FAME II

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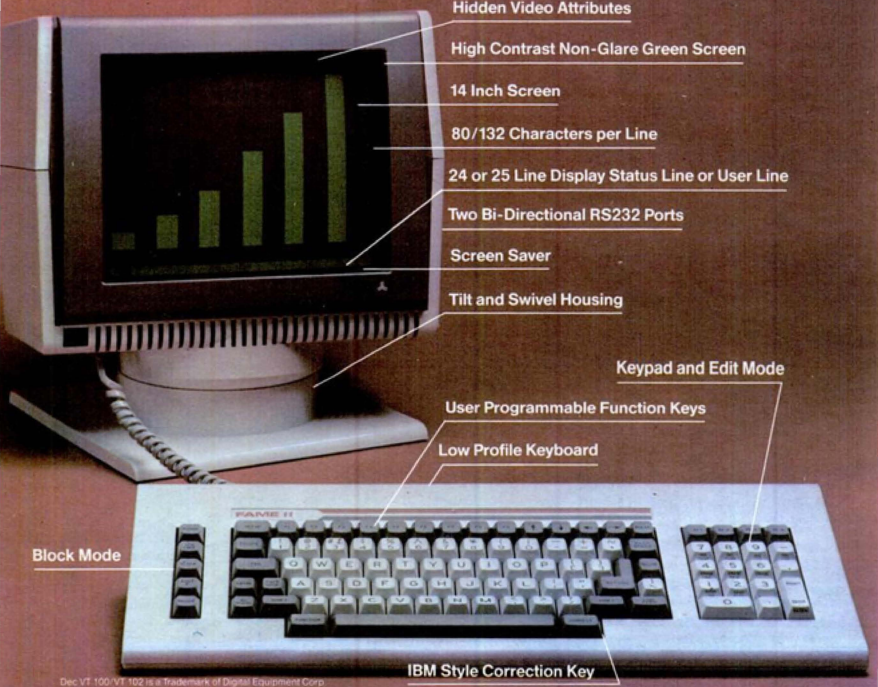

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FALCO DATA PRODUCTS

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FAME-II
User's Manual
Rev. B

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Second Revision - August, 1984

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1. Introduction

Welcome to the FAME-II, a data entry computer terminal. This is a standard ASCII terminal, with escape sequences based on ANSI x3.64 standards. The FAME-II has several modes, capable of emulating many of the major terminals on the market today.

1.1. Main Hardware Components

The major hardware components of the FAME-II are the keyboard, the video monitor, the interface ports and the microprocessor logic board.

The keyboard is a DIN standard typewriter style, with an extra row of special function keys for easy operation. There is a numeric keypad on the right side of the keyboard for entering large amounts of numeric data. The keyboard also has special features like auto-repeat with N-key rollover.

The video monitor is a standard green or optional amber phosphor, high resolution fourteen inch display screen. Characters are displayed using a 7 x 9 dot matrix within a 9 x 12 dot character cell. Depending upon mode and format selected the FAME-II can display the following:

24 lines by 8Ø columns
25 lines by 8Ø columns
24 lines by 132 columns
25 lines by 132 columns

There is also an additional line for status information.

The FAME-II has two interface ports on the back of the terminal, labelled Port A and Port B. Both are 25 pin, RS-232C interface connections, with user selectable BAUD rates for communications with the system or integral 3ØØ/12ØØ baud optional modem. RS-422 communications and 2Ø mA current loop interface connections are available as options. Each port can be configured independently for baud rate and flow control.

The logic board consists of a Z8Ø microprocessor and related integrated circuits all residing on one 9 x 6 printed circuit board for greater reliability and ease of service.

1.2. Main Software Features

The FAME-II is able to operate directly with the host system (Conversation Mode) or on its own for local editing functions (Block Mode).

There are three separate emulation modes of operation available on the FAME-II terminal. The first is ANSI Mode. ANSI mode firmware is based on ANSI x3.64 escape sequences. This makes the FAME-II partially compatible with the DEC VT-1ØØ terminals. ANSI Mode also implements certain printer port features of the VT-1Ø2 and certain block mode editing features (insert/delete line/character) of the VT-

131. However, the FAME-II is not meant to be a complete emulation of these terminals. VT52 Mode is a DEC VT-52 compatible operating mode. FM925 Mode is a TeleVideo 925 compatible mode, and FM92Ø Mode is a TeleVideo 92Ø emulation.

Switching modes is accomplished in the user friendly Setup Mode. The Setup menu is an easy to understand list of options, written in English as much as possible so the operator can easily select the proper values for configuring the terminal. From the Setup menu you can configure the entire terminal, certain keyboard functions, both the communications ports and select certain display features.

Multiple print functions-print line, print screen, extension print and transparent print, are available depending on the terminal configuration. These are described in Section 1Ø - Communications Ports, and in the escape sequence chapters.

1.2.1. Additional Software Features

The FAME-II has a status line displayed on the bottom of the screen in reverse video, divided into 11 separate fields, each of which contains pertinent information that an operator may find of assistance. An additional feature of the status line is that it can be toggled on and off the display screen as desired. When removed from the screen, the 26th line can then display a private message sent either from the keyboard or from the host.

The FAME-II display screen contains as many features as the hardware will allow. There are different attributes in which characters and cursor can be displayed, including reverse video, blinking, half-intensity, blanking and underscoring. Attributes can be selected for characters or for the entire screen.

The FAME-II has a standard 96 character ASCII set in the primary character generator. There are three character sets built into the FAME-II alternate character generator, business graphics, line drawing graphics and foreign character fonts.

There are a total of 5Ø programmable function key registers which can store frequently used commands in non-volatile memory. The entire contents of the programmable key memory can be displayed on the screen using the Examine F special Function key.

1.3. Getting Started

It is highly recommended that a new terminal be initiated with a hard reset. This will re-initialize all non-volatile memory to be assured of a fresh start. One of two messages will appear on the screen. The first "Factory Defaults Loaded", indicates that the terminal is properly loaded with default values, as indicated in the Setup menu. The "ROM Checksum Error" display indicates a faulty ROM, and that the terminal requires service before it can be used. If your terminal is not brand new, perhaps certain Setup values have been changed or keys have been programmed, then a hard reset should only be performed with

caution. But, for just starting out, try a hard reset. Press FUNCTION, CONTROL, SHIFT, and RESET simultaneously. The terminal will BEEP, and the default values will take effect (i.e. On-line Full Duplex Mode, in ANSI Mode, with the product name in the status line, etc.).

The best way to start out on the FAME-II is to enter the Setup menu and make sure the terminal is configured properly to meet the needs of your system, and your personal needs as an operator regarding tactile feedback, Bell, CRLF, etc. See Section 2 - Setup Mode for a complete explanation.

2. Setup Mode

It is important to begin with the Setup Mode, because the operation of the entire terminal is dependent upon the particular values selected in the Setup menu. Most of the problems that arise with host/terminal communications can be traced back to incorrect Setup conditions. If there is some trouble with terminal operations, always check the Setup values first. The source of the problem will usually be found there.

There are two methods for accessing the setup; directly and remotely.

2.1. Accessing the Setup Menu Directly

To view the setup menu press the SETUP key, then hit 1 or 2 to view page 1 or page 2. Hit 0 to view the entire menu, or hit the number of the line to be viewed, to view only a line at a time. The menu line is explained as it appears on the setup menu.

What you see before you, in reverse video, is a vast array of selectable options, that make the FAME-II so flexible.

All setup values are kept in non-volatile memory by the terminal, until a hard reset.

Three types of keys control operations in the Setup menu;

* cursor arrow keys to move from option to option
* the Enter or Return key to view the next choice for each option
* the Period key to view the previous choice
* the Escape key to exit the Setup menu and return to blank screen display.

Following is a complete explanation of every item in the Setup menu, line by line. The default value for each item is printed next to it. Default values are assumed following a hard reset.

Lines 1 through 3 are concerned entirely with port A. The ports are labelled on the back of the terminal - A and B. Port A is for data communications. Normally port A would be connected to your host computer. To insure accurate data communications certain protocols must be established between the terminal and the device it is communicating with.

1. Port A: Baud Rate 9600 Data Bits 8 Stop Bits 1

Baud rate is essentially the bits-per-second rate of data transmission. Any two devices exchanging data must be operating at the same baud rate for proper transmission to either device to occur.

Baud rates are displayed sequentially from lowest to highest when using the ENTER key, and highest to lowest when using the PERIOD key.

Each data word is in eight bits or seven bits. This depends on your system; '7' for seven bits and a '8' for eight bits. The terminal will interpret only seven bits regardless of the setting, but it must be told when to expect a useless eighth bit. If an eighth bit is used it is always 0.

Each data word has either 1 or 2 stop bits, depending on the requirements of your system. Options are '2' for two stop bits or '1' for one stop bit.

2. Port A: Check Parity NO Parity ODD

Parity is a data communications check service where all bits are tested against an even or odd number to be sure that no bits are lost or mixed up. To enable parity checking use 'yes'. To disable parity (so that the terminal does not bother adding and checking bits) a 'no' in the Parity field is required.

The next item in line 2, Parity, is related to the previous item, Check Parity. If parity is enabled you must tell the terminal whether it is even parity or odd that it is being checked for. ENTER key toggles between even and odd parity.

3. Port A: Flow Control ON Xon/Xoff ON DTR OFF

When the terminal is communicating with a computer (or any other device) it helps to have a start and stop protocol established. The two devices must have a way of telling each other that the buffer is full (stop transmission) or that the buffer is empty (start transmission).

When Flow Control is 'ON', the host computer signals the terminal, by transmitting an Xon, to send data until its buffer is nearly full, at which time it sends an Xoff. When Flow Control is 'OFF', the host's XonXoff is ignored by the terminal.

When XonXoff is 'ON', the terminal signals the host computer , by transmitting an Xon, to send data until its buffer is nearly full, at which time it sends an Xoff. When 'OFF', the terminal's XonXoff protocol is not activated.

Some systems use DTR protocol. This is a hard-wired protocol that raises and lowers the transmit signal to indicate a start or stop of data transmissions is to occur. When DTR is 'ON', the terminal raises and lowers the signal on pin 20, DTR, to signal start and stop of data transmissions. When DTR is 'OFF', the signal on pin 20 is held high.

4. Port B: Baud Rate 9600 Data Bits 8 Stop Bits 1

Baud rate is essentially the bits-per-second rate of data transmission. Any two devices exchanging data must be operating at the same baud rate for proper transmission to either device to occur.

Baud rates are displayed sequentially from lowest to highest when using the ENTER key, and highest to lowest when using the PERIOD key.

Each data word is in eight bits or seven bits. This depends on your system; '7' for seven bits and a '8' for eight bits. The terminal will interpret only seven bits regardless of the setting, but it must be told when to expect a useless eighth bit. If an eighth bit is used it is always 0.

Each data word has either 1 or 2 stop bits, depending on the requirements of your system. Options are '2' for two stop bits or '1' for one stop bit.

5. Port B: Check Parity NO Parity ODD

Parity is a data communications check service where all bits are tested against an even or odd number to be sure that no bits are lost or mixed up. To enable parity checking use 'yes'. To disable parity (so that the terminal does not bother adding and checking bits) a 'no' in the Parity field is required.

The next item in line 2, Parity, is related to the previous item, Check Parity. If parity is enabled you must tell the terminal whether it is even parity or odd that it is being checked for. ENTER key toggles between even and odd parity.

6. Port B: Flow Control ON Xon/Xoff ON DTR OFF

When the terminal is communicating with a computer (or any other device) it helps to have a start and stop protocol established. The two devices must have a way of telling each other that the buffer is full (stop transmission) or that the buffer is empty (start transmission).

When Flow Control is 'ON', the host computer signals the terminal, by transmitting an Xon, to send data until its buffer is nearly full, at which time it sends an Xoff. When Flow Control is 'OFF', the host's XonXoff is ingored by the terminal.

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Some systems use DTR protocol. This is a hard-wired protocol that raises and lowers the transmit signal to indicate a start or stop of data transmissions is to occur. When DTR is 'ON', the terminal raises and lowers the signal on pin 20, DTR, to signal stop and start data transmissions. When DTR is 'OFF', the signal on pin 20 is held high.

Page 2

1. Interface: Duplex FULL Main A Extension OFF Monitor OFF

Line 1, page 2 contains even more options pertaining to the communications ports.

Duplex refers to Full or Half Duplex communications. This feature applies to the main port only, the port in communication with the host computer. This feature is also known as Echo or No Echo on some systems. Full duplex is a two way communication between the terminal and the host. The terminal assumes that all keystrokes will be echoed back by the host so it will only transmit the strokes, not display them. Each keystroke will only take effect at the terminal after the host echoes it back- the second stage of the two way communication.

Half duplex is a one way communication. Knowing that the host will not be echoing back any keystrokes, the terminal will transmit the keystroke and execute it locally. See Section 10 - Communication Ports for a further explanation of full and half duplex.

Main sets the primary and the secondary ports. The primary port is for terminal/host communications. All keystrokes and Send functions are transmitted out the primary port. The secondary port is usually a printer port. All Print functions are transmitted out the secondary port. An 'A' in Main sets A as the primary port, a 'B' in Main sets Port B as the primary port.

Once a particular port has been designated as secondary there is the further option of making it an extension port or not by the Extension option. Making the secondary port an extension port is like hard-wiring it to the primary port. To do this select 'ON'. The two ports will act in unison. Any data coming in the primary port will automatically go out the secondary port. Any data coming in the secondary port will automatically go out the primary port. For a further explanation of the communications ports see Section 10 - Communications Ports.

When Monitor Mode is 'ON' all control codes and escape sequences are displayed, not executed. When Monitor is 'OFF' they are executed and not displayed.

2. Interface: Roll YES Scroll YES Smooth NO Bell OFF

Line 2 determines certain display features concerned with the movement of data on the screen.

Roll, when set to 'YES', will automatically roll data around from the end of the line to the beginning of the next line. If roll is set to 'NO', data will not roll from one line to the next. Once the end of the line has been reached, data will simply overwrite itself in that last column until an explicit carriage return or line feed is received by the terminal.

Scroll is similar to roll but in the perpendicular direction. When line 24/25 is reached and filled with data, if scroll is set to 'YES' all data will scroll up the screen, inserting a blank line in line 24/25 making room for another line of data. Line 1 would scroll off the top of the screen and be lost. If scroll is set to 'NO', any data entered beyond line 25 would simply overwrite all data currently on line 25 or if Roll (see above) is not set data would overwrite itself in column 80 of line 25 only.

Smooth is a selectable option controlling the look of how data scrolls up or down the screen. A 'YES' enables smooth scrolling. Data will roll smoothly up or down the screen. A 'NO' scrolls one line at a time. Data will move up the screen in a jerking motion one line at a time. Use of the smooth scrolling option will slow down the apparent speed of the terminal. When the terminal is set for either the 25x80 or the 25x132 line by column formats, smooth scrolling is disabled.

The Bell option controls the terminal BEEP. When set to 'ON' the BEEP will sound eight positions from the end of line. When set to 'OFF' the end of line bell will be disabled. Even if disabled, the BEEP will still sound when a Control G is received at the main port and when any error conditions are encountered.

3. Keyboard: Repeat ON Click OFF Auto-lf OFF

Repeat controls the keyboard auto-repeat function. 'OFF' means keys will not repeat when held down. 'YES' means keys will repeat (up to 16 times a second) when a key is held down for more than a second. See Section 3 - Keyboard for a further explanation of auto-repeat.

Click, when 'ON', will emit an audible click for each keystroke. When 'OFF' the click is disabled.

Auto-lf is a FM925/920 feature only. When set to 'OFF', all CR's and LF's received by the terminal will act as defined by ANSI for horizontal movement only (CR) and vertical movement only (LF) When set to 'ON', all CR's are interpreted as carriage returns and line feeds both, positioning the cursor in column 1 of the next line. (When in ANSI mode, CR/LF is determined by the state of Line Feed/New Line Mode.)

4. Keyboard: Local Edit NO Secure NO PFKs PROGRAM

When Local Edit is set to 'YES', the terminal is in local mode. Whatever is on the screen can be edited with the edit keys without any transmission, with the exception of any keys on the numeric keypad which have been programmed as 'transmit only'. When local edit is set to 'NO', characters are displayed and transmitted. Local Edit is a FM925 function only; it is not available in ANSI/VT52 mode.

When set to 'ON' Security will disable the following escape sequences:

Sequence	Action
Escape ~ 4	Send Line Unprotected
Escape ~ 5	Send Page Unprotected
Escape ~ ^	Read Cursor Data
Escape ~ k	Program a Key
Escape ~ l	Programming Mode
Escape ~ n	Read Status Title
Escape ~ x	Enter Setup

When set to 'OFF' the above escape sequences are enabled.

The PFKs option determines whether or not the programmable function keys are reprogrammed each time the Mode is changed. If PFKs is 'PROGRAM' then all the programmable keys will be automatically reprogrammed each time the terminal switches modes. See Section 3 - Keyboard for a listing of all the programmable function keys, both DEC-compatible and Falco function keys. If the terminal is in ANSI mode or VT52 Mode, all programmable keys will be re-programmed every time Setup mode is entered and exited, even if the Mode field is unchanged. If PFKs is 'PROTECT' then the programmable keys will not be reprogrammed. They will be essentially frozen with their current values. For further explanation of this, see Section 3 - Keyboard.

5. Mode: Mode ANSI Id VT100 Font ASCII

Mode can be either ANSI mode, FM925 mode, VT52 mode or FM920 mode respectively. For an explanation of these modes see Section 5 - Modes.

ID Type determines how the FAME-II will identify itself in response to the ANSI DA sequence. When set to VT100, the FAME-II will send the same ID sequence as a DEC VT-100 with Advanced Video Option. When set to VT102, the FAME-II will identify itself as a DEC VT-102. A VT131 in the ID Type field will cause a VT-131 identification sequence to be transmitted. A FM II in this field will cause the FAME-II to transmit a unique Falco identification sequence. See the sections on escape sequences for the exact characters transmitted for each of these ID sequences.

Font contains eight options, selecting different character generators

for foreign character sets. The foreign character sets available are:

ASCII	German
United Kingdom	Spanish
Swedish/Finnish	Italian
Danish/Norwegian	French

See Appendix B for the foreign character fonts available.

6. Screen: Reverse NO Format 24x80 Status YES

Reverse, when set to 'YES', will switch the entire screen to reverse video. When set to 'NO', the screen will be displayed normally . This causes the same results as the ANSI SM (screen mode) escape sequence.

The format option allows the user to select the number of data lines and the line width desired. FM925 and FM920 modes must be 24x80. ANSI mode allows 24x80, 25x80, 24x132 or 25x132 formats as options.

Status when set to 'YES' will display the status line. When set to 'NO', will clear the status line from line 26.

7. Misc: Scr Save OFF Cursor BLINK/BLOCK

Scr Save activates the special screen saving feature of the FAME-II. Scr Save will automatically turn down the intensity of the CRT screen if it is left untouched for more than 15 minutes. This will help prolong the life of your CRT and prevent any display from burning onto the screen. To activate screen saver enter 'ON' in the Scr Save field. 'OFF' in Scr Save will disable screen saver. If screen saver is enabled don't be surprised when your screen goes blank: simply press any key and the display will be refreshed. (We recommend the CONTROL or FUNCTION key). Transmissions from the host will also activate the screen.

