware Upgrade from the CETAC web site

The software needed to upgrade the firmware on the autosampler and the firmware upgrade file can be downloaded from the CETAC web site. To download the software and the firmware, go to <http://www.cetac.com/downloads/download.html> and select ASX-1400/1600 Firmware Upgrade Kit. You will be presented with a form that asks for basic contact information. Upon completion, you will be e-mailed a web site address, a login ID and a password that will allow you to download any new firmware upgrade that may be available for your autosampler along with the necessary software to perform the upgrade.

Configuring the Autosampler for the Firmware Update

The 1x00 series autosamplers are designed such that the firmware can be upgraded without the need to open the case. On the back of the autosamplers just below the 3 knobs and above the auxiliary connector is a small plate that can be removed with a small Philips screwdriver. Figure 1-1 below illustrates the appearance of the rear of the autosampler with the panel removed.

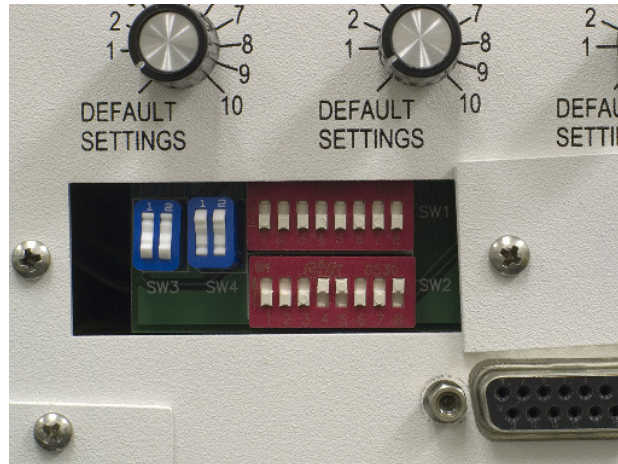


Figure 1-1. Rear DIP access panel.

The blue switches on the left control whether the autosampler is in programming mode or run mode. When the left bank of blue switches (SW3) are pushed in at the top and the right bank of blue switches (SW4) are pushed in at the bottom (as pictured). The autosampler is in run mode and will operate as an autosampler when the power is turned on.

To program the autosampler this configuration needs to be reversed: SW3 pressed in at the bottom and SW4 pressed in at the top. Power should be turned off while changing the switch state. Once the switches have been set appropriately, the power must be turned back on and the autosampler is then awaiting the firmware upgrade utility to send the updated information through serial port one on the back of the autosampler (as shown in figure 1-2 below.)

Note: Upgrading the firmware via the USB port may not be reliable and should not be attempted.

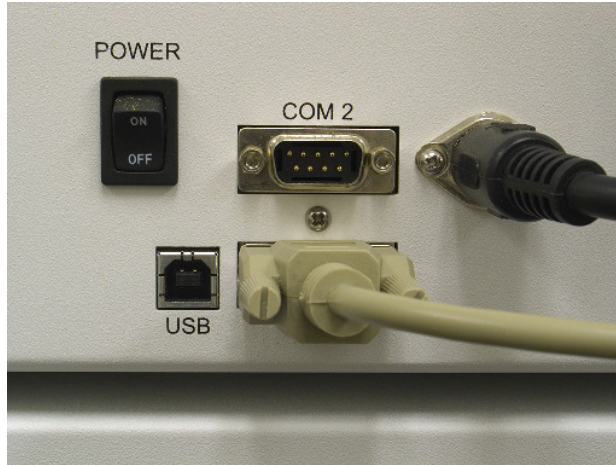


Figure 1-2. Power and communications connections on the ASX-1x00 series autosamplers.

Establish Communications with the Autosampler

1. Set the blue switches on the autosampler placing it in run mode (as described above) and power on the autosampler.
2. Connect the power cord and the serial cable (as shown in figure 1-2) and turn the autosampler on.
3. Start HyperTerminal. (For instructions on using HyperTerminal, refer to the *Guide to Operating a CETAC Autosampler using HyperTerminal* located at the end of this guide.)
4. In HyperTerminal type *VERSS*. The system will respond with the current firmware version and it should be noted.
5. In HyperTerminal type *HOME*. This is to verify that the system is communicating.
6. Close HyperTerminal.
7. Power off the autosampler, set the blue switches on the back of the autosampler in program mode (as described above), and power on the autosampler.



