

CHAPTER 2

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MODES OF OPERATION

The ESTeem has three major modes of operation, Command, Converse, and Transparent. This chapter of the manual describes each one of these modes.

COMMAND MODE

The COMMAND Mode (CMD: prompt) is the default mode that the ESTeem initially enters on power-up or after a hardware or software reset. From this mode the user can command or program the ESTeem. In this mode the user may access the various program commands to configure the ESTeem for the specific application. These values can be stored in nonvolatile memory within the ESTeem by the use of the SAVE command. The ESTeem reads these setup parameters stored in memory on power-up or RESET.

When programming in the COMMAND Mode, the user need only enter enough characters to uniquely identify the respective command.

Example: CMD:ADD 15 <cr>

This enters the source address of the ESTeem to the decimal value of 15. The first three letters ADD were enough for the ESTeem to uniquely identify the command for ADDRESS. The number of characters that need to be typed varies depending upon the command being entered. In some cases, four or even more letters may have to be entered in order for the identification to be uniquely determined. Up to ten multiple commands can be written on the same line if separated by a colon.

Example: CMD:ADD 15:SETC 2:SAVE <cr>

CONVERSE MODE

This mode allows bi-directional communication from the input/output device attached to the ESTeem to a destination ESTeem and its respective input/output device. The ESTeem will automatically switch to the CONVERSE Mode after the initial CONNECT has been made.

When the ESTeem is in the CONVERSE Mode the * prompt will be displayed. The ESTeem will remain in the CONVERSE Mode until the radio link has been broken or by typing a control character defined by the user with the COMMAND variable.

The factory default for the COMMAND variable is CTRL C. You can return to the CONVERSE Mode from the COMMAND Mode by typing CONV <cr>.

When you are in the CONVERSE Mode the echoing of the character comes from the ESTeem if ECHO = ON (factory default) has been programmed in the ESTeem.

Transmitting Data

The ESTeem will transmit data from the CONVERSE Mode if one or more of the following conditions have been met.

1. The ESTeem transmit buffer has been filled. The size of the transmit buffer is defined in the ESTeem by the PACKLEN variable. This variable is programmable from 1 to 2000 bytes. Factory default is 2000.
2. The ESTeem receives a SENDPAC (send packet) character from the RS-232C input data stream. The SENDPAC variable can be defined from 0 to 255 by the user. Factory default is 13 (carriage return). The SENDPAC character is also transmitted by the ESTeem. In file dump applications the SENDPAC character can be programmed to be the EOF (end of file) character transmitted from the sending device (i.e.; CTRL Z, CTRL G, etc.).
3. Termination control timer. The termination control timer is enabled by the TERMC (on/off) command. When enabled, the termination timer starts from the time the last transmit buffer has been updated in the RS-232C port. If the termination timer expires before another character is received or transmitted, the contents of the ESTeem transmit buffer will be transmitted. The waiting time of the timer is defined by the TERMT variable (termination time). The programming range of the TERMT variable is 10-255ms. Factory default values are TERMC = OFF and TERMT = 50. It is noted that when the termination timer is used, the SENDPAC variable is usually programmed to be a character that is non occurring in your data stream (i.e.; SENDPAC = 255) so that premature transmission does not occur.

TRANSPARENT MODE

The TRANSPARENT Mode allows the ESTeem to pass all data characters (0-255 or 0-FF hex) using 8 data bits.

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To program the ESTeem in the TRANSPARENT mode the TRANSPARENT command must be enabled and switch Bit 8 to ON (RS-232C Setup Switch). The TRANSPARENT command will defeat the SENDPAC and COMMAND variables and put the ESTeem in the transparent mode when Bit 8 is ON.

The transmission of the data packets can only be accomplished by enabling the termination control commands (TERMC and TERMT) or the PACKLEN buffer being filled. The value of TERMT should be slightly longer than the maximum delay encountered during RS-232C transmission. If this time is set to short, the ESTeem will truncate your data stream improperly.

When using the TRANSPARENT Mode, data flow control is by hardware handshaking only. Hardware handshaking is initiated by enabling hardware flow control (XHF = ON).

The SETCON (Set Connect command) must be used to define the node that you want to communicate with while in the TRANSPARENT Mode. When the TRANSPARENT Mode is enabled you can not communicate to the ESTeem in the COMMAND Mode unless you use the Hardware Mode Control line (see explanation this chapter).

To remove the ESTeem from the TRANSPARENT Mode the user must perform the following:

1. Switch Bit 8, Off on the RS-232C Setup Switch.
2. Reset the ESTeem from the front panel switch.
3. Type Tra OFF <cr>.

SEMI-TRANSPARENT MODE

This mode should be utilized when sending a non-ASCII file and there is a possibility that the SENDPAC character could be contained in the transmitted data set. Perform the following prior to programming the ESTeem to initialize the unit to factory default settings:

1. Turn Bit 8, OFF on the RS-232C Setup Switch.
2. Reset the ESTeem.
3. TYPE FA <cr>. Please note the characters may or may not be echoed by the CRT.

ESTeem

ADD	xxx	xxx = your address
SETC	yyy	yyy = destination address
TERMC	ON	
TERMT	10	
SENDP	255	
EDIT	OFF	
SAVE		

If EDIT is off, and SENDPAC = 255, the SENDPAC character is disabled. This character when received will not cause packet transmission and will be passed as normal data. The TERMC and TERMT commands are used to transmit the contents of the ESTeem transmit buffer.

Software flow control in this example is still enabled (factory default XSF = ON) therefore the ESTeem will pass all characters except the data flow control characters for Xon/Xoff.

HARDWARE MODE CONTROL

The MODECON (Mode Control) command is provided in the ESTeem to change the mode of the ESTeem modem from COMMAND Mode to CONVERSE (or TRANSPARENT Mode) via a hardware control line. The hardware line is located on pin 19 of the RS-232C connector. If MODEC = HARDWARE, a "low or 0" on pin 19 (-3 to -15 vdc) will put the ESTeem in the COMMAND Mode and a "high or one" on pin 19 (+3 to +15 vdc) will put the ESTeem in the CONVERSE or TRANSPARENT Mode. The factory default is SOFTWARE.