



FE100 Operators Manual V5
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Version 5.12

	Revision History
5.01	Correct 020AXX special option wording
5.02	Typo, page 100
5.03	Add version to footer
5.12	Alter special options 1bf1,0208,140e Add special options 0205RL and 020600

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Safety Warnings

FE100 Location

The FE100 receiver should be situated in location only accessible by service personnel.

Backup battery

The sealed lead-acid battery should be located in stable, well ventilated position where the battery cannot fall. The terminals and associated wiring should be insulated against inadvertent short circuit, as the battery can provide sufficient energy to cause serious burns and/or fires. Check all battery wiring before connecting the battery. Always connect the battery terminals last.

Only a 6.5 Amp Hour, sealed lead-acid battery should be used. Larger batteries will not be charged adequately. "Wet" lead-acid batteries will be over-charged by the FE100 resulting in excessive "gassing" and eventual battery failure.

FE100 Back Cover

It is an AUSTEL safety requirement that the back cover is in position whilst the FE100 desktop unit is operational.

If the full 19 inch rack version is being used then the card frame must be mounted in a such a way to restrict access to the interior of the unit in normal operation.

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Installation

The minimum components required to install the FE100 receiver are:

- A FE100 Receiver
- A screen & keyboard (Wyse30 or ANSI terminal, or a PC running an ANSI terminal emulation program.
- A Terminal Connection cable.
- A 16 volt A.C. plug pack
- A 12Volt, 6.5 Amp Hour sealed gel-type battery
- At least one telephone cord

A 240 volt power outlet should be provided to power the Terminal/PC directly, and the FE100 via the plug-pack. A UPS to provide uninterrupted operation in the event of mains failure should power the terminal or PC. At least one Telecom 605 socket should be located within 1 meter of the FE100 Receiver.

For general wiring details "FE100 Wiring" on page 131. For details on connecting the terminal see the section "Connecting a terminal" on page 69. For details on connecting a printer see the section "Connecting a Printer" on page 71. For details on connecting a computer see the section "Connecting an Automation Computer" on page 72.

1. If you have a FE100-D1 or FE100-N1 in the 1/2 19-inch rack, remove the back cover by carefully removing the four screws in the back of the unit.
2. At the back of the FE100 Receiver on the Processor card are located serial connectors marked from the top, "PRINTER", "COMPUTER" and "TERMINAL".
3. Connect the Terminal/PC to the FE100 Receiver with the supplied lead by connecting the cable to the socket marked "TERMINAL" on the Receiver to the socket at the back of the terminal marked "MODEM", or the PC serial port.
4. Turn on the terminal or run the terminal emulation program if using a PC.

(Note that after a few minutes of no activity some terminal screens may go blank. This is normal and is used by the terminal to preserve the screen. Push the SHIFT key and the screen will turn on again)

5. Connect the supplied plug pack to the bottom two terminals of the blue, plug-style terminal block located on the back of the processor card above the "PRINTER" plug. (See markings on circuit board).
6. Make sure the ribbon cable connecting the Processor card to the Line-card(s) is plugged in securely.
7. Turn on the plug pack. The screen should now come alive with a welcome screen displaying some basic information about the receiver. At the bottom of the screen should appear the words:

"Enter Password -> "

If the screen displays strange characters, check that the terminal baud rate is set to 9600 Baud, 8 data bits, 1 stop bit and no parity. Also check that the terminal type (Wyse or ANSI) matches the FE100 configuration by pushing the right arrow key repeatedly followed by the F1 key. If using an ANSI terminal or PC, check that the function keys have been programmed correctly (See page 70.)

8. Connect the 6.5 Amp Hour battery by wiring the battery to the top two terminals above the plug-pack terminals. Note the polarity marked on the circuit board. DO NOT CONNECT THE BATTERY POSITIVE OR NEGATIVE TO ANY OTHER WIRING IN THE CENTRAL STATION.
9. Verify the screen again displays the welcome message when power is re-applied.
10. Connect the Telecom line(s) by plugging the supplied lead(s) into the appropriate line card socket(s) on the back of the line card(s). (See page 131). Note that the top connector on a line card is line 1, 3, 5 or 7, whilst the bottom connector is line 2, 4, 6 or 8.

Note that if the FE100 receiver is to provide lightning protection, the EARTH pin of the line card must be connected to an adequate Telecom earth, using correct wiring practices. (It is preferable to have Telecom install external lightning protection external to the premises if possible.)

11. If you have an FE100-D1 or FE100-N1 in the 1/2 19 inch rack then replace the back cover to conform to Austel requirements.
12. You must now enter a password to be allowed to operate the receiver. There are 3 passwords but only one may change the receiver set-up. This password is "user 3" at manufacture. Enter the password "user 3" (not the quotes) and push the RETURN key. Note that the password must be lower-case (The word "CAPS" MUST NOT be displayed in the top left hand corner of the screen). If you make an error push RETURN and try again. The screen will now show the Current Time continuously updating.
13. Now go to the SET-UP menu by pushing the CONTROL key in conjunction with the F1 key. A menu of items to set-up will be displayed. Simply push the letter of the item you wish to set-up. Push escape to return to the menu.

FE100 Operating Modes

To carry out different functions on the FE100 receiver, the operator selects the operation desired by pushing a special key known as a "hot key". When a "hot key" is pressed, the receiver will immediately stop its current operation and begin the new operation selected. This allows the operator to "jump" from one operation to another with a single key press. Some operating modes are restricted to certain pass-codes.

(Note that when first powered up a password is required. This password must be entered and the RETURN key pushed before any receiver operations are allowed. At manufacture password 3 is "user 3" in lower case. See the section on "Entering a Password".

There are eight main operations that can be performed on the FE100 receiver, each operation selected by a "hot key":

INFO	(F1 key)
VIEW	(F2 key)
EDIT	(F3 key)
REPORT	(F4 key)
SETUP	(^F1 key)
BACKUP	(^F2 key)
LOGON	(^F3 key)
MISC.	(^F4 key)

(^ indicates the Ctrl key must be pressed at the same time)

INFO (F1 key) All pass-codes

This operation is used to display general receiver status information. This screen is also displayed when the receiver is powered up. Pressing the "H" key will display on-line help about the receiver. Pressing the "T" key will perform a consistency check of the FE100 alarms buffer. Pressing "C" will toggle colour operation for ANSI compatible terminals. Pressing "S" will save the current terminal settings in case powered down.

The consistency check is also performed automatically every time the FE100 is reset or powered up. The consistency check consists of a number of tests which check the integrity of the FE100 alarms buffer memory. If all tests pass then the unit will re-display the welcome screen. If any test fails this could indicate a potential future problem with your receiver. Contact your distributor as soon as possible for advice.

VIEW (F2 key) All pass-codes

VIEW allows alarm reports for the operator to be displayed and acknowledged. Alarm report auto-acknowledge will only operate whilst the receiver is in VIEW mode. VIEW is the normal operating mode of the receiver.

EDIT (F3 key) Pass-codes 2 and 3 only

EDIT is used to inspect, update or add new clients to the FE100 client data-base. It is only available in data-base versions of the FE100 receiver. If you need to leave EDIT to perform some other operation such as VIEW, then when you come back to EDIT, editing will be resumed at where you left off previously.

REPORT (F4 key) Pass-codes 2 and 3 only

REPORT is used to set-up and control the printer, and to display or print various reports. Normally the printer is set-up to print alarm reports as they arrive at the receiver. Once the printer is set-up you may leave REPORT to perform some other operation and printing will continue in the back-ground.

SETUP (^F1 key) Pass-code 3 only

SETUP is used to configure the operating parameters of the FE100 receiver. Set-up items include:

- Time and Date.
- Memory configuration. (Distributor only)
- Pass-words.
- Line-card formats.
- Computer interface.
- Terminal VIEW mode Options.
- English Language Defaults.
- Time Windows
- Custom Words.
- Pager Information.

BACKUP (^F2 key) Pass-codes 2 and 3 only

All client information is saved in non-volatile memory, which will remember its contents even in the event of a total power failure lasting up to 10 years. Extra data security can be obtained by copying this data to another back-up non-volatile memory. Backup should be performed whenever major changes are made to the client database. Backup takes about 1 minute to perform.

LOGON (^F3 key) All Pass-codes

LOGON is used to allow an operator to enter their own pass-word so that the receiver will allow all operations relevant to that pass-word to be performed. Pass-words are programmed in SETUP by user 3 only. When the password is entered correctly, the FE100 will display the Welcome screen.

MISC (^F4 key) Pass-code 3 only

The MISCELLANEOUS mode allows other less frequent FE100 operations to be performed. These operations include:

- Force connecting a line.
- Ringing up panels or another FE100 etc.
- Sending a Text page.
- Upgrading your FE100.
- Erasing all programming.
- Setting special options.

The Status Screen (F1 KEY)

The Status screen is used to display status information about the FE100. A typical screen is shown below:

FE100 Digital Alarm Receiver

Copyright Fratech Electronics, June 1991

Time: Thursday, 29/09/94 22:35:52

<i>Version:</i> 03.50 Back-up <i>User:</i> 3 <i>View:</i> Acknowledge On <i>Printer:</i> Stop report <i>Computer:</i> Copy options <i>Buffer:</i> Ok <i>B/up Hrs:</i> 247 <i>B/up Cnt:</i> 016 <i>Windows:</i> nnnnnnnnnnnnnnnnn <i>Clients:</i> 00448	<i>Line Versions:</i> 03 00 00 00 No Modem Handshakes <i>Line 1:</i> Idle - Ok <i>Line 2:</i> Idle - Ok <i>Line 3:</i> No Handshakes <i>Line 4:</i> No Handshakes <i>Line 5:</i> No Handshakes <i>Line 6:</i> No Handshakes <i>Line 7:</i> No Handshakes <i>Line 8:</i> No Handshakes
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F1 Status Screen

F2 View Alarms

F3 Edit Database

F4 Print Reports

^F1 Setup Receiver

^F2 Backup Database

^F3 Login User

^F4 Misc

H Help

C Color toggle

S Save Settings

T Test Buffer

The various fields are now explained below:

Version:

This field shows the current version of the FE100 software on the processor card. The suffix indicates what type of processor card it is.

Line Versions:

This field shows the current versions of the four line cards connected to the system. (If the line card is not present then the version number is shown as "00". Version 01 refers to the original FE100-L line card whilst version 03 refers to the current FE100-LX line card with caller ID facilities.

User:

This field shows what user is currently logged onto the FE100. User 1 is the lowest priority user.

View:

This field shows the whether alarms are to be acknowledged on the F2 (VIEW) screen. If the words "Acknowledge On" appear then alarms must be acknowledged using the "A" key on the VIEW screen to avoid a "Full Buffer". (See page 116). Some alarm types may be flagged for auto-acknowledge.

Printer:

This field shows what report the printer is currently printing. If the word "Problems" appear then there is some problem with the printer or the connecting cable. If the words "(Saving)" appears then the FE100 will save alarms to be printed if the printer can't be used. This problem should be rectified to avoid a "Full Buffer". (See page 116)

Computer

This field shows whether alarms are to be sent to an external automation computer. If the word "Problems" appear then there is some problem with the computer or connecting cable. This problem should be rectified to avoid a "Full Buffer". (See page 116)

Buffer:

This field shows whether the alarms history buffer is full or not. If the buffer is full it will display the word "Full" and the reason the buffer is full; "Terminal", "Printer" or "Computer". See section on "Buffer Full Warning". (See page 116)

B/up Hrs

For back-up processor cards only, this field shows how many hours of running time are left. (For non-backup cards the field just shows the word "OK")

B/up Cnt:

For back-up processor cards only, this field shows how many more times the backup hours may be re-freshed by the distributor. (For non-backup cards the field just shows the word "OK")

Windows:

If the FE100 is configured to the 448 client model, then this field shows the current state of the 16 time windows as a list of 16 letters, for example: (VnVnnnnnnnnnnnnnnnn), where each letter corresponds to the current status of the 16 time windows respectively. A "V" means the time window is valid and an "n" means the time window is invalid. In the example above only time window 01 and time window 03 are valid. Note that to create "Access out of hours" or "Late to Close" alarms, the FE100 must be in VIEW mode.

Clients:

This field shows the current memory configuration of the FE100 in how many clients may be saved in the on-board database.

Line X: (X=1 to 8)

This field shows the current state of the 8 lines on the FE100. The various messages are shown below:

<i>No Handshakes</i>	This line has no handshakes configured
<i>Idle - OK</i>	This line is on-hook and Ok
<i>On-Line - Speaker XXX</i>	This line is off-hook and the speaker is Off/Low/Medium/High
<i>Test Mode</i>	This line is in test mode.
<i>Problem - Can't Find</i>	Line (card) can't communicate. Check Cable and address links
<i>Problem - No Dial-tone</i>	Line has failed dial-tone test.
<i>No Modem Handshake</i>	No line has a modem handshake as the last handshake.

Time:

This field shows the current date and time.

ANSI/Colour/Wyse Selection.

Pressing a function key, a right arrow key or an up arrow key will set the FE100 software for the particular terminal type you are using, either Wyse 30/35 or ANSI. You may need to press the key a couple of times. If you ring an FE100 set to Wyse terminal mode with a PC in ANSI mode, you will need to press a function key/arrow key to get the software to operate correctly with your PC. On hang-up, a function key/arrow key will need to be pressed on the Wyse terminal at the FE100 to get the software to resume Wyse terminal mode.

Pressing the "S" key whilst displaying the Status screen will save the current terminal setting to non-volatile memory so that if the FE100 is ever reset, the correct terminal type will be assumed on re-start.

Pressing the "C" key whilst in ANSI terminal mode will toggle colour operation. Colour cannot be displayed on Wyse 30/35 terminals.

FE100 Status Lamps

The processor card in the FE100 system has 6 indicator lamps used to display the status of the FE100 receiver. The six lamps are described below:

PROCESSOR CARD

<i>POWER OK</i>	When this lamp is on it indicates there is sufficient D.C. voltage present to operate the FE100 correctly. This power can be derived from the battery or from the 16 volts A.C plug-pack.
<i>MAINS OK</i>	When this lamp is on it indicates that mains power is operating the FE100 receiver and is charging the external battery if connected. It also indicates that the FE100 clock is synchronised to the mains frequency.
<i>BATT OK</i>	When this lamp is on it indicates the battery voltage is above approximately 11.7 volts, and therefore there is sufficient battery voltage to operate the FE100 in the absence of mains power. If this lamp is off the FE100 may still be able to operate but data back-ups and program up-dates over the phone will be disabled. In addition, operating the FE100 on battery only with this lamp off may degrade the capacity of the sealed gel type battery
<i>CARD OK</i>	When this lamp is slowly flashing it indicates that the FE100 software is operating correctly. If this lamp ever stops flashing for an extended period, it could indicate a problem with FE100 receiver software.

PROCESSOR CARD (cont.)*COMP
ON
LINE*

When this lamp is on it indicates that the FE100 considers the computer port active and operational. This lamp will be off if :

1. No computer port is defined.
2. The computer cable has been disconnected.
3. The computer is turned off or non-operational.
4. An attempt was made to transfer information to the computer and no handshake was received from the computer.

The lamp will turn on again automatically 3 seconds after communications is re-established.

*PRINTER
ON
LINE*

When this lamp is on it indicates that the FE100 considers the printer active and operational. This lamp will be off if :

1. No report is currently being printed
2. The printer has been disconnected or placed off-line
3. The printer has run out of paper

The lamp will turn on again automatically 3 seconds after the printer connected, on-line and operational.

LINE CARD

Each line card in the FE100 receiver system has 2 lines with 3 indicator lamps per line:

<i>LINE A/B</i> <i>ON-LINE</i>	This lamp turns on whenever the line is seized, that is the FE100 has answered a ringing "phone", or is initiating a phone call for testing purposes or under operator control. The lamp will turn off at the completion of the call.
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<i>XMIT</i> <i>LINE A/B</i>	This lamp will flash whenever the line is sending signals to the line. Common signals include initial handshakes (sent at the start of a call), and acknowledge handshakes (sent during communication with a dialler.)
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<i>LINE A/B</i> <i>DECODE</i>	This lamp will flash whenever signals are received by the line. Received data includes data of various types from different diallers and modem data during new program revision uploads.
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View Mode (F2 KEY)

View mode is used to display alarms stored in the FE100 memory buffer that have not been acknowledged by the operator or by an auto-acknowledge option. The operator may use the "^" and "v" keys to search backwards and forwards through all alarm reports displayed that have not been acknowledged.

(The operation of VIEW mode depends on how "Terminal acknowledge" has been set-up in SETUP mode. The English language displayed in VIEW depends on the format received and the programming of format defaults in SETUP mode and client details if they exist.)