There are four possible display attribute options available for the cursor position. The ENTER key will toggle these options:

Block
Underline
Blink/Block
Blink/Underline

2.2. To Exit From Setup Mode

Press the Escape key three times to exit from the single line setup menu; once to escape from the line selection option, a second time to escape from a page selection option, and a third time to escape from the setup menu. When exiting from the full screen setup mode, press

Escape key twice; once to escape from the page selection option, a second time to escape from the setup menu.

2.3. Accessing the Setup Menu Remotely

The escape sequence to access the setup remotely (from the host) in any mode is:

Escape ~ x a ; b ; p [; p ; p] z

where:

x identifies the remote setup escape sequence
a selects the desired page of the setup menu (a= 1 or 2)
b selects the desired line of the selected page (b= 1-6 for page 1 or 1-7 for page 2)
p selects the desired value for an item on the line:

p=0 Os that item and moves to the next one on the line

p=1 through x selects the desired value for the item. The highest value of x depends on how many choices are available for the particular item. 1 selects the first value, 2 the second, etc.

z terminates the escape sequence.
; separates each item value from the next. (spaces are used for clarity, and should not be included in the actual escape sequence.)

For instance, to set the baud rate for port b to 4800, the number of data bits to 7 and the number of stop bits to 2, the sequence would be:

<escape>~x1;4;14;1;2z

To set only the number of stop bits, the sequence would be:

<escape>~x1;4;0;0;2z

If too many values are included in a sequence the extra ones are ignored. If an illegal line or page is selected, the whole sequence is ignored. No corrections are allowed and there is no way to back up and reprogram something that was skipped, unless a new escape sequence is sent. All changes take effect immediately after the z is received, so if the baud rate is changed, the host should immediately change it's own baud rate and wait for input from the terminal.

2.1 Setup Menu Options' Values for "p" Page 1.

line(b)	ITEM					
1 or 4	Baud Rate		Data Bits		Stop Bits	
	Ø	skip	Ø	skip	Ø	skip
	1	5Ø	1	7	1	1
	2	75	2	8	2	2
	3	11Ø				
	4	134.5				
	5	15Ø				
	6	2ØØ				
	7	3ØØ				
	8	6ØØ				
	9	12ØØ				
	1Ø	18ØØ				
	11	2ØØØ				
	12	24ØØ				
	13	36ØØ				
	14	48ØØ				
	15	96ØØ				
	16	192ØØ				
2 or 5	Check Parity		Parity			
	Ø	skip	Ø	skip		
	1	NO	1	ODD		
	2	YES	2	EVEN		
3 or 6	Flow Control		Xon-Xoff		DTR	
	Ø	Ø	Ø	skip	Ø	skip
	1	OFF	1	OFF	1	OFF
	2	ON	2	ON	2	ON
	p=	VALUE	p=	VALUE	p=	VALUE

2.2 Setup Menu Options' Values for "p" Page 2.

line(b)	ITEM							
1	Duplex		Main		Extension		Monitor	
	0	skip	0	skip	0	skip	0	skip
	1	FULL	1	A	1	OFF	1	OFF
	2	HALF	2	B	2	ON	2	ON
2	Roll		Scroll		Smooth		Bell	
	0	skip	0	skip	0	skip	0	skip
	1	NO	1	NO	1	NO	1	OFF
	2	YES	2	YES	2	YES	2	ON
3	Repeat		Click		Auto-lf			
	0	skip	0	skip	0	skip		
	1	OFF	1	OFF	1	OFF		
	2	ON	2	ON	2	ON		
4	Local Edit		Secure		PFKs			
	0	skip	0	skip	0	skip		
	1	NO	1	NO	1	PROTECT		
	2	YES	2	YES	2	PROGRAM		
5	Mode		Id		Font			
	0	skip	0	skip	0	skip		
	1	ANSI	1	VT100	1	ASCII		
	2	FM925	2	VT102	2	UK		
	3	FM52	3	VT131	3	SWEDISH		
	4	FM920	4	FMII	4	DANISH		
					5	FRENCH		
					6	GERMAN		
					7	SPANISH		
					8	ITALIAN		
6	Reverse		Format		Status			
	0	skip	0	skip	0	skip		
	1	NO	1	24x80	1	OFF		
	2	YES	2	24x132	2	ON		
			3	25x80				
			4	25x132				
7	Scr Save		Cursor					
	0	skip	0	skip				
	1	OFF	1	BLINK/BLOCK				
	2	ON	2	BLOCK				
			3	BLINK/UNDERLINE				
			4	UNDERLINE				
	p=	VALUE	p=	VALUE	p=	VALUE	p=	VALUE

3. Keyboard

The FAME-II keyboard is a lightweight, easy to operate, modularly connected input device. The keyboard should be plugged into the terminal only when the power is off. No particular damage will occur to the keyboard or the terminal if it is plugged in and out with power on, but screen data may be lost or garbaged as a result of a keyboard being plugged in while something is on the screen.

There are several features built into the keyboard worth mentioning:

* Auto-Repeat: The keys on the FAME-II keyboard will automatically repeat if you hold them down. Press a key and try it. The key will generate the character or operation continually for as long as the key is held down. If your keys are not repeating, they may have been shut off in the Setup menu. (Press the SET UP key, select page 2, then select line 3. The status line will be temporarily written over by the third line of the Setup menu. The first entry in the line is Repeat. If Repeat is OFF the keys will not repeat. If it is ON, auto-repeat will work. To remove the setup line and restore the status line press the ESCAPE key three times.)

  Certain keys do not have the auto-repeat feature. CAPS LOCK, for instance, has no effect if held down. It must be released and pressed again to toggle CAPS LOCK on and off. Likewise, the SHIFT key does not auto-repeat.

  Certain keys are greatly enhanced by the auto-repeat feature. For instance, try the Brite or Dim key with the Function key. With auto repeat working, the screen's intensity can be Brightened or Dimmed simply by holding the keys down. If auto repeat was disabled (OFF in the Setup menu) you would have to continually repress the Brite or Dim key to alter the screen intensity enough to make a visible difference.

* N-Key Rollover: Another feature is the N-key rollover. What this means is that you can press more than one key at a time and the terminal will register each one and display them in the order in which you pressed them. It also means that speedy typists can simply fly over the keys without a single character being missed by the terminal. Give it a try. Place your fingers over H J K L. Press all four at once and look at the screen. They all will be displayed in the order the terminal felt them being pressed. Or try holding down one key, say W. The W will repeat. While still holding W press another key. Now that key will repeat. Continue holding both these keys and press another. Now that one will repeat and on and on infinitely (hence the N-key rollover, while most terminals have Ø- or 2-key rollover).

* Function Keys: Another feature of the FAME-II keyboard is the legends on the frontface of some of the keys. When pressed with the Function key these keys will perform various editing and transmission functions. See Section 7 - The Function Key.

3.1. Standard Keys

Standard keys correspond to standard typewriter keys, and are arranged in a Selectric-style layout. The CNTRL key causes the keys to output the correct ASCII control code for each key. Using both CNTRL and SHIFT simultaneously affects only those keys which are shared by two different characters, such as ~ and `. In such cases, the control code for the shifted character will be output. See the keyboard layout at the end of this chapter for the outputs of these keys.

3.2. Numeric Keys

The Numeric keys will produce two different sets of outputs, depending on the terminal's operating mode. This section discusses only the unshifted and shifted output of these keys. See the Function Keys section of this manual for the outputs of these keys when the FUNCTION key is used. In normal mode the keys display their face value. In Keypad Application Mode they transmit the sequences indicated in the following table. The Keypad Application mode is applicable to the ANSI and VT52 modes only.

Key	ANSI Mode	VT52 Mode
Ø	ESC O p	ESC ? p
1	ESC O q	ESC ? q
2	ESC O r	ESC ? r
3	ESC O s	ESC ? s
4	ESC O t	ESC ? t
5	ESC O u	ESC ? u
6	ESC O v	ESC ? v
7	ESC O w	ESC ? w
8	ESC O x	ESC ? x
9	ESC O y	ESC ? y
-	ESC O m	ESC ? m
,	ESC O l	ESC ? l
RETURN	ESC O M	ESC ? M

3.3. Action Modifying Keys

Most of the keys on the FAME-II keyboard are action generating keys. They cause the terminal to effect some action, be it putting a character on the screen, positioning the cursor, editing text or whatever.

There are four keys on the keyboard that do not generate any ASCII characters or control codes nor do they execute functions. The four keys that do not generate any action at all from the terminal are SHIFT, CAPS LOCK, CONTROL and FUNCTION. These keys are used to modify the action of the other keys. Consequently we call them action modifying keys. A brief description of the action modifying keys follows.

1 SHIFT: As with any typewriter, the use of the SHIFT key will engage the upper-case function of all the action generating keys.

2 CAPS LOCK: Pressing the CAPS LOCK key will engage the upper-case of all the alpha keys on the keyboard. Remember, this is just the alpha keys, not the numeric or punctuation keys. The 'CAPS' will appear in the status line whenever CAPS LOCK is enabled. To disable CAPS LOCK, and return to the lower case alpha keys press the CAPS LOCK key again and the 'CAPS' will disappear from the status line.

3 CONTROL: When pressed with the CONTROL key, all action keys will generate their standard ASCII control code. For a list of the ASCII control codes see Section 8 - CONTROL Codes.

4 FUNCTION: The Function key will alter all keys with a front face keycap to override any code generating and instead induce a special FAME-II function to execute. See Section 7 - The Function Key.

When using an action modifying key you must hold the key down while pressing the key you wish to modify (except for CAPS LOCK, which is used alone). You do not press the modifying key, release it, and press the next key. It does not work this way. You must hold down the modifying key while pressing the other key. Try a few examples to test it. CONTROL G should sound the BEEP, if in Block Mode. FUNCTION ENTER should turn on the extension port and put 'EXTEN' in the status line. Press them again to disable the extension port and remove 'EXTEN' from the status line.

It is a good practice when using an action modifying key to press it down first, then press the second key which you wish to be modified. This way the terminal knows for sure that the action of the key is different. Sometimes when pressed simultaneously, the terminal is not sure which came first, the action key or the modifying key.

For future reference, when this manual calls for the use of an action modifying key it is usually abbreviated. When you see the word "shifted" it means to press a certain key with the SHIFT key or it refers to the upper-case value of a key. For example "2 shifted" actually refers to the @ sign. When you see "with Function" or "Function x" it actually means "while pressing the Function key down". And when you see "CONTROL x" it means to enter the 'x' while holding the Control key down.

3.4. Action Keys

There are five categories of action keys on the FAME-II keyboard:

* ASCII
* local
* mode
* edit
* function

3.4.1. ASCII

These are all the keys that generate standard ASCII codes, either printable characters (ie. Ø through 9, A through Z, punctuation marks, etc.) or ASCII control codes:

* BACKSPACE (CONTROL H - BS): positions the cursor one column to the left. In Conversation mode this key transmits an ASCII BS.

* DELETE (DEL - 7F hex): transmits 7F in hex, but has no effect on the terminal itself when received in the main port.

* RETURN (CONTROL M - CR): positions the cursor in column one of the current line. In Conversation mode this key transmits an ASCII CR.

* LINE FEED (CONTROL J - LF): positions the cursor one line down in the same column. In Conversation mode this key transmits an ASCII LF.

* ESCAPE (CONTROL [- ESC): marks the beginning of an escape sequence. In Conversation mode this key transmits an ASCII ESC.

* TAB (CONTROL I - HT): positions the cursor at the next tab stop. In Conversation mode this key transmits an ASCII HT. In Protect Mode, Tab positions the cursor at the next unprotected field.

  TAB with SHIFT performs a backtab, positioning the cursor at the previous tab stop.

3.4.2. LOCAL Keys

This section explains the action of all keys described in the tables below as local only (L/O).

SET UP

Enter Setup Menu.
With the FUNCTION key, toggle display of the status/message line.

BRIGHT

With the FUNCTION key, increase the screen brightness.

DIM

With the FUNCTION key, decrease the screen brightness.

BREAK

Lower the signal on the TXD line.

ESC

In FM925 Mode, ESC with the FUNCTION key, followed by any ASCII character, will send that character, an SOH (Control A), and a carriage return to the host. The FAME-II uses the FUNCTION ESC sequence as a feature to be compatible with the TeleVideo FUNCT key. In ANSI mode, FUNCTION/ESC has no effect.

ON LINE

Force the terminal into conversational mode.

BLOCK

Force the terminal into block mode.

EDIT F

Enter special mode for programming the PFKs (See Section 4).

EXAM F

With the FUNCTION key, requests a page number between 1-3 for programmable function key display. Page 1 contains the numeric pad function keys and correct and backtab. Page 2 contains the cursor keys, the PF keys, their shifted equivalents, and the Here Is key. Page 3 consists of the F1 thru F9 function keys and their shifted equivalents.

EXTEN

With the FUNCTION key, enable/disable the secondary port to act as an extension port.

PAGE

In FM925 Mode, switch to the alternate page of memory. In ANSI/VT52 mode, no effect.

RESET

With the FUNCTION key, performs a soft reset.
With the FUNCTION and CONTROL keys, perform a hard reset.

NO SCROLL

Freeze the contents of the screen, and send an immediate XOFF to the host, if XonXoff protocol is enabled.

FREEZE

With the FUNCTION key, freeze the contents of the screen, but let the handshaking logic take care of any protocol exchanges.

3.4.3. MODE Keys

Certain keys on the keyboard need to be re-programmed for each change in mode: from ANSI to FM925 Mode to VT52 Mode. The escape sequences necessary to execute these keys (or tell the host to execute these keys) must be changed for each change in mode. Consequently we call them Mode Keys. For an explanation of ANSI, 925 and 52 see Section 5 - Modes. The mode keys are:

* Home: the cursor is positioned in column 1, line 1.

* Cursor Arrows: the four cursor arrow keys across the top of the numeric keypad controlling cursor movement.

* F1 thru F9, shifted and unshifted, and PF1 thru PF4, shifted and unshifted.

* The FUNCTION keys indicated on the face of the numeric keypad:
  insert/delete character and line
  erase line/page
  erase
  sendline/page
  print

All these keys are programmable. When a new terminal mode is selected, all of these keys will be reprogrammed to be compatible with the new mode.

As you may have already guessed, this could be confusing to the terminal having pre-programmed sequences altered by the user, because the terminal will then change the sequence again whenever the Mode is changed. To help straighten this out a little, there is a field called PFKs in the Setup menu. When the PFK'S field is set to 'PROGRAM' the terminal will automatically reprogram the mode keys with the appropriate escape sequences for the particular mode chosen.

If you do not want the mode keys to be overwritten (maybe because you have programmed some of them with your own special commands) you may simply set the PFKs field in the Setup menu to 'PROTECT'. This eliminates the automatic reprogramming of the mode keys every time the Mode changes. In effect, it freezes the Mode keys with their current values and the terminal will not change them.

3.4.4. EDIT Keys

All of the editing functions on the FAME-II are controlled by the keys on the numeric keypad. All of the keys must be entered with Function. In FM925 Mode only, when Duplex Edit is selected, (DUPE appears in the status line) these keys transmit when the terminal is on-line, and act locally when the terminal is in Block Mode. When Local Edit is selected, (LOCE appears in the status line) these keys will act locally in both Online and Block Mode.

* Insert Char: inserts a character at the cursor.

* Delete Char: deletes the character at the cursor.

* Insert Line: inserts a blank line.

* Delete Line: deletes the line containing the cursor.

* Erase Line: erases from the cursor to the end of the line.

* Erase Page: erases from the cursor to the end of the screen.

* Erase: erases the entire screen.

* Send Line: sends the line containing the cursor out the primary port.

* Send Page: sends the entire screen out the primary port.

* Print Page: prints the entire screen to the secondary port.

3.4.5. FUNCTION Keys

There are two types of function keys on the FAME-II terminal: programmable and non-programmable. The programmable function keys can also be separated into two groups: DEC compatible and TV-925/92Ø compatible.

See the section on Local Only keys for an explanation of any key marked L/O.

3.4.5.1. Programmable Function Keys

The tables below list the pre-programmed outputs of the DEC and 925/92Ø Mode PFKs. The outputs can be changed using the EXAM F and EDIT F function keys.

3.4.5.2. DEC Compatible

These keys have different values depending on the selection of ANSI or VT52 mode and the Cursor Key Mode (CKM). These values are automatically selected when either ANSI or VT52 mode is chosen from the setup menu. If these keys have been reprogrammed by the user, the user definitions will be lost, unless PROTECT is selected in the PFKs field of the setup menu.

After a hard reset keys F1 through F9 and all the keys listed below which have shifted outputs are cleared. The HOME, Cursor keys, and the PF keys are all initialized to their DEC-compatible values. These keys may be programmed at any time, using the EDIT F key.

Key	ANSI	ANSI CKM	VT52	VT52 CKM
PF1	ESC O P	ESC O P	ESC P	ESC P
PF2	ESC O Q	ESC O Q	ESC Q	ESC Q
PF3	ESC O R	ESC O R	ESC R	ESC R
PF4	ESC O S	ESC O S	ESC S	ESC S
HOME	ESC [H	ESC [H	ESC H	ESC H
Up Arrow	ESC [A	ESC O A	ESC A	ESC A
Down Arrow	ESC [B	ESC O B	ESC B	ESC B
Left Arrow	ESC [C	ESC O C	ESC C	ESC C
Right Arrow	ESC [D	ESC O D	ESC D	ESC D

3.4.5.3. FM925/920 Mode PFKs

The outputs of the PFKs in FM925 and FM920 modes depend on the state of the SHIFT key.

Key	Alone	With SHIFT	With FUNCTION
HOME	RS	-	ESC ~ *
F1	SOH @ CR	SOH ` CR	N/A
F2	SOH A CR	SOH a CR	N/A
F3	SOH B CR	SOH b CR	N/A
F4	SOH C CR	SOH c CR	N/A
F5	SOH D CR	SOH d CR	N/A
F6	SOH E CR	SOH e CR	N/A
F7	SOH F CR	SOH f CR	N/A
F8	SOH G CR	SOH g CR	N/A
F9	SOH H CR	SOH h CR	N/A
Up Arrow	VT	-	N/A
Down Arrow	SYN	-	N/A
Left Arrow	BS	-	N/A
Right Arrow	FF	-	N/A
HERE IS	-	-	-
PF1	SOH I CR	SOH i CR	NA
PF2	SOH J CR	SOH j CR	N/A
PF3	-	-	N/A
PF4	-	-	N/A
BACKTAB	N/A	ESC I	N/A
PRINT	N/A	ESC ~ P	N/A
CORRECT	BS/SP/BS	N/A	N/A

The keys shifted and unshifted F1 through F9, PF1 and PF2, are programmed to be compatible with the 11 (shiftable to 22) preprogrammed function keys on the TeleVideo 925 terminal. PF1 corresponds to F10 and PF2 corresponds to F11.

