



Clear-Com Intercom Systems

July 4, 2002

This document explains how to use a terminal program and the serial port of a computer to update the flash ROM of an i-station and its expansion panels.

The i station and its expansion panels have a completely new feature that is very useful. Unlike any previous stations or expansion panels, it is possible to update the flash ROM in these units using a RS-232 to RS-422 converter and a serial port of any PC running a dumb terminal program. A special text file with the updated code must be obtained from Clear-Com Applications Engineering. The extension of this file is .s19.

RS-232 to RS422 converters are available from many sources like computer and electronics stores. These converters come powered (uses a wall wart) and self powered (uses power from serial port). Both will work but the powered versions will work with all computers while the self powered ones may not. Please contact the Clear-Com Applications Engineering department for current information on where to buy these units.

Hyperterm is a terminal program that is provided with most versions of windows and works for most Windows 95 and 98 computers. However, Windows XP computers do not seem to be able to use this program to handle the update process. The best solution is to use a free ware program called Tera Term Pro. It can be obtained from Clear-Com Applications Engineering. It works with all of the operating systems mentioned above.

The last item required is a cable that connects the RS-232 to RS-422 converter to the i station or expansion panel. A diagram showing how to build this cable is included with this document. Mark each of the RJ-45 cable ends for station or expansion panel.

Procedure for doing an update:

1. Connect converter to expansion port of i station or to the port on an expansion panel and the serial port of the computer.
2. Start the terminal program and configure it for the correct COM port and set it for 19.2 Kbaud, 8 bits, 1 stop bit, no parity, no flow control. Hyperterm will need to be restarted for changes to take place.
3. Place i station or expansion panel in maintenance mod by holding in the button found on the rear panel during a power up or reset. This button must be held in until all keys turn red.
4. A sign on message will appear on the computer screen if all is connected and configured correctly. Do not proceed further until you see the sign on message. If you do not see the sign on message, correct wiring or configuration and retry.



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Procedure for doing an update: (continued)

5. Key in the “1” and press return. Information about the version of boot and application versions will appear on the screen. Do not proceed until you are able to get this version readout.

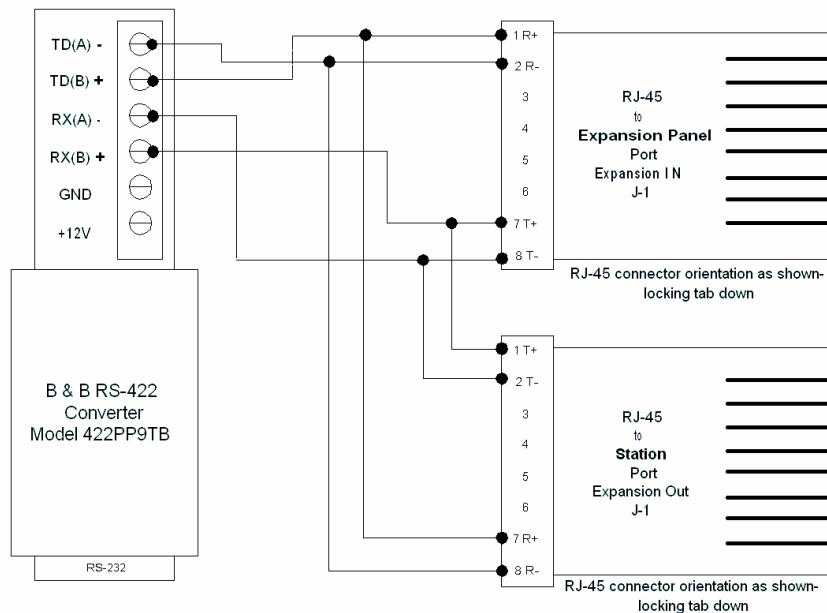
6. Key in 2 and press return. A message will appear on the screen that says the flash ROM is being erased. Next a message will appear asking you to transfer the file with updated code. Use the terminal drop down menus to send the text file with the updated code. Use a text file transfer, not binary.

Hyperterm gives no indication that the file transfer is taking place but it should not take longer then about 3 minutes to complete. When the process is complete a message will be displayed on the computer screen. Tera Term Pro will display a byte count. The process will finish around 350,000 bytes.

7. Enter “1” and enter to confirm the new version of the application code. Enter “9” and return or reset the station.

This completes the update process.

CONVERTER WIRING EXAMPLE FOR I-STATION SERIAL PROGRAMMING





Model 422PP9R Port-Powered RS-232 to RS-422 Converter CE

The 422PP9R is a port-powered, two-channel RS-232 to RS-422 converter. It converts TD and RD RS-232 lines to balanced RS-422 signals. The unit is powered from the RS-232 handshake lines DTR and RTS. Only one of these lines must be present, and the unit will work regardless of whether the lines are high or low. Both the RS-422 driver and receiver are enabled at all times.

To satisfy the requirements of some software, the RS-232 handshake lines are looped back (tied together). RTS is connected to CTS, and DTR is connected to DCD and DSR.

Connections

The 422PP9R is configured to transmit both directions between an RS-232 and RS-422 system. The RS-232 side is pinned out to connect directly into the COM port on your computer or any other DTE device (Table 1). The RS-422 side of the converter is pinned out as described in Table 2. When connecting to a RS-422 system, the 422PP9R **must** be connected with the proper polarity as shown in Figure 1. When no data is being sent the RS-232 line is negative and the RS-422 line TD(A) is negative with respect to TD(B).

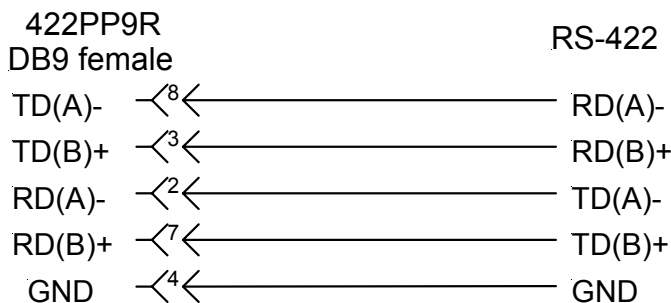
Table 1 - RS-232 Pin Out

Signal	DB9 Female Pin #
TD	3
RD	2
RTS	7
CTS	8
DTR	4
DSR	6
DCD	1
GND	5

Table 2 - RS-422 Pin Out

Signal	DB9 Female Pin #
TD A (-)	8
TD B (+)	3
RD A (-)	2
RD B (+)	7
GND	4, 6

Figure 1 - Connection to an RS-422 System



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