To exit VIEW mode simply press the desired "hot key" to jump to another operation. A summary of the keys used in view mode follows :

- | | |
|----------------|---|
| "A" key | Pressing the "A" key will cause the current highlighted alarm report (or the alarm report pointed to by the arrow for ANSI terminals) to be acknowledged by the operator. (It does not acknowledge alarms to be sent to the computer or printer). If a client data-base exists then the client details will be updated if required. After the alarm report is acknowledged, the screen will be re-drawn, starting at the oldest, unacknowledged alarm report |
| "T" key | Pressing the "T" key will cause the client detail window to toggle between the client name/status details and the client zone descriptions. |
| "K" key | Pressing the "K" key is only relevant when an automation computer is connected to the FE100 via the computer interface. If the computer communication fails, then alarm reports cannot be transferred to the computer. Under this circumstance you may wish to use the FE100 terminal to acknowledge alarms. In order to manually acknowledge all alarm reports that have not been sent to the computer, pressing the "K" key will cause all alarm reports that have not been sent to the computer to be unacknowledged, and the display to be re-drawn from the oldest alarm not sent to the computer. |
| "B" key | Pressing the "B" key will cause the oldest acknowledged alarm to be unacknowledged, and all alarm reports after the oldest alarm to be unacknowledged also. The display is then re-drawn beginning at the oldest unacknowledged alarm report. This function is normally used if you wish to re- inspect a recently acknowledged alarm. |

- "^" key** The "^" key moves the highlight bar to the previous report so it can be acknowledged if desired. If the "^" key is pressed when the high-light bar is at the top of the screen, then the display will re-drawn beginning at the oldest un-acknowledged alarm.
- "v" key** The "v" key moves the highlight bar to the next report so it can be acknowledged if desired. If the "v" key is pressed when the highlight bar is at the bottom of the screen and the "<- MORE" prompt is showing, then the display will re- drawn beginning at next report.
- "S" key** The "S" key is only active when the screen shows "No Un-acknowledged Alarms" and is used to initiate Command back facilities for certain formats.

When terminal acknowledge is off (See SETUP options) then alarm reports do not need to be acknowledged by the operator. If VIEW is selected under this circumstance, alarm reports will simply be listed on the screen as they occur. No operator acknowledgement is required.

If there are no un-acknowledged alarms to be displayed in VIEW, the screen will show:

"No un-acknowledged alarms"

Edit Mode (F3 Key) (Data-base version only)

Edit mode is used to edit existing clients or add new clients to the client database contained within the FE100 receiver. The database can contain a maximum of 512 or 448 clients depending on the memory configuration. (448 clients maximum is normally chosen because this allows over 256 customised library words and the time window facility).

When edit mode is entered the screen will change to a "form style" format to allow you to fill in the client details. The cursor will be placed at the last item and client you were editing previously.

To exit EDIT mode simply press the desired "hot key" to jump to another operation. Shown below is a typical EDIT screen. The field names are in italics:

EDIT							
<i>Client Code</i>	:1234:	:Frank Thrings Panel at 1 Argent Plc. Melbourne :					:
		:&T 03456-2311 :					:
<i>Options</i>	xxxxI-ba	xxxxxxxx	xxxxxxxx	<i>Last Comms</i>	:12:03:34 12/03/94:		
	:nnnnnnnn	:nnnnnnnn:	:nnnnnnnn:	<i>Zone Status</i>	:..... :		
	:			<i>Panel Status</i>	:..... :		
<i>Time Window</i>	:None:			<i>Last User</i>	:00005:		
<i>Spare</i>	:	:					
<i>Zn 01 (0)</i>	:	:		<i>Zn 09 (8)</i>	:	:	:
<i>Zn 02 (1)</i>	:	:		<i>Zn 10 (9)</i>	:	:	:
<i>Zn 03 (2)</i>	:	:		<i>Zn 11 ()</i>	:	:	:
<i>Zn 04 (3)</i>	:	:		<i>Zn 12 (b)</i>	:	:	:
<i>Zn 04 (4)</i>	:	:		<i>Zn 13 (c)</i>	:	:	:
<i>Zn 06 (5)</i>	:	:		<i>Zn 14 (d)</i>	:	:	:
<i>Zn 07 (6)</i>	:	:		<i>Zn 15 (e)</i>	:	:	:
<i>Zn 08 (7)</i>	:	:		<i>Zn 16 (f)</i>	:	:	:
^F=Find ^D=Delete ^S=Add ^T=Toggle ^N=Next ^C=Clear last							
Frank Thrings Panel at 1 Argent Plc. Melbourne 1st Phone # 03456-2311							
F1 Help	F2 View	F3 Edit	F4 Rept	F1' Setp	F2' B/up	F3' Log	F4' Misc

The various fields or items that can be filled in are now explained below in detail:

Client Code

The client code is used to identify the particular dialler that has rung in. Every dialler reporting to your receiver must have a unique client code.

Each digit of the client code may use any hex digit, that is 0 to 9 or a,b,c,d,e or f. Any other digit is not allowed. Note that a client code of 0000 or ffff are reserved and must not be used. A client code of 0000 is defined as "No client".

The choice of client code must take account of the format that is being used to send the information. Many formats do not distinguish between a "0" digit and a "a" digit. (You must program a "0"). On the other hand some formats such as IEI fast format can distinguish between an "a" and a "0"

Many formats cannot use hex digits, that is the only legal numbers in the client code are "0" to "9" inclusive. Three digit client codes received will be interpreted as a client code of 0XXX where XXX is the 3 digit client code received. Make sure that a 3 digit client code client has the first digit set to "0"

For CFSK formats with six digit client codes, only the last 4 digits will be matched with client code in the FE100 data-base.

Recall Notes

The recall notes are shown immediately to the right of the client code and are divided into 2 lines. This is where you fill in important client details such as client name, address and telephone numbers to call when an alarm is to be actioned for this particular client. You may use any letter or digit in this field and you may arrange the information in any way you desire. With a 512/448 client data-base you have up to 2 lines of 48 characters to enter recall information.

To help in entering more information, special abbreviations may be used instead of writing the whole word. Abbreviations begin with the "&" character followed by a single letter. Although the abbreviated words appear in the recall notes, the unabbreviated recall notes will appear at the bottom of the form.

For example if you wished the words "1st Phone # 887-2574" to appear when you have an alarm on that client, you could type the words &T887-2574 in the recall field. Note that the words "1st Phone # " has been abbreviated to "&T" in the recall notes field.

The available abbreviations are:	&R	1st Recall:
	&r	2nd Recall:
	&N	Name:
	&A	Address:
	&T	1st Phone #
	&t	2nd Phone #
	&X	Notes:

An example of how recall notes could be organised for a client in a 512 client data-base may be:

&NFred Bloggs &T887-2574
&A453 St. Helens Rd. GARDENVALE 3078

This information would be expanded in VIEW mode to :

Name : Fred Bloggs 1st Phone # 887-2574
Address: 453 St. Helens Rd. GARDENVALE 3078

Options

There are 24 yes/no options divided into three fields of eight that can be used to set certain client specific options. The options are normally defaulted to Off or No by typing an "N" under the specified option and are selected to On or "Yes" by typing a "Y" under the specific option. When an option field is being filled in, you must type exactly 8 letters or use the arrow keys.

You may press Control "T" to display an explanation of the options available:

"X"	Spare. Leave defaulted to "N" for compatibility with future upgrades.
"a"	No reports for this client are auto acknowledged on the FE100 VIEW screen even if terminal auto-acknowledge options have been selected in SETUP.
"b"	Reports for this client will always sound the Alarms Beeper in VIEW mode irrespective of the beeper settings set in SETUP.
"-"	This option selects the "-1" mapping option for 4+2 formats. See section on "Setup - Slow Expanded defaults" 53 for more details.
"I"	Reports for this client will always be acknowledged on the FE100 VIEW screen regardless of the type of report or the setting of auto-acknowledge options in SETUP. This option can be used to ignore reports from an un-financial client.

The next four fields cannot be edited but rather display information about the client.

Last User

The Last User is the last user or code number to change the current open/close status for this client. This item is only updated when an open/close report for this client is acknowledged in VIEW mode and may not be edited singly. It will only be updated for formats that have user ID reporting. Up to 65,536 client codes are supported.

Last Comms.

The Last Comms. field records the last time this client communicated to the receiver for any reason. The format is :

HH:MM:SS DD/TT/YY

where :

HH = Hour (24 Hour format)	MM = Minute	SS = Second
DD = day	TT = Month	YY = Year (last 2 digits only).

Note that an entry of 00:00:00 00/00/88 means that no report has been received yet for this client. This item is updated when any report for this client is acknowledged on the FE100 VIEW screen.

Zone Status

The Zone Status field records the current status of the first 16 zones for this client as a function of past reports since the client was last closed. (any area). The zones displayed begin at zone 01 on the left-hand side and finish with zone 16 on the right-hand side.

A single letter is used to display the status of each zone. If the letter is a dot "." then the zone is sealed. If the letter is a number then the zone is unsealed. The number displayed depends on the zone number to help you identify which zones are unsealed.

Examples :

```
Zone Status : ..... All zones sealed
Zone Status : 12345678 90123456 All zones unsealed
Zone Status : ....5... .....4.. Zones 5 and 14 unsealed.
```

Notes

1. *Whenever a closing is acknowledged in VIEW the status of the 16 zones is set to sealed.*
2. *Although the status of only the first 16 zones is remembered in the FE100 data-base, the FE100 can receive as many zones as a dialler format can send.*

Panel Status

The Panel Status field records the current open/close status for this client as a function of past reports. To allow for partitioned panels, this field records the open/close status of up to 16 partitions/areas/groups. The partitions or areas displayed begin at "area" or "partition" 0 on the left-hand side and finish with "area" 16 on the right-hand side. Note that most clients only have one area or partition that can be open or closed. These clients use area 1 to represent the current open/close status for the client.

A single letter is used to display the status of each area. If the letter is a dot "." then the area is closed. If the letter is a number then the area is open. The number displayed depends on the area which is open to help you identify which areas are open.

Examples for single area (partition) clients:

```
Panel Status : ..... Client is closed
Panel Status : .1..... Client is open
```

Examples for multi-area (partition) clients:

```
Panel Status : ..... All areas closed
Panel Status : 01234567 89012345 All areas open
Panel Status : .1..4... 8..... Areas 1, 4 and 8 open
```

Note

For the "Clients still Open report" and the "Late to Close system alarm, a client is considered open if any one of the 16 areas or partitions is open.

Time Windows

Time windows may only be set if your FE100 is configured for the 448 client database model. The normal default for this item is "None" which is selected by entering in "0". If a time window between 01 and 16 is entered then Late to Close and Access out of hours alarms will be enabled for this client. See section on "Setup Mode - Time Windows" on page 55. for more details

Spare

This field is for future expansion and should not be edited.

Zone Descriptions

The last 16 fields of the client details may be used to store optional client zone messages (or report code descriptions for slow formats). These messages will be used in the display and printing of alarm reports involving the first 16 zones or will be used for any slow format report.

The messages may be selected from a fixed library of 255 words by simply typing in the message number you desire. For example Message 022 in the library is "Cabinet tamper". By typing 22 for the appropriate zone (or report code) the words "Cabinet tamper" will appear.

For the 448 client model, you have 511 words to choose from, with the last 256 being customisable. (See section on "Setup - Custom Words" on page 55

Different messages may also be selected by typing ^N for the appropriate zone description. This will select the next message in the library. For example if ^N was typed when message 22 ("Cabinet tamper") was displayed, then the message 23 would be displayed ("Panic")

To save remembering what all the words are in the library you may type ^T whilst editing a zone description to display the first page of library words. Each time return is pushed, the next page of library descriptions is displayed. Type ESC to return to editing the client zone description.

A summary of the keys used in edit mode follows :

"^F" key Find a client

The find client function allows the operator to search for a particular client number and display or edit its details. Pressing the control and "F" keys at the same time will cause the bottom screen prompt to display "Client to find :". You may now type in the desired client to find. If the client is found the screen will immediately display the newly found client details and allow client editing. If the client is not found then the bottom prompt will display "Client not found !" and the terminal will beep.

"^D" key Delete a client

The delete client function allows the currently displayed client to be deleted. Once deleted the client details cannot be recovered so make sure you are displaying the client you wish to delete. Pressing the control and "D" keys at the same time will cause the bottom screen prompt to display "Confirm Client Delete ?". To delete the client you must press the "Y" key. The display will show "Client Deleted" and the FE100 will display a blank client to allow new details to be entered. Pressing any other key will cause the client NOT to be deleted and the display will show "Client not deleted".

"^S" key Add a client

The add a client function allows the operator to add a new client to the data-base. Pressing the control and "S" keys at the same time will cause the FE100 to add a blank entry to its data-base. The operator may now fill in the details as required. Note that unless the client code is changed from 0000 then the entry is considered non-existent by the FE100.

"^T" key Toggle option details

The toggle help details is used to display various options about the particular field being edited. For example if you are editing a zone description then pressing the control and "T" keys at the same time will cause the screen to display the allowable library messages. If the options displayed do not fit on one screen then pressing the RETURN key will cause more options to be displayed on the screen. To resume editing press the ESC key.

Listed below are the various options screens displayed for each of the possible fields that you may be editing:

<u>Field</u>	<u>Option details displayed</u>
Recall Notes	Allowable abbreviations
Options	Description of available options.
Zone descriptions	Allowable descriptions (library)

"^N" key Display next

The "display next" option is an editing aid to save typing effort when editing Time Windows or Zone description fields. When the control and "T" keys are pressed at the same time when editing any of these three fields the next displayed option will be selected. For example if you were editing the Time Window field and the current time window displayed was "03", then pressing the ^N keys will change the time window to "04".

Listed below is the effect of the ^N keys for each of the two possible fields that will accept the "next" option :

<u>Field</u>	<u>Effect of ^N key</u>
Time Window	Advance to next time window
Zone descriptions	Advance to next library description.

"^C" key Clear Zone and Panel Status

The clear Zone and panel status function is used to set the current status of all panel zones to sealed, and set all panel open/close partitions to sealed.

"^" key Go to last field/client

The "^" key moves the cursor to the start of the previous field. If you are editing the client code then pressing the "^" key will go back to the next lowest numbered client, if it exists.

"v" key Go to the next field/client

The "v" key moves the cursor to the start of the next field. If you are editing the last field for a client (Zn 16 Zone description) then the cursor will advance to next highest numbered client.

Report Mode (F4 Key)

REPORT mode is used to select any operation using the printer. In addition REPORT mode may be used to display various information on the screen. All information to be printed on the printer is done so by means of a "report". For example to print alarms as they are received by the FE100 you start a "Current Alarms" report. When a report has been started you can leave REPORT mode and go and do something else. To stop a report you can either start another type of report, or if you wish no printing at all, use "Stop Report". There are a number of different reports used to output different types of information. The available reports are :

Stop Report ("A") (used to stop a report)

This report is used to turn off the printer. If you wish to turn off the printer then select this report and answer the remaining questions. (If you wish to stop saving alarms for the "Incoming Alarms" report, re-select "Stop Report". See next page)

Incoming Alarms ("B") (printer report only)

This report is used to log all alarms received by the FE100 to the printer in English Language text determined by how the format defaults are programmed. When a "Incoming Alarms" report is started, the FE100 will assume from now on you wish all alarms to go to the printer, and if they can't be printed the FE100 will save the alarms in memory for later print-out. (This report cannot be sent to the screen, use VIEW mode to see alarms on the screen).

All Clients ("C") (printer or screen)

This report is used to print the whole client data-base stored within the FE100 receiver. This report should be done regularly to create a "hard-copy" back-up of all clients stored in the FE100 receiver.

Previous Alarms ("D") (printer or screen)

This report prints all previous alarms, starting at the oldest alarm in the FE100 buffer. Note that this could be as many as 5000 alarms !. (You can cause the report to begin at a particular hour, day and month if desired, and only print out one client.)
(See "Hour,Day,Month,Client " at end of this section.)

Line Statistics ("E") (printer or screen)

This report prints various statistics on the usage of the 4 line cards in the FE100 receiver. These statistics can be used to predict when more lines are required due to congestion at peak traffic times.

Clients still open ("F") (printer or screen)

This report is used with data-base versions to print out all clients who have any area still open. This report can be done at a time when it is expected that all clients should be closed. (You can also use Time windows with the 448 client model to automatically create Late to Close alarms)

Delinquent Clients ("G") (printer or screen)

This report prints out all clients that have not reported within a selectable number of hours. You may choose the number of hours from 0 hours to 255 hours (about 10 days).

Beeper ("H") (Connect special interface)

This option is used if you do not have printer connected to the FE100 but wish to connect an external alarm to sound whenever an incoming alarm occurs. Contact your distributor for more details.

Modem Dump ("I") (printer or screen)

This report is started prior to "Making a Modem Call" so that information received whilst on-line to a panel or FE100 can be printed. Whilst on-line pushing the "|" key (shift "\") will toggle the printer on or off. (See section on "MISC - Make a modem call" on page 65 for more details)

Clients present ("K") (printer or screen)

This report searches the whole alarm buffer and lists all client codes found. It is useful to check what clients have recently reported with non-database versions. (For data-base versions use the delinquent client report.)

The status and buffer messages

Two message fields are displayed on the REPORT screen in the top left hand corner. These messages indicate whether the printer is currently enabled for printing and whether the FE100 is saving alarms for the "Current Alarms" report.

The **status** message shows the current status of the printer. If a report to the printer has been started, a message will be displayed showing the name of the report. If the printer is unable to print (for example if it runs out of paper) then the status message will change to:

"Problems - <name of report>".

The **buffer** message appearing under the status message shows whether the FE100 receiver will save any alarms received for the "Incoming Alarms" report. If the message reads "Saving Alarms" this indicates that a "Incoming Alarm" report was started some time ago, and that if there are problems with the printer, or the printer is used for another report, then any alarms received will be saved for subsequent print-out when the "Incoming Alarms" report operational again. If the message reads "Not Saving Alarms" then alarms will not be saved for a "Incoming Alarms" report.

Note

The FE100 cannot save alarms in-definitely for an "Incoming Alarms" report. If the FE100 is displaying "Saving Alarms" then the status message should read "Printing Incoming Alarms". This means alarms can be printed as they are received. If the status message reads "Problems", or the name of another report, then this situation should be remedied promptly to avoid a "Buffer Full Error". See section on "Buffer Full Warning" on page 116 for more details.