The following keys operate only with the FUNCTION key. The table below shows the pre-programmed outputs which these keys take on when a

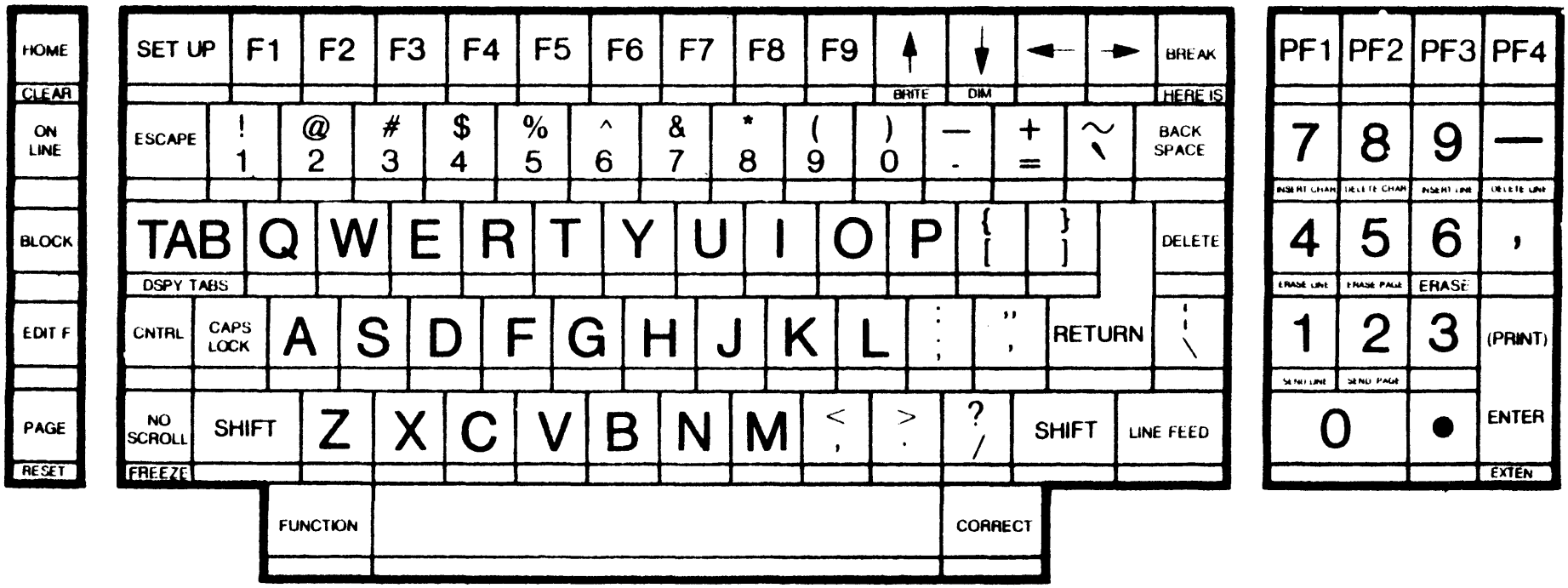
hard reset is performed. These keys may be programmed at any time, using the EDIT F key.

Key	With FUNCTION
Ins Char	ESC ~ Q
Del Char	ESC ~ W
Ins Line	ESC ~ E
Del Line	ESC ~ R
Erase Line	ESC ~ T
Erase Page	ESC ~ Y
Erase	ESC ~ ;
Send Line	ESC ~ 4
Send Page	ESC ~ 5

3.4.6. Non-programmable Function Keys

These keys are provided to make the use of the FAME-II easier for the end-user. Except for the BREAK key, all of these keys have local only effects, and send no output to a host computer in the on-line mode. The table below explains the output of each key in the unshifted, shifted, and function mode. See Section 3.4.2 - Local Keys.

Key	Alone	With SHIFT	With FUNCTION
ESC	N/A	N/A	L/O
SET UP	L/O	N/A	L/O
BRITE	N/A	N/A	L/O
DIM	N/A	N/A	L/O
BREAK	BREAK	BREAK	N/A
ON LINE	L/O	L/O	N/A
BLOCK	L/O	L/O	N/A
DISPY TABS	N/A	N/A	L/O
EXTEN	N/A	N/A	L/O
EDIT F	L/O	N/A	L/O
NO SCROLL	L/O	N/A	L/O
FREEZE	N/A	N/A	L/O


HOME
CLEAR
ON LINE
BLOCK
EDIT F
PAGE
RESET
SET UP
F1
F2
F3
F4
F5
F6
F7
F8
F9
BRITE
DIM
BREAK
HERE IS
ESCAPE
BACK SPACE
TAB
DSPY TABS
DELETE
CNTRL
CAPS LOCK
RETURN
NO SCROLL
SHIFT
LINE FEED
FREEZE
FUNCTION
CORRECT
PF1
PF2
PF3
PF4
ERASE
(PRINT)
ENTER
EXTEN

FAME II

4. Programmable Keys

The FAME-II has many programmable keys, each with a capacity of 76 characters, and 50 programmable registers with a total capacity of 800 characters. Each key is assigned one or more registers; a space in memory where any commands programmed into the key are stored for future use. These keys are provided as an aid to the operator. They can be programmed with any frequently used commands or data, which can then be called up by merely pressing one key. Any key can be programmed to execute any other key. The escape sequence to execute function keys is:

ESC ~ \ Pn

where Pn is the two digit code of the programmable key.

All the programmable keys are listed below with the action keys which can access them.

Table 4.1 Programmable Keys

KEY	ALONE	SHIFTED	FUNCTION
HM	YES	YES	YES
RG	YES	YES	NO
LF	YES	YES	NO
UP	YES	YES	NO
DN	YES	YES	NO
PF1-4	YES	YES	NO
CT	YES	NO	NO
BACKTAB	NO	YES	NO
HERE IS	NO	NO	YES
F1-F9	YES	YES	NO
INS CHAR	NO	NO	YES
DEL CHAR	NO	NO	YES
INS LINE	NO	NO	YES
DEL LINE	NO	NO	YES
ERASE LINE	NO	NO	YES
ERASE PAGE	NO	NO	YES
ERASE	NO	NO	YES
SEND LINE	NO	NO	YES
SEND PAGE	NO	NO	YES
PRINT	NO	NO	YES

4.1. Programming a Key

To program these keys press the EDIT F key. The status line will temporarily disappear. In its place you will see "KEY TO EDIT:". This signifies that the terminal is in a special programming mode.

When the status line asks you "KEY TO EDIT:" simply press the key that you wish to program. If you select a key that is not programmable the terminal will BEEP. Try again. The two digit code for that key (see Table 4.2) will appear in the status line, as well as the current

programmed contents of that key.

There are a few important facts you should know about programming keys on the FAME-II terminal.

1 While the terminal is in this special programming mode all ASCII control codes will be displayed, not executed (as if the terminal were in Enter Mode). This is so that you can easily program a Carriage Return, a Line Feed, an Escape or whatever into a programmable key simply by pressing that key.

2 To begin programming a key that has a previous program stored in it, you can use the Home key or the Correct key to reposition the cursor at the start of line. Or if you make a mistake while programming use the Correct key to go back to the mistake. You cannot use the Backspace key to move the cursor backwards while you are in the special programming mode. Hitting the Backspace key (or any key with a standard ASCII control character) will program that control character into the key, not execute the control function.

3 Commands within a programmed key can be designated for Normal execution, Local execution only or Transmit only. Normal execution means that when the key is pressed it will be executed according to whether the terminal is in Block or Conversation mode. Local execution only means that the command will be executed locally (at the terminal) only, even if in Conversation mode. Transmit only means that the command will be transmitted to the host only, even if the terminal is in Block mode.

For Normal execution only, simply program the key. Default is Normal execution. If a part of the command is already programmed as Local or Transmit and you need to switch back to Normal press Function with the Z key. A special graphics character will appear in the command string designating normal execution.

For Local execution only, precede the command (or part of the command) with the Block key and the appropriate special graphics character should appear in the command string.

For Transmit only, precede the command with the Online key.

4 Once you have finished entering all the data and commands you wish that key to contain, simply press the EDIT F key again and the entire sequence will be stored in memory, to be called up and executed each time that key is pressed.

5 The program for the key is stored in non-volatile memory so that the terminal will 'remember' it even if power is off. The only way that the program for a key is lost is if you explicitly reprogram or erase the key, or if you perform a hard reset. For the hard reset explanation see Section 7 - The Function Key.

6 If you have already started programming a key and wish to exit without altering the original contents, press the PAGE key.

7 To erase a stored program press EDIT F, the key to be erased, HOME and then the EDIT F key (essentially programming a blank line into that key).

4.2. Programming From the Host - I

To program a key from the host (by escape sequences) you follow the basic pattern of programming from the keyboard with a few minor differences.

1 To start, issue ESC ~ l (lower case L).

2 The next character following the l must be a delimiter. You may use any ASCII character as the delimiter character. You need the delimiter to issue Local, Transmit only, Normal and Program commands that the terminal will interpret correctly. The delimiter can be any character that will not be used as part of the command string.

3 Following the ESC ~ l <delimiter>, you must enter the two digit code for the key you wish to program; from HM to 18. See Table 4.1 for the two digit code for each key. Use the EXAM F function key to examine the current key values and determine the proper 2-letter code for each key. key

4 You may then program the key with any data or command sequences desired. However, any Local only, Transmit only, or Normal execution commands must precede the part of the command to which they apply.

5 To insert a normal execution command issue '<delimiter> z' and the special graphics character denoting normal execution will be programmed into the command string.

To insert a local only command issue '<delimiter> a' and the command will be programmed to execute at the terminal only.

To insert a transmit only command issue '<delimiter> s' and any commands following will be transmitted only.

6 To store the program in non-volatile memory and exit from the programming escape sequence issue '<delimiter> x'.

4.2.1. Programming From the Host - II

There is yet another way to program a key by escape sequences.

On a blank line, enter the two letter code for the key to be programmed. Follow that with the program you wish to be stored for that key, leaving the cursor in the first position after the last character in the command string. Issue

ESCAPE ~ k

and the key will be programmed, the command stored in non-volatile memory.

With this method of programming it is not possible to enter Normal, Local or Transmit commands into the programmed string. For those special commands, you must enter programming mode, either from the keyboard (EDIT F) or from the host (ESC ~ 1). It is also not possible to include non-printing characters in the key value using this method. That means no control characters or escape sequences can be used.

Table 4.2 Two Digit Codes for Programmable Keys

CODE	KEY	CODE	KEY	CODE	KEY
CO	Correct	P1	PF1	03	F3
BT	Backtab	P2	PF2	04	F4
CL	Clear	P3	PF3	05	F5
IC	Insert Char	P4	PF4	06	F6
DC	Delete Char	Hm	HOME SH	07	F7
IL	Insert Line	Rg	Right Arrow SH	08	F8
DL	Delete Line	Lf	Left Arrow SH	09	F9
EL	Erase Line	Up	Up Arrow SH	10	F1 SH
EP	Erase Page	Dn	Down Arrow SH	11	F2 SH
SL	Send Line	P5	PF1 SH	12	F3 SH
SP	Send Page	P6	PF2 SH	13	F4 SH
PR	Print Page	P7	PF3 SH	14	F5 SH
HM	Home	P8	PF4 SH	15	F6 SH
RG	Right Arrow key	HI	Here Is	16	F7 SH
LF	Left Arrow key	01	F1	17	F8 SH
UP	Up Arrow Key	02	F2	18	F9 SH
DN	Down Arrow Key				

SH = Shifted

5. MODES

There are several different modes under which the terminal can operate. Each has unique features and alters the terminal in its own way. It is important that the operator set the correct mode, and be sure that the terminal is always operating in the correct mode.

5.1. BLOCK Mode

When the terminal is in Block mode, it is not communicating directly with the host computer. All keystrokes are displayed on the screen, but not transmitted. Even though transmission to the host does not occur, data can still be received from the host in block mode. In FM925 Mode, the following keys are pre-programmed to transmit, even in block mode:

F1 - F9, shifted and unshifted
PF1 - PF2, shifted and unshifted
BREAK

To enter Block Mode press the Block key. When in Block Mode, transmission is done by SEND LINE and SEND PAGE function keys. BLOCK will appear on the status line.

5.2. ONLINE Mode

When the terminal is in Online mode it is in direct communication with the host computer. All data received through the primary port is displayed on the screen. All keystrokes and commands issued from the keyboard are transmitted out the primary port. If half-duplex is selected in the SETUP menu, all keystrokes will be displayed on the screen as well as transmitted. If full-duplex is selected in the SETUP menu all keystrokes are transmitted only. They will be displayed on the screen only if the host computer "echoes" the data back to the terminal.

To enter Online Mode, press the ON LINE key. Full or Half will appear in the status line, signifying Online, full or half duplex.

5.3. ANSI Mode

The FAME-II is in ANSI Mode by default when powered on. Unless explicitly switched to FM925 Mode or VT52 Mode the terminal will be programmed for ANSI. Escape sequences will be ANSI based just as the VT-1ØØ is. See Section 13 for a look at all the escape sequences implemented in ANSI Mode.

To enter ANSI Mode change the Mode setting in the Setup menu to ANSI. If you are unsure how to do this see Section 2 - Setup Mode.

When in ANSI Mode the 'mode keys' will be automatically programmed with ANSI standard escape sequences. (If PFKs in the Setup menu is set to 'PROTECT' this will not occur. Be sure PFKs is set to 'PROGRAM' for automatic reprogramming of the 'mode keys' to match the mode the

terminal is in.) The mode keys are the cursor arrow keys, Home, and PF 1-4.

When in ANSI Mode the terminal is programmed for VT-1ØØ emulation. Most of the local features of the terminal are not included in the ANSI Mode escape sequences. These are all implemented in the FAME Private escape sequences. FAME private escapes can be executed while the terminal is in ANSI mode. See Section 16 for a complete list of all FAME Private escapes.

5.4. VT52 Mode

For software requiring VT-52 escape sequences, FAME-II must be put into VT52 Mode. VT52 Mode is a partial implementation of the DEC VT-52 escape sequences. For a complete list of VT52 Mode escape sequences see Section 15 - VT52 Mode Escape Sequences.

To enter VT52 Mode change the Setup value for Mode to 'VT52'. If you are unsure how to do this see Section 2 - Setup Mode. To enter VT52 Mode from the host issue:

ESC [? 2 1

When in VT52 Mode the 'mode keys' on the keyboard will be reprogrammed automatically with VT52 Mode escape sequences. (If PFKs in the Setup menu is set to 'PROTECT' this will not occur. Be sure PFKs is set to a 'PROGRAM' for automatic reprogramming of the 'mode keys'.)

FAME private escapes can be executed while the terminal is in VT52 mode. See Section 16 for a complete list of all FAME Private escapes.

5.5. FM925 Mode

Many software packages for micro computers are written for the TeleVideo 925 terminal. If you are using any software that is expecting an TeleVideo 925 terminal you must be sure to put FAME-II in FM925 Mode. FM925 Mode is a partial implementation of the TeleVideo 925 escape sequences allowing software to run on the FAME-II. For a complete list of the FM925 Mode escape sequences see Section 14 - FM925 Escape Sequences.

To enter FM925 Mode change the Setup value for Mode to 'FM925'. If you are unsure how to do this see Section 2 - Setup Mode.

When in FM925 Mode the 'mode keys' on the keyboard will be reprogrammed automatically with FM925 Mode escape sequences. (If PFKs in the Setup menu is set to 'PROTECT' this will not occur. Be sure PFKs is set to 'PROGRAM' for automatic reprogramming of the 'mode keys'.) For a complete look at the 'mode keys' see Section 3 - Keyboard.

When in FM925 Mode the FAME-II has a few special features, not available in the other modes. These include Monitor Mode, Protect Mode, and Auto Page Mode described below.

5.5.1. Monitor Mode

When the terminal is in monitor mode all control codes and escape sequences will be displayed on the screen, not executed. This is especially useful for debugging or deciphering an incoming data stream without executing code.

To enable Monitor Mode issue:

ESC U

To disable Monitor Mode issue:

ESC u

5.5.2. Auto Page Mode

The FAME-II is capable of storing locally more data than can be displayed on the screen at one time.

Auto page mode contains two pages. Pressing the PAGE key allows the user to switch back and forth between the two pages rapidly. The cursor position last accessed in each page is memorized prior to a page change. When in Auto Page Mode, scrolling is inhibited. Any data beyond the twenty-fourth line to be monitored requires that the next page of data be displayed. Data in the memory is displayable in twenty-four line blocks. Wrap-around occurs in the following instances:

1 Data entered beyond column 8Ø, page two, will be written beginning in page one, column one, row one.

2 An inserted line causes line 24, page one to wrap to line one, page two.

3 A deleted line causes line one, page two to move to line 24, page one.

To enable Auto Page Mode issue:

ESC v

To disable Auto Page Mode issue:

ESC w

To swap pages issue:

ESC J or ESC K

5.5.3. Protect Mode

When the terminal is in PROTECT mode, the operator can work with forms: data entry formats of protected and unprotected data (like the

setup menu or standard business forms). These forms are displayed on the screen by the host. The operator must then enter data in the unprotected fields according to the specifications of that field. If an incorrect entry is made the terminal will BEEP. If an attempt is made to enter data in a protected field, again, the terminal will BEEP. Once all proper data has been entered, the operator must transmit the form back to the host.

Protect mode is valid in FM925 Mode only. It is not possible in ANSI Mode or VT52 Mode.

5.5.3.1. Fields

When in Protect Mode, the screen is divided into protected and unprotected fields. Protected fields are displayed in reduced intensity. They are 'locked' on the screen. The operator cannot enter or edit data in protected fields. Unprotected fields are displayed in normal intensity. They can be written to, overwritten and edited.

5.5.3.2. Cursor Movement in Protect Mode

The up/down cursor keys will behave as normal in Protect mode. They will position the cursor up or down regardless of protected and unprotected fields. This is so that protected fields can be transmitted or printed also if desired. The right/left cursor key will move in unprotected fields only.

However, cursor positioning in Protect mode is normally done by the TAB key. The TAB key will move the cursor from one unprotected field to the next. When shifted the TAB key will move the cursor backward to unprotected fields only. Using the TAB key one can skip right over the protected parts of the screen and position the cursor at the data entry portions-unprotected fields.

5.5.4. DUPE/LOCE MODE - FM925 MODE ONLY

When Duplex Edit is selected, (DUPE appears in the status line) all the keys controlling editing functions on the numeric keypad transmit when the terminal is on-line, and act locally when the terminal is in Block Mode.

Local Edit Mode is a special mode available in either Local or ON LINE mode. Simply set the Local Edit to YES on page 2 of the Setup menu and the terminal will enter Edit Mode. (The status line will display "LOCE" where it had previously shown DUPE.)

In Local Edit Mode, any programmable function key which is explicitly programmed as TRANSMIT ONLY will transmit, but all other function keys will function in local mode only.

5.6. FM920 Mode

Within the TeleVideo Model 925 there is the capability of a 920 Mode. This feature is selected in the Setup menu Mode field for a TeleVideo

920 emulation. The operations of FM920 mode are controlled by the FM920 control codes listed in Section 9 and by escape sequences listed in Section 15, and make the terminal operationally compatible with the TeleVideo Model 920.

6. Status Line

The FAME-II has a reverse video status line across the bottom of the display screen (line 26). The status line is divided into 11 different sections, hereafter labelled as fields A through K. The status line contains information about the state of the terminal that may be pertinent to the operator. The status line can be toggled on and off the display by pressing SETUP and FUNCTION together.

Field A: Field A is the title field. It contains FAME-II, the name of the terminal. The title field can be programmed by the user, if you wish it to contain another title (up to 1Ø characters). See the sections on FAME Private escape sequences for how to write a new title in the status line.