Figure 1-3. Rabbit Field Utility Application

Setup of Rabbit Utility

1. Run the Rabbit Field Utility application, RFU.exe. (Figure 1-3).
2. Select the menu Setup, and then Communications.
3. On the Communications Options window (Figure 1-4), in the Comm Port field, select the COM port on the computer that is connected to the autosampler. Press the OK button.

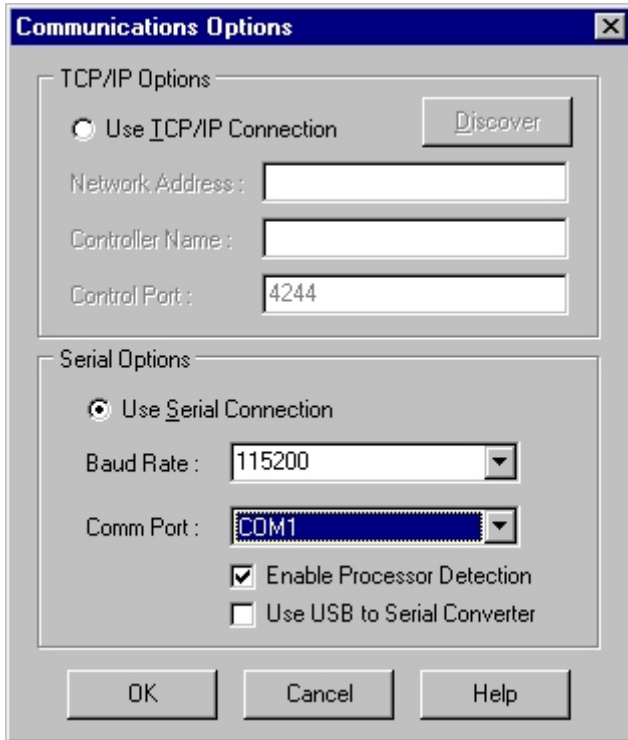


Figure 1-4. RFU - Communications Options Window.

4. Select the menu Setup, and then File Locations.
5. On the Choose File Locations window (Figure 1-5), fill in the fields with Cold Loader as coldload.bin and Pilot BIOS as pilot.bin. Press the OK button

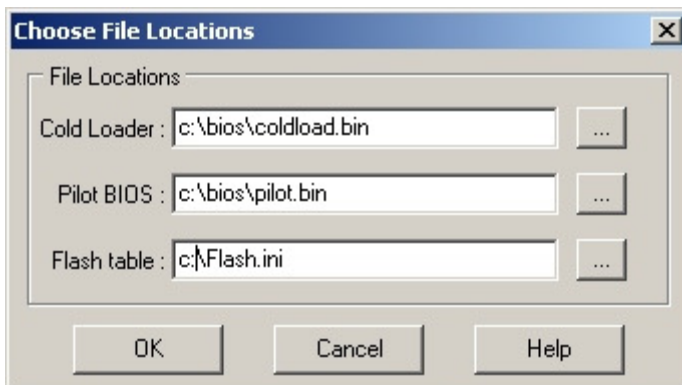


Figure 1-5. RFU - Choose File Locations Window.

Upgrading the Firmware

1. Be sure the blue autosampler switches are configured such that the autosampler is in programming mode (described above.)

2. In the Rabbit Field Utility, select the menu File, and then Load Flash Image.
3. On the Choose Flash Image window (Figure 1-6), select the firmware file.

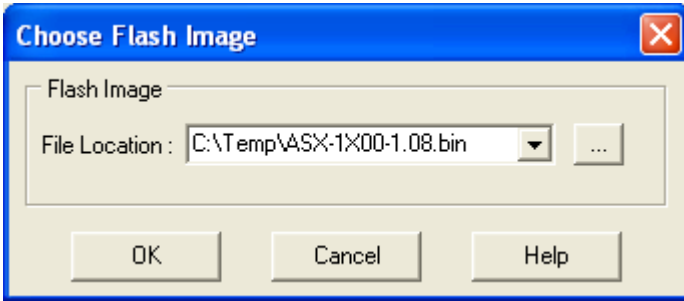


Figure 1-6. Choose Flash Image Window.

4. Select the OK button. A progress bar will appear.
5. When it is complete, the Rabbit Field Utility can be closed.

Autosampler Run Mode Configuration

1. Turn off the autosampler.
2. Change the blue switches to the run mode configuration (as described above and illustrated in figure 1-1).
3. Turn the autosampler back on. The autosampler should go to the rear-left mechanical home position.