Report Options

When a report is initiated, the operator may be asked a number of questions. Each question is explained below :

"(S)creen or (P)rinter ?" (Usually select "p")

The operator must choose whether the report will be sent to the screen ("s") or the printer ("p"). Note that a Current Alarm report cannot be sent to the screen. (Use VIEW mode instead)

"Abort current report ?" (Usually select "y")

This question is asked if the printer is already printing a report. You must answer "y" to stop the current report, if any other key is pressed then the current printer report will not be altered.

"Print alarms not acked by Computer?" (Usually select "n")

This question is asked if a "Incoming Alarms" report has just been started. If you answer no ("n") then alarm reports will begin printing from now on as they are received. If you answer yes ("y") and a computer interface has been selected, then alarm reports will be printed **beginning at the first alarm report not sent to the computer**. This option is used when the external computer has failed and you wish a hard copy record of all the alarm reports that have not yet been sent to the computer.

"Save alarms whilst printing?" ("n" unless you wish to re-start Incoming Alarms report)

This question is asked if you are aborting a "Incoming Alarms" report to either another report or to a "None Report". (A "None" Report may be selected if you wish to turn the printer off temporarily.). If you answer yes ("y") then the FE100 will save all alarm reports so they can be sent to the printer at a later time. When a "Incoming Alarms" report is re-selected, the printing of current alarms will resume where it left off previously.

Note that if you answer (y)es, that alarm reports cannot be saved forever. You can save between 2000 and 5000 average phone calls before alarms can no longer be saved. If this occurs then a "buffer full" error will occur and the receiver will not accept any more phone calls. (See section on "Buffer Full Warning" on page 116120.)

"Stop saving alarms?"

This question is asked if the report type is currently "None" and the buffer is saving alarms for the "Incoming Alarms" report. By answering Yes to this question, alarms will not be saved for the Incoming Alarm report.

"Start at Hour, Day, Month, Client:"

This question is asked when a "Previous Alarms" report is initiated. By pushing RETURN the report will start at the oldest event stored in the FE100 memory. All clients and any un-verified messages will be displayed.

Alternatively you may select an hour (0 to 23), a day (1 to 31), a month (1 to 12) at which searching is to begin. Optionally a client may also be selected in which case only that client will be printed. If the hour, day and month are set to zero then this will cause the report to start at the beginning of the history buffer. If the client is set to zero then this turns off the client searching facility and reports for all clients will be printed. The client code may include hex characters if required. Note that when a client code is specified, only reports with a verified client code, which matches the selected client code, will be printed.

Examples

1. List all reports starting on or after 2100 hours on the 12th of July :

Start at Hour,Day,Month,Client : 21,12,7,0 then RETURN

Note that the hour is entered in 24 hour format and the client has been set to zero to turn off client searching.

2. List all reports starting on or after midnight on the 23rd of August from client 0234 :

Start at Hour,Day,Month,Client : 0,23,8,234 then RETURN

Note that the leading zero for the client code is not required to be entered.

3. List all reports starting for client A345 beginning at the start of the buffer memory:

Start at Hour,Day,Month,Client : 0,0,0,a234 then RETURN

Note that the hour, day and month are set to zero to turn off the date search.

Note on Client Histories

Because you have no way of controlling how many alarm reports are received, the earliest alarm that may be in the buffer will vary. For this reason you can't guarantee that a report received 2 weeks ago will still be in the buffer. With a data-base version with all clients reporting openings and closings, you could expect to have about 1 weeks worth of reports with a 100 clients.

"Hours for delinquent report (0 to 255) ?"

This question is asked when a delinquent client report is initiated. If you push return then all clients in the data-base will be considered delinquent. Alternatively you may choose a time in hours between 1 and 255 hours for the delinquent report to be based on.

Changing Printer Baud Rate

The printer baud rate may be toggled between its default of 1200 Baud and 300 baud by pushing the "^" key when in the report menu. A slower baud rate may be desirable with slower printers in printing long reports to help avoid "Printer Status" alarms. Alternatively 300 Baud may be selected if the printer is to be located some distance from the FE100.

Note that after toggling the printer baud rate the FE100 must be reset (See option "E" in the MISC menu) before the baud rate change will be implemented.

Setup Mode - Time and Date (F1' Key, "A")

This option is used to set the time and date. The FE100 will use the mains frequency to maintain long term clock accuracy if the mains power is present and will revert to a battery clock if the mains is absent. When "A" is pressed the following prompt will appear :

Date (dd/mm/yy) ?

You may now enter a new date and then push RETURN if you wish, or if the date is correct then press ESC. The following prompt will then appear :

Time (hh:mm:ss) ?

You may now enter a new time including the second count of your choice. Press RETURN at the correct second to synchronise the clock. (Push ESC if you do not wish to alter the time).

You may now enter the current weekday by pressing the space-bar repeatedly until the correct weekday is displayed. Push RETURN when the weekday displayed is correct.

Weekday: Sunday

The setting of the clock can be checked with the FE100 receiver in idle mode (F1 key) where the time and date are continuously displayed.

Setup Mode - Memory configuration (F1' Key, "B")

Memory configuration allows the memory of the receiver to be configured. This facility is only available to the Manufacturer.

Setup Mode - Passwords (F1' Key, "C")

The FE100 receiver has 3 passwords that may be allocated to various operators. Password 1 is the lowest priority password and Password 3 is the highest. Certain FE100 receiver operations are restricted to certain passwords. Listed below are the restrictions :

Password 1	EDIT, BACKUP, SETUP & MISC not allowed.
Password 2	SETUP & MISC not allowed.
Password 3	No restrictions except for "M" in MISC and "B" in SETUP.

All other receiver functions are available to all passwords. At manufacture, the three passwords are set to :

Password 1	"user 1"
Password 2	"user 2"
Password 3	"user 3"

The passwords may be altered using the up/down arrow keys to select the desired passwords, and typing in the desired password. Up to 8 characters may be typed, characters may be letters (upper case or lower case), numbers or even abbreviations such as ",", " or "*".

Note

Passwords are case sensitive, that is you should have the CAPS lock off and only select CAPS when required. Some receiver diagnostic functions are only available to the manufacturer or his agents.

Setup Mode - Line cards (F1' Key, "D")

Each line on the FE100 receiver (up to 8 lines) may be individually configured as to what type of dialler formats it will accept. All dialler communications begin with the receiver answering the phone line and sending a special signal called a handshake. Different communication formats require different handshakes. In addition, a line test may be programmed for each line and if fitted a speaker can optionally be turned on for the desired line so that communications can be listened to.

The FE100 receiver can be configured so that if a dialler does not answer on the first handshake signal, then it will try another. Up to 8 different handshake signals can be tried per line. The order that the handshakes are tried is fully programmable. To select the desired handshakes for the selected lines, simply use the arrow keys to highlight the desired handshake number, and push ^N (control key and the "N" key) a number of times until the desired handshake is displayed. To change the line number to alter use the arrow keys to highlight the line number and then push the desired line number followed by the "Return" key.

This technique allows a single line to handle communications with a variety of diallers using a variety of formats. The most common programming of handshakes emulates an Ademco 685 receiver:

<u>No</u>	<u>Handshake</u>	<u>Dialler Formats initiated</u>
1	Ademco Fast	Ademco fast, Ademco fast (extended) Contact ID, 4+2 Express.
2	Slow (1400Hz)	All slow formats that begin with a 1400Hz Handshake.
3	Slow (2300Hz)	All slow formats that begin with a 2300Hz Handshake.
4	Modem	Allows a remote computer to ring in, or FE100 protocol

The modem handshake at the end is not mandatory but is strongly recommended as it allows remote service if required.

(If no modem handshake is programmed as the last handshake on any line, then every time the F1 screen is accessed a warning message will be displayed.)

Listed below are the available handshake signals and what dialler formats they will initiate :

<u>Handshake</u>	<u>Dialler Formats initiated</u>
Modem	Allows a remote computer to ring in, or FE100 or EarthNet protocol
Ademco Fast	Ademco fast, Ademco fast (extended) Contact ID, 4+2 Express, all dtmf formats, Irfast for C3000
Slow (1400Hz)	All slow formats that begin with a 1400Hz Handshake. (Acron SuperFast)
Slow (2300Hz)	All slow formats that begin with a 2300Hz Handshake.
IEI fast	All IEI fast versions. (IEI Extended is proprietary).
3-Slow (1400Hz)	Slow formats with only 3 digit client codes (normally use Slow (1400Hz)
3-Slow (2300Hz)	Slow formats with only 3 digit client codes (normally use Slow (1400Hz)
Adem2300	Same as Ademco fast but will also detect 2300Hz slow format
3+1+K (1400Hz)	Slow formats with a 3 digit client code plus checksum
3+1+K (2300Hz)	Slow formats with a 3 digit client code plus checksum
C & K	CFSK-III for C&K 238i panels
C & K (Bell)	CFSK-II for C&K Eclipse 3.6 panels
FE100	Used to receive FE100 direct line format from another FE100
4+2 (1400Hz)	Slow formats with a 4 digit client code, 2 report digits and checksum
4+2 (2300Hz)	Slow formats with a 4 digit client code, 2 report digits and checksum
EarthNet	EarthNet direct line format
Irfast (ccitt)	Irfast format for Concept 1000/2000/3000 panels in ccitt mode
Irfast (bell)	Irfast format for Concept 1000/2000/3000 panels in ccitt mode
Slow (1400Hz) Fix	Same as Slow (1400Hz) but with a fixed round timeout (Acron SuperFast)
Slow (2300Hz) Fix	Same as Slow (2300Hz) but with a fixed round timeout
4+2 (1400Hz) Fix	Same as 4+2 (1400Hz) but with a fixed round timeout. (Acron SuperFast)
4+2 (2300Hz) Fix	Same as 4+2 (2300Hz) but with a fixed round timeout
ModemII-A	110Baud Radionics ModemII for R6112 style panels
ModemII-B	300Baud Radionics ModemII for 7112 & R9112 style panels
Tecom V1	Tecom format for V5.9 Challengers
SIA (ccitt)	Receives SIA protocol at 110/300 Baud using ccitt tones at level 1,2 or 3
SIA (bell)	Receives SIA protocol at 110/300 Baud using bell tones at level 1,2 or 3
GSM Data	Future Expansion

Some "slow formats" are referred to as "fast formats" because they communicate faster than 10 pulses per second. These formats are still referred to as slow formats in the FE100 system because they still use the same signals as other slow formats. Listed below are some of the more common slow formats received :

<u>Name of Format</u>	<u>Handshake to use</u>
Ademco/Silent Knight Slow	(Slow 1400Hz)
Ademco/Silent Knight Fast	(Slow 1400Hz)
Sescoa/Franklin Slow	(Slow 2300Hz)
Sescoa/Franklin Fast	(Slow 2300Hz)
Extended Radionics Slow	(Both handshakes)
Extended Radionics Fast	(Both handshakes)
Extended Radionics Fast & Parity	(Both handshakes)
Non-extended Radionics	(Both handshakes)
Ademco/Silent Knight Fast, Hex	(Slow 1400Hz)

When receiving slow formats the FE100 receiver will automatically decode the correct speed between 10 and 40 pps, detect if the format is an expanded format or uses hex digits and will detect either 3 or 4 digit client codes.

When a line card sends out more than one type of handshake it is possible with some makes of dialler that a preceding handshake for a format not handled by that dialler can confuse the dialler so that it will fail to communicate. If this occurs then the order of handshakes may have to be altered, or the line handshakes divided up so that these diallers use another line with its particular handshake. Examples of in-compatibility are:

- Ademco fast dialler and IEI fast format diallers on the same line.
- Slow formats 3+1+K and 4+1, 2 round on the same line
- Slow formats 4+1+k and 4+2, 2 round on the same line
- CFSK-III and CFSK-II on the same line
- CFSK-II/III and IRfast on the same line

Some of the less commonly used slow format handshakes available are explained below and should only be used in special circumstances:

3-Slow (1400Hz/2300Hz)	This handshake is the same Slow 1400/2300 Hz except that the timing restrictions have been relaxed in order to receive non-standard diallers. The dialler MUST use a 3 digit client code.
Adem2300	This handshake is used to initiate ademco fast diallers, but will also decode 2300 Hz low format diallers which wrongly reply to the ademco handshake.
3+1+K (1400Hz/2300Hz)	This handshake is the same as Slow 1400/2300 except that 3 digit client code diallers which use a check digit may be decoded. Note that 2 round 4 digit client code diallers cannot be used with this handshake.
4+2 (1400Hz/2300Hz)	This handshake is the same as Slow 1400/2300 except that 4 digit client code with 2 report digit diallers which use two round verification may be decoded. Note that 4+1+K formats cannot be decoded with this handshake.
Slow (1400/2300Hz) Fix 4+2 (1400/2300Hz) Fix	These handshakes are identical to their non-fix counterparts, but are used for slow format diallers that require fixed round time-outs in order to reliably decode them.

Line Test

If line test is turned on for a line then every 10 minutes the line is momentarily seized to see if dial tone is present. If dial tone is detected then the line test passes. If dial tone is not detected then the line test is considered to have failed and a "Dial-tone" test fail system alarm is created. Note that as long as calls are received at intervals less than 10 minutes the line card test will not be performed.

Line Speaker

The FE100 line card speaker can be controlled with this setting. Turning the speaker on for a selected line allows alarm communications to be audibly monitored and is an excellent tool for troubleshooting. There are 4 settings for the line card speaker; each setting is selected by pushing the Control "N" key:

Off	Line card speaker is off for this line.
Low	Speaker is on low volume (normal setting)
Medium	Speaker is on medium volume.
High	Speaker is on high volume.

(Note that line cards sold prior to 1993 do not have a speaker facility)

No Null Message

This yes/no question controls the generation of “null” Caller ID messages. If set to yes and no Caller ID information is detected, a “Null” Caller ID message will not be saved. This option is usually set to yes if the Network is not sending Caller ID information.

Alternate RL 00

Usually when alarm information is sent to an automation system via the computer port, it is preceded with the receiver number and the line number. Setting this option to non 00 allows the operator to choose a fixed RL for any alarms received on this line and sent to the automation system.

Fast Connect

This yes/no question allows the FE100 to speed up the connection when receiving an incoming call by shortening the time the FE100 will wait for STD beeps. Do not select this option if STD beeps are expected.

Setup Mode - Computer Interface (F1' Key, "E")

The FE100 can be configured to talk to a variety of external automation computers. The computer formats supported at this time include the Ademco 685 protocol and the IEI E8200 protocol. Other formats include FE100 protocol, the Ascii dump format (for testing purposes or a second printer) and the Pager format for ringing a pager system using the PET protocol.

Listed below are all the possible computer interfaces that may be chosen:

The **Ademco 685** interface emulates an Ademco 685 digital receiver and can be used to transfer Ademco fast, Ademco fast extended, Contact ID and all "slow" formats to an automation computer. The ACK/NAK protocol and "S" request status demand are also supported. Note that formats that cannot normally be received by an Ademco 685 receiver can be received by the FE100 and translated into an Ademco 685 compatible format. (See page 92 for more details)

The **E8200** interface emulates an IEI E8200 digital receiver and can be used to transfer IEI fast formats including IEI fast extended (IEI proprietary release only) and all "slow" formats. No ademco reports or system alarms are sent except the "No Connect" system alarm.

The **ASCII** format sends an English language message in the same format that appears on the VIEW screen or is printed in a "Incoming Alarms" report to the computer. No acknowledge is required.

The **Ademco 685 + IEI** interface is exactly the same as the Ademco 685 interface except that IEI fast is also transferred as per the E8200 interface.

The **Marrtronics** interface is similar to the Ademco 685+IEI interface except that a time/date string is sent with Ademco messages and no "ACK" is required. This interface suits the Marrtronics "CRIMS" Automation package. In addition the rate of transfer of alarm reports is restricted to 1 alarm per second.

The **Pager** format is used to tell the FE100 to send pager messages to the paging network. Note that when using the paging facility no other computer interface may be defined. To turn off the paging facility, simply select another Computer Interface (such as None). See the section on setting up the pager on page 48 for more details.

The **Pause 685** format is the same as the Ademco 685 format except that the computer can use the DTR line to control the flow of information from the FE100 to the Computer without causing an FE100 computer status alarm.

The **Remote FE100** format is used to transfer alarm information to another FE100 via a direct link, or via telephone lines. All alarms received will be transferred to another FE100 using an encrypted, error free protocol. To use this feature the "Direct Options" must have been previously set-up. (Option "P" in the SETUP menu)

The **Database** interface is for future expansion and should not be used at this time.

The **Copy Options** interface is used to in conjunction with the Copy Options Facility. Do not select this interface directly.

The **SurGard** interface emulates a DSC SurGard digital receiver and can be used to transfer Ademco fast, Ademco fast extended, Contact ID and all "slow" formats to an automation computer. (See page 108 for more details)

To select a format simply chose the format required and press return. The computer status lamp reflects the status of the computer port. FE100 system alarms will be created as the computer port goes on-line or off-line.

When a new Computer Interface is selected the FE100 will prompt with the question:

"Start at oldest terminal alarm ? (N)"

By answering No, the computer interface is reset with all future alarms being sent to the computer. By answering Yes, any alarms not currently acknowledged by the terminal will also be sent to the computer. Terminal acknowledge must be turned on for this option to work.

This feature is useful when swapping between two computer interfaces where you wish information that has been sent to one interface to also be sent to the other.