Field B: This field will indicate whether the terminal is in ANSI mode, FM925 mode, FM92Ø mode, or VT52 mode.

Field C: Field C is blank.

Field D: Field D is normally blank. It will display the word EXTEN whenever the extension port is activated. If the transparent print escape sequence is received in ANSI mode, 'TRANS' will be displayed.

Field E: Field E displays blanks if port A is selected as the main port, and displays MAIN-B if port B is selected as the main port.

Field F: Field F indicates whether the terminal is in FULL or HALF duplex. Full duplex is a two way communication. Characters transmitted out the port are echoed on the screen as the host receives them. Half duplex is a one way communication. The terminal will display characters and will not wait for the host to transmit the character sent.

If the terminal is switched from On-line to Block mode, the word BLOCK will overwrite field F. When block mode is toggled off, the current duplex setting is again displayed.

Field G will display 'FREEZE' whenever Function Freeze is in effect. This freezes all data on the screen, prevently the buffer from writing to the screen. It does not halt transmission though, so the buffer will continue to fill. It does not disable the keyboard either, so that data typed will appear on the screen. Data received in the port will not. Whenever the terminal receives an Xoff (Control S) into either port, Field G will display 'WAIT', signifying that the any transmission from the terminal has been stopped. Once an Xon (Control Q) is received and the transmission is restarted, the WAIT will be removed from the status line.

Field H: This field will tell you whether the terminal is in Duplex Edit or Local Edit Mode or Monitor Mode.

Field I: Whenever the keyboard is locked (by the appropriate escape sequence) field I will display 'LOCK' telling the operator that the

terminal will no longer accept keystrokes.

If Caps Lock is enabled, 'CAPS' will be displayed in Field I. Keyboard Lock overrides the 'CAPS' display.

Field J: Field J displays 1 of 3 messages, or blanks. If a private message is hidden by the status line, 'MESSAGE' will be displayed. If the terminal is in FM925 Mode, Field J will display either 'Page 1' or 'Page 2'. See Section 5 - Modes for the Auto-Page Mode description.

Field K: Field K is the cursor position field. It contains the current line and column number of the cursor. Lines are 1 to 24/25 down the screen: columns are 1 to 80/132 across the screen.

6.1. Overwrite Status

The status line will at times be overwritten. When entering Setup Mode or Programming Mode the Status line will display information unique to those to modes. Once you exit Setup or Programming Modes the status line will return to the display exactly as it was before being overwritten.

6.2. Status On/Off

The status line can be toggled to display the message line by pressing FUNCTION with the SETUP key. See below for an explanation of private messages.

6.3. Private Messages

The FAME-II has a special feature allowing private messages to be displayed underneath the status line. The message can then be read whenever the status line is removed from the display.

To enter a private message from the keyboard press EDIT F. The status line will be overwritten with 'KEY TO EDIT' just as if you were going to program a key. Then press Function and SETUP together. The status line will go blank. Type in the private message you wish to store under the status line. Press Edit F or RETURN to program the private message and exit the message line.

To enter a private message from the host issue:

ESC ~ f <message> CR

where <message> is whatever you wish the private message to contain (up to 79 characters). As soon as the carriage return is received, 'MESSAGE' will be displayed in field J of the status line alerting the operator that a message is waiting to be read.

When 'MESSAGE' appears in the status line the operator must remove the status line from the display to read the message. This is done by pressing the SETUP key with Function (as described above). Once the message is read, and the status line restored (by pressing Function

SETUP again) 'MESSAGE' will be removed. The message can also be displayed and hidden by Escape sequence:

ESC ~ g will display the message line, and
ESC ~ h will display the status line.

7. The Function Key

The FAME-II function key provides an easy way to execute certain necessary functions. The functions that are executed in conjunction with the Function key are written in on the front face of the keycaps. Operator control of these functions is simple--just pressing the keys. The result of pressing the keys is a bit more complicated. You may want to begin with the easy ones, BRITE and DIM.

7.1. BRITE/DIM

Press the BRITE key while holding down the FUNCTION key. The screen intensity will then increase until the maximum brightness is reached and the BEEP will sound. This will undoubtedly be too bright. To reverse the process press the DIM key while holding down the FUNCTION key. The screen intensity will diminish until its limit is reached and the BEEP sounds again. Use the BRITE and DIM keys to adjust the screen intensity to a level that feels good for your eyes. (By the way, the above description assumes that the Repeat entry in the Setup Mode is set to 1, its default value. If this has been changed to Ø, you cannot simply hold the BRITE and DIM down. You must continuously repress the key for each increment in intensity.)

There, you have now mastered the basics of the FAME-II function keys. Let's move on to the slightly more difficult, but quite important ones.

7.2. RESET

You will become very familiar with the resetting process, as it is the quickest, easiest way to get out of an error situation. Any time you have garbage on the screen, or the keys are locked up, or something else is just not right with the terminal one easy way to correct it is to try a reset.

There are two kinds of resets: hard and soft.

* Soft Reset: A soft reset will simply clear the screen, correct any error conditions that may exist and eliminate an 'XOFF' condition if there is one in the status line. For a soft reset press RESET with FUNCTION. A BEEP should sound, the cursor should be homed and the screen cleared. If these did not occur, the reset failed. You must then try turning the terminal off, then on again. This is a slightly more cumbersome way to execute a soft reset, and a reason why a soft reset is also known as a power-on reset.

* Hard Reset: A hard reset will return the entire terminal back to original manufactured default values. All SETUP values will resort to default; all programmed function keys will be erased; the screen and buffer will be cleared; the status line will return to default; the BEEP will sound. It is a rather drastic step - comparable to starting all over again. So, if necessary, to execute a hard reset press FUNCTION, CONTROL and RESET

simultaneously.

7.3. FREEZE

FREEZE, when pressed with the Function key, will halt transmission between the terminal buffer and the screen. No communications break will be sent to the host. Only the data on the screen will freeze. The buffer will continue to fill and it will depend on normal protocol (DTR or XonXoff) to control possible overflow. But communication between the buffer and the screen will be frozen. FREEZE will appear in the status line. The FREEZE will stay in effect until the FREEZE key is pressed again with FUNCTION.

7.4. INSERT/DELETE LINES

INS LINE, when pressed with the Function key, will insert a line above the line currently containing the cursor. All data on the screen will scroll down a line.

DEL LINE, when pressed with the Function key, will delete the line containing the cursor. All data below that line will scroll up.

7.5. INSERT/DELETE CHARACTERS

INS CHAR, when pressed with the Function key, will insert a blank position at the cursor. The data at and to the right of the cursor will move one position to the right. Characters forced beyond column 8Ø are lost.

DEL CHAR, when pressed with the Function key, will delete the character at the cursor. All data to the right of the cursor will move one position to the left, inserting a blank in column 8Ø.

7.6. ERASE LINE/PAGE

ERASE LINE, when pressed with the Function key, will erase from the cursor to the end of the line.

ERASE PAGE, when pressed with the Function key, will erase from the cursor to the end of the screen.

ERASE, when pressed with the function key, will erase the entire screen and home the cursor.

7.7. SEND PAGE/LINE

SEND PAGE, when pressed with the Function key, will transmit the entire screen of data out the primary port.

SEND LINE, when pressed with the Function key, will transmit the line up to and including the cursor.

7.8. STATUS

Press SETUP with FUNCTION to toggle the status line with the message line.

7.9. EXAMINE F

Examine F provides a way for you to inspect the contents of all 5Ø of the programmable function key registers. When the Examine F key is pressed with FUNCTION, the terminal will request which page of the display you wish to inspect. Enter a single digit, 1 thru 3, in response this request. Page 1 shows the contents of the CLEAR, CORRECT,and BACKTAB keys, and all the programmable function keys on the numeric key pad. Page 2 displays the HOME key, the arrow keys, PF1 thru PF4, the shifted values for all of these keys, and the HERE IS key. Page 3 shows F1 through F9 and their shifted equivalents.

7.1Ø. HERE IS

This is the VT-1ØØ Answer Back feature. The HI register is transmitted in response to ENQ (Control E).

7.11. CLEAR

Clears the screen and homes the cursor.

7.12. EXTEN

Enables the secondary port as an Extension port.

7.13. DISP TABS

Displays all tab stops in a line.

7.14. SEND CHARACTER

In FM925 Mode only, sends any ASCII character to the host when pressed with the FUNCTION and ESC keys to be compatible with the TeleVideo method of sending characters to the host. This key sequence will transmit an SOH (Control A), the ASCII character, and a CR (Control M).

8. Display Features

The FAME-II video screen is a green P31 phosphor 14 inch CRT (amber is available also), with non-interlaced raster scanning for accurate character reproduction. The characters are printed in an 9 x 12 character cell with a 7 x 9 dot matrix with lower case descenders.

8.1. Screen Brightness

The screen contrast/brightness is adjustable by software control, using Brite or Dim with the FUNCTION key.

8.2. Screen Saver

The FAME-II has a special screen saver feature to help lengthen the life of your CRT. Once enabled, screen saver will automatically decrease the brightness of your screen to a lower level if you haven't used it in fifteen minutes. You have simply to press any key and the screen will return to its original brightness with all data exactly as you left it. Host transmissions also refresh the screen.

To avoid altering the screen contents or sending any characters to the host computer, use either the CONTROL key or the FUNCTION key to restore the screen brightness.

To enable screen saver, select 'ON' in the ScrSave option of the Setup menu.

To disable screen saver, select 'OFF' in the ScrSave option of the Setup menu.

8.3. Character Sets

There are two character generators available in ANSI Mode in the FAME-II terminal. The operator can switch from one character generator to another by issuing control codes. Control N (SO) will switch to the g1 character generator. Control O (SI) will switch to the g0 character generator.

Each of the two character generators can be set to 1 of 11 different character fonts. To set the g0 character generator to a particular character set issue:

ESC (Ps

and to set the g1 character generator to a particular character set issue:

ESC) Ps

where Ps can be one of the following:

Ps	Character set
A	United Kingdom
B	ASCII
C	Swedish/Finnish
D	Danish/Norwegian
E	French
F	German
G	Spanish
H	Italian
0	Special graphics
1	Business graphics
2	Business and special graphics

When special graphics is selected (option 0), only the lower most characters are altered (5F through 7E hex). The remaining characters will display their ASCII equivalent or foreign character if a foreign font has been enabled. See Appendix D - Special Graphics Characters.

8.3.1. FM925/920 Modes

In FM925/920 Modes, it is not possible to access the foreign character fonts by escape sequence. You must enter the Setup menu to select a particular foreign character font.

To access business/special graphics issue:

ESC ~ {

To escape from business/special characters issue:

ESC ~ }

Once enabled in FM925/920 Modes, special/business graphics are enabled in both of the character generators. One will not remain ASCII. Once disabled, both character generators will return to ASCII. See Appendix G for the special characters which occupy the same location as control codes (00 - 1F).

To access the special graphics characters located at 00 through 1F hex, FM925/920 modes must be in Monitor mode, else the control codes at these characters will be executed as control codes.

8.4. Character Attributes

Character attributes are determined by a non-embedded character in ANSI mode. Characters can be displayed in a wide variety of different attributes combining bold/normal intensity, underlining, blinking and reverse video.

Character attributes are not interchangeable between modes. When in FM925/920 Modes you must use only FM925 escape sequences for setting

character or page attributes. When in ANSI Mode or VT52 Mode, you must use only the SGR or SCM escape sequences for altering attributes on the screen. Do not mix up modes and attribute escapes as they are not compatible.

8.4.1. When In FM925/92Ø Modes

The following paragraphs refer to display attributes while the terminal is in FM925/92Ø Modes. All of these escape sequences will assume that the terminal is in FM925/92Ø Modes. FM925/92Ø Modes uses embedded character attributes.

To reset all character attributes and return to the default normal display issue:

ESC G Ø

To change all subsequent characters to an alternate attribute issue:

ESC G Ps

Choices available for Ps are:

Ps	Description	Ps	Description
Ø	Normal	9	Underline and Blank
1	Blank	:	Underline and Blink
2	Blink	;	Underline Blink and Blank
3	Blink and Blank	<	Reverse and Underline
4	Reverse video	=	Reverse Underline and Blank
5	Reverse video and Blank	>	Reverse Underline and Blink
6	Reverse video and Blink	?	Reverse Underline and Blank
7	Reverse video, Blink and Blank		
8	Underline		

There is one additional character attribute which can be changed on the FAME-II terminal. This is intensity. When in FM925/92Ø Modes, the screen display intensity is reversed. The normal (default) intensity is bold. Half intensity must be set by escape sequences. Using FM925/92Ø Modes escape sequences normal or half intensity must be set by a different escape sequence than the character attribute escape described above.

Used in conjunction with Protect Mode, normal intensity (FM925/92Ø Modes normal!) is for designating unprotected fields on the screen. To set the character attribute to normal intensity issue:

ESC (

Half intensity characters in Protect mode designate protected fields which cannot be overwritten. To switch to half intensity issue:

ESC)

See also Section 5 - Modes.

To set an entire page (screen) to reverse video issue:

ESC b

and to return the entire screen to normal video issue:

ESC d

8.4.2. ANSI Mode

The following section applies to character attributes only if the terminal is in ANSI Mode. Attributes for FM925/92Ø Modes are not compatible with these two modes. Do not mix them up.

To determine character attributes in ANSI Mode issue:

ESC [Ps m

This sequence causes all subsequently received characters to have certain display attributes on the screen. The choices available for Ps are:

Ps	Result
Ø	All character attributes off
1	All characters in BOLD
4	All characters are UNDERSCORED
5	All characters BLINK
7	All characters in REVERSE VIDEO

Ps can be any number of attributes, provided they are separated with a semi-colon (;). For example, the following sequence will clear all previous attributes, then cause all characters to be written on the screen in BOLD intensity and UNDERSCORED:

ESC [Ø ; 1 ; 4 m

To set page attributes in ANSI Mode issue:

ESC [? 5 h

for a reverse video screen and:

ESC [? 5 l

for a normal display screen.

8.5. Split Screen

The FAME-II has a special split screen feature. Certain lines can be locked on the screen, allowing data from the host or keyboard to be displayed only in the unlocked lines. This is called split screen or setting a scrolling region; an area within which all data will scroll up or down, and outside of which all data is locked on the screen and cannot be accessed.

To set a scroll area in ANSI Mode issue:

ESC [Ps ; Ps r

where the two parameters must be decimal numbers representing the lines on the screen within which data will be entered. The first number must be smaller than the second, obviously. Parameters outside the range of the screen are ignored. If no parameters are given, the terminal will assume the entire screen as the scroll area. This is the default.

To set a scroll area in FM925/92Ø Modes issue:

ESC ~ s Ps

where Ps must be two ASCII characters representing the line numbers of the scrolling region. The ASCII characters that correspond with line numbers are found in Appendix A.

8.6. Screen Format

In ANSI/VT52 mode, four screen formats are available; either 24 or 25 data rows of either 8Ø or 132 columns each. The 26th line displays the status line, which can be toggled to display the message line or a blank line. In FM925/92Ø mode, one screen format is available; 24 rows by 8Ø columns. The 25th line can be programmed to display a message line, and the 26th line toggles a status line or a blank line.

8.7. Page Memory

When in FM925/92Ø Modes, the terminal allows two separate pages of screen data to be used. The cursor position is memorized for each page. To turn on paging through escape sequences use:

ESC v

To disable paging issue:

Esc w

To toggle between pages issue:

ESC J or ESC K

9. Control Codes

Following is a list of all control codes which cause some action when received by the terminal.

9.1. ANSI and VT52 Mode Control Codes

Mnemonic	Control Code	Action
BL	Control G	Bell
BS	Control H	Back space
HT	Control I	Tab
LF	Control J	Line feed
VT	Control K	Line feed
FF	Control L	Line feed
CR	Control M	Carriage return
SO	Control N	Select g1 char gen
SI	Control O	Select gØ char gen
D1	Control Q	Enable transmission when XOFF was transmitted
D3	Control S	Disable transmission when XOFF control is enabled
CN	Control X	Terminate and cancel escape sequences
SB	Control Z	Terminate and cancel escape sequence, with error message
EC	Control [	Escape

9.2. FM925 Mode Control Codes

Mnemonic	Control Code	Action
BL	Control G	Bell
BS	Control H	Cursor left - backspace
HT	Control I	Tab
LF	Control J	Line feed
VT	Control K	Cursor up - vertical tab
FF	Control L	Cursor right
CR	Control M	Carriage return
SO	Control N	Enable Xon/Xoff
SI	Control O	Disable Xon/Xoff
D2	Control R	Enable extension port
D4	Control T	Disable extension port
SY	Control V	Cursor down
SB	Control Z	Home cursor and clear unprotected to spaces
EC	Control [	Escape
RS	Control ^	Home cursor
US	Control _	New line

9.3. FM92Ø Mode Control Codes

Mnemonic	Control Code	Action
BL	Control G	Bell
BS	Control H	Cursor left - backspace
HT	Control I	Tab
LF	Control J	Line feed
VT	Control K	Cursor up - vertical tab
FF	Control L	Cursor right
CR	Control M	Carriage return
SY	Control V	Cursor down
SB	Control Z	Home cursor and clear unprotected to spaces
EC	Control [	Escape
RS	Control ^	Home cursor
US	Control _	New line

1Ø. Communication Ports

The FAME-II has two ports through which it can communicate with the host computer or peripheral devices; Port A and Port B. Both ports are labeled on the back panel of the terminal.

1Ø.1. RS232 Interface

On the standard FAME-II terminal both ports are 25 pin with a standard RS-232C interface, for ASCII asynchronous transmission. Both are based on published EIA (Electronic Industries Association) standards, conforming to DTE (Data Terminal Equipment) interface connections. If you do not have the standard FAME-II, then see Section 11 for optional interface information.

Pin	Description	Mnemonic	Direction
1	Frame Ground	FGND	-
2	Transmit Data	TXD	output from terminal
3	Receive Data	RXD	input to terminal
4	Request To Send	RTS	output
5	Clear To Send	CTS	input
6	Data Set Ready	DSR	ignored by FAME-II
7	Signal Ground	SGND	-
8	Data Carrier Detect	DCD	ignored by FAME-II
2Ø	Data Terminal Ready	DTR	output

Table 1Ø.1 Port A and B Pin Assignments

1Ø.2. Main Port Transmissions

Data transmissions out the Main port are determined by the Block and Online keys on the keyboard. When Block is pressed, the terminal is not communicating out the port. All keystrokes are acted upon at the terminal only and 'Block' will appear in the status line. The terminal will receive data while in Block mode. The terminal will only transmit data in Block mode as a result of a SEND LINE or SEND PAGE function.

When Online is pressed the terminal is communicating through the port only. All keystrokes are transmitted out the Main port. 'FULL' or 'HALF' will appear in the status line informing you that the terminal is in full or half duplex, conversational mode.

When transmitting and receiving data through the Main port, certain communications protocols must be established, essentially so that the terminal and the host system are speaking the same language. Be sure that you have chosen the correct protocols that your system (or modem) requires. Proper settings are required for baud rate (16 possible

rates), data bits (7 or 8), parity (on/off, even/odd). These are selectable in the Setup Menu.

1Ø.2.1. Main Port Receiving Data

When the Main port is receiving data, FAME-II will not be able to empty the receive buffer fast enough to keep up with the incoming data at the higher baud rates. To compensate for this handshaking must be established by which the terminal can command the data to stop and start again, thus avoiding buffer overflow and data loss.