Verification of Firmware Upgrade

1. Start HyperTerminal. (For instructions on using HyperTerminal, refer to the *Guide to Operating a CETAC Autosampler using HyperTerminal*).
2. In HyperTerminal type *VERSS*. The system should respond with the new firmware version.

All CETAC autosamplers can be controlled using a serial communications protocol. This guide explains how to operate any one of the CETAC autosamplers using the Windows HyperTerminal program.

Steps for operating the autosampler with HyperTerminal

1. Using a serial cable, connect the CETAC autosampler with the computer. Plug each end of the serial cable into the COM 1 port of the autosampler and the computer, respectively.
2. Turn on the computer (must have Windows operating system) and select the Accessories folder. Select the HyperTerminal folder and then the HyperTerminal program.
3. A window will appear as in Figure 1-1. Enter **COM 1** in the name box. Press the OK button.
4. In the Connect To window (Figure 1-2), in the field Connect using, select COM1. Press the

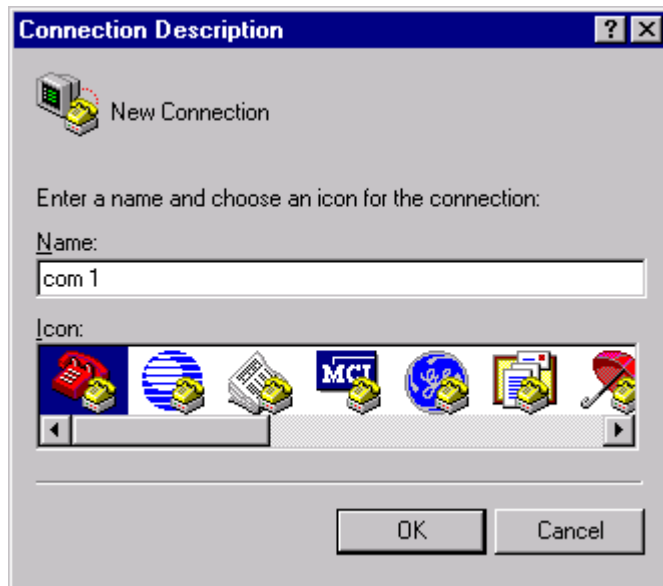


Figure 1-1

OK button.



Figure 1-2

5. The COM1 Properties window will appear (Figure 1-3). Set the fields as follows: Bits per second to 9600 and Flow control to Xon/Xoff. Then press the OK button.