Setup Mode – VIEW Screen (F1' Key, "F")

This set-up option is used to determine the way VIEW mode will operate. Each of the options below is either On or Off. To alter the setting of any option use the up arrow or down arrow key to highlight the particular option you wish to alter, then press the space bar. When finished press ESC or a "hot key"

Terminal Acknowledge: On/Off (Normally On)

Turning this option on will cause all alarms to be sent to the VIEW screen, and each alarm will require an acknowledgement (using the "A" key in VIEW) by the operator. Note that leaving this option on requires the operator to periodically go into VIEW and acknowledge the alarms. If this is not done eventually the buffer will fill and a buffer full alarm will occur. (See section on "Buffer Full Warning" on page 116.)

If this option is off, alarms do not have to be acknowledged by the operator in VIEW, however if you select VIEW, the alarms will be scrolled on the screen as they occur.

Auto-ack openings : On/Off (Normally On)

If this option is on and the FE100 is in VIEW mode, all reports which contain an opening will be auto-acknowledged by the FE100. The client database if it exists will be automatically updated. If this option is off then openings need to be manually acknowledged in VIEW using the "A" key

Auto-ack closings: On/Off (Normally On)

If this option is on and the FE100 is in VIEW mode, all reports which contain a closing with no associated alarm information will be auto-acknowledged by the FE100. The client database if it exists will be automatically updated. If this option is off then closings need to be manually acknowledged in VIEW using the "A" key

Auto-ack client alarms : On/Off (Normally Off)

If this option is on and the FE100 is in VIEW mode, all reports which contain alarm information will be auto-acknowledged by the FE100. The client data-base if it exists will be automatically updated.

Auto-ack errors : On/Off (Normally Off)

If this option is on and the FE100 is in VIEW mode, all reports which contain communication errors will be auto-acknowledged by the FE100.

Auto-ack system alarms (Normally off)

If this option is on then any FE100 system alarm such as Low battery will be automatically acknowledged.

Auto-ack Test Reports (Normally off)

If this option is on then any of the following reports will be auto-acknowledged:

1. Any ademco fast test report of the form 5555 5555 9
2. Any Contact ID message with the message "60X"
3. Any slow format report with a code which has been mapped to "Test"
4. Any Slow expanded report with the first digit mapped to "Test"
5. Any 4+2 Express report with the first digit mapped to "Test"
6. Any Acron SuperFast report with any channel mapped to test

(Note the "Test" description is No. 31 in the library)

Beep on Event (Normally off)

If this option is turned on then any system alarm or any dialler report received will cause the beeper on the control card and in the terminal to pulse on and off unless the dialler report is an opening. In addition if a external printer beeper, computer beeper or auxiliary beeper has been connected, this will also be activated. The beeper can be turned off by acknowledging an alarm in VIEW mode or by the event being auto-acknowledged.

The alarms beeper will only operate correctly whilst the FE100 is in VIEW mode. If you are not in VIEW mode and this option is on, then the beeper will sound when ANY alarm is received. This option may be over-ridden on a per client basis by the "Always Beep Client" option (See section on EDIT options on page 18)

Beep opening (Normally off)

If this option is turned on then any opening dialler report received will cause the beeper to sound. The beeper will not sound if the auto-acknowledge of openings is turned on. This option may be over-ridden on a per client basis by the "Always Beep Client" option (See section on EDIT options on page 21)

Auto-ack alarms with openings (Normally off)

If this option is turned on then any dialler report that contains an opening will be auto-acknowledged, even if alarm information is contained in that dialler report.

Note

The alarms beeper will only operate correctly whilst the FE100 is in VIEW mode. If you are not in VIEW mode and this option is on, then the beeper will sound when ANY alarm is received.

Auto-ack Info msgs. (Normally off)

If this option is turned on then any dialler report that contains an information entry such as IRfast format will be auto-acknowledged. Note that only the information portion is auto-acknowledged.

Setup Mode - Ademco Fast defaults (F1' Key, "G")

Ademco fast defaults are used to set-up the default English language text that be used in displaying alarm information for Ademco fast (extended) format clients. Use the arrow keys and library descriptions to fill out the desired report descriptions. Note that some defaults are replaced by client zone descriptions in data-base versions. See section on "Ademco fast default messages" on page 123 for a list of the standard defaults.

Note that if any undefined channel codes or undefined reports are received then they will be displayed indicating the illegal channel code/report type received.

The most typical "Illegal report" received in Ademco fast format from wrongly programmed diallers is a "null zone report". This report comprises the following ademco digits:

CCCC 5555 5555 7 where CCCC is the client code.

The FE100 will decode this as:

11 10:44:40 05/04/91 b1 CLIENT 1234 ZONE

The word "ZONE" comes from the fact that the report type is "7" (ZONE report) but no other information is printed as all channels are sealed!. This report can also be obtained if an Ademco fast handshake is sent to an IEI E86-8 panel that is not programmed to send in Ademco fast format.

Setup Mode - Slow format defaults (F1' Key, "H")

Slow formats use one of up to 15 codes to report information. These codes are 0,1,2,3,4,5,6,7,8,9,b,c,d,e,f. Most slow formats only use codes up to "9".

Note that "a" is treated as the same as "0". When a code is received, these codes are translated into English language messages for display. The messages are selected from the library. In the database version only, if information is received for a client who exists in the database, then the client programming will replace the default programming for that client, if it has been programmed. Some library messages have special meanings:

<u>Message</u>	<u>Meaning</u>
OPENING (17)	Any code mapped to this description will be treated as an opening.
CLOSING (18)	Any code mapped to this description will be treated as an closing.
TEST (31)	Any code mapped to this description will be treated as a test.

Setup Mode - Reset Statistics (F1' Key, "I")

The FE100 keeps simple statistics for each line. The statistics may be printed to the screen or printer using the "Statistics Report" in the Report menu (F4). The statistics help the operator keep an eye on line usage and any potential problems. This option will reset the statistics to zero, to allow new statistics to be gathered. The statistics kept (per line) are:

Total Calls	This is the total number of times the line answered the phone. The maximum is 65,535.
No Connects	This is the total number of times the line answered the phone, sent all programmed handshakes but received no information from a dialler. The maximum is 65,535.
Errors	This is the total number of times the line had trouble in decoding any of its programmed formats. It does not indicate that information did not get through. The maximum is 65,535.
Peak time	This is the time of day that the line received its most number of phone calls within any 15 minute period since the statistics were last reset.
Peak calls/ 15 min	This item matches with the peak time, and is the most number of phone calls received in any 15 minute period since the statistics were reset.

Setup Mode - Pager (F1' Key, "J")

This facility is used to set up the FE100 pager. See section on "FE100 Paging Facility" on page 120 for more details: Listed below are all the options to be set up:

Phone

This is the telephone number of the paging network used to transfer paging messages using the PET (Pager Entry Terminal) protocol. This number varies from network to network and from city to city. Obtain this number from your pager vendor.

Password

This is a 6 digit (or letter) password used to gain access to the network computer. This password must be 6 characters long and will vary from network to network. Most networks use a password of "000000" except the Telecom network which uses "passwd" as the password. If in doubt check with your pager vendor for the required password.

Network

This item should be set according to which paging network you are using. Use the control "N" key to change options. Listed below are the correct settings for the major networks :

<u>Network</u>	<u>Option setting</u>
Skypage	Standard
Link	Standard
Hutchisons Telecom	Hutchison
Telecom Australia (1200 Baud)	Telecom
New Zealand PACNET	NZ PACNET
Telecom Australia (300 Baud)	3-Telecom
New Zealand PACNET (Page 1)	P1 PACNET

Pages/Call:

This option determines how many pages will be sent for each telephone call to the paging computer. The number of pages allowed is determined by the network and will vary from network to network. Telecom only allow 2 pages/call at present where as other networks may allow up to 6.

Pages/Entry:

The information received from an alarm panel is normally saved as one buffer entry in the FE100. When displayed on the FE100 VIEW screen, a number of lines may be displayed. Each line will require one page. This option determines the maximum number of pages that will be sent for one buffer entry. For example if you have an entry with 20 lines (requiring 20 individual pages) and the pages/entry is set to 10, then only the first 10 lines will be paged.

Lines to use

This option allows the user to specify what lines will be used when making a call to send information to the paging network. A "N" under the appropriate line will cause the pager software to never select that line. A "Y" will allow the pager software to use that line if it is the highest available line.

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Lines to use: Y N N N Y N Y Y

Send Options.

This option selects what type of events will be sent out via the paging network. These are selected with a Yes/No letter underneath the appropriate code letter:

T	S	E	A	C	O
---	---	---	---	---	---

Send Options: Y N N N Y N

Code letters are:

"T" Send panel test messages to the pager.
"S" Send system alarms to the pager (except "No Connect" alarms). *Note 1*
"E" Send panel communication errors to the pager.
"A" Send panel alarm messages to the pager.
"C" Send panel closing messages to the pager.
"O" Send panel opening messages to the pager.

Note 1. "Client still Open", "Open out of hours alarms" and "Close out of hours alarms" are regarded as FE100 system alarms but are sent to the appropriate pager depending on client code.

Other Options

This option controls various miscellaneous options associated with the pager. These are selected with a Yes/No letter underneath the appropriate code letter:

M	2	R
---	---	---

Other Options: N N N

Code letters are:

- "R" Send client recall notes to the pager. (Either 1st line or 2nd line)
"2" If "R" is set to yes and this option is set to no, then the 1st line of the client recall notes will be sent to the pager. If "R" is set to yes and this option is set to yes, then the 2nd line of the recall notes will be sent.
"M" Select Multiple pager ID facility - See "Multi-pager ID" overleaf

Pager 00

All pagers have an identification number which may be up to 7 digits long. Your pager number must be entered in this field.

Note that exactly 7 digits must be entered. If your pager number is less than 7 digits then for Skypage, Link and Telecom Australia networks place "0" digits before the pager number to make up the 7 digits. For example if your pager number was "46372" then enter "0046372" as your pager number. For Hutchisons Telecom network place spaces after the pager number to make up 7 digits. In the example above you would enter "46372 ".

Multi-pager ID.

Multi-pager ID allows one of a number of pagers to be contacted depending on the client code received. To select this option place a "Y" underneath the "M" code letter for "Other Options":

M	2	R
---	---	---

Other Options: Y N N

The table below shows what clients are sent to what pagers:

Client code	Pager ID used
System alarms	00
0000 to 0499	01
0500 to 0999	02
1000 to 1499	03
1500 to 1999	04
2000 to 2499	05
2500 to 2999	06
3000 to 3499	07
3500 to 3999	08
4000 to 4499	09
4500 to 4999	10
5000 to 5499	11
5500 to 5999	12
6000 to 6499	13
6500 to 6999	14
7000 to 7499	15
7500 to 7999	16
8000 to 8499	17
8500 to 8999	18
9000 to 9499	19
9500 to 9999	20

Note that when the multi-pager option is first selected, you may have to push esc then "J" to re-select the pager setup menu and display all allowable pager IDs.

Setup Mode - Slow Expanded defaults (F1' Key, "K")

Slow expanded formats use 2 rounds to send 2 reports digits per alarm event. The first digit normally represents the type of event such as Alarm or Restore whilst the second digit represents the alarm detail such as a zone number. The slow expanded defaults allows the first digit to be mapped to English text describing the type of alarm. The second digit will be mapped to a User number in the case of an opening or closing or in the data-base version only, will be mapped to the zone details in the client data base for alarms, restores and isolates.

The table below shows how the format is displayed under various circumstances. "X" represents the first digit received, "Y" represents the 2nd digit received:

<u>1st digit is mapped as:</u>	<u>English text (no data-base or client not found)</u>	<u>English text, client found in data-base</u>
Opening (17)	<XY> Opening User = Y	<XY> Opening User = Y
Closing (18)	<XY> Closing User = Y	<XY> Closing User = Y
Alarm (55)	<XY> Alarm ID = Y	<XY> Alarm Zn (Y+1) description.
Restore (52)	<XY> Restore ID = Y	<XY> Restore Zn (Y+1) description.
Isolate (51)	<XY> Isolate ID = Y	<XY> Isolate Zn (Y+1) description.
Alarm: (60)	<XY> Alarm ID = Y	<XY> Alarm Zn (Y+8) description.
Restore: (61)	<XY> Restore ID = Y	<XY> Restore Zn (Y+8) description.
Isolate: (62)	<XY> Isolate ID = Y	<XY> Isolate Zn (Y+8) description.
Other	<XY> ID = Y	<XY> ID = Y

If the -1 map option is set for this client in the EDIT menu, then the mapping changes as follows:

<u>1st digit is mapped as:</u>	<u>English text (no data-base or client not found)</u>	<u>English text, client found in data-base with -1 map option set</u>
Alarm (55)	<XY> Alarm ID = Y	<XY> Alarm Zn (Y) description.
Restore (52)	<XY> Restore ID = Y	<XY> Restore Zn (Y) description.
Isolate (51)	<XY> Isolate ID = Y	<XY> Isolate Zn (Y) description.

Note that slow expanded formats are not effected by the 4+2 Extended mapping table.

Setup Mode - 4+2 Express defaults (F1' Key, "L")

Ademco 4+2 Express and 4+2 Dtmf formats use 2 dtmf digits per round to report alarm information. The first digit represents the type of event such as Alarm or Restore whilst the second digit represents the alarm detail such as a zone number. This mapping allows the first digit to be mapped to English text describing the type of alarm.

The English Language mapping works as per Slow expanded formats, except that this mapping can be over-ridden by the 4+2 Extended map (see page 58)

Setup Mode - C&K 238(i) defaults (F1' Key, "M")

CFSK-III used for 238i panels use 2 digits per round to report information. The first digit represents the type of event such as Alarm or Restore whilst the second digit represents the alarm detail such as a zone number. This mapping allows the first digit to be mapped to English text describing the type of alarm.

The English Language mapping works as per Slow expanded formats, except that this mapping can be over-ridden by the 4+2 Extended map (see page 59)

Setup Mode - Custom words (F1' Key, "N")

All English language words used for customised mapping details and client zone descriptions are selected from a fixed library of 255 different words. These words are numbered from 1 to 255. For example word #34 is "Battery Test".

The operator may choose some of these “fixed” words. The operator may choose library words 64 to 79 and 240 to 255. In addition, library words 256 to 511 may also be chosen, however their use is restricted to client zone descriptions only.

Selecting the Custom Words option ("N") in the SETUP menu will display the prompt:

Library word to alter ? (64-79, 240-255, 256-511)

Type in "64" then enter to alter library words 64 to 79, or "240" then enter to alter library words 240 to 255, or type in a number between 256 and 511 to alter a library word between 256 and 511. Note that in each case 16 library words are displayed and may be edited. Each word can have up to 16 characters.

Note that library words between 256 and 511 can only be used for zone descriptions. Any English Language maps which require the use of Customisable words can only use words 64 to 79 or 240 to 255. For this reason it is best to use customisable words from 256 to 511 when you need a specific zone description and only use customisable words below 256 for English Language maps.

Setup Mode - Time Windows (F1' Key, "O") (448 client model only)

Late to close alarms, Open out of hours alarms and Close out of hours alarms for selected clients are achieved with the use of "Time Windows". Time Windows allow you to define what hours and days of the week a client is allowed to be open. There are 16 individual time windows in the FE100 which may be programmed in the SETUP menu. These time windows are numbered from 1 to 16 and are completely independent. Each client within the FE100 data-base can be associated with one of the 16 time windows. This means that you can't select individual hours for each client, but rather you can program up to 16 typical hours and for each client choose the time window which best matches that clients hours.

To enable Late to close and Open/Close out of hours alarms for a selected client you need to:

1. Program up at least one of the 16 Time windows with access hours (SETUP menu)
2. For the desired client, select the appropriate time window # (EDIT menu)

Each of the 16 time windows allows up to 8 access periods to be defined including day of the week. For each access period you may define the start time (HH:MM), the stop time (HH:MM) and what days of the week these times are valid ("SFTWtMs")

Example

Assume that a number of your clients operate to the following business hours:

8:30 AM to 5:30 PM	Monday to Friday
8:30 AM to 1:30 PM	Saturday
No Access	Sunday

If you assign these hours to Time Window #01, then any client that specifies Time Window #01 on the EDIT screen will automatically enable Late to Close and Open/Close out of hours alarms according to these hours.

To assign these hours to Time window #01, select the Time Windows option ("O") in the SETUP menu. You will see the following prompt:

Time Window to alter (0 to 16)

Press 1 and enter to select Time Window #01. Now fill out the form for Time Window #01. In the example above only two of the 8 possible access periods needs to be used.

The form should look like this when you are finished:

Time Window
#01

					S	F	T	W	t	M	s
Start time #1	08:30	Stop time #1	17:30	Weekdays #1	n	Y	Y	Y	Y	Y	n
					S	F	T	W	t	M	s
Start time #2	08:30	Stop time #2	13:30	Weekdays #2	Y	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #3	00:00	Stop time #3	00:00	Weekdays #3	n	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #4	00:00	Stop time #4	00:00	Weekdays #4	n	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #5	00:00	Stop time #5	00:00	Weekdays #5	n	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #6	00:00	Stop time #6	00:00	Weekdays #6	n	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #7	00:00	Stop time #7	00:00	Weekdays #7	n	n	n	n	n	n	n
					S	F	T	W	t	M	s
Start time #8	00:00	Stop time #8	00:00	Weekdays #8	n	n	n	n	n	n	n

Notes

1. Start and stop times may only be set to the nearest 15 minutes, i.e. XX:00, XX:15, XX:30 or XX:45.
2. Weekdays are: S=Saturday, F=Friday, T=Thursday, W=Wednesday, t=Tuesday, M=Monday, s=Sunday.
3. A "Y" under the appropriate weekday allows the specified hours, a "N" allows no access on that day for that access period.
4. Selecting Time Window "0" will set Holiday mode. In Holiday mode any client with a Time Window set will consider all accesses on any day to be out of hours. To un-set Holiday mode simply access a Time Window other than 0.
5. The day is considered to start at 00:00 hours and end at 23:59 hours. A start time of 00:00 hours will cause the time window to become valid at midnight at the start of the current day. A stop time of 00:00 hours means that window is valid right up to midnight at the end of the day.