There are two possible choices for this handshaking; DTR or Xonoff.

When DTR is selected, handshaking is controlled by pin 2Ø of the RS232 connector. Pin 2Ø is Data Terminal Ready. When the FAME-II buffer is 3/4 full the signal on DTR is lowered to an inactive level, telling the host to halt data communications. When the buffer is emptied to 1/4 full the DTR signal will be raised to an active level, telling the host to continue the data transmission.

When Xonoff is selected as the handshaking protocol, communication is halted and started by ASCII characters being transmitted along with the data transmission. Xon is an ASCII DC1 or 11 in hex. Xoff is an ASCII DC3 or 13 in hex. When the buffer is 3/4 full, FAME-II will transmit a DC3, signaling the host to halt data transmissions. When the buffer empties to 1/4 full, a DC1 is sent, signaling the host to re-start the transmission.

1Ø.2.2. Main Port Transmitting Data

When Main port is transmitting data, handshaking is controlled by CTS (Clear To Send; pin 5 on the RS232 connector). Whenever the signal received on pin 5 is lowered to an inactive level, FAME-II will stop transmitting, until pin 5 is raised to active again.

Main Port transmitting can also be controlled by Xon/Xoff if Flow Control is enabled in the setup.

1Ø.2.3. Secondary Port Transmissions

Data transmissions out the Secondary port are for hard copy. All Secondary port transmissions are controlled by the printing escape sequences. By default DTR is low. Unless DTR is raised through RS232 interfacing, all printing escape sequences will be ignored.

1Ø.2.4. Secondary Port Receiving Data

When the Secondary port is receiving data, FAME-II will not be able to empty the receive buffer fast enough to keep up with the incoming data at the higher baud rates. To compensate for this handshaking must be established by which the terminal can command the data to stop and start again, thus avoiding buffer overflow and data loss.

There are two possible choices for this handshaking; DTR or Xonoff.

When DTR is selected, handshaking is controlled by pin 2Ø of the RS232 connector. Pin 2Ø is Data Terminal Ready. When the FAME-II buffer is 3/4 full the signal on DTR is lowered to an inactive level, telling the host to halt data communications. When the buffer is emptied to 1/4 full the DTR signal will be raised to an active level, telling the host to continue the data transmission.

When Xonoff is selected as the handshaking protocol, communication is halted and started by ASCII characters being transmitted along with the data transmission. Xon is an ASCII DC1 or 11 in hex. Xoff is an ASCII DC3 or 13 in hex. When the buffer is 3/4 full, FAME-II will transmit a DC3, signaling the host to halt data transmissions. When the buffer empties to 1/4 full, a DC1 is sent, signaling the host to re-start the transmission.

1Ø.3. Secondary Port Transmitting Data

For data transmitted out the Secondary port, FAME-II will respond to either DTR or Xonoff as the handshaking protocol. Your printer must be set up to use one of these two methods. To enable Xon/Xoff and DTR handshaking, enalbe Flow Control in the setup menu for the Secondary port.

1Ø.4. Configuring the Ports

There are four possible configurations for the communications ports, according to their values selected in the setup menu. Each configuration will result in a slightly different data communication.

First, you must set either A or B to be the primary port. The primary port should be online to a computer as this is where all keystrokes and Send functions will be sent. The secondary port is normally connected to a printer, as this is where the Print key sends data.

Whether the Extension port is enabled or not will determine how much data is sent out the secondary port. When the secondary port is enabled as an extension port, all data coming in the primary port will go directly out the secondary (exactly as if they were hard-wired together but with independent protocols) while all data coming in the secondary port will go out the primary port. If extension port is not activated then only the Print key will transmit data out the secondary port. Following is a brief description of the Main B and Extension options available to you and what each setting in the Setup menu will do.

1Ø.4.1. Main 'A' Extension 'OFF'

This setup configures Port A as the primary port and Port B as the secondary port. E Port set to Ø means that the secondary port is not activated as an extension port.

The primary port is for communication with the host computer. All keystrokes including Send Line and Send Page functions are sent out the primary port. All data comes in from the host through the primary

port.

The secondary port is for communication with a printer (or other terminal or computer if desired). Only Print Line and Print Page functions will cause data to be sent out the secondary port.

1Ø.4.2. Main 'A' Extension 'ON'

This setup configures Port A as the primary port and Port B as an extension port.

All keystrokes and the Send Line/Send Page functions will be sent out the primary port to the host. The Print Line/Print Page functions will be sent out the extension port.

Data coming in through the primary port will come in to the terminal and will also exit through the extension port simultaneously. Data coming in through the extension port will bypass the terminal and go directly out the primary port.

1Ø.4.3. Main 'B' Extension 'OFF'

This setup configures Port B as the primary port and Port A as the secondary port.

All keystrokes and Send Line/Send Page functions will be sent out the primary port. All data coming in will enter the primary port and go to the terminal only.

Only the Print Line/Print Page functions will send data out the secondary port.

1Ø.4.4. Main 'B' Extension 'ON'

This setup configures Port B as the primary port and Port A as an Extension port.

All keystrokes and Send Line/Send Page functions will be sent out the primary port. Print Line/Print Page functions will be sent out the extension port.

Data coming in the primary port will be displayed on the terminal and sent out the extension port simultaneously. Data coming in the extension port will bypass the terminal and be sent out the primary port only.

1Ø.5. Full/Half Duplex

The above setups assume that the terminal and host are in full duplex communications. This means that as the keys on the keyboard are hit, the resulting ASCII characters are transmitted directly out the primary port. They will only appear on the screen when the host computer returns each stroke. This is called 'echo'. In full duplex communication the terminal sends data and the host echoes the data back to the

display screen.

Half duplex communications assume that the host will not echo back any data. It is a one way communication. Consequently, keystrokes will be both transmitted to the host and displayed on the screen. If half duplex is selected in the setup menu and the host computer does echo back keystrokes (as is the norm) then all keystrokes will appear twice on the display screen and garbage will result.

1Ø.6. Secondary Port Control

There several escape sequences controlling the secondary port. Assuming it is connected to a printer, these are called the printer port escape sequences.

1Ø.6.1. Transparent Print

Transparent print is a means by where the host computer system can send data directly to the local printer (attached to the Secondary port) and not to the terminal's display screen. Transparent print effectively disables the display screen so that all data comes in the Main port and goes out the Secondary port, without affecting the display screen.

To enable Transparent print in ANSI mode issue:

ESCAPE [5 i

To enable Transparent print in FM925 Mode issue:

ESC `

All data coming in the Main port will bypass the terminal (not be displayed) and go directly out the Secondary port to a local printer.

To disable Transparent print issue:

ESCAPE [4 i

and all data coming in the Main port will be displayed on the screen as normal, and not go out the Secondary port.

To disable Transparent print in FM925 Mode issue:

ESC a

1Ø.7. Extension Port

You should keep it in mind also that the secondary port can be activated as an extension port directly from the keyboard without altering the setup menu. There is a key for the extension port, labelled EXTEN. It must be pressed with the FUNCTION key.

To enable the secondary port as an extension port press the Exten key

with FUNCTION. The word EXTEN will appear in the status line indicating that extension port has been enabled.

To disable the extension port, press Exten with FUNCTION again. The EXTEN in the status line will disappear, and the secondary port will return to normal operation.

To enable the extension port by escape sequences, use:

ESC [? 7 i	(ANSI mode)
ESC @	(FM925 Mode)

To disable the extension port by escape sequences, use:

ESC [? 6 i	(ANSI mode)
ESC A	(FM925 Mode)

11. Alternatives to the RS-232C

11.1. Current Loop Option

With the current loop option installed, the terminal has three ports through which it communicates with other devices. Figure 11-2 shows the location of ports A, B, and C on the terminal's rear panel.

All three ports have a 25-pin D-Sub socket, but terminal logic gives each port different capabilities. Ports A, B and 11 use a standard RS-232C interface. Port A can also use a current loop interface. Port C is a hardware extension port connected to port A.

11.1.1. Standard RS-232C Interface

The terminal functions properly with voltage levels that comply with EIA STD RS-232C and CCITT Recommendation V.28. Terminal input voltage levels should not exceed +25V. Input voltages ranging from -12V to -3V are interpreted as an active low state (also called mark or unasserted). Input voltages ranging from +3V to +12V are interpreted as an active high state (also called space or asserted). Terminal output voltages are nominally -10V for active low and +10V for active high.

Table 11.1 shows the standard pin connections for ports A and B. The following paragraphs explain each pin used by the terminal. Pins not listed are not connected.

Protective Ground Pin (pin 1): This pin electrically grounds the terminal chassis. Do not use this connector for electrical ground reference potential (see pin 7).

Transmit data; from terminal (pin 2): The terminal transmits serially encoded characters and break signals on this line. When break signals and characters are not being transmitted, this circuit is held low.

Receive data; to terminal (pin 3): The terminal receives serially encoded characters and break signals generated by another piece of equipment, such as a terminal, a printer, or a host computer, on this line.

Request to Send; from terminal (pin 4): This pin is held high when the terminal is on.

Clear to Send; to terminal (pin 5): This pin is held high to enable terminal transmission. When pulled low by the host, the terminal transmitter is disabled.

Signal Ground (pin 7): The common ground reference potential for all voltages on the interface is established by this pin.

Data Carrier Detect, to terminal (pin 8): Must be held high for terminal to receive. If this pin is not connected the default value is high.

Data Terminal Ready, from terminal (pin 20): This pin is normally held high as long as the terminal is powered on. See the Setup Mode or Dip Switch Sections of the manual.

Table 11.1 Ports A and B Pin Connections

Pin	Description	Mnemonic	Direction
1	Frame Ground	FGND	-
2	Transmit Data	TXD	output from terminal
3	Receive Data	RXD	input to terminal
4	Request to Send	RTS	output
5	Clear to Send	CTS	input
7	Signal Ground	SGND	-
8	Data Carrier Detect	DCD	input
20	Data Terminal Ready	DTR	output

11.1.2. Current Loop

Port A can also be used as a current loop interface. The standard current loop interface uses the following pin connections:

Pin	Description	Mnemonic	Direction
12	Transmit Data	TXD+	output from terminal
13	Transmit Data	TXD-	output from terminal
10	Receive Data	RXD+	input to terminal
11	Receive Data	RXD-	input to terminal

Port A can be connected as either a standard RS232 interface or a current loop interface, but not as both simultaneously. If pins 2 and 3 are connected, pins 10, 11, 12 and 13 cannot be connected, and vice versa.

11.1.3. Port C

Port C is a hardware extension port. Data coming in port A automatically goes out port C, and data coming in port C automatically goes out port A. Port C uses a standard 25-pin connector.

Table 11.2 Port C Pin Connections

Pin	Description	Mnemonic	Direction
1	Frame Ground	FGND	-
2	Transmit Data	TXD	input from terminal
3	Receive Data	RXD	output to terminal
4	Request to Send	RTS	input

Table 11.2 Port C Pin Connections

Pin	Description	Mnemonic	Direction
5	Clear to Send	CTS	output
7	Signal Ground	SGND	-
8	Data Carrier Detect	DCD	output
20	Data Terminal Ready	DTR	input

11.2. RS-422 Interface Option

With the RS-422 interface option installed, the terminal has two ports that allow the terminal to communicate with other devices. Figure 11-1 shows the location of ports A and B on the terminal's rear panel.

Port A uses an RS-422 interface. Port B uses an RS-232C interface.

11.2.1. RS-422 Interface

Port A is an RS-422 interface port, utilizing a 15 pin D-sub socket.

Table 11.3 Port A RS-422 Interface

Pin	Description	Mnemonic	Direction
2	Transmit Data	TXD+	output from terminal
9	Transmit Data	TXD-	output from terminal
4	Receive Data	RXD+	input to terminal
11	Receive Data	RXD-	input to terminal
8	Signal Ground	SGND	--
5	Data Terminal Ready	DTR+	output
12	Data Terminal Ready	DTR-	output

The signal lines function the same as the RS-232C descriptions below, except that all signal connections are in pairs.

11.2.2. Port B

Port B is a standard EIA RS232C interface port.

Table 11.4 shows the standard pin connections for port B. The following paragraphs explain each pin used by the terminal. Pins not listed are not connected.

Protective Ground Pin (pin 1): This pin electrically grounds the terminal chassis. Do not use this connector for electrical ground reference potential (see pin 7).

Transmit Data; from terminal (pin 2): The terminal transmits serially encoded characters and break signals on this line. When break signals

and characters are not being transmitted, this circuit is held low.

Receive Data; to terminal (pin 3): The terminal receives serially encoded characters and break signals generated by another piece of equipment, such as a terminal, a printer, or a host computer, on this line.

Request to Send; from terminal (pin 4): This pin is held high when the terminal is on.

Clear to Send; to terminal (pin 5): This pin is held high to enable terminal transmission. When pulled low by the host, the terminal transmitter is disabled.

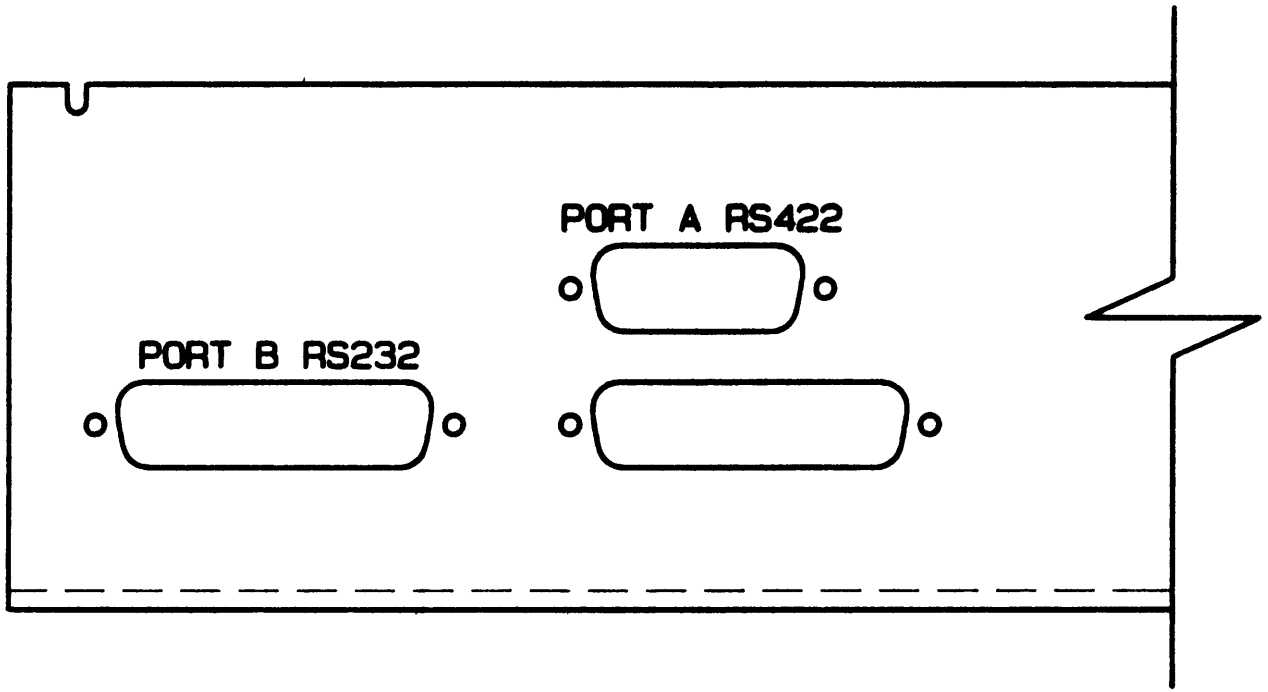
Signal Ground (pin 7): The common ground reference potential for all voltages on the interface is established by this pin.

Data Carrier Detect, to terminal (pin 8): Must be held high for terminal to receive. If this pin is not connected the default value is high.

Data Terminal Ready; from terminal (pin 20): This pin is normally held high as long as the terminal is powered on.

Table 11.4 Port B RS232C Pin Connections

Pin	Description	Mnemonic	Direction
1	Frame Ground	FGND	-
2	Transmit Data	TXD	output from terminal
3	Receive Data	RXD	input to terminal
4	Request to Send	RTS	output
5	Clear to Send	CTS	input
7	Signal Ground	SGND	
8	Data Carrier Detect	DCD	input
20	Data Terminal Ready	DTR	output

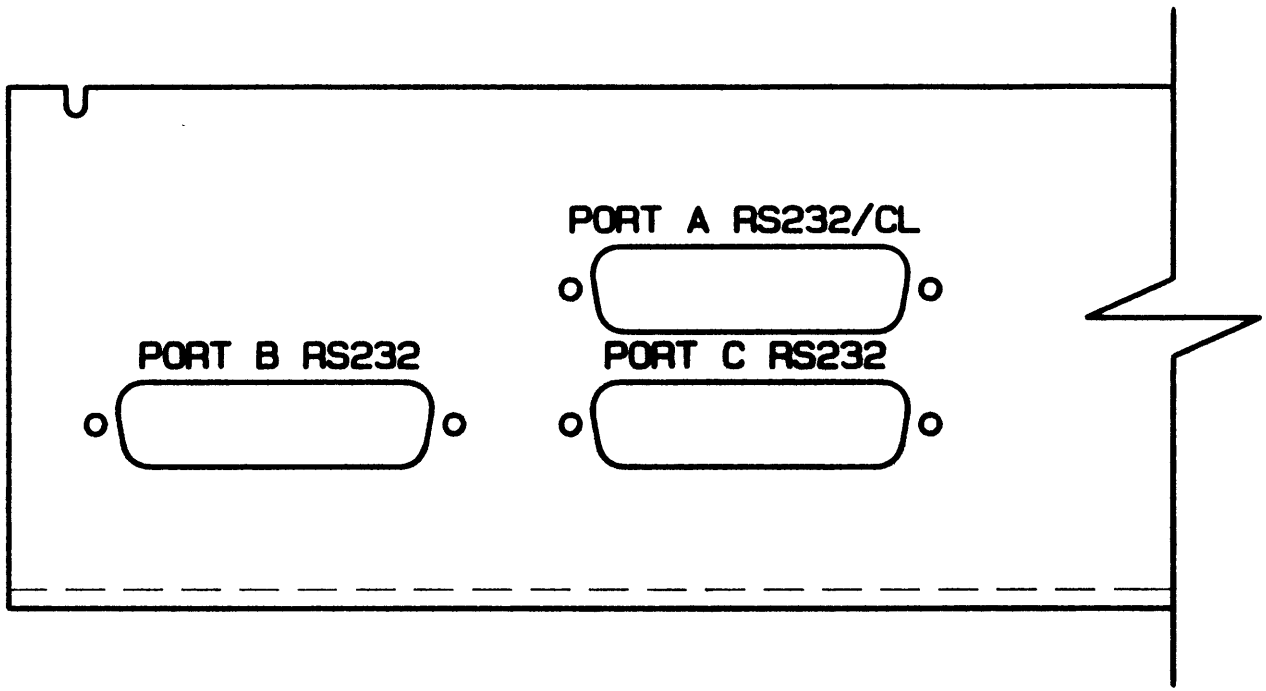


APPROVALS	DATE
PREP RAN	6/25/84
FIGURE 11-1	

FALCO DATA PRODUCTS

RS-422 OPTIONAL INTERFACE

SIZE		DWG NO	130057-001
B			
SCALE NTS		SHEET	1 OF 1



APPROVALS	DATE
PREP RAN	6/25/84

FIGURE 11-2

FALCO DATA PRODUCTS

CURRENT LOOP OPTIONAL INTERFACE

SIZE	DWG NO	SHEET
B	130057-000	1 OF 1

SCALE NTS

12. Personality Codes

The FAME-II personality codes can be altered by the user. The codes most important to the functioning of the terminal are the Escape lead-in character and the end of block/line characters.