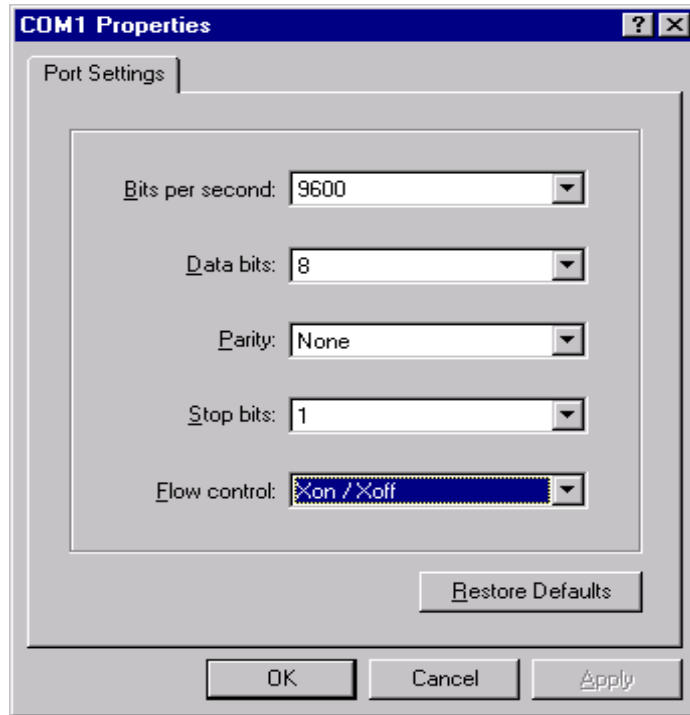


Figure 1-3

6. The HyperTerminal window will then open (Figure 1-4).

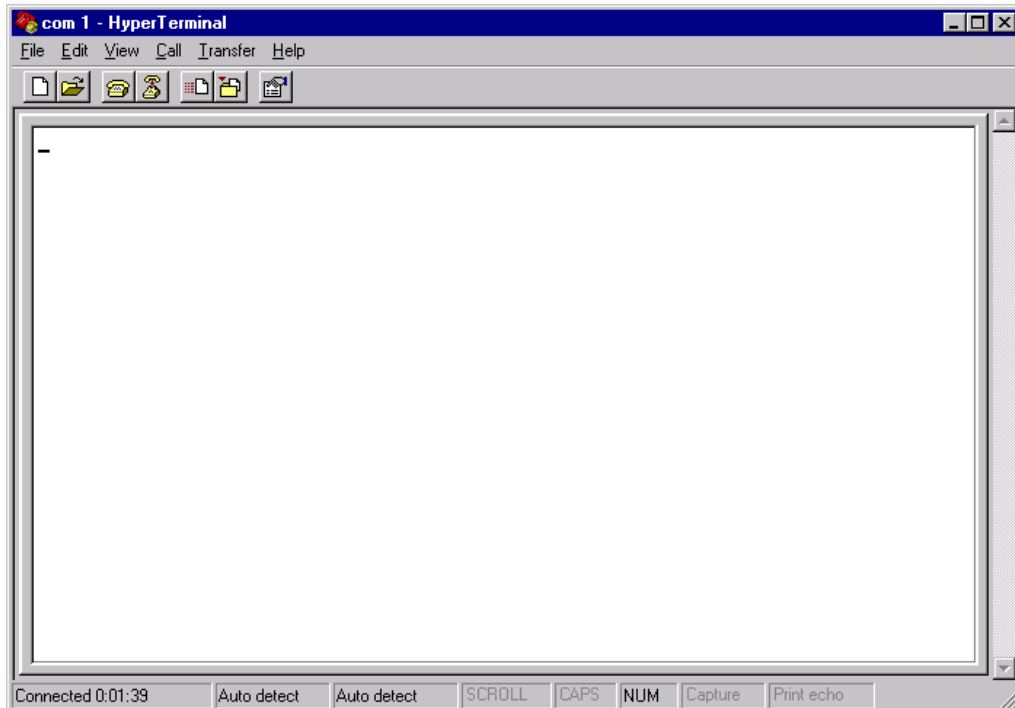


Figure 1-4

7. Select File. Then select Properties.
8. When Properties window appears (Figure 1-5), select the Settings tab.
9. Press the ASCII Setup... button. A window for ASCII Setup will appear (Figure 1-6). You will need to check Echo typed characters locally and Append line feeds to incoming line ends as shown in Figure 1-6. Press the OK button.