Time window operation

On each quarter hour and on the hour only whilst in VIEW mode, the FE100 checks each of the 16 time windows to see whether they have changed from valid to in valid. If the time is within the defined hours for that weekday then the time window is valid. If the current time is outside the defined hours for that weekday then the time window is in valid.

In addition any clients that are still open with a defined time window are checked to see if their defined window is in-valid, and if so a "Client still Open" alarm is generated. Only one alarm is generated until another open or close is acknowledged for that client.

Every time a client with a defined time window has an open or close acknowledged (either manually or automatically), the FE100 checks to see if their defined time window is in-valid, and if so an "Open/Close out of hours" alarm is generated

Note that on entry to VIEW mode, all time windows are checked for validity and all clients are checked for Late to Close alarms.

The current state of the 16 time windows is displayed under the "No un-acknowledged alarms message in the following format:

(VnVnnnnnnnnnnnnnn)

where V = valid and n = not valid for the 16 time windows respectively. In the example above only windows 1 and 3 are valid.

Late to close, Open out of hours and Close out of hours alarms are also sent to the pager if System alarms have been enabled to be sent to the pager.

Setup Mode - Direct Options (F1' Key, "P")

This facility is used to set up the Remote FE100-FE100 computer Interface. The direct line number, Receiver number, Encryption key, Back phone numbers and allowable phone lines are set up with this option. For more details about Remote FE100-FE100 communications please contact your distributor.

Notes

- The receiver number may be altered and can be used to identify the receiver to an automation system when more than one receiver is connected.
- The Encryption key (15 characters maximum) can be used in conjunction with EarthNet Encryption when an EarthNet node rings an FE100 receiver on a backup phone number.

Setup Mode - 4+2 Extended defaults (F1' Key, "Q")

DTMF Formats which use 2 reporting digits are usually mapped so that the first digit represents the type of event, whilst the 2nd digit represents the zone number or user number. Unfortunately not all panels follow these rules. The 4+2 Extended defaults allows certain 2 digit codes to be mapped to a particular library word, over-riding the usual mapping. Any of all of the 2 digit combinations from 00 to FF (hex) may be assigned a library word. If the 4+2 Extended defaults for a received 2 digit code is empty, then normal mapping applies. The following formats are effected by this option:

Ademco 4+2 Express
4+2 Dtmf formats
CFSK format 71 or 81
4+2 Pulse Formats
Slow Expanded Formats

For example if the digit pair <b6> represented low battery, and does not follow the normal mapping rules, then the 4+2 Extended map at b6 can be programmed with library word 28 ("Low battery").

Setup Mode - C&K Eclipse defaults (F1' Key, "R")

CFSK-II used for C&K Eclipse 3.6 panels or C&K 238, 238i panels use 2 digits per round to report information. The first digit represents the type of event such as Burglary, Restore etc. whilst the second digit represents the alarm detail such as a zone number. This mapping allows the first digit to be mapped to English text describing the type of alarm.

The English Language mapping works as per Slow expanded formats, except that this mapping can be over-ridden by the 4+2 Extended map (see page 59)

Setup Mode - 4+2 Pulse defaults (F1' Key, "S")

Slow formats 35, 36, 45 and 46 use 2 digits per round to report information. The first digit represents the type of event such as Burglary, Restore etc. whilst the second digit represents the alarm detail such as a zone number. This mapping allows the first digit to be mapped to English text describing the type of alarm.

The English Language mapping works as per Slow expanded formats, except that this mapping can be over-ridden by the 4+2 Extended map (see page 59)

Setup Mode - E6800 defaults (F1' Key, "T")

E6800 Direct Line panels reporting via the EarthNet direct Line protocol use one digit to report alarm detail. This mapping allows the report digit to be mapped to English text describing the type of alarm.

Setup Mode - Misc defaults (F1' Key, "U")

This screen is used to setup miscellaneous options for various formats:

C3000 Sopts

This option allows the operation of Irfast for the InnerRange C3000/C4000 to altered

- “R” Setting this option to “Y” will cause the FE100 to request all panels to send review text for each event reported.
- “C” Setting this option to “Y” will cause the FE100 to request all panels to send an equivalent Contact ID string for each event reported, using the mapping option in the panel. Only select this option if you have an Automation Computer connected that cannot understand IRfast format.
- “T” Setting this option to “Y” will cause the FE100 to request all panels to send a text string of the time/date the event was recorded into review of the Concept 3000 panel.
- “L” Set to “N” at this time
- “I” Setting this option to “Y” will cause the FE100 to request all panels to send miscellaneous panel information before hanging up including panel serial number, software version and security option settings.
- “U” Setting this option to “Y” will cause the FE100 to update the Concept 3000 panels time and date from the FE100 system clock prior hanging up
- “.” Spare - Set to “n”

Comp Client:

This screen allows the operator to select what client code will be used to represent the FE100 when sending system alarms to an automation system. It is selectable in from 0000 to ffff (hex).

Setup Mode - Special Options (F1' Key, "V")

This feature allow special non-standard FE100 options to be set. Once a special option is set, every time an "I" for initialize is performed in the "MISC" menu, the special option will be configured. This allows software upgrades to be performed and an "I" for initialize to be done without effecting special options. When this feature is first displayed the screen will show:

Special Options

Dangerous Option !

*These options must only be altered on advice
from a distributor or the manufacturer.
Changes only take effect on an 'I' in MISC menu.*

No Special Options Programmed

Option to alter (A to P) ?

There are 16 special options labelled "A" to "P". Each option comprises 6 hex digits. Only set these digits to values specified below or on advice of your distributor. For example to set option "A" to 345A12 then enter:

Option to alter (A to P) ? a Data: 345A12

On pressing enter, the screen will now show:

Special Options

Dangerous Option !

*These options must only be altered on advice
from a distributor or the manufacturer.
Changes only take effect on an 'I' in MISC menu.*

<i>Option A =</i>	<i>345A12</i>	<i>Option B =</i>	<i>000000</i>
<i>Option C =</i>	<i>000000</i>	<i>Option D =</i>	<i>000000</i>
<i>Option E =</i>	<i>000000</i>	<i>Option F =</i>	<i>000000</i>
<i>Option G =</i>	<i>000000</i>	<i>Option H =</i>	<i>000000</i>
<i>Option I =</i>	<i>000000</i>	<i>Option J =</i>	<i>000000</i>
<i>Option K =</i>	<i>000000</i>	<i>Option L =</i>	<i>000000</i>
<i>Option M =</i>	<i>000000</i>	<i>Option N =</i>	<i>000000</i>
<i>Option O =</i>	<i>000000</i>	<i>Option P =</i>	<i>000000</i>

Option to alter (A to P) ? a Data: 02051A

Notes:

- To set a special option 6 digits need to be specified. It does not matter which letter is used to specify the option
- The first 4 digits of a special option may only appear once in the special options table. If two instances of a special option have the same first 4 digits, then they need to be combined into one special option.

(See page 112 for a description of selected Special Options)

Setup Mode - Acron defaults (F1' Key, "W")

Acron SuperFast format uses 8 channels to report information for the 8 zones. The acron defaults allow the meaning of the 16 possible report codes in each channel to be defined. Ceratin library words such as Opening, Closing, Restore, Test, Mains Fail and Low Battery have special significance. (See seperate document "Acron Superfast Format for the FE100" for more details.

Backup Mode (F2' Key)

BACKUP mode is used to copy all the client data-base information to a back-up memory chip, for extra protection against in-advertent erasure.

IT DOES NOT PROVIDE PROTECTION AGAINST THEFT OR FIRE.

If you use the database facility within the FE100 then you should regularly print out all client details using the "All Clients" report within the REPORT menu (F4). This report should then be filed in a safe place to act as a hard-copy back up.

On entry to EDIT mode the FE100 will display the day and month of the last time a backup was done. If no backup exists then the FE100 will display a warning message.

(Note: After you have done an "Auto-Download" to receive a new FE100 program, the backup memory will have been erased)

Logon Mode (F3' Key)

As described in the section "Passwords" SETUP, there are three passwords allowed in the FE100 system, with some passwords not able to perform certain FE100 functions. LOGON mode is used to allow a new operator with a different level password to "log on" to the FE100, thereby allowing all functions allowed by the new password to operate.

When the words "Password ? " appear just enter your password and press the "Return" key. If you make an error, press "Return" and start again. Note that passwords are case sensitive - that is there is a difference between lower-case and upper case.

Misc Mode - Recover Clients (F4' Key, "A")

This facility is used to copy client database information stored in back-up memory back to the FE100 main memory area. It is a very dangerous option as it can completely wipe out current client programming and would only be used in extreme circumstances. For this reason this facility should only be used in conjunction with the distributor.

Misc Mode - Force Connect Line (F4' Key, "B")

This function is used to "trick" the FE100 that a line is ringing and needs to be answered. This function is useful when testing diallers "on the bench". You may choose which line to force connect, however if you choose a line which is not configured or is being used, the force connect request will not be actioned.

NOTE THAT ALTHOUGH THE FE100 DOES NOT REQUIRE LINE CURRENT TO OPERATE, MANY PANELS DO. THIS MEANS A DIRECT CONNECTION BETWEEN THE PANEL UNDER TEST AND THE FE100 LINE WILL NOT WORK

Misc Mode - Make Modem Call (F4' Key, "C")

This function may be used to ring up alarm panels, other FE100 receivers or computer bulletin boards. The available choices are :

- | | |
|-------------------|--|
| <i>(P)anel</i> | This option is used to ring up an alarm panel at 300 baud, (CCITT V.21 only). |
| <i>(F)E100</i> | This option is used to ring up an alarm panel or another FE100 receiver at 1200 baud. (CCITT V.23 bis only). |
| <i>(T)erminal</i> | This option is used to ring up a remote terminal, to allow the remote terminal to log on to the FE100 receiver. This function is normally only used to ring up for remote service. |

After the desired option is selected, simply enter the phone number and the line to use. (Use a line not currently being used). You may print out information received on the screen if you have started a "Modem Dump" report prior to making the call. (See page 27). Whilst on-line pushing the "|" key will toggle the printer on or off. To hang-up and return the FE100 to normal operation, press the "Del" key.

Note: When ringing another FE100, you may need to set the Character Pacing for your terminal/PC to 50ms or so in order for arrow and function keys to be recognised. Contact your distributor for more details.

Misc Mode - Hang-up Modem (F4' Key, "D")

This option will cause any modem call currently in progress to hang-up unconditionally. Not normally used.

Misc Mode - Re-start Receiver (F4' Key, "E")

This option is used to reset the FE100 receiver. Any communication currently in progress will be aborted with possible loss of information.

Misc Mode - Go to De-bug Menu (F4' Key, "F")

Only available to the manufacturer.

Misc Mode - Place Page (F4' Key, "G")

This facility allows arbitrary text to be sent via the FE100 paging facility if it is enabled. Up to 2 lines (160 characters) maximum may be sent, although some networks restrict the number of characters to 78.

Simply type the text you wish to send, correcting any errors using the backspace key. Press ESC to abort the process and press Return to initiate the page.

(Note that the text is saved as a special system alarm so that a hard copy of the page can be sent to the printer if required).

If the Multi-Pager option is set then a text page can be sent to any of the 22 pager IDs by starting the text page with the letters "&nn" where "nn" is the pager number to send the page to. For example to send a page to pager ID number 9, then precede your text with "&09".

Misc Mode - Auto Download (F4' Key, "H")

One of the unique features of the FE100 is the ability to update your receiver software with new software as soon as it is available via a 15 minute (approximate) telephone call! This way your investment is gradually enhanced as new FE100 features are designed.

This function allows you to ring-up a Master FE100 Receiver at your distributors to automatically receive new software updates free of charge!

To update your FE100 software simply select the "Auto-Download" option ("H") found in the MISCellaneous menu. During the download one of your lines will be used for 15 minutes or so and although alarms will be received on other lines and printed, you cannot use the terminal screen to VIEW them. For this reason don't do "Auto-Downloads" during peak hour! After selecting "Auto-Download the FE100 will now display your company details including your company name, address, contact name and telephone number.

Current Company Details:

<name>, <address>, <Contact>, <Phone numbers>

Change ?

If the information is correct then type "n" indicating you don't want to change the details. If the information is in correct or blank then type "y" and fill in your company details, separated by spaces and then push return. You may enter up to 2 lines, but don't push return for 2nd line, only push return when details are complete.

The FE100 will now erase the back-up memory buffer in case a new software option is available. The screen will show:

"Erasing Buffer. Please wait..."

This process will take about 2 minutes. You may not interrupt this process. (Note that if the buffer is already erased this step will be skipped)

After erasure the FE100 will prompt for the service telephone phone number :

"Telephone number:"

If the displayed number is correct type return, or else enter the desired number then push return. The current service number is 03-752-2298. If you do not wish to continue at this point, push Escape. (At times the service number will be out of commission, if you have problems then ring your distributor)

The FE100 will now prompt for a line to make the call :

"Line to use ? "

If you have one line, your answer of course is "1". If you have more than one line, choose the least used line. Note that if the line is currently in use, wait till the line is free before pressing the line number. Remember that the line may be in-use for up to 12 minutes and you may not interrupt it.

The FE100 should now respond with the following :

"Waiting for Connect (esc to abort) ..."

Connect may take up to 30 seconds or so

If there is no new software the display will show :

"Software is Current"

Simply press any key to re-start the MISCellaneous menu.

If there is a new software revision available, the display will show :

"Receiving new program. Software ID = XX.XX"

where XX.XX is the new software ID being down-loaded. This process takes about 12 minutes and may not be interrupted.

At the completion of a successful download, the display will show :

"Press any key to re-start receiver..."

Check that no alarms are being received on any lines before re- starting the receiver. On re-start the display will show a special message indicating the new software revision is being checked and transferred to program memory. This process takes about 30 seconds and at the end the receiver will again be re-started, this time running the new software. Check the software option has been updated on the F1 screen.

IMPORTANT NOTE

Note that after the new software is running you should re-initialise communication parameters unless you have been otherwise advised. This is option "i" in the miscellaneous menu. Simply push "i" in the miscellaneous menu, then push "y" to confirm the operation.

The table below shows the possible upload errors that can occur when attempting an upload:

<u>Error</u>	<u>Meaning</u>
01	Too many sends of "C" at start of phone call - call failed.
02	Time-out waiting for Master receiver - call aborted.
05	Out of sequence packet - excessive errors on line.
0f	Flash buffer initialisation failed - Faulty U04 or low battery.
11	Flash buffer erasure failed - Faulty U04 or low battery.
14	Programming voltage not correct - low battery.
1e	Flash buffer failed to program - Faulty U04 or low battery.
55	Program checksum failed after upload - program corrupt.

NOTE THAT IF YOU HAVE CONTINUAL PROBLEMS IN CONNECTING TO THE MASTER RECEIVER, TRY RESETTING THE RECEIVER ("E" IN MISC MENU) AND TRYING AGAIN.

Misc Mode - Initialise Parameters (F4' Key, "I")

This option is used to default the communication parameters, which define how the various formats work. It is normally only used after a new software revision has been uploaded.

Misc Mode - Accept Modem Call (F4' Key, "J")

This option is used to tell the FE100 receiver that the next modem call received on a selected line will cause the FE100 to act as dumb terminal. This may be used to accept a ring- back call from an alarm panel.

Misc Mode - Copy Options (F4' Key, "L")

The manufacturer only uses this feature.

Misc Mode - Erase Everything (F4' Key, "M")

This option is used to erase all FE100 programming back to factory default. The distributor or manufacturer only uses it

Connecting a Terminal

A Wyse 30 or ANSI compatible terminal or a PC running a terminal emulation program may be connected to the FE100 processor card into the socket marked "TERMINAL". The Terminal/PC MUST BE set to the following settings :

9600 Baud, 8 data bits, 1 stop bit, No parity.

If the terminal is not set to these settings it will most likely display meaningless characters. The baud rate can be altered by means of a special option setting if required. Contact your distributor for more details.

Shown below are the pin numbers and there signal names for the terminal port on the FE100:

Pin Number	Signal Name
2	Serial data to terminal
3	Serial data from terminal
5	Data Ground

IMPORTANT NOTE

If the terminal does not work when trying a new cable, do not leave the cable connected for long lengths of time. If the cable has wrongly connected outputs together, then the terminal or FE100 may be damaged if left connected.

Setting up ANSI Terminals

ANSI terminals (or PCs and communications packages) need to have the communications parameters set to 9600 baud if connected directly to the FE100 or to 1200 Baud if being used in conjunction with a modem. The rest of the communications should be set to 8 data bits, No parity and 1 stop bit.