By default, the Escape lead-in character is hex 1B (ASCII ESC); the end-of-block character is hex ØD (ASCII CR); the erase replacement character is hex 2Ø (ASCII space), etc. Any of these characters can be changed if the need arises.

Personality codes are similar to the Setup Mode, as they can be set by the user and will remain in CMOS memory (whether power is off or not) until explicitly changed.

To display the Personality Codes for the FAME-II, the following escape sequence is employed:

ESC ~ o

See Table 12-1 for a definition of each code and its default value.

12.1. Changing Personality Codes

The following escape sequence will change a personality code:

ESC ~ . <number of code> <new character>

Where the <number of code> is the display column # representing the personality code you wish to change; and <new character> is the new personality code.

For example,

ESC ~ . 3 Carriage Return

will change the END of LINE character from the default US to an ASCII RETURN (ØD). And

ESC ~ . 4 LINE FEED

will change the second END of LINE character from default NUL to an ASCII LINE FEED (ØA).

12.2. Personality Code Table

Table 12-1 Personality Codes

Code	Definition	Hex	Mnemonic
Ø	Escape lead-in	1Bh	ESC
1	End of Block #1	ØDh	CR
2	End of Block #2	ØØ	NUL
3	End of Line #1	1Fh	US
4	End of Line #2	ØØ	NUL
5	Field Delimiter	1Ch	FS
6	Printer Terminator	Ø6	ACK
7	Erase Character	2Øh	SP

13. ANSI

The American National Standards Institute publication, ANSI x3.64, is the standard upon which data communications for this terminal are based. Although no terminal can be completely based on the ANSI standard (because even within the standard there is a huge amount of room for variation) this terminal comes close.

13.1. Escape Sequence Format

The format used for the escape sequences below is based on ANSI x3.64 format. All mnemonics are ANSI defined. The CSI (Control Sequence Introducer) has been written out as ESC [for ease of reading. Spaces separate each entry in a sequence for clarity. If an actual space is required for the sequence, it is written as <space>. Pn represents a numerical parameter indicating, for instance, the number of times a sequence is to be executed. Ps represents a selective parameter, indicating a particular aspect of a sequence to be executed. Those escape sequences which are not ANSI standard, but are included in ANSI Mode for VT-1ØØ compatibility are starred (*).

AFP Access Fame Private Escapes

ESC ~ Ps

Ps is the character or characters required to select and execute the desired FAME Private escape sequences found in Section 16.

ALN Screen Alignment

ESC # 8

This sequence causes the terminal to fill the entire screen with uppercase E's for proper screen alignment.

ARP Auto Repeat Mode*

ESC [? 8 h :to Set

ESC [? 8 l :to Reset

When Set, a key held down for more than one second will automatically repeat at the rate of 15 times per second for as long as the key is held down. When Reset, keys do not automatically repeat.

CGØ Character Generator Ø*

ESC (Ps

This sequence will designate the gØ character generator to one of the following character sets:

Ps	Character set
A	United Kingdom
B	ASCII
C	Swedish/Finnish
D	Danish/Norwegian
E	French
F	German
G	Spanish
H	Italian
Ø	Special graphics
1	Business graphics
2	Business and special graphics

See also Section 8 - Display.

CG1 Character Generator 1*

ESC) Ps

This sequence will designate the g1 character generator to one of the following character sets:

Ps	Character set
A	United Kingdom
B	ASCII
C	Swedish/Finnish
D	Danish/Norwegian
E	French
F	German
G	Spanish
H	Italian
Ø	Special graphics
1	Business graphics
2	Business and special graphics

The ASCII control codes SI and SO switch control to gØ and g1 respectively. See also Section 8 - Display.

CKM Cursor Key Mode*

ESC [? 1 h :to Set

ESC [? 1 l :to Reset

When Set, the four cursor arrow keys across the top of the numeric keypad will send applications codes, not cursor movement commands. The codes sent are:

Cursor Key	Escape Code
Up Arrow	ESC O A
Down Arrow	ESC O B
Left Arrow	ESC O D
Right Arrow	ESC O C

When Reset, the four cursor arrow keys will transmit standard ANSI cursor movement sequences.

CM Change Mode*

ESC [? 2 l

Puts the terminal in MODE-52, compatible with VT52 Mode on the DEC VT-1ØØ. See Section 15 for all escape sequences implemented in MODE-52.

CPR Cursor Position Report

ESC [Pn ; Pn R

Reports the cursor position as to line and column, whenever such is requested by a DSR (ESC [6 n). No parameters, Ø, or 1 means the cursor is at the home position.

CUB Cursor Left

ESC [Pn D

Position the cursor left Pn number of times. Zero, one and default are one position. If at the left edge of the screen, the cursor remains at that position. The cursor does not wraparound to the previous line.

CUD Cursor Down

ESC [Pn B

Position the cursor down Pn number of lines in the same column. Zero, one and default are one space. If at the bottom of the screen, the cursor remains in that position. Data does not scroll up the screen.

CUF Cursor Right

ESC [Pn C

Position the cursor Pn number of columns to the right in the same line. Zero, one and default are one space. If at the right edge of the screen, the cursor remains in that position. It does not wraparound to the next line.

CUP Absolute Cursor Position

ESCAPE [Pn ; Pn H

or

ESCAPE [Pn ; Pn f

Moves the current position to the position specified by Pn. The first parameter specifies line position, the second parameter, column position. Pn values of Ø or 1 will position the cursor in the first position of either a row or a column, as described above. Pn must be a decimal number within the range of the screen. The line and column numbers must be separated by the semi-colon.

Parameters not given are defaulted to 1. For example;

ESCAPE [; 22 H

will position the cursor to line 1, column 22. If no parameters are given, both line and column are defaulted to 1. For example:

ESCAPE [H

will move the cursor to the Home position.

CUU Cursor Up

ESC [Pn A

Position the cursor Pn number of lines up in the same column. Zero, one and default are one space. If at the top of the screen, the cursor remains in that position. Data does not scroll down the screen.

CW Column Width

ESC [? 3 h :to set

ESC [? 3 l :to reset

Narrows the character width so that there are 132 characters per line when set, and reverts to the default character width of 8Ø characters per line when reset.

DA Device Attributes

ESC [c

or

ESC [Ø c

The host requests the terminal to identify itself. The terminal ID can also be requested by;

ESC Z

but this is not recommended, as newer software does not support this ID request. The FAME-II will respond to a terminal ID request with five possible ID's depending on the ID Type setting in the Setup menu. If ID Type is set to 'VT-1Ø2' the FAME-II will respond:

ESC [? 6 c

exactly as a VT-1Ø2. If the ID Type field in the Setup menu is set to 'VT-131', the FAME-II will respond with:

ESC [? 7 c

exactly as a VT-131. If ID Type is set to 'VT-1ØØ', the FAME-II will respond with:

ESC [? 1 ; 2 c

exactly as a VT-1ØØ with Advanced Video Option.

DCH Delete Character

ESC [Pn P

Deletes Pn number of characters starting at the current cursor position. Zero, one and default are one character.

DEX Disable Extension Port

ESC [6 i Disables Extension port

DL Delete Line

ESC [Pn M

Deletes Pn number of lines starting at the current cursor line. Zero, one and default are one line.

DSR Device Status Report/Request

ESC [Ps n

Requests or reports the device status according to Ps.

Ps	Result
Ø	Response from terminal: All OK
3	Response from terminal: Error, try again
5	Request status (response=DSR)
6	Request cursor position (response=CPR)

ED — Erase In Display

ESC [Ps J

Erases the display according to PS:

Ps	Result
Ø	Erase from cursor (inclusive) to end of screen
1	Erase from start of screen to cursor (inclusive)
2	Erase entire screen

EEX — Enable Extension Port

ESC [7 i

Enables Extension port

EL — Erase In Line

ESC [Ps K

Erase in line according to Ps:

Ps	Result
Ø	Erase from cursor (inclusive) to end of line
1	Erase from start of line to cursor (inclusive)
2	Erase entire line containing the cursor

HTS — Horizontal Tab Set

ESC H

Set one tab stop at the current cursor position.

HVP Horizontal and Vertical Position

ESC [Pn ; Pn f

Moves the cursor to the specified line and column. Parameters not given are defaulted to 1. For example; ESC [; 22 f would position the cursor at line 1, column 22. And ESC [f would move the cursor to the home position. This sequence is identical to the CUP sequence.

ICH Insert Character

ESC [Pn @

Inserts Pn number of spaces at the cursor position. Data currently at and to the right of the cursor moves Pn number of spaces to the right. Data forced beyond column 8Ø is lost.

IL Insert Line

ESC [Pn L

Inserts Pn number of lines at the cursor line, moving the cursor line and all lines below down Pn number of lines. Data forced beyond the bottom of the screen is lost.

IM Insert Mode

ESC [4 h :to set

ESC [4 l :to reset

Enable the continuous insert mode. All incoming data will be inserted into the current cursor line. Data to the right of the cursor will be pushed over, and will be lost if it is pushed beyond column 8Ø/132.

IND Index

ESC D

Position the cursor down one line in the same column. If at the bottom of the screen, all data scrolls up one line inserting a blank line at the bottom of the screen. Data forced off the top of the screen is lost.

ITS Initiate Terminal Self-tests

ESC [2 ; 1 y

Performs ROM Checksum test and resets the terminal.

KAC Keyboard Action Mode

ESC [2 h :to set

ESC [2 l :to reset

When set, the keyboard is locked, and all keys except FUNCTION/RESET are disabled. When reset, all keys on the keyboard are enabled, and will transmit according to the mode set, i.e. full or half duplex/online or local.

KAM Keypad Application Mode*

ESC =

Alters the numeric keypad to send control codes rather than the numeric values. In ANSI Mode the following codes are sent by each key:

Key	Alternate Code
Ø	ESC O p
1	ESC O q
2	ESC O r
3	ESC O s
4	ESC O t
5	ESC O u
6	ESC O v
7	ESC O w
8	ESC O x
9	ESC O y
.	ESC O n
,	ESC O l
-	ESC O m
ENTER	ESC O M

LL Load LED's

ESC [Ps [; Ps ; Ps ; Ps] q

Ps represents any or all numbers from 1 to 4, displayed in numerical order on the status line. The LED will automatically display when the condition for which it is programmed is met. Ø will turn all displayed LEDs off.

LNM Line Feed/New Line Mode

ESC [2Ø h :to Set

ESC [2Ø l :to Reset

When set, a carriage return (CR) is interpreted as a carriage return/ line feed (CR/LF); the cursor is positioned in the first column of the next line. When reset, a carriage return will reposition the cursor in the first column of the current line.

NEL Next Line

ESC E

Positions the cursor in the first column of the next line. If at the bottom of the screen, all data scrolls up one line and a blank line is inserted in line 24.

ORGM Origin Mode

ESC [? 6 h :to set

ESC [? 6 l :to reset

When origin mode is set, all cursor addressing escape sequences will position the cursor within any scrolling region set by SCR. The home position will be the upper left most position within the scrolling region. All cursor movement will be based on that home position.

When reset, the home position is the upper left most position on the screen, line 1 column 1, regardless of any scrolling region previously set. All cursor positioning is based on this home position. See SCR for the scrolling region sequence.

PRTL Print Line

ESC [? 1 i

This sequence sends the current cursor line from the beginning of the line to the cursor out the secondary port.

PRTS Print Screen

ESC [Ø i

This sequence sends the entire screen contents out the secondary port.

RIS Reset to Initial State

ESC c

Resets the terminal to its power on state. Essentially a soft reset, returning all values to those stored in non-volatile memory.

RKAM Reset Numeric Keypad Application Mode

ESC >

Returns the numeric keypad to normal operation. Each key generates it's face value, not the special applications code. See KAM.

RETP Request Terminal Parameters

ESC [Ps x

This sequence is a request from the host for the terminal to send back a report on certain predefined parameters. The terminal will respond with the RTP sequence. Ps has the following values:

Ps	Value
none	send on exiting setup
Ø	send on exiting setup
1	do not send on exiting setup

If Ps = Ø or no parameter, the terminal will transmit the RTP sequence every time the operator exits setup mode.

RS Restore Cursor

ESCAPE 8

The memorized cursor and its visual attribute is restored to its saved screen position.

RTP Report Terminal Parameters

ESC [Ps1 ; Ps2 ; Ps3 ; Ps4 ; Ps5 ; Ps6 ; Ps7 x

This sequence is transmitted by the terminal in response to an RETP sequence. Each of the parameters in the sequence will be given by the terminal. The parameters have the following meanings:

Ps	Options	Meaning
Ps1	2	This sequence is a parameter report in response to an RETP with a zero, no parameter, or exiting setup.
	3	This sequence is a parameter report in response to an RETP with a parameter of 1 given.
Ps2	1	No parity
	4	Parity is odd
	5	Parity is even
Ps3	1	Characters transmitted in 8 bits. (Eighth bit is always zero.)
	2	Characters transmitted in 7 bits.
Ps4	Ø-12Ø	Baud rate for main port transmissions.
	Ø	5Ø
	8	75
	16	11Ø
	24	134.5
	32	15Ø
	4Ø	2ØØ
	48	3ØØ
	56	6ØØ
	64	12ØØ
	72	18ØØ
	8Ø	2ØØØ
	88	24ØØ
	96	36ØØ
	1Ø4	48ØØ
	112	96ØØ
	12Ø	192ØØ
Ps5	Ø-12Ø	Baud rate for main port receiving. This will always be the same as Ps4 for this terminal.
Ps6	1	The bit rate multiplier is 16. Always the same for this terminal.
Ps7	Ø	This parameter is not supported on this terminal. It will always be zero.

RTPM Reset Transparent Print Mode

ESC [4 i

Disables transparent print mode.

RI Reverse Index

ESC M

Position the cursor one line up in the same column. If at the top of the screen, all data scrolls down one line and a blank line is inserted. Data forced off the bottom of the screen is lost.

SC Save Cursor

ESCAPE 7

The cursor position with its current visual attribute is saved in memory.

SCS Select Character Set

ESC (Ps

or

ESC) Ps

There are two full character generators in the FAME-II Each can be set to a different character set. See CGØ and CG1 above for an explanation of the character sets available.

See the charts at the back of this manual for a look at special and business graphics and where they appear on the keyboard. Use the ASCII control codes SI (Control O) and SO (Control N) to switch from one character generator to the other.

SCM Screen Mode*

ESC [? 5 h :to Set

ESC [? 5 l :to Reset

When Set, the screen will be reverse video. When Reset, the screen will be normal video.

SCR Set Scroll Region*

ESC [Pn ; Pn r

This sequence sets the top and bottom parameters of the scrolling region, effectively locking all data not within the region on the screen. Pn must be the line numbers (in decimal) between which all

data entry takes place. They must be separated by the semi-colon. The first line must be smaller than the second, of course. All data not within the delimited scrolling region is locked in place on the display screen.

SGR Select Graphic Rendition

ESC [Ps m

Designates a character attribute to be applied to all following characters until another character attribute is received. The attribute is determined by Ps.

Ps	Attribute
0	Reset to normal display
1	Bold intensity
4	Underline
5	Blinking
7	Reverse video

SMS Smooth Scrolling Mode*

ESC [? 4 h :to Set

ESC [? 4 l :to Reset

When Set, data scrolls smoothly up or down the screen. When Reset, data jumps a line at a time up or down the screen. This is the same as setting the Scroll field in the Setup menu to a 1 or a 0.

Notice: Smooth scrolling is not possible unless the scrolling region is the entire screen.

STPM Set Transparent Print Mode

ESC [5 i

Enables transparent print mode. All data received through the primary port is transmitted directly out the secondary port. Nothing is displayed on the screen. See Section 10 - Ports.

TBC Tabulation Clear

ESC [Ps g

Tabs are cleared according to Ps. Any parameters other than 0 or 3 are ignored.

Ps	Result
Ø	Clear tab at cursor
3	Clear all tabs on screen

TID Terminal Identification*

ESC Z

This sequence requests the terminal to identify itself, exactly like the ANSI DA. See the description above for the DA sequence for a list of all ID's sent by the FAME-II depending on the ID Type setting in the Setup menu.

WRP Wrap Around*

ESC [? 7 h :to Set

ESC [? 7 l :to Reset

When Set, data entered beyond the 8Øth column will wrap around and begin on the next line. When Reset, data entered beyond the 8Øth column will overwrite itself in that column until an explicit carriage return and line feed is received. This is the same as setting the Roll field in the Setup menu to a Ø or a 1.

14. FM925 Escape Sequences

These are the FM925 escape sequences which are supported on the FAME-II. These sequences are based entirely on the TeleVideo Model 925 terminal.

14.1. Cursor Escapes

Cursor Address

ESC = Ps

Move cursor to line and column defined by Ps. Ps must be two ASCII characters corresponding to the line and column numbers. To match ASCII characters with lines and columns use the Cursor Addressing Codes in Appendix A. Parameters outside the screen range are ignored.

Request Cursor Address

ESC ?

Request terminal to report cursor address. FAME-II will return two ASCII characters corresponding to the line and column number of the cursor location, followed by a carriage return. See Appendix A.

Set Tab

ESC 1

Set a tab stop at the current cursor position.

Tab

ESC i

Positions the cursor at the next tab stop or at end-of-line if there are no tabs set in that line.

Back Tab

ESC I

Positions the cursor backwards at the previous tab stop or at the start of line if there is none.

Clear Tab

ESC 2

Clear tab stop at the current cursor location if any.

Clear All Tabs

ESC 3

Clear all tab stops on the screen.

14.2. Mode Escapes

Block Mode

ESC B

Enable block mode.

Conversation Mode

ESC C

Enable conversation mode.

Enter Mode

ESC U

Puts terminal in Enter mode, where control codes are displayed, not executed.

Disable Enter Mode

ESC u or ESC X

Disables Enter mode, control codes will be executed, not displayed.

Protect Mode

ESC &

Enter protect mode. All characters in reduced intensity are protected. They cannot be overwritten.

Disable Protect Mode

ESC '

Disable protect mode. All data on the screen can be overwritten.

Normal Intensity

ESC (

Sets the current character attribute to normal intensity.

Reduced Intensity

ESC)

Sets the current character attribute to reduced intensity.

14.3. Editing Escapes

Clear Page All Unprotected

ESC y

Clears all unprotected data from the current cursor location to the end of the page.

Clear All

ESC *

Clears the entire screen of protected or unprotected data and homes the cursor.

Clear Line

ESC t

Clear from the cursor to the end of line with nulls.

Clear Unprotected

ESC :

Clears the screen. If protect mode is set, only unprotected characters are cleared.

Notice: All "Clear" functions above mean clear to nulls (00 hex). All "Erase" functions below mean erase using "erase replacement character" personality code #7 (default = spaces).