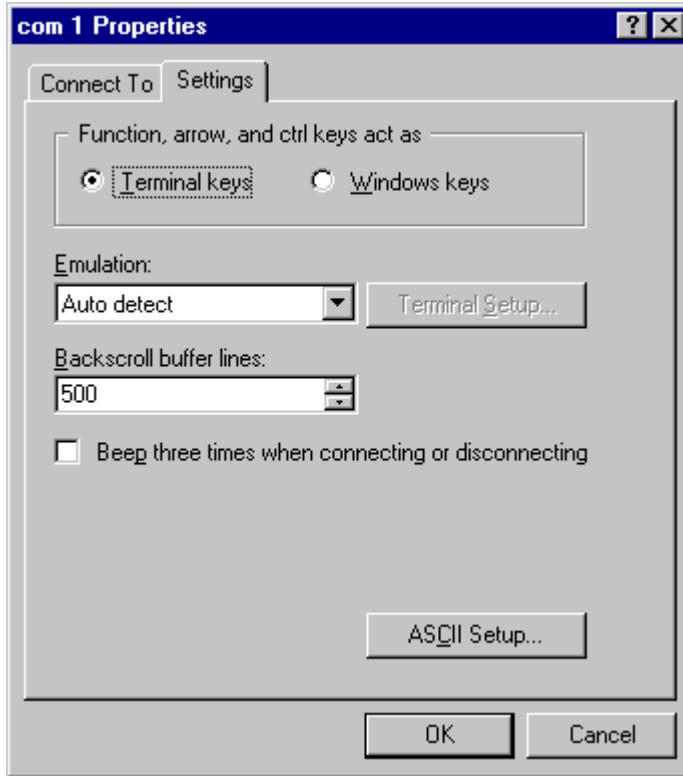


Figure 1-5

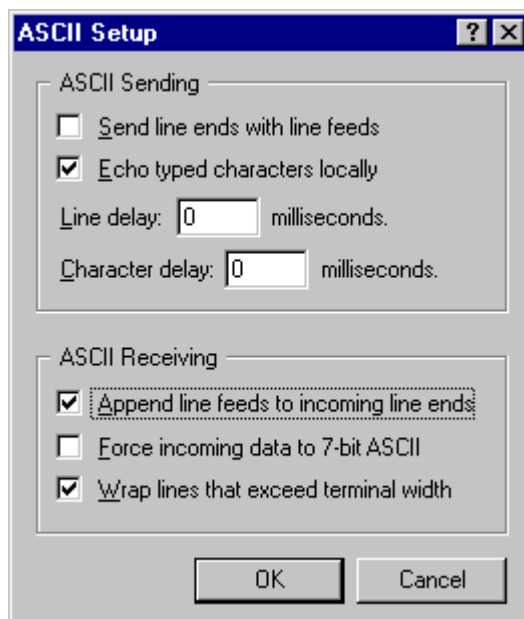


Figure 1-6

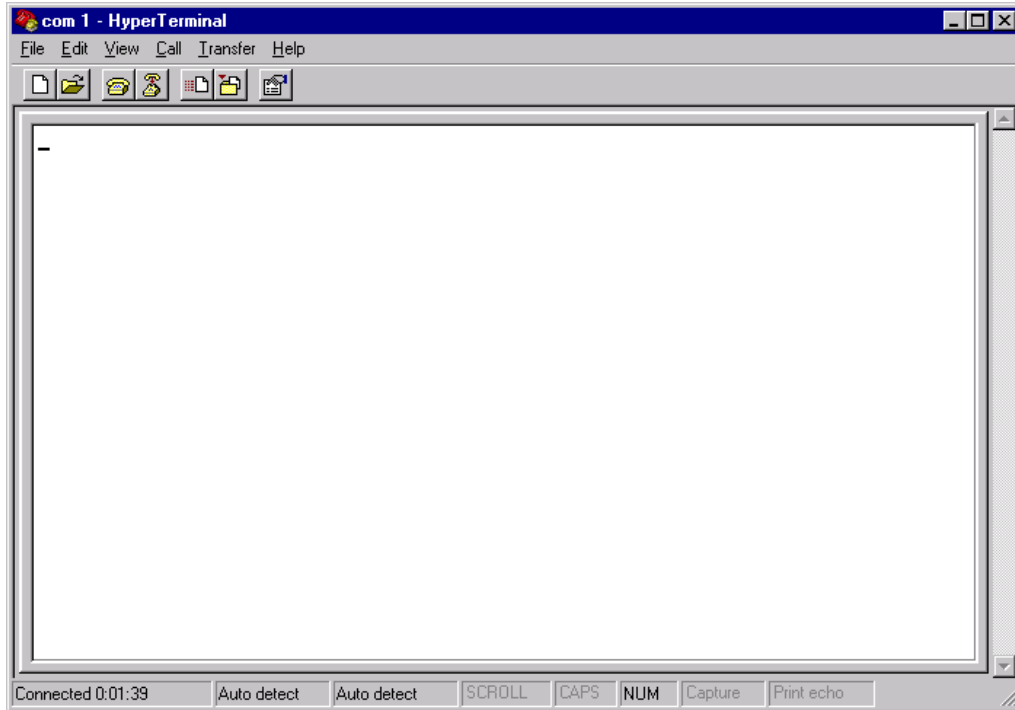


Figure 1-7

10. Turn on the autosampler and the HyperTerminal window (Figure 1-7) should display an **OK**.
11. The following commands will produce various responses of the autosampler.
 - a) **Ver** (returns firmware version)
 - b) **Home** (returns all axis to home position, same as power up)
 - c) **ABS=1000-1000-100** (move to a position 10 cm from the rear-left home position in both the X & Y direction and move the probe down 100 millimeters)
 - d) **Pmp on** (pump on if unit has a pump)
 - e) **Pmp off** (pump off if unit has a pump)
 - f) **Down=n** (moves the z-axis down by the parameter(**n**) in mm.(do not run down command if sipper is not all the way up on up position or damage may occur to sipper or z-axis)
 - g) **Up** (moves z-axis to upper most postion.)

With the commands listed in Step 11 it can be determined if the CETAC autosampler is communicating and functioning properly. If more assistance is needed, please contact customer service.