If the ANSI terminal is connected directly to an FE100 (9600 Baud) and you wish to ring *another* FE100 remotely, you may have to set the Transmit Character Pacing to 50ms. (See documentation on your terminal/package)

The function and cursor arrow keys on most ANSI terminals (or PCs and communications packages) will need to be programmed to be recognised by the FE100. The table below shows how the function and arrow keys are programmed:

<u>Function Key</u>	<u>ANSI Sequence</u>	<u>Wyse Sequence</u>
☐	☐	☐
F1 ☐	esc,O,P	^a,a
F2 ☐	esc,O,Q ☐	^a,b ☐
F3 ☐	esc,O,R ☐	^a,c ☐
F4 ☐	esc,O,S ☐	^a,d ☐
^F1 ☐	esc,O,T ☐	^a,e ☐
^F2 ☐	esc,O,U ☐	^a,f ☐
^F3 ☐	esc,O,V ☐	^a,g ☐
^F4 ☐	esc,O,W ☐	^a,h ☐
Up arrow ☐	esc,[,A ☐	☐
Down arrow ☐	esc,[,B ☐	☐
Right arrow ☐	esc,[,C ☐	☐
Left arrow ☐	esc,[,D	

Notes: ^ = Control key in addition to following character.
", " not part of sequence.

Either the ANSI sequence or the Wyse sequence can be programmed for each function key. If no function keys are programmed you can always use the Wyse sequence instead of a function key. For example pressing ^ac ("Control "a" then "c" key) is the same as pressing F3 to enter edit mode. Note that sequences starting with "esc" cannot be entered reliably by hand.

When communicating with an FE100 over a phone line using a modem the screen will take a lot longer to draw because the baud rate is only 1200 Baud. If keys are entered too fast then the FE100 may not recognise the keys correctly and will cause illegal characters to be drawn on the screen. If this occurs just push "esc" or a function key to re-draw the screen correctly.

Connecting a Printer

A serial printer may be connected to the FE100 processor card into the socket marked "PRINTER". (Top 9 pin socket). The printer MUST BE a serial printer set up to the following settings :

1200 Baud, 8 data bits, 1 stop bit, No parity.

If the printer is not set to these settings it will most likely print meaningless characters. (An option in the REPORT menu allows the baud rate to be lowered to 300 Baud if desired)

Most printers will require a 9 pin to 25 pin conversion cable. The wiring of this cable will depend on the type of serial printer you have. The printer vendor should be able to help you with this cable. Shown below are the pin numbers and there signal names for the printer port on the FE100:

Pin Number	Signal Name
1	No Connection
2	Serial data to printer
4	Status from printer
5	Data Ground

Note that pin 2 should be wired to the serial data input of the printer, pin 4 should be wired to the printer status output from the printer and pin 5 should be connected to the printer data ground. Please note that the printer should not be located more than about 10 meters from the receiver, or else printing errors may occur.

Remember that ALL printing is controlled via the report menu in REPORT mode (F4 key)

IMPORTANT NOTE

If the printer does not work when trying a new cable, do not leave the cable connected for long lengths of time. If the cable has wrongly connected outputs together, then the printer or FE100 may be damaged if left connected.

Connecting an Automation Computer

Many FE100 receivers will be used in conjunction with a separate automation computer, especially when the number of clients exceeds 200 or so. The automation computer performs a similar function as the database facilities in the FE100 system (database version only), although provides a lot more space for saving individual client detail and also allows for past history reports on a per client basis.

The computer connection must be a serial connection with the following parameters set:

1200 Baud, 8 data bits, 1 stop bit, No parity.

The computer connects to the FE100 via the 9 pin socket on the processor card marked "COMPUTER". As most computers use a 25 pin connector, a conversion cable will be required. Shown below are the pin number and signal names for the FE100 computer port:

Pin Number	Signal Name
2	Serial data to computer
3	Serial data from Computer
4	Status from computer
5	Data Ground
8	FE100 status to computer

Note that pin 2 should be wired to the serial data input of the computer, pin 3 to the serial output of the computer, pin 4 to the computer status output, pin 8 to the FE100 status input on the computer and pin 5 the computer data ground. Shown below are common pin connections for connection to automation systems running on IBM PC or XT compatible personal computers :

FE100 Pin Number	IBM AT Pin Number	IBM XT Pin Number
2	2	3
3	3	2
4	4	20
5	5	7
8	1 & 6 & 8	5 & 6 & 8

In order for alarm information to be sent to the computer, the FE100 computer interface needs to have been chosen using the "E" menu option in SETUP mode.

Display of Alarms

All alarm reports displayed on the FE100 terminal or printed to the FE100 printer follow the same convention in the way the alarm report is presented. Below is a typical alarm report line from an ademco fast client :

RL HH:MM:SS DD/MM/YY FF CLIENT CCCC ZONE ALARM Cha 1 Zone 01

The text in bold italics is common to all formats received. The remainder of the line is dependent on the information within the report and the type of format.

The first two numbers (RL) are the receiver number (usually 1) and the line number (1 to 8). The next set of numbers (HH:MM:SS DD/MM/YY) are the time and date, the time being in 24 hour format. The time displayed is the time the phone call was answered, not the time it was displayed. The next two letters/numbers (FF) indicate the format that has been received. The formats defined so far are:

10	FE100 system alarm - general	90	IEI fast format, un-verified
11	Caller ID information	91	IEI fast format, device 1
18	FE100 Open out of hours alarm	93	IEI fast format, device 3
19	FE100 Client still open alarm	94	IEI fast format, device 4 (user ID)
1a	FE100 Close out of hours alarm	95	IEI fast format, device 5 (extended)
20	Pager Errors	a0	Un-verified Ademco fast/Contact ID/4+2 express
28	Text Messages	a1	Ademco Contact ID.
29	Pager text to be sent	a2	Ademco 4+2 Express.
30	1400 Hz Un-verified slow format.	a3	4+2 Dtmf with checksum
31	1400 Hz Slow format, 3 digit client code.	a4	4+2 Dtmf with 2 round verification
32	1400 Hz Slow format, 4 digit client code.	b0	Un-verified Ademco Fast (inc. extended)
33	1400 Hz Slow format, 4 digit client, parity digit	b1	Ademco fast format, 2 rounds (inc. extended)
34	1400 Hz Slow format, 3+1+K.	b2	Ademco fast format, parity digit (inc. extended)
35	1400 Hz Slow format, 4+2+K.	b3	Acron superfast (3 digit client code)
36	1400 Hz Slow format, 4+2, 2 round	b4	Acron superfast (4 digit client code)
40	2300 Hz Un-verified slow format.	c0	Unverified IRfast format
41	2300 Hz Slow format, 3 digit client code.	c6	IRfast format (standard) C1000/C2000
42	2300 Hz Slow format, 4 digit client code.	c7	IRfast format (enhanced) C2000+
43	2300 Hz Slow format, 4 digit client, parity digit	ca	Irfast for C3000/C4000
44	2300 Hz Slow format, 3+1+K.	d0	Un-verified ModemII or TecomV1
45	2300 Hz Slow format, 4+2+K.	d1	ModemII-a for 6112 panels
46	2300 Hz Slow format, 4+2, 2 round	d2	ModemII-b for 7112/9112 panels
51	FE100 system alarm - EarthNet	d8	TecomV1 format
60	Unverified EarthNet format	e0	Un-verified SIA
61	EarthNet format, Node client	e1	300Baud ccitt SIA format
62	EarthNet format, Concept client	e2	110Baud ccitt SIA format
70	Unverified CFSK-III	e3	300Baud bell SIA format
71	CFSK-III for 238(i) panels	e4	110Baud bell SIA format
72	CFSK-III for 2316(i) panels		
74	CFSK-III for 234,236,118 panels		
80	Unverified CFSK-II		
81	CFSK-II for Eclipse 3.6 panels		

Note that for all slow formats the speed variations of 10pps, 20pps and 40pps is not distinguished as a separate format identifier.

Alarm Details

The remainder of the line is the alarm details. Usually the detail begins with a client field (CLIENT CCCC). This is the actual client code deduced from the alarm report according to the format received. Three digit client codes are displayed with the first digit set to "0". For 6 digit client codes as used by C&K formats, all 6 digits are displayed, however only the last 4 digits are used when searching or referring to the FE100 data-base.

The remainder of the line is the report detail and depends on the report content and the format. The FE100 Receiver features many facilities to add English language type detail to alarm reports to make the alarms as clear as possible to understand. This is especially important if the FE100 is used to receive many different types of formats. Because the FE100 uses a large screen to display the alarm reports, more flexibility is available to display the report with as much English language detail as is possible.

English Language options for relevant formats are programmed in SETUP. See SETUP of various defaults for more details.

When an alarm report is displayed on the FE100 screen (or sent to the printer), the English language describing the report is generated as follows:

Firstly, the FE100 looks to see what format was used to transmit the report. The format used will determine the overall sentence which will be constructed and the basic words used in summarising the report such as "NEW ALARM" or "ZONE RESTORE". Some modern formats such as Contact ID have many hundreds of English language messages built in. The FE100 contains all the standard English language report descriptions for all the formats it can receive.

Secondly, the FE100 checks to see if the format has standard programmable messages which have been programmed into the FE100 receiver using SETUP mode. If the format has programmable messages, then these messages are added to the report line to further clarify the report. Ademco fast, Ademco extended, 4+2 Express, C&K formats and all slow formats have programmable messages which may be programmed in SETUP.

Thirdly, if the client is contained in the client database (database version only) then the standard programmable messages may be replaced by the individual client details programmed for this client depending on report format and type. As a general rule, any slow format report, or any report involving some of the first 16 zones, will substitute messages from the client database.

Interpretation of Ademco Fast Format (Format B1 or B2)

Ademco fast format transmits 4 client code digits, 8 alarm channel digits, an extra 9th channel digit and an optional checksum digit. The 9th digit determines the report type and determines how the 8 channel digits should be interpreted, for example an opening or closing report etc. The display formats are as follows:

```
RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <message> Cha X <zone description>
RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <OPENING> User N
RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <CLOSING> User N
```

Where	nnnn	Four digit client code from 0001 to 9999.
	<message>	Is the status of (Cha)nnel X where X is between 1 and 8. If the channel digit is a 5 (normal) then no message is displayed.
	<zone detail>	If a zone description has been mapped to a channel then a zone description is displayed here.
	<User N>	If the report is an opening or closing report, User N refers to the user who opened or closed. (1 to 15)

(See Ademco Fast Default Messages on page 123 for more details)

Examples:

```
11 01:23:56 03/04/91 b2 CLIENT 1234 ZONE ALARM Cha 3 Fire
```

Client 1234 reported a zone alarm report on channel 5. The client detail (or format defaults) has mapped Channel 3 to the description "Fire". All other channels were normal. ("5" digit).

```
11 10:44:40 05/04/91 b1 CLIENT 0003 ZONE ALARM Cha 1 Door
                                ZONE (OLD) Cha 3 Window
                                ZONE RESTORE Cha 1 Door
                                OPENING User 8
```

Client 0003 reported a zone alarm report on channel 1. The client detail (or format defaults) have indicated that the alarm is a door. In the same report, it was reported that the zone assigned to channel 3 was still in alarm (a window) and then the door was closed. User code 8 then turned off the system. All other channels were normal (5 digit)

```
11 05:09:12 05/04/91 b1 CLIENT 0456 SYSTEM ALARM Cha 1 Mains Fail
```

Client 0456 reported a mains power failure using an Ademco system report on channel 1. The words "Mains Fail" comes from the Ademco fast defaults programmed in SETUP.

Interpretation of Acron Super Fast Format (Format B3 or B4)

Acron Super Fast (8 channel) is similar to Ademco Fast format with 3 or 4 client code digits and 8 alarm channel digits. A 3 digit client code has a leading digit of "0". No 9th channel is used. The display formats are as follows:

RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <message> Cha X <zone description>
 RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <OPENING> User N
 RL HH:MM:SS DD/MM/YY Bx CLIENT nnnn <CLOSING> User N

Where	nnnn	Four digit client code from 0001 to 9999.
	<message>	Is the status of (Cha)nnel X where X is between 1 and 8. If the channel digit is a 0 (normal) then no message is displayed. (See table at end for default channel digit meanings)
	<zone detail>	If a zone description has been mapped to a channel then a zone description is displayed here.
	<User N>	If the report is an opening or closing report, User N refers to the user who opened or closed. (0 to 8)

Example:

11 01:23:56 03/04/91 b3 CLIENT 0234 BURLARY Cha 4 Zone 4

Three digit Client 234 reported a burglary on channel 4. The client detail (or format defaults) has mapped Channel 4 to "Zone 4". All other channels were normal. ("0" digit).

Default Channel Meanings

Code 0	Test		Code 8	
Code 1	Panic		Code 9	
Code 2			Code a	Closing
Code 3	Fire		Code b	Low Battery
Code 4	Burglary		Code c	
Code 5	Mains Fail		Code d	Opening
Code 6			Code e	
Code 7	Medical		Code f	Restore

If the default channel meanings are altered, specific library words need to be used if you wish the FE100 to interpret the report in a certain way. The following codes have special significance to the FE100:

Library Word Number	Library Word	Action
17	Opening	Report will be actioned as an opening by user 0 to 8, updating database user # and client panel status
18	Closing	Report will be actioned as a closing by user 0 to 8, updating database user # and client panel status ☐
27	Mains Fail	Report will be tagged as a mains failure report (alarm bit set)
28	Low Battery	Report will be tagged as a low batt. report. (alarm bit set ☐
31	Test	Report will be tagged as a test report. (alarm bit set) ☐
52	Restore	Report will be actioned as zone restore and will update database zones accordingly. Database zone description will be printed if present.
54	Duress	Report will be tagged as a mains failure report (alarm bit set) ☐

All other programmed codes are regarded as zone alarms and will be actioned accordingly. In the database version the client zone status will be set to unsealed and the zone description will be printed.

Note that channels which are in the normal status (Code "0") will not be printed unless all channels are in the normal state in which case Code 0 message will be printed.

Interpretation of Ademco Contact ID (Format A1)

Ademco Contact ID reports a single event per round, unlike Ademco fast that can report up to 8 events per round. This makes Contact ID slower but it can report a great deal more information. Contact ID reports a 4 digit client code, a 1 digit event code, a 3 digit category code a 2 digit group or area code and a 3 digit point or ID code. The various codes above are mapped to English words for easier understanding. The display format is:

RL HH:MM:SS DD/MM/YY A1 CLIENT nnnn <event> GG:PPP <category> or <message>

Where	nnnn	Four-digit client code from 0001 to 9999.
	<event>	Is the packet event type such as “OPENING” or “RESTORE”
	<GG>	This is the 2 digit packet group between 00 and 99. If non-zero, it usually refers to the area or partition number of the report.
	<PPP>	This is the 3 digit point or zone number between 001 and 999. For an opening/closing it can represent the User number.
	<category>	Is the 3 digit packet category such as “BURGLARY”. If the category is not recognised then “Msg #xyz” is displayed.
	<message>	For certain categories, the category text can be mapped to a zone description from the client database for the 1 st 16 points only.

For details of event types and categories see section on “Ademco Contact ID Messages” on page 125.

Example1:

11 01:23:56 03/04/91 a1 CLIENT 1234 NEW ALARM 00:001 General

Client 1234 reported a new alarm on Contact Point 001 (zone 01) in group 00. (no area information). Further that panel reported that the alarm was of a general nature.

If Client 1234 existed in the database and zone 01 description was set to "Window" then the alarm would read:

11 01:23:56 03/04/91 a1 CLIENT 1234 NEW ALARM 00:001 Window

Example2:

11 10:44:40 05/04/91 a1 CLIENT 0003 CLOSING 01:056 Group/User

Client 0003 reported a group closing of group 01 (area 01) by user 056.

Interpretation of 4+1/3+1 slow formats (Format 3X or 4X)

Most Slow (or Pulse formats) apart from 4+2 or expanded formats report using a 3 or 4 digit client code and a single report code digit. They may also use an additional digit as a checksum. The report digit may be from 0 to 9 or from 0 to F for hex type formats. SETUP is used to assign an optional meaning for each report code. If the client is in the client database, then client programming can override this definition. The display format is:

RL HH:MM:SS DD/MM/YY FF CLIENT nnnn Code <N> <message>

Where	nnnn	Four digit client code from 0001 to 9999.
	FF	Format Identifier
	<event>	Is the packet event type such as “OPENING” or “RESTORE”
	<N>	This is the packet report code from 0 to F.
	<message>	This is the optional message that has been assigned to this report code via SETUP or via client programming

Example1:

11 01:23:56 03/04/91 32 CLIENT 0234 Code 4 Burglary

Client 234 reported a Code 4. The client detail (or format defaults) has indicated that the code represents a burglary.

Example2:

11 10:44:40 05/04/91 41 CLIENT 0003 Code 6 Fire
0003 Code e Isolate

Client 0003 reported a Code 6. The client detail (or format defaults) have indicated that this code represents a fire alarm. In the same phone call, a code e was reported which the client detail (or format defaults) have indicated represents an isolate. Note that the client is capable of hex digit reporting (Code e). (The client code is repeated for every round to cover those panels that use different client codes within the same report to indicate different information.

Interpretation of 4+2/Slow Expanded formats (Format A2, A3, A4, 35, 36, 45, 46)

So called 4+2 formats (either slow formats or 4+2 express) report a 4 digit client code and 2 alarm digits per round. Slow expanded formats also report 2 report digits but do so across rounds. Either format is interpreted the same way. The 1st report digit is treated as the report type eg ALARM, OPENING, RESTORE etc whilst the 2nd report digit is considered the report detail eg zone 4, user 6 etc. The display format is:

RL HH:MM:SS DD/MM/YY FF CLIENT nnnn <XY> <type> <detail>

Where	nnnn	Four digit client code from 0001 to 9999.
	FF	Format Identifier
	<XY>	Are the 2 report digits, X = report type, Y = report detail
	<type>	This is the meaning that has been assigned to the 1 st report digit via SETUP.
	<detail>	This is the optional message that has been assigned to the 2 nd alarm digit if the client was found in the database and has zone information programmed. If no detail is available "ID=Y" is displayed, where Y is the 2 nd digit.