Erase to Half Intensity

ESC ,

Erases all data to half intensity spaces.

Erase Line

ESC T

Erases all unprotected data from the cursor position to the end of the line.

Erase Page

ESC Y

Erases all unprotected data from the current cursor location to the end of the screen (page).

Erase Unprotected

ESC ; or ESC +

Erase the screen to spaces. If protect mode is set, only unprotected characters are erased.

Delete Character

ESC W

Deletes the character at the current cursor location, moving all data on the line to the left one space. A blank space is inserted at the end of the line.

Delete Line

ESC R

Deletes the entire line containing the cursor. All lines below move up one line, and a blank line is inserted at the bottom of the screen. If Auto Page Mode is set, line 1 of page 2 is moved to line 24 of page 1.

Insert Character

ESC Q

Inserts a blank space at the current cursor location. All data at and to the right of the cursor is moved one space to the right. Any data forced beyond column 80 is lost.

Insert Line

ESC E

Insert a blank line above the current cursor line. All lines at and below the cursor line scroll down one line. Any line forced off the bottom of the screen is lost, unless in Auto Page Mode, in which case the that line is moved to the top of page two.

Reverse Linefeed

ESC j

Moves the cursor up one row in the same column. If Auto-page mode is set, and Protect mode is on or off, the cursor will wrap around from

top of the page.

Set Local Edit Mode

ESC k

In Local Edit mode all the edit keys on the numeric keypad when used with FUNCTION, and the CLEAR key operate locally only for screen editing purposes. No characters associated with these keys are transmitted.

Set Duplex Edit Mode

ESC l

The edit keys act according to the mode set for the alphanumeric keys; conversation or block mode, and half or full duplex mode.

14.4. Keyboard Escapes

Keyboard Disable

ESC #

Disable the keyboard.

Keyboard Enable

ESC "

Enable the keyboard.

14.5. Transmission Escapes

Print Page Unprotected

ESC P or ESC L

Sends characters from 'home' position to cursor (inclusive) out the secondary (or printer) port. If in Protect mode, only unprotected characters are sent.

Send Line Unprotected

ESC 4

Sends current line from 1st column to cursor (inclusive) out the main port. If in Protect mode, only the unprotected characters are sent.

Send Line All

ESC 6

Sends current line from 1st column to cursor (inclusive) out the main

port. If in Protect mode, both protected and unprotected characters are sent.

Send Page Unprotected

ESC 5

Sends characters from 'home' position to cursor (inclusive) out the main port. If Protect mode is set, only the unprotected characters are sent.

Send Page All

ESC 7

Sends characters from 'home' position to cursor (inclusive) out the main port. If Protect mode is set, both protected and unprotected characters are sent.

Send Message Unprotected

ESC S

Sends all unprotected data starting at the beginning of the first line following the first FS and terminating after the final FS transmission. An FS code is transmitted at the cursor position, and the cursor moves to the next line.

Send Message All

ESC s

Sends all data starting at the beginning of the first line following the first FS and terminating after the final FS transmission. An FS code is transmitted at the cursor position, and the cursor moves to the next line. If in Protect mode, both protected and unprotected characters are sent.

Extension Mode On

ESC @

All data received by the terminal is sent to the screen and to the secondary port.

Extension Mode Off

ESC A

Disables the Extension mode so that data received is no longer sent to the secondary port, but is still displayed on the screen.

ESC A

Disables the Extension mode so that data received is no longer sent to the secondary port, but is still displayed on the screen.

Transparent Print On

ESC `

All data received by the terminal is output to the secondary port, and is not displayed on the screen.

Transparent Print Off

ESC a

Disables the Transparent Print mode so that all data received by the terminal is displayed on the screen rather than being output to the secondary port.

Select Termination Character

ESC x 4 Ps Ps

Changes end of block characters (1 and 2 in personality codes).

ESC x 1 Ps Ps

Changes end of line characters (3 and 4 in personality codes).

The definitions are found in the table at the end of Section 12.

Set Print Termination Character

ESC p Ps

Ps can be any ASCII character, and will indicate to the host computer that all print data has been output to the printer port. ACK (^F) is the default value for the termination character. This is personality code # 6.

14.6. Auto Page Mode Escape Sequences

Enable Auto Page Mode

ESC v

Turns on Auto Page Mode by establishing Page 1 and Page 2 of display memory. The cursor position is memorized so that when toggled to next page and back to original page, the cursor is placed at its last position.

Load Cursor

ESC - Ps

The cursor moves to the addressed position determined by Ps; ASCII control characters for page, row, and column found in Appendix A. The ASCII character is 'Ø' for page 1 and '1' for page 2.

Page Forward/Page Backward

ESC J or ESC K

Either command will toggle between page one and page two.

14.7. Display Attributes

Character Attributes

ESC G Ps

Sets character attributes. The value of Ps and its corresponding attribute are listed in the table below.

Ps	Description	Ps	Description
Ø	Normal	9	Underline and Blank
1	Blank	:	Underline and Blink
2	Blink	;	Underline Blink and Blank
3	Blink and Blank	<	Reverse and Underline
4	Reverse video	=	Reverse Underline and Blank
5	Reverse video and Blank	>	Reverse Underline and Blink
6	Reverse video and Blink	?	Reverse Underline and Blank
7	Reverse video, Blink and Blank		
8	Underline		

Start Underline Field

ESC 1

All subsequent characters will be underlined until underline attribute is turned off.

Load User Line

ESC f [text] CR

Text up to 79 characters terminated by a carriage return is loaded into memory for later display. If a carriage return is not used, the 8Øth character entered will terminate the text message.

Display User Line

ESC g

Displays the message entered by the previous escape sequence on the user line.

Disables User Line Display

ESC h

Removes the user line display from the screen.

Set Cursor Attribute

ESC . Pn

The five cursor attributes are

Ø Cursor Off
1 Blink/Blank
2 Block
3 Blink/Underline
4 Underline

Enable Screen

ESC n

Turns the screen on from a disabled (blank) state.

Disable Screen

ESC o

Disables the entire screen. Characters transmitted will not be displayed.

Normal Video

ESC d

Sets the entire screen to normal video (black background).

Reverse Video

ESC b

Sets the entire screen to reverse video.

Keyclick On

ESC >

Enables the keyclick sound for each keystroke.

Keyclick Off

ESC <

Disables the keyclick sound.

15. FM925 Escape Sequences

Following is a complete list of TeleVideo Model 920 escape sequences implemented in the FAME-II.

15.1. Cursor Escapes

Cursor Address

ESC = Ps

Move cursor to line and column defined by Ps. Ps must be two ASCII characters corresponding to the line and column numbers. To match ASCII characters with lines and columns use the Cursor Addressing Codes in Appendix A. Parameters outside the screen range are ignored.

Request Cursor Address

ESC ?

Request terminal to report cursor address. FAME-II will return two ASCII characters corresponding to the line and column number of the cursor location, followed by a carriage return. See Appendix A.

Set Tab

ESC 1

Set a tab stop at the current cursor position.

Tab

ESC i

Positions the cursor at the next tab stop. The cursor does not move if there are no more tab stops in that line. In Protect mode, a tab positions the cursor at the next unprotected field.

Back Tab

ESC I

Positions the cursor backward to the previous tab stop on the screen.

Clear Tab

ESC 2

Clear tab stop at the current cursor location if any. In Protect mode, tabs cannot be cleared.

Clear All Tabs

ESC 3

Clear all tab stops on the screen. In Protect mode, tabs cannot be cleared.

15.2. Mode Escapes

Block Mode

ESC B

Enable block mode.

Conversation Mode

ESC C

Enable conversation mode.

Enter Mode

ESC U

Puts terminal in Enter mode, where control codes are displayed, not executed.

Disable Enter Mode

ESC u or ESC X

Disables Enter mode, control codes will be executed, not displayed.

Protect Mode

ESC &

Enter protect mode. All characters in reduced intensity are protected. They cannot be overwritten.

Disable Protect Mode

ESC '

Disable protect mode. All data on the screen can be overwritten.

Normal Intensity

ESC (

Sets the current character attribute to normal intensity.

Reduced Intensity

ESC)

Set the current character attribute to reduced intensity.

15.3. Editing Escapes

Clear Page All Unprotected

ESC y

Clears all unprotected data from the current cursor location to the end of the page.

Clear All

ESC *

Clears the entire screen of protected or unprotected data and homes the cursor.

Clear Line

ESC t

Clear from the cursor to the end of line with nulls.

Clear Unprotected

ESC :

Clears the screen. If protect mode is set, only unprotected characters are cleared.

Notice: All "Clear" functions above mean clear to nulls (00 hex). All "Erase" functions below mean erase using "erase replacement character" personality code #7 (default = spaces).

Erase to Half Intensity

ESC ,

Erases all data to half-intensity spaces.

Erase All

ESC +

Fill the whole screen with spaces, or any erase character desired as set in the personality codes. See Section 11 - Personality Codes.

Erase Line

ESC T

Erases from the cursor position to the end of the line.

Erase Page

ESC Y

Erases all data from the current cursor location to the end of the screen (page).

Erase Unprotected

ESC ;

Erase the screen to spaces. If protect mode is set, only unprotected characters are erased. Delete Character

ESC W

Deletes the character at the current cursor location, moving all data on the line to the left one space. A blank space is inserted at the end of the line.

Delete Line

ESC R

Deletes the entire line containing the cursor. All lines below move up one line, and a blank line is inserted at the bottom of the screen or scrolling region if set. If Auto Page Mode is set, line 1 of page 2 is moved to line 24 of page 1.

Insert Character

ESC Q

Inserts a blank space at the current cursor location. All data at and to the right of the cursor is moved one space to the right. Any data forced beyond column 80 is lost.

Insert Line

ESC E

Insert a blank line above the current cursor line. All lines at and below the cursor line scroll down one line. Any line forced off the bottom of the screen is lost, unless in Auto Page Mode, in which case the that line is moved to the top of page two.

15.4. Keyboard Escapes

Keyboard Disable

ESC #

Disable the keyboard.

Keyboard Enable

ESC "

Enable the keyboard.

15.5. Transmission Escapes

Send Line Unprotected

ESC 4

Sends current line from 1st column to cursor (inclusive) out the main port. If in Protect mode, only the unprotected characters are sent.

Send Line All

ESC 6

Sends current line from 1st column to cursor (inclusive) out the main port. If in Protect mode, both protected and unprotected characters are sent.

Send Page Unprotected

ESC 5

Sends characters from 'home' position to cursor (inclusive) out the main port. If Protect mode is set, only the unprotected characters are sent.

Send Page All

ESC 7

Sends characters from 'home' position to cursor (inclusive) out the main port. If Protect mode is set, both protected and unprotected characters are sent.

Send Message Unprotected

ESC S

Sends all unprotected data starting at the beginning of the first line following the first FS and terminating after the final FS transmission. An FS code is transmitted at the cursor position, and the cursor

moves to the next line.

Send Message All

ESC s

Sends all data starting at the beginning of the first line following the first FS and terminating after the final FS transmission. An FS code is transmitted at the cursor position, and the cursor moves to the next line. If in Protect mode, both protected and unprotected characters are sent.

Select Termination Character

ESC x 4 Ps Ps

Changes end of block characters (1 and 2 in personality codes).

ESC x 1 Ps Ps

Changes end of line characters (3 and 4 in personality codes).

The definitions are found in the table at the end of Section 12.

15.6. Auto Page Mode Escape Sequences

Enable Auto Page Mode

ESC v

Turns on Auto Page Mode by establishing Page 1 and Page 2 of display memory. The cursor position is memorized so that when toggled to next page and back to original page, the cursor is placed at its last position.

Disable Auto Page Mode

ESC w

Turns off Auto Page Mode. Current screen is saved.

Load Cursor

ESC - Ps

The cursor moves to the addressed position determined by Ps; ASCII control characters for page, row, and column found in Appendix A. The ASCII character is '0' for page 1 and '1' for page 2.

Page Forward/Page Backward

ESC J or ESC K

Either command will toggle between page one and page two.

Page Forward/Page Backward

ESC J or ESC K

Either command will toggle between page one and page two.

15.7. Display Attributes

Character Attributes

ESC G Ps

Sets character attributes. The value of Ps and its corresponding attribute are listed in the table below.

Ps	Description	Ps	Description
Ø	Normal	9	Underline and Blank
1	Blank	:	Underline and Blink
2	Blink	;	Underline Blink and Blank
3	Blink and Blank	<	Reverse and Underline
4	Reverse video	=	Reverse Underline and Blank
5	Reverse video and Blank	>	Reverse Underline and Blink
6	Reverse video and Blink	?	Reverse Underline and Blank
7	Reverse video, Blink and Blank		
8	Underline		

Start Blink Field

ESC ^

Begins blinking character attribute field.

Start Blank Field

ESC _

Begins blank (invisible) character attribute field.

Start Underline Field

ESC l

All subsequent characters will be underlined until underline attribute is turned off.

End Underline Field

ESC m

Ends the underline visual attribute, when enabled.

Load User Line

ESC f [text] CR

Text up to 79 characters terminated by a carriage return is loaded into memory for later display. If a carriage return is not used, the 8Øth character entered will terminate the text message.

Display User Line

ESC g

Displays the message entered by the previous escape sequence on the user line.

Disables User Line Display

ESC h

Removes the user line display from the screen.

Set Cursor Attribute

ESC . Pn

The five cursor attributes are

Ø Cursor Off
1 Blink/Blank
2 Block
3 Blink/Underline
4 Underline

Enable Screen

ESC n

Turns the screen on from a disabled (blank) state.

Disable Screen

ESC o

Disables the entire screen. Characters transmitted will not be displayed.

Normal Video

ESC d

Sets the entire screen to normal video (black background).

Reverse Video

ESC b

Sets the entire screen to reverse video.

Reverse Video Field

ESC j

All fields subsequent to the cursor position will display in reverse video.

Normal Video Field

ESC k

Ends the reverse video field attribute, when enabled.

Keyclick On

ESC >

Enables the keyclick sound for each keystroke.

Keyclick Off

ESC <

Disables the keyclick sound.

16. VT52 Mode Escape Sequences

These are the VT52 Mode escape sequences implemented on the FAME-II.

16.1. Cursor Escapes

Cursor Up

ESC A

Moves CURSOR up one line in the same column. If at the top of screen, no scrolling takes place.

Cursor Down

ESC B

Moves the CURSOR down one line in the same column. At the bottom of the screen no scrolling of data occurs.

Cursor Right

ESC C

Moves the CURSOR one column to the right in the same line. At the edge of screen cursor does not wrap around to next line.

Cursor Left

ESC D

Moves the CURSOR one column to the left in the same line. At the edge of screen cursor does not wrap around to the previous line.

Cursor Home

ESC H

Moves the cursor to column 1, line 1.

Reverse Line Feed

ESC I

Moves CURSOR up one line in the same column. If at the top of screen, all data scrolls down one line. A blank line is inserted at the top of the screen.

Absolute Cursor Addressing

ESC Y Ps

Will move the cursor to the address supplied by Ps. Ps must be two ASCII characters obtained from Appendix A - Cursor Addressing Codes.

16.2. Display Attribute Escapes

Alternate Character Set

ESC F

Switches keyboard to special graphics set.

ASCII Character Set

ESC G

Returns keyboard to ASCII character set.

16.3. Mode Escapes

Change Mode

ESC <

Change to ANSI Mode.

Alternate Numeric Keypad Mode

ESC =

Alters the numeric keypad to send control codes rather than the numeric values. In MODE-52 the following codes are sent by each key:

Key	Alternate Code
Ø	ESC ? p
1	ESC ? q
2	ESC ? r
3	ESC ? s
4	ESC ? t
5	ESC ? u
6	ESC ? v
7	ESC ? w
8	ESC ? x
9	ESC ? y
.	ESC ? n
,	ESC ? l
-	ESC ? m
ENTER	ESC ? M

Exit Alternate Numeric Keypad Mode

ESC >

Returns the numeric keypad to face values.

16.4. Terminal ID Escapes

Host Enquiry

ESC Z

The host requests the terminal to identify itself. In MODE-52 the FAME-II will respond: ESC / Z.

16.5. Editing Escapes

Erase Line

ESC K

Erase from cursor (inclusive) to the end of the line.

Erase Screen

ESC J

Erase from cursor (inclusive) to the end of the screen.

17. FAME Private Escape Sequences

These escape sequences are included in the FAME-II terminal to provide greater functionality, especially in the ANSI/VT-52 modes. For the most part, these escape sequences duplicate functions in FM925 Mode which are not included in the ANSI/VT-52 modes. There are some features which are not duplicated elsewhere, so some of these escape sequences will also be useful from FM925 Mode.

Regardless of the operating mode of the terminal, all of the FAME Private escape sequences are accessible at all times.

Disable Non-essential Function Keys

ESC ~ %

Disables keyboard use of all function keys except Break, Brite, Dim, Freeze, and Reset.

Enable All Function Keys

ESC ~ $

Enables all function keys disabled by the above escape sequence for use from the keyboard.

Clear Entire Screen to Nulls

ESC ~ *

Homes the cursor and clears the entire screen to nulls.

Reset All Tabs

ESC ~ ∅

Clears all tab stops on the screen.

Set Tabs Every Eight

ESC ~ 3

Sets a tab stop every eight columns, starting from column 1 and continuing through column 73.

Send Line Unprotected

ESC ~ 4

Send current line from column 1 to cursor (inclusive) out the main port. If in Protect mode, only the unprotected characters are sent.

Send Page Unprotected

ESC ~ 5

Send characters from Home position to cursor (inclusive) out the main port. If protect mode is on, only the unprotected characters are sent.

Erase Unprotected to Spaces

ESC ~ ;

Home the cursor and erase the entire screen to spaces. If Protect mode is set, only unprotected characters will be erased.

Print Page Unprotected

ESC ~ @

Send characters from 'home' to cursor (inclusive) out the secondary port. If Protect mode is set, only unprotected characters will be sent.

Send Page Extension Port

```
ESC ~ A 0   :to reset
ESC ~ A 2   :to set
```

Sends characters typed at the keyboard out main and extension ports.

Select Block Mode

ESC ~ B

Enable Block mode.

Select Conversational Mode

ESC ~ C

Enable conversational mode.

Insert Line

ESC ~ E

Insert a blank line above the current cursor line. All lines at and below the cursor are pushed down 1 line. Any line forced off the bottom of the screen is lost. The cursor moves to column 1 of the new line.

Backtab

ESC ~ I

Position the cursor backwards to the previous tab stop or at column 1 if there is no previous tab stop.

Enable 25th Data Line

ESC ~ M

Enable the 25th line for data entry. Line width is not affected. The 25th data line is available in ANSI/VT52 mode only. IN FM925 mode, the 25th line is the user line.

Print Page All

ESC ~ P

Send all characters from 'home' to cursor (inclusive) out the secondary port.

Insert Character

ESC ~ Q

Insert a space at the current cursor position. All data at and to the right of the cursor is pushed 1 column to the right. Any data forced beyond column 80/132 is lost.

Delete Line

ESC ~ R

Delete the entire line containing the cursor. All lines below move up one line, and a blank line is inserted at the bottom of the screen or scrolling region. The cursor moves to column 1.

Erase to End of Line

ESC ~ T

Erase from the current cursor position to the end of the line.

Delete Character

ESC ~ W

Delete the character at the current cursor position, moving all data to the right of the cursor left 1 column. A blank space is inserted at the end of the line.