Example1:

11 08:30:10 05/04/91 a2 CLIENT 6789 <36> Alarm Door
<c5> Opening User 5

Client 6789 reported an alarm on a door then an opening by User 5. The report type defaults in SETUP specify that "3" is "Alarm" and "c" is an "Opening". The client detail for client 6789 has zone 06 programmed to "Door". The actual code digits received are enclosed within the angle brackets.

Example2:

11 08:30:10 05/04/91 41 CLIENT 0123 <49> Restore ID=9

Client 123 reported a Restore with an ID digit of 9. The report type "4" is mapped to "RESTORE" in SETUP. Because the client was not found in the database, the detail message is "ID=9".

Interpretation of CFSK formats (Format 81,71,72,74)

CFSKII and CFSKIII are modem formats that report 6 digit client codes. Reports are similar to 4+2 in that they contain a report type field and a report detail field, however in some instances the report type and report details fields can be greater than single digits. There are four basic display syntaxes:

RL HH:MM:SS DD/MM/YY 71 CLIENT nnnnnn <XY> <type> <detail>
(238,238i panels)

RL HH:MM:SS DD/MM/YY 81 CLIENT nnnnnn <XY> <type> <detail>
(Eclipse panels)

RL HH:MM:SS DD/MM/YY 72 CLIENT nnnnnn <category> <message>
(2316,2316i panels)

RL HH:MM:SS DD/MM/YY 74 CLIENT nnnnnn <category> <message>
(234,236,118 panels)

Where	nnnnnn	Six digit client code.
	<XY>	Are the 2 report digits, X = report type, Y = report detail.
	<type>	This is the meaning that has been assigned to the 1 st report digit via SETUP, the same as 4+2 formats.
	<detail>	This is the optional message that has been assigned to the 2 nd alarm digit if the client was found in the database and has zone information programmed. If no detail is available "ID=Y" is displayed. This mapping only occurs if the report type is programmed to "alarm", "restore" or "isolate". If the first digit is mapped to "Opening" or "Closing", then the 2nd digit is displayed as a user code.
	<category>	This message gives the pre-programmed report type details. No programming is required.
	<message>	This is additional information that is displayed about the report detail. For alarm, restore, isolate, tamper and trouble type messages the 2nd digit maps to the client zone descriptions if the 2nd digit is less than 17. For opening, closing, duress and cancel messages, the 2nd digit is displayed as a user code, "User = ####". For status type messages, the alarm is shown directly. For all other message types, the 2nd digit is displayed as "ID = ####".

Example1:

```
11 08:30:10 05/04/91 71 CLIENT 236789 <36> Alarm Door
                                <c5> Opening User 5
```

Client 236789 reported an alarm on a zone with a “door” description, then an opening by User 5. The C&K format default programming (in SETUP) has "3" set to "Alarm" and "c" set to "Opening". The client detail for client 6789 has zone 06 programmed to "Door". The actual code digits received are enclosed within the angle brackets.

Example2:

```
11 08:30:10 05/04/91 72 CLIENT 123456 ALARM           Zone 034
                                STATUS ALARM Low Battery
```

Client 123456 reported an alarm on a zone 34, then a low battery alarm. No client mapping was possible

Interpretation of Irfast for C1000/C2000/C2000+ panels (Format C6, C7)

Irfast for the Inner Range Concept 1000/2000/2000+ panels is a modem-based format, using FSK at 300 Baud. The format has the optional ability to send descriptive information that has been pre-programmed in the panel. All English language translation is fixed apart from zone alarm/tamper/isolate/restore reports where the 1st 16 zones may be mapped to the client database if the client is found in the database. The display formats are:

RL HH:MM:SS DD/MM/YY cx CLIENT nnnn Closing/Opening area ppp by User qqqqq
RL HH:MM:SS DD/MM/YY cx CLIENT nnnn <Status> Zone ppp <message>
RL HH:MM:SS DD/MM/YY cx CLIENT nnnn <Type> <description>

Where	nnnn	Four digit client code from 0000 to ffff
	cx	Format, c6 = C1000/C2000 panels, c7 = C2000+ panel.
	<ppp>	Is the area number or the zone number. Note that no area number is sent for zone alarm reports.
	<qqqqq>	Is the User number between 00000 to 65536.
	<message>	Is an optional zone description for the 1 st 16 zones only from the client database in the FE100 if the client is found. For certain "system inputs" the message is predefined, eg Low Battery
	<type>	Is the type of descriptive information optionally sent from the panel: Area = area description Zone = Zone description User = User Name
	<description>	Is descriptive text depending on <type> above.

Example1:

11	07:33:38	29/03/94	C6	CLIENT	7005	Closing Area 1 by User 00005
11*	07:33:38	29/03/94	C6	CLIENT	7005	Area: MAIN FOYER
11*	07:33:38	29/03/94	C6	CLIENT	7005	User: FRANK GREEN

In this example area 1 has been closed by User 00005. The name of area 1 within the Concept panel is "MAIN FOYER". The name of User 00005 within the Concept panel is "FRANK GREEN".

Example2:

11	07:33:38	29/03/94	C6	CLIENT	7005	Alarm	Zn001 Window
						Restore	Zn001 Window
						Alarm	Zn002 Door
						Restore	Zn002 Door
11*	07:33:38	29/03/94	C6	CLIENT	7005	Zone:	BACK DOOR

In this example two zones have been reported in one packet, indicating that both zone 001 and zone 002 were alarmed before the report was received. The FE100 has appended the zone descriptions stored in the FE100 client database from client 7005, being "Window" and "Door" respectively. In addition, the name of the last zone reported in the packet (zone 002) has been sent from the Concept panel. ("BACK DOOR")

Example3:

11	07:33:38	29/03/94	C6	CLIENT	7005	Alarm	Zn002 Door
						Restore	Zn002 Door
						Opening	Area 2 by User 00003
11	07:33:38	29/03/94	C6	CLIENT	7005	Area:	FACTORY
*							
11	07:33:38	29/03/94	C6	CLIENT	7005	User:	BILL BLOGGS
*							

In this example User 00003 has opened area 2, but User 00003 was slow in getting in and caused an alarm on zone 002. The panel descriptive information refers to the last item in the packet, namely the opening of area 2 by user 00003.

Interpretation of Irfast for C3000/C4000 panels (Format CA)

Irfast format for the Inner Range Concept 3000/4000 panels is actually very different from Irfast for the Concept 1000/2000 panels. It uses the standard Ademco Fast handshake but is actually a 1200/300-Baud modem format. The alarm information can be sent from the panel in a number of different ways. The various syntaxes are:

RL HH:MM:SS DD/MM/YY ca CLIENT nnnnn P -> Q -> R on Xpp:Yqq in Area zzz
RL HH:MM:SS DD/MM/YY ca CLIENT nnnnn Close/Open Area zzz by User zzzzz
nnnnn <text type> <text>

Where	nnnnn	Five digit client code from 00000 to 65536
	<ppp>	Is the area number or the zone number. Note that no area number is sent for zone alarm reports.
	P -> Q -> R	P = the state of the zone last time it communicated. Q = transitions that have occurred on zone R = the current state of the zone. Zone states are: S = Seal, A = Alarm, T = Tamper, I = Isolate Transitions are: A = Alarm, T = Tamper, R = Restore .
	Xpp:Yqq	Is the zone ID: X = single letter module type that zone belongs to pp = module number (01 to 99) Y = single letter zone type Z = hardwired zone, S = system input qq = zone or system input number (01 to 99)
	zzz zzzzz	Is the area number (001 to 999) or the User number (00000 to 65536)
	<text type>	Is a short abbreviation representing the nature of the <text> message to follow: “Text”: message following is previous alarm as text, using text generated from within the panel. “Cid”: message following is a Contact ID string representation of the previous alarm.. “Ptime”: message following is the time the alarm occurred in text using the panels clock. “SN”: message following is serial number and firmware version of the panel reporting the alarm.

Example1:

*11*08:34:35 05/02/91 CA CLIENT 01234 Close Area 045 By User 00678
01234 Text: MAIN FOYER Close by BILL BLOGGS*

In this example area 045 has been closed by User 00678. The equivalent review text from the panel tells us that the name of area 045 in the Concept 3000 panel is "MAIN FOYER" and the name of User 00678 is "BILL BLOGGS".

Example2:

*11*09:43:39 05/02/91 CA CLIENT 01234 S -> A -> A on E01:Z01 in Area 067
01234 Text: Alarm on MAIN ENTRY DOOR in FACTORY ssA
Cid: 123418115867121;
01234 PTime: Jan01 23:57:12.3
SN 10034 Vers: 01.00 Security \$5F0000*

In this example zone 01 on zone expander 01 has alarmed in area 067. The equivalent review text tells us that the name of zone 01 in the Concept 3000 panel is "MAIN ENTRY DOOR" and the name of area 067 is "FACTORY". The exact time the event occurred in the panel was at 23:57:12.3 on January the 1st. Contact ID data has been also sent to pass onto an Automation system that cannot understand native IRfast format. The serial number of the panel is 10034 and the software version is 01.00.

Example3:

*14*09:43:39 05/02/91 CA CLIENT 01234 S -> AT -> A on R03:Z02 in Area 067*

In this example an alarm signal was received from Concept 3000 client 01234 in Area 67. The 2nd zone on the 3rd reader module went from seal and ended up in alarm. Because the "T" flag is set, the zone also momentarily went into tamper.

Interpretation of ModemII format (Format D1, D2)

ModemII format is a 110 Baud (6112 panels) or a 300 baud (7112,9112 panels) modem format. The various display syntaxes are:

```
RL HH:MM:SS DD/MM/YY d1 CLIENT nnnn tt aabbcc sspp <text> on #pp
RL HH:MM:SS DD/MM/YY d1 CLIENT nnnn tt aabbcc sspp $ss on #pp
RL HH:MM:SS DD/MM/YY d2 CLIENT nnnn tt ssgppqq cc <text>
```

Where	nnnn	Four digit client code.
	tt	Header byte
	ss	Status byte describing the report type
	pp	Zone number or User number
	aabbcc	Additional packet information (6 hex digits)
	qq	Additional packet information (2 hex digits)
	gg	Area information if relevant
	cc	Continuation Byte. Indicates whether more packets are to be sent in this phone call. Only displayed for last packet (2 hex digits)
	<text>	This is a simple interpretation the FE100 places on the message based on the status byte only. If the status byte is not recognised then "\$ss on #pp" is displayed.

Example1:

*11*08:34:35 05/02/91 D1 CLIENT 1234 50 0000a0 7401 Alarm #01*

is an alarm on zone 1 from client 1234.

Example2:

*11*08:34:35 05/02/91 D2 CLIENT 5678 32000500 Close by User 005*
*11*08:34:35 05/02/91 D2 CLIENT 5678 48000500 Mains Fail Alarm*

is a close by user 005 for client 5678 followed by a mains fail alarm.

Interpretation of SIA format (Format E1, E2, E3, E4)

The SIA format is a 110/300 Baud modem format. The actual amount of information and the communication time is very dependent on the panel. A six-digit client code is used. The FE100 will support various features up to level 3. No FE100 programming is required for the display of SIA format because like the Contact ID format all report codes meanings are fixed. The basic display syntax is:

RL HH:MM:SS DD/MM/YY Ex CLIENT nnnnnn i<T> <data> j

Where	nnnnnn	Six digit client code.
	<T>	A single letter representing the block type. Most common block type is “N” representing (N)ew information
	<data>	The actual data content. This comprises a 2 letter data type code followed by numbers.
	i	This optional character may be displayed before the block type to indicate: “.”= This block requires receiver acknowledgement “;”= This block signals that data can now be accepted by client “:”= This block requires acknowledgement, client can accept data
	j	This optional character may be displayed after the data to indicate: “/”= indicates that more information is following and will be displayed on the next line.

(Note that a full list of block types and data types is available from www.siaonline.org)

Example1:

```
11*00:03:06 01/01/91 E3 CLIENT 004567  N ri1/  
                                         N OP40/  
                                         N OR00
```

Format E3 indicates communication has occurred in SIA format using bell frequencies at 300Baud. The client has been identified as 004567. The block type is “N” indicating a new event. “ri1” refers to area 1, “OP40” is an opening by user 40. “OR00” indicates that the opening is a recent opening. The “/” character indicates that more information is present. The FE100 will display the next item on a new line.

The “N”ew event block type is the most common. Other block types are possible depending on the panel type. If the “display all blocks” special option is turned on (see sia.doc) then account blocks (“#”) and control blocks (“0” to “9”) are also displayed. For example:

```
11*00:03:06 01/01/91 E3 CLIENT 000000 # 4567
11*00:13:26 01/01/91 E3 CLIENT 004567 N ri1/
                                     N BA01/
                                     N BH01/
                                     N BV00
11*00:13:26 01/01/91 E3 CLIENT 004567 .0
```

The “# 4567” is the account block received from the panel telling the FE100 who the client is. The client has reported “N”ew events, burglary alarm, restore and verified on zone 1. The “.0” is the “end block” received from the panel informing the FE100 that there is no more data.

Interpretation of System Alarms (Format 1X, 2X)

The FE100 can generate its own information and alarms under some circumstances. For example if the mains power fails on the FE100 this results in a system alarm being saved/displayed. The (L)ine number for these formats is normally random and is generally ignored. The following section explains all the possible system alarm type messages:

RL HH:MM:SS DD/MM/YY FF FE100 SYSTEM <status> <detail>

Where: <status> Is either "ALARM" or "RESTORE"
<detail> Is the actual item that alarmed or restored:

Listed below are the possible system alarms and their meaning:

System Reset

The FE100 has just been powered up, or reset manually or by the watchdog feature.

No Connection, line N

Line N has answered the phone, sent all handshakes but received no information.

No Scanning, line N

The FE100 processor card cannot communication with line N. Line N is not operational. Check ribbon cable connector between line cards and processor card.

Dial tone test, line N

Dial-tone test has been enabled, which tests the line every 10 minutes (if there have been no calls) for the presence of dial- tone and dial-tone has not been detected on line N

Low Battery

The battery float voltage is below 11.7 volts. Battery may be flat, or if there is no battery terminal 240-volt power may be turned off.

A.C. mains power

A.C. power via the plug-pack has failed.

Connect to modem

A caller has rung into the FE100 and "connected" with a modem.

Remote operator

A caller has rung in to the FE100, "connected" with a modem and has entered a legal password to control the FE100 remotely. The FE100 terminal and keyboard will be disabled

Printer status

The printer status line from the printer has gone low, indicating that the printer has been unplugged, de-selected or run out of paper.

Computer status

The computer status line from the computer has gone low, indicating the computer has been disconnected or turned off.

Computer timeout

A computer interface has been chosen which requires acknowledgement of alarm information that is sent to the computer, and the computer has not acknowledged the alarm in time.

Open out of hours: Client nnnn

An opening has occurred out of hours on client nnnn. (See time window facility for more detail).

Client still open: Client nnnn

A time window has expired and a client that should be closed is still open. (See time window facility for more detail).

Close out of hours: Client nnnn

An closing has occurred out of hours on client nnnn. (See time window facility for more detail).

Caller ID

(See "Receiving Caller ID Information" page 111)

Transfer of Alarms to an Automation System

Option “E” in SETUP is used to set-up the protocol to be used to transfer alarms to an Automation system via the computer port. The two most popular protocols are the Ademco 685 and the SurGard protocols. These are described in detail below.

Ademco 685 Protocol

The computer interface for the Ademco 685 protocol is a full duplex RS232 connection. The default FE100 settings are 1200 baud, 8 data bits, 1 stop bit no parity. The baud rate can be altered by using an FE100 special option if required, but is not recommended. The computer connects to the FE100 via the 9 pin socket on the processor card marked "COMPUTER". Shown below are the pin numbers used and their function. All other pins are no connection:

Pin Number	Purpose
2	Serial data output from the FE100 to the computer. Verified alarm signals and status replies are sent on this line. Note that only verified alarms are sent.
3	Serial data output from the computer to the FE100. This line is used to send an acknowledge packet to the FE100 for each alarm received. In addition the computer can request a status reply from the FE100 to check the FE100 is alive and well.
4	Status signal from the computer. The monitoring software must set this line high to tell the FE100 that it can send alarm data. If this line is low then an FE100 Computer status alarm is generated and the FE100 will not send any alarms to the computer. The FE100 needs to see this line high for 3 seconds before considering the status line OK
5	Data Ground
8	FE100 status signal to computer. The FE100 sets this signal high to tell the computer that all is well. The monitoring software should raise an alarm if this line is low.

The computer interface is turned “on” or “off” by setting the computer interface type using option “E” on the Setup screen. Setting the computer type to “Ademco 685” turns on the interface. Setting the interface to “None” turns off the computer interface.

Protocol

Whenever verified alarm information needs to be sent to the computer the FE100 will initiate a transmission. All data sent to the computer in Ademco 685 mode starts with a line feed character (\$0a) and ends with a carriage return. (\$0d). There are a number of different formats which can be used depending on the type of alarm. (See table later)

The computer must send an acknowledge character (ACK) within 2 seconds of receiving the alarm packet. The acknowledge character is a single byte, hex value = \$06). If the ACK character is not received within 2 seconds then the alarm packet is re-sent by the FE100 and a Computer timeout system alarm is generated. The alarm packet is re-sent continuously every 2 seconds until an ACK character is received.