Erase to End of Screen

ESC ~ Y

Erase all data from the current cursor position to the end of the screen.

Disable Modes

ESC ~ Z

Disable Protect and Insert modes, if set.

Invoke Function Key

ESC ~ \ Pn

Execute the selected function key. Pn must match one of the 2-letter codes shown in Table 4.1.

Set Title

ESC ~] Ps

Put any desired title, up to 10 characters in length, into field A of the status line. The parameter string Ps must always be exactly 10 characters in length, or the terminal will wait until sufficient extra characters are received before it will perform any other function.

Read Data at Cursor Position

ESC ~ ^

Requests the terminal to report the data at the current cursor location. The data is sent back as a single ASCII character.

Return FAME-II ID

ESC ~ _ a

Requests the terminal to return the correct FAME-II ID for the current terminal configuration.

Set Brightness

ESC ~ e Ps

Set the screen brightness to the value of Ps, where Ps is any ASCII character, representing a level of 0 to 127.

Program the User Message Line

ESC ~ f Ps

Program the User Message line with up to 79 characters. If less than 79 characters are needed, terminate Ps with a carriage return. Except for carriage return, all control characters may be included in the message string. User/message line is line 26, below the FAME status line.

Display the User Message Line

ESC ~ g

Removes the status line and displays the User Message line.

Display the Status Line

ESC ~ h

Removes the User Message line, if displayed, and redisplays the status line.

Tab

ESC ~ i

Position the cursor at the next tab stop or at the end of the line if there are no more tab stops set.

Examine Function Keys

ESC ~ j Pn

Examine the values of the programmable function key registers on page Pn, where Pn must be an ASCII digit between 1 and 3.

Program a Function Key

ESC ~ k

If the cursor is positioned at the end of a character string for a valid programmable function key, load the proper function key register. See the section on Programmable Keys for detailed information.

Edit Function Key

ESC ~ l <delimiter> <key> Ps

Program a function key with the string Ps, according to the method shown in the section on Programmable Keys.

Disable 25th Data Line

ESC ~ m

Allow the use of only 24 lines for data. If the cursor is currently on row 25, it will move up to the same column in row 24. If the scrolling region includes row 25, it will be adjusted to end at row 24. Any data on line 25 will remain untouched. The 25th line of data is an option only in ANSI/VT52 mode only. In FM925 mode, the 25th line is the User line.

Request Title

ESC ~ n

The terminal returns the string programmed into field A of the status line. A carriage return will be sent at the end of the string.

Display Personality Bytes

ESC ~ o

Displays the 8 changeable personality bytes on the screen.

Set Personality Codes

ESC ~ . Ps Ps

Set personality code specified by 1st Ps with the value of 2nd Ps. The first Ps must be the personality code number obtained from Table 11-1 Personality Codes. The second Ps can be any ASCII character you wish to enter as that particular personality code.

Access Setup Menu

ESC ~ x a ; b ; p ; p ; p z

where:

x identifies the remote setup escape sequence
a selects the desired page of the setup menu (a= 1 or 2)
b selects the desired line of the selected page (b= 1-6 for page 1 or 1-7 for page 2)
p selects the desired value for an item on the line:
p = 0 skips that item and moves to the next one on the line.
p = 1 through x selects the desired value for the item. The highest value of x depends on how many choices are available for the particular item. 1 selects the first value, 2 the second, etc.
z terminates the escape sequence.
; separates each item value from the next. (spaces are used for clarity, and should not be included in the actual escape sequence.)

For instance, to set the baud rate for port b to 4800, the number of data bits to 7 and the number of stop bits to 2, the sequence would be:

<escape>~x1;4;14;1;2z

To set only the number of stop bits, the sequence would be:

<escape>~x1;4;0;0;2z

If too many values are included in a sequence the extra ones are ignored. If an illegal line or page is selected, the whole sequence is ignored. No corrections are allowed and there is no way to back up and reprogram something that was skipped, unless a new escape sequence is sent. All changes take effect immediately after the z is received, so if the baud rate is changed, the host should immediately change it's own baud rate and wait for input from the terminal.

Print All Unformatted

ESC ~ p

Prints an entire page of data, with no carriage returns or line feeds, from home to the current cursor position out to the secondary port.

Set Insert Mode

ESC ~ q

Enable the continuous insert mode. All incoming data will be inserted into the current cursor line. Data to the right of the cursor will be pushed over, and will be lost if it is pushed beyond column 80/132.

Clear Insert Mode

ESC ~ r

Disable the continuous insert mode. All incoming data will overwrite any data already on the current cursor line.

Set Scrolling Region

ESC ~ s Ps

Sets two horizontal margins on the screen within which data will be received and displayed. All lines outside the parameters given will be locked in place. All scrolling of data on the screen will occur only within the scrolling region. The region is set by Ps, where Ps is two ASCII characters representing two line numbers (see Appendix A for line number/ASCII conversion charts). The second line number must be greater than the first, or the entire escape sequence will be ignored.

Soft Reset

ESC ~ z

Perform a soft reset, returning the terminal to the values stored in the CMOS RAM. This is exactly the same as turning the terminal off and then on again.

Set Graphics Mode

ESC ~ {

Valid in FM925 and FM920 modes only. Set both character generators to the combined special/business graphics sets. See Appendix G for the combined sets and their relative positions on the keyboard.

Reset Graphics Mode

ESC ~ }

Set both character generators to the ASCII set.

18. INSTALLATION

18.1. Introduction

This chapter describes unpacking, installing, and interfacing the FAME-II Terminal. No special tools or experience are required for installation. There is some useful information on checking for damages and returning the terminal, if necessary, and some even more important information on interfacing the terminal with a computer, modem or other device.

18.2. Unpacking and Reshipping

Unpacking the FAME-II Terminal is normally a simple procedure; however, improper handling during shipment can damage the terminal which, if undetected, may create unnecessary problems when checking out the equipment after installation.

The FAME-II Terminal is shipped in a heavy cardboard box which should always be kept in an upright position and opened only after careful inspection of the container.

While unpacking the terminal, inspect the shipping container for evidence of external damage. Any indication of external damage must be noted by both the recipient and the carrier.

The FAME-II is protected during shipping by specially constructed foam mountings. When unpacking, save all packing materials and the shipping container in case the terminal has to be reshipped or moved at a later date.

Carefully unwrap and inspect all equipment for evidence of shipping damage. If such evidence is present, stop unpacking as soon as the damage is discovered, notify the carrier, and immediately arrange to have the shipment inspected by the carrier's agent or authorized representative. All damage claims should be promptly filed with the carrier.

Any equipment returned to the factory must be packed in either the original container or a substitute container of equal strength and durability. The original packing material, or a substitute providing comparable protection should surround all protruding surfaces of the keyboard and the display screen.

A description of the equipment defect or damage, its suspected cause, and the name and address of the sender should accompany the returned equipment. Repack the terminal as it was unpacked.

Contact Falco Data Products, Inc. for a Return Goods Authorization (RGA) number and shipping information regarding the nearest repair center.

Falco Data Products, Inc.
1286 Lawrence Station Rd.
Sunnyvale, Calif. 94089
(408) 745-7123

18.3. Pre-Installation Inspection

Prior to installing the FAME-II Terminal, carefully inspect the delivered equipment to determine that all items are complete. The shipping container should contain the following items:

FAME-II Display Monitor

FAME-II Keyboard

FAME-II User's Manual

power cord

keyboard cord

Check the container to verify that all options ordered with the terminal have been included. Check the rear panel of the display monitor and verify that the serial number on the terminal matches the number on the packing slip (if you have a packing slip). Verify that the POWER ON/OFF rocker switch is in the OFF position.

18.4. Installation

18.4.1. Site Requirements

The dimensions of the FAME-II terminal will normally pose few constraints on selecting a place in which to install the terminal. Any desk top will do. In most cases, any environment satisfactory for the operator will be suitable to the terminal (and vice versa). Extremes of temperature and humidity should be avoided.

18.5. Keyboard Connection

The FAME-II Terminal has a simple modular connector for plugging the keyboard into the terminal. It's just like plugging in a phone.

The keyboard should always be plugged and unplugged while power is off. While it will not necessary harm the terminal in any way, data on the screen may be garbaged if the keyboard connector is pugged in or out while power is on.

18.6. Power Connection

You should find the power cord packed with the terminal. One end connects to the terminal and the other to a standard electrical outlet.

18.7. Installation Checkout

Perform the following steps to verify the correct FAME-II operation:

1. Place the FAME-II main unit in the desired work area.

2. Place the keyboard in front of the display monitor and plug the coiled keyboard cable into the keyboard receptacle located on the lower right front of the terminal.

3. Plug the power cable into the back of the terminal. Be sure that the ON/OFF switch on the back of the terminal is off. Plug the power cord into the wall outlet.

4. Turn the POWER switch, located on the rear panel of the display monitor, to the ON position. A bell tone will sound, indicating that power has been applied. There will then be a two or three second delay, while certain components heat up, followed by a second bell tone. Wait for the second bell before operating the terminal.

   After the two bell power-on delay, the terminal will perform the ROM test. Should there be a probable with the terminal's ROM, an error message will appear on the screen; 'ROM checksum error'. Call your local experts for assistance. If there is no problem with the ROM, the FAME-II status line will appear on the monitor display. If no status line appears, press the FUNCTION key and the BRITE key (the up arrow above the numeric keypad) simultaneously. The is the control signal to increase brightness.

5. Just to be sure things are working correctly press the SET UP key, then 1, then 0 (zero). The screen should be filled with the reverse video Setup menu. Press the ESCAPE key twice and the menu should disappear.

18.8. Housing

FAME-II housing consists of:

* Tilt and Swivel Screen: Tilt up 12 degrees. Tilt down 10 degrees. Swivel 280 degrees.

* Dimensions: The dimensions of the FAME-II (without the base) is 14 inches wide, 11 inches high and 13 inches deep.

* The Base: The FAME-II screen rests on the small FAME base, 11 X 11 inches and 1/2 inch high pedestal.

* Dimensions: The unit (with the base) is 14 inches wide, 14 inches high and 13 inches deep.

* Weight: The weight should not exceed 32 pounds shipping weight.

* Weight: The weight should not exceed 32 pounds shipping weight.

* Keyboard: The keyboard dimensions are 2Ø inches long, or 8 inches depth. The weight is 4 pounds.

* Keyboard Cord: The keyboard cord is coiled, grey and extendible to 6 feet.

* Power Switch: The housing has the power on/off switch in the front of the terminal for easy operator access.

18.9. Operating Parameters

MTBF

The Mean Time Between Failures (MTBF) is greater than 17,ØØØ hours.

Temperature and Humidity

The terminal is operational over the temperature range of 5 to 45 degrees Centigrade, relative humidity, 1Ø to 9Ø% non-condensing.

The terminal is self-cooling with no fan.

Electrostatic Discharge (ESD)

The terminal accepts a static discharge of 15ØØØ volts to the case of the terminal without causing fatal errors.

Storage and Transit Environment

Storage and transit environment conforms to reasonable limits based on the operating parameters above.

19. WARRANTY

The following standard warranty normally applies to all Falco products:

The warranties provided herein are in lieu of all other warranties, expressed or implied. There are no warranties, expressed or implied. There are no warranties which extend beyond the face hereof, including but not limited to warranties or merchantability and fitness for a particular purpose.

FDP warrants that the equipment will be free from defects in material and workmanship during the Warranty Period. The "Warranty Period" shall be the ninety (9Ø) day period following the date of shipment by FDP to the buyer. In the event any component part of the equipment becomes defective by reason of material or workmanship during the Warranty Period and buyer immediately notifies FDP of such defect, FDP shall, at its option, either supply a replacement part or request return of the equipment at buyer's expense to Falco's designated service center. This warranty shall not extend to any equipment that has been subject to misuse, neglect, accident, or improper installation or to equipment to which repairs or modifications have been performed by persons other than Falco's own or authorized service personnel, unless such repairs by others were performed with the written consent of FDP Falco's liability to buyer or to buyer's customer with respect to a breach of the foregoing warranty shall be limited solely to repair or replacement of the defective equipment. In the event FDP directs that an item of equipment or a portion thereof be returned to FDP or to a designated service center for repair or replacement, FDP shall assign a Returned Goods Authorization (RGA) number. FDP will prepay transportation costs for the return of products to Buyer or Buyer's customer following repair or replacement. Exclusion: Damage to the CRT phosphor of the type caused by excessive spot intensity is not covered by this warranty.

The terminal shall meet the requirements of the Federal Communications Commission (FCC) Part 15, Subpart J, Class A.

The terminal is Safety Agency Certified by Underwriters Laboratories (UL) listing.

19.1. Falco Repair Service

In addition to in-warranty repair service discussed in the paragraph above, there are several repair service plans available to users of Falco terminals.

1. Extended Warranty

   For a fixed fee, Falco will continue the original factory warranty service. Arrangements for extended warranty service must be made at the time of equipment purchase and is renewable on an annual basis.

2 Service Contract

On-site service is available for users throughout the U.S. and Canada. Service is provided by Falco service centers or by authorized third-party maintenance arrangements.

3 Time-and-Materials Service

For out-of-warranty service for users with neither extended warranty agreements or service agreements, repair service is offered on a time-and-materials basis. Equipment repairs can be made either at the Falco factory, Falco repair depots, or on-site.

Any equipment or parts returned to Falco must be identified by a Returned Goods Authorization (RGA) number, which must be obtained from Falco before shipment. Please call the Falco Order Administration Department at (4Ø8) 745-7123 for assignment of an RGA number.

Appendix A -- Cursor Addressing Codes

Line or Column	ASCII Char	Column Number	ASCII Char	Column Number	ASCII Char
1	<space>	33	@	65	`
2	!	34	A	66	a
3	"	35	B	67	b
4	#	36	C	68	c
5	$	37	D	69	d
6	%	38	E	7Ø	e
7	&	39	F	71	f
8	'	4Ø	G	72	g
9	(	41	H	73	h
1Ø	)	42	I	74	i
11	*	43	J	75	j
12	+	44	K	76	k
13	,	45	L	77	l
14	-	46	M	78	m
15	.	47	N	79	n
16	/	48	O	8Ø	o
17	Ø	49	P	81	p
18	1	5Ø	Q	82	q
19	2	51	R	83	r
2Ø	3	52	S	84	s
21	4	53	T	85	t
22	5	54	U	86	u
23	6	55	V	87	v
24	7	56	W	88	w
25	8	57	X	89	x
26	9	58	Y	9Ø	y
27	:	59	Z	91	z
28	;	6Ø	[	92	{
29	<	61	\	93	|
3Ø	=	62	]	94	}
31	>	63	^	95	~
32	?	64	_		

FOREIGN CHARACTER FONTS

FONTS		CHARACTERS										
US ASCII		#	@	[	\	]	^	`	{	¦	}	~
United Kingdom		£	@	[	\	]	^	`	{	¦	}	~
Swedish/Finnish		#	É	Ä	ö	Å	Ü	é	ä	ö	å	ü
Danish/Norwegian		#	@	Æ	Ø	Å	^	`	æ	ø	å	~
French		£	à	°	ç	§	^	`	é	ù	è	¨
German		£	§	Ä	Ö	Ü	^	`	ä	ö	ü	β
Spanish		#	@	¡	Ñ	¿	°	`	{	ñ	}	~
Italian		£	§	°	ç	é	^	ù	à	ò	è	ì

LSB	MSB							
	0	1	2	3	4	5	6	7
0	NUL	DLE	<SPACE>	0	@	P	\	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	S0	RS	.	>	N	^	n	~
F	S1	US	/	?	O	_	o	DEL

SPECIAL GRAPHICS CHARACTERS

LSB	MSB 0	1	2	3	4	5	6	7
0	NUL	DLE	<SPACE>	0	@	P	` ◆	p —
1	SOH	DC1	!	1	A	Q	a ▒	q —
2	STX	DC2	"	2	B	R	b HT	r —
3	ETX	DC3	#	3	C	S	c FF	s —
4	EOT	DC4	$	4	D	T	d CR	t ├
5	ENQ	NAK	%	5	E	U	e LF	u ┤
6	ACK	SYN	&	6	F	V	f °	v ┴
7	BEL	ETB	'	7	G	W	g ±	w ┬
8	BS	CAN	(	8	H	X	h NL	x │
9	HT	EM	)	9	I	Y	i ¶	y ≤
A	LF	SUB	*	:	J	Z	j ┘	z ≥
B	VT	ESC	+	;	K	[	k ┐	{ π
C	FF	FS	,	<	L	\	l ┌	| ≠
D	CR	GS	-	=	M	]	m └	} £
E	SO	RS	.	>	N	^	n ┼	~ •
F	SI	US	/	?	O	_ (BLANK)	o —	DEL

BUSINESS GRAPHICS

LSB	MSB 0	1	2	3	4	5	6	7
0	NUL	DLE	<SPACE>	0 ä	@ 	P 	\ 	p 
1	SOH	DC1	! β	1 ë	A 	Q 	a 	q 
2	STX	DC2	" ñ	2 ö	B 	R 	b 	r 
3	ETX	DC3	# Ñ	3 ü	C 	S 	c 	s 
4	EOT	DC4	$ ¿	4 à	D 	T 	d 	t 
5	ENQ	NAK	% §	5 è	E 	U 	e 	u 
6	ACK	SYN	& °	6 ò	F 	V 	f 	v 
7	BEL	ETB	' „	7 ù	G 	W 	g 	w 
8	BS	CAN	(Φ	8 Å	H 	X 	h 	x 
9	HT	EM	) ϕ	9 É	I 	Y 	i 	y 
A	LF	SUB	* Ç	: å	J 	Z 	j 	z 
B	VT	ESC	+ ì	; é	K 	[	k 	{ 
C	FF	FS	, Ü	< Ä	L 	\ 	l 	| 
D	CR	GS	-	= Ö	M 	] 	m 	} 
E	SO	RS	.	> Æ	N 	^ 	n 	~ 
F	SI	US	/	? æ	O 	_ 	o 	DEL

SPECIAL/BUSINESS GRAPHICS

LSB	MSB 0	1	2	3	4	5	6	7
0	NUL	DLE	<SPACE>	0	@	P	\	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

FM925 SPECIAL/BUSINESS GRAPHICS

LSB	MSB 0	1	2	3	4	5	6	7
0	NUL	DLE	<SPACE>	0 ä	@	P		p
1	SOH	DC1	! β	1 ë	A	Q	a	q
2	STX	DC2	" ñ	2 ö	B	R	b	r
3	ETX	DC3	# Ñ	3 ü	C	S	c	s
4	EOT	DC4	$ ¿	4 à	D	T	d	t
5	ENQ	NAK	% §	5 è	E	U	e	u
6	ACK	SYN	& °	6 ò	F	V	f	v
7	BEL	ETB	' "	7 ù	G	W	g	w
8	BS	CAN	(Φ	8 Å	H	X	h	x
9	HT	EM	) φ	9 É	I	Y	i	y
A	LF	SUB	* ç	: å	J	Z	j	z
B	VT	ESC	+ ì	; é	K	[	k	{
C	FF	FS	, Ü	< Ä	L		l	|
D	CR	GS	-	= Ö	M	]	m	}
E	SO	RS	.	> Æ	N	^	n	~
F	SI	US		? æ	O		o	DEL