It is possible to send a NAK character (\$15) if the alarm data is not understood. If the FE100 receives a NAK whilst waiting for an ACK then the alarm packet will be re-sent immediately.

Whilst no alarms are being received the Computer can send a status request character to the FE100 to check the receiver is still OK. The status request character is the letter "S" (\$53). This will result in a status reply packet being sent back to the computer. The computer should send an "S" character every minute or so whilst no alarms are being received.

When a packet is received from the FE100, the computer should check whether it matches any of the expected formats and if so an ACK can be sent and the packet processed. If the format is not recognised, a NAK should be sent to cause the packet to be repeated. If the packet timing is uncertain, rather than send a NAK simply wait 2 seconds and the packet will be resent anyway. After 3 tries or so with the wrong format, the packet should be saved to an error file, and an ACK should be sent and an operator alerted to the problem.

The checks that should be performed on the packet are:

- Starting with a linefeed and ending with a carriage return.
- The correct placement of spaces
- Data is of expected type

The table below shows all possible variations of what can be sent to the computer. Note that the commas are not sent.

Slow Speed Formats	lf,R,L,spc,S,S,S,spc,A,cr R = Receiver number (1 to 8) L = Line number (1 to 8) SSSS = Account code (0000 to 9999) A = alarm code (0-9, A-F)
4+2 Formats	lf,R,L,spc,S,S,S,spc,E,I,cr R = Receiver number (1 to 8) L = Line number (1 to 8) SSSS = Account code (0000 to 9999) E = 1 st alarm code (0-9, A-F) I = 2 nd alarm code (0-9,A-F)
High Speed Formats	lf,R,L,spc,S,S,S,spc,c,c,c,spc,C,C,C,spc,N,cr R = Receiver number (1 to 8) L = Line number (1 to 8) SSSS = Account code (0000 to 9999) cccc = Channels 1 to 4 (0-9, A-F) CCCC = Channels 5 to 8 (0-9, A-F) N = 9 th channel
Contact ID	lf,R,L,spc,S,S,S,spc,18,spc,Q,X,Y,Z,spc,G,G,spc,M,##,##,cr R = Receiver number (1 to 8) L = Line number (1 to 8) SSSS = Account code (0000 to 9999) 18 = Characters "18" (\$31 and \$38) Q = event code ("E", "R" or "P") XYZ = message (000 to 999) GG = group (00 to 99) M = point type ("C" or "U") ### = Point (000 to 999) Note that some receivers will insert an additional space just before the carriage return.

spc = space (\$20)

cr = carriage return (\$0d)

lf = line feed (\$0a)

Status Reply	If,R,L,spc,OKAY,spc,@,cr R = Receiver number (=0) L = Line number (=0) OKAY = Characters “OKAY” @ = Character “@”
Caller ID (with verified panel data)	If,R,L,spc,spc,S,S,S,TTTTTTTTTT,cr R = Receiver number (1 to 8) L = Line number (1 to 8) SSSS = Account code (0000 to 9999) TTTTTTTTTT = telephone number (Note: telephone number is exactly 10 characters, with leading spaces inserted if required.)
Caller ID For a No Connect	If,R,L,spc,spc,S,S,S,TTTTTTTTTT,cr Same as above except SSSS = the Receiver client code (default = 9999)
Caller ID (with unverified panel data)	If,R,L,spc,F,F,TTTTTTTTTT,cr R = Receiver number (1 to 8) L = Line number (1 to 8) FF = Format Identifier egs 70 = CFSKIII, 30 = 1400Hz slow format etc. TTTTTTTTTT = telephone number (Note: telephone number is exactly 10 characters, with leading spaces inserted if required.)

spc = space (\$20)

cr = carriage return (\$0d)

lf = line feed (\$0a)

Alarm Signal Interpretation

Slow Speed Formats

These formats have a 4 digit account code and a single alarm digit. The client code and the alarm code are normally decimal but hex should be allowed for. Note that each client may ascribe different meanings to the alarm code sent.

4+2 Formats

These formats have a 4 digit account code and a 2 alarm digits. DTMF digits or tone pulses may be used to send the alarm. The client code and the alarm codes are normally decimal but hex should be allowed for. The 1st alarm digit normally represents the type of alarm and the 2nd digit the alarm detail. For example if a “1” means alarm and a “3” means restore then “14” is an alarm on zone 4, “37” is a restore of zone 7. If “9” means opening then 96 would be an opening by user 6.

Note: Some alarm panels do not follow the rule above; the monitoring package should allow arbitrary meanings to be assigned to all possible 256 pairs, per client.

High Speed

This format is different from all other formats in that the status of all 8 zones is sent in one transmission. After the 4 digit client code are 8 “channels” of information and one extra channel (called the 9th channel). Interpretation starts by looking at the 9th channel first. The value of the 9th channel determines how the preceding 8 channels should be interpreted. Note that high speed format is only really suitable for panels with 8 zones or less. The table below shows the possibilities.

Report type	9 th Channel	Channels 1 to 8
Duress Report	1	“DZZZZZZZ” “1” = new duress alarm on zone 1 to 8 “3” = new duress restore on zone 1 to 8 “5” = normal (all ok) “6” = old duress alarm on zone 1 to 8 “D” (Channel 1) = duress “Z” (Channels 2 to 8) used for zones 9 to 15
Opening Report	2	“U2222222” U = User (0 to 9, A-F) (“0” = “A”)
Bypass (Isolate) Report	3	“ZZZZZZZZ” “1” = new isolate on zone 1 to 8 “3” = new isolate restore on zone 1 to 8 “5” = normal (all ok) “6” = still isolated on zone 1 to 8
Closing Report	4	“U4444444” U = User (0 to 9, A-F) (“0” = “A”)
Trouble (Tamper) Report	5	“ZZZZZZZZ” “1” = new tamper on zone 1 to 8 “3” = new tamper restore on zone 1 to 8 “5” = normal (all ok) “6” = still in tamper on zone 1 to 8

System Trouble Report	6	“MBSWCFXT” “1” = new alarm on channel “3” = new restore on channel “5” = normal (all ok) “6” = still in alarm on channel “M” (Channel 1) = Power fail “B” (Channel 2) = Low battery “S” (Channel 3) = System fault “W” (Channel 4) = Watchdog fault “C” (Channel 5) = Comms problem “F” (Channel 6) = Comms Fail “X” (Channel 7) = Not normally used “T” (Channel 8) = Walktest
Zone Alarm Report	7	“ZZZZZZZZ” “1” = new alarm on zone 1 to 8 “3” = new alarm restore on zone 1 to 8 “5” = normal (all ok) “6” = still in alarm on zone 1 to 8
Low battery Report	8	“ZZZZZZZZ” “1” = new alarm on zone 1 to 8 “3” = new alarm restore on zone 1 to 8 “5” = normal (all ok) “6” = still in alarm on zone 1 to 8 plus have low battery alarm
Test Report	9	“ZZZZZZZZ” “1” = new alarm on zone 1 to 8 “3” = new alarm restore on zone 1 to 8 “5” = normal (all ok) “6” = still in alarm on zone 1 to 8 plus this is a test report

Notes:

- Low battery can be reported with a system trouble report or a low battery report.
- The channel meanings for a system trouble report may vary for some panels
- A duress report is often used to report zones 9 to 15.
- All possible hex digits should be allowed for and displayed if received. The report should be considered an alarm.

Contact ID

This format reports single alarm per report but allows the alarm panel to give some indication to the type of alarm by using pre-defined messages. Recall that:

18 = Characters "18" (\$31 and \$38)

Q = event code ("E", "R" or "P")

XYZ = message (000 to 999)

GG = group (00 to 99)

M = point type ("C" or "U")

= Point (000 to 999)

The interpretation starts with the message XYZ. The message meanings are fixed no matter what the panel, however not all message types are defined. The computer should handle all possible messages 000 to 999. If a message is not defined it should be treated as an alarm. (See table at the end)

If the message is an open/close message then Q indicates:

"E" = opening, "R" = closing

If the message is not an open/close message then Q indicates:

"E" = new alarm, "R" = new restore, "P" = old alarm (not normally used)

The Group "GG" represents an area number or partition number if the panel supports multiple partitions. For panels with 1 partition (area) GG = "00" or GG = "01", otherwise multi-partitioned panels up to 99 areas can be reported.

The point type is either "U" for an open/close report or a "C" for any other report. The contact point, "###" is either a user ID for an open/close report or a zone number for any other report.

Notes:

- Unknown messages should be displayed and treated as alarms
- Ademco documentation says digits are hex but all implementations so far a decimal
- Many of the messages are only meaningful in the US market. Panels will use a message number closest to the alarm type they are trying to send.

System Alarms Transfer

The FE100 informs the computer about status changes as if it was a 4+2 client, account code “9999”.

The table below sets out what 4+2 codes refer to what system alarms:

4+2 Code	System Alarm
01	Printer status alarm
02	Printer status restore
03	Low Battery
04	Battery restore
05	Computer status alarm
06	Computer status restore
13	Computer timeout alarm
14	Computer timeout restore
15	AC fail
16	AC restore
20	Dial Test/Direct in/Direct out/Switched out line fail (L = line #)
30	Dial Test/Direct in/Direct out/Switched out line restore (L = line #)
40	No connect alarm (L = line #)
D0	System reset
FX	No scanning alarm (X = line #)

The client code used for the “computer” is “9999” but may be changed by special options \$01EE for the 1st digits and \$01EF for the 2nd two digits.

Caller ID transfer

Caller ID information can be transferred using the standard Ademco 685 interface by setting the required special option.

If a special option is set to 020a20, then caller ID information will be sent if verified panel data is decoded.

If a special option is set to 020a04, then caller ID information will be sent if unverified panel data is decoded.

If a special option is set to 020a01, then caller ID information will be sent if a “No Connect” is received.

(See previous section for format of the caller ID packet)

C&K Panel Ring-back

A computer connected to the FE100 with the Ademco 685 or the Surgard protocol can transfer C&K account type information to the FE100. This means that when a particular C&K panel calls the FE100 in CFSKIII format, the FE100 can instruct the panel to initiate a call to a separate download number.

The FE100 can store up to 32, 6 digit C&K account codes. When the FE100 receives a call from a C&K 23xx type panel in CFSKIII format, it will check to see if that account code is present in the list stored within the FE100. If it is present then that panel will be instructed to call-back its pre-programmed call-back number. The account code in the list will then be marked to indicate that the call-back request has been sent, and will be ignored from then on.

The FE100 account code list must be maintained by the computer. Entries can be read and written at any time with two additional commands. The computer needs to keep track of what entries are being used at any time.

A special option must be set to allow these additional commands to work. The special option is 020a08. Note that if Caller ID transfer is also required, you will need to set the special option to 020a28 (Caller with verified data) or 020a0d (Caller ID with unverified data & No Connects)

The commands are:

Read Entry	KRii<cr>	KR = ascii “K” and ascii “R” ii = Index number to read expressed as 2 hex digits. Legal values are 00 to 1F (31 decimal) <cr> = carriage return (hex \$0d)
Write Entry	KWiiffffaaa<cr> >	KR = ascii “K” and ascii “W” ii = as above ff = flags (see below) aaaaaa = account code in swapped nibble format.

If the command is accepted the FE100 will reply with:

<lf>KRiiffaaaaa<cr> in the case of read or
<lf>KWiiiffaaaaa<cr> in the case of write

If the command is not accepted then the FE100 will discard all incoming characters for a period of 5 seconds. (After sending the command, the computer should wait 5 seconds for a reply, before trying again.)

The flags at present are:

00	Entry not present
80	Entry present, panel hasn't rung yet
C0	Entry present, panel has rung FE100 and call-back been initiated

Notes:

- The computer baud rate should be 1200 Baud or less.
- The commands should not be sent faster than once every 5 seconds.
- The computer must keep track of the list
- The account code digits must be entered in swapped nibble format:

Swapped Nibble format

Examples

To initiate callback for client 123456, the account digits are entered (and read) as 214365.
To initiate callback for client 009876, the account digits are entered (and read) as 008967.

Note that each pair of digits is swapped.

Format Translation

Some formats received by the FE100 are not easily transferred using the Ademco 685 interface. For these formats the information is translated to format that can be transferred using the Ademco 685 interface.

CFSK Format

Information from Eclipse panels (Format = 81) and 238, 238i panels (format = 71 is converted to a 4+2 Express type alarm string.

Information from 2316, 2316i, 234, 236 and 118 panels (Format = 72/74) is converted to an Ademco Contact ID type alarm string. Note that the Group is always set to 00. The tables below show the Contact ID translation that is used.

Report type	Contact ID Message
\$01 Zone alarm.	"E140"
\$02 Zone alarm restore.	"R140"
\$03 Zone shunt.	"E570"
\$04 Zone shunt restore	"R570"
\$05 Status event.	See next table
\$06 Opening.	"E401"
\$07 Closing.	"R401"
\$08 Duress.	"E121"
\$09 Test.	"E601"
\$0a Cancel.	"E406"
\$0b Soft zone A.	"E100"
\$0c Soft zone B.	"E110"
\$0d Soft zone C.	"E120"
\$0e Zone trouble.	"E380"
\$0f Zone trouble restore.	"R380"
\$10 Real time clock set.	"E305"
\$11 Zone tamper.	"E383"
\$12 Zone tamper restore.	"R383"

When the report is a status type report, the following table is used:

Status Event type		Contact ID Message
Event \$01	Low battery alarm	"E302"
Event \$02	AC fail alarm	"E301"
Event \$03	Siren fuse alarm	"E320"
Event \$04	Illegal	"0000"
Event \$05	Fail to communicate	"E354"
Event \$06	Low battery restore	"R302"
Event \$07	AC power restore	"R301"
Event \$08	Siren fuse restore	"R320"
Event \$09	Illegal	"0000"
Event \$0a	Illegal	"0000"
Event \$0b	Watchdog reset	"E307"
Event \$0c	Completed programming	"E306"
Event \$0d	Watchdog reset	"E307"
Event \$0e	Completed programming	"E306"

ModemII Format

ModemII information is translated to Contact ID for transfer to the Automation system. The translation is different for ModemII-a and ModemII-b.

Modem_a Contact ID Translation

Description	Message	Group	Point
Test	E600	00	Ignore
Close	R402	00	User #
Open	E402	00	User #
Restore	R130	00	Zone #
Cancel	E402	00	User #
Trouble	E383	00	Zone #
Alarm	E130	00	Zone #
Isolate	E573	00	Zone #
Unknown status	E700+status (status = 0 to 255)	00	Identifier

Modem_b Contact ID Translation

Description	Message	Group	Point
Zone Isolate	E573	Ignore	Zone #
Zone Alarm	E130	Ignore	Zone #
Zone Tamper	E383	Ignore	Zone #
Zone Restore	R130	Ignore	Zone #
Opening by User	E402	Ignore	User #
Cancel by User	E402	Ignore	User #
Closing by User	R402	Ignore	User #
Close by User	R402	Ignore	User #
Partial Close	R402	Ignore	User #
Comms Test	E602	Ignore	Ignore
Mains Fail	E301	Ignore	Ignore
Mains restore	R301	Ignore	Ignore
Low Battery	E302	Ignore	Ignore
Low Battery restore	R302	Ignore	Ignore
Power Up	E305	Ignore	Ignore
Sked Executed	E409	Ignore	Ignore
Unknown Event	E700+status (status = 0 to 255)	Group	Identifier

If the event is un-identified, it will be transferred as Emmm where mmm is the un-identified event # plus 700, with the User # (if relevant) transferred as the Contact ID group and the Identifier as the Contact ID point.

IRFast Format (C1000/C2000 panels)

IRFast format is translated to Contact ID as follows:

<u>Information</u>	<u>Message</u>	<u>Group</u>	<u>Point</u>
Zone Isolates	570	00	001 to 208
Zone alarms	140	00	001 to 208
Zone Tamperers	302	00	001 to 208
Area 9 alarms	140	00	097 to 160
Area open/closes	402	01-09	000 - 999

IRFast Format (C3000/C4000 panels)

To transfer IRFast format for Concept 3000/4000 panels, the format must be configured to cause the panel to send Contact ID strings along with IRFast. In this instance the actual Contact ID mapping occurs in the panel not at the FE100.

(See panel documentation for various Contact ID maps that are used)

Acron Format

All data can be transferred to an Automation system using a modified Ademco Fast format. If a channel is in the normal status ("0") then it will be sent to the automation system as an ascii "." (\$2e hex) instead of the usual "5". (This can be altered via a special option 1B79xx where xx = ascii code of desired character)

As a default, if a dtmf "a" digit is received it will be translated to a "0". This means the FE100 will not distinguish between a dtmf digit "0" and a dtmf digit "a". To allow the FE100 to distinguish between an "0" and an "a" set the special option 1b7804.

If you wish to distinguish between an "0" digit and an "a" digit when receiving data but not distinguish between "0" and an "a" *in the client code only* that is transferred to an automation system then set the special option 1b780c.

SIA Format

SIA cannot be transferred using the Ademco 685 Protocol. The SurGard protocol must be used.

Ademco 685 Protocol Special Options

0207XX		Time to wait for an ack back in 100ms increments. Default is \$14 hex = 20 decimal = 20 * 100ms = 2 secs If set to 0 then FE100 will not require an ack.
0208XX	Bit 0 set	Do not set
	Bit 1 set	Do not set
	Bit 2 set	Do not set
	Bit 3 set	Do not set
	Bit 4 set	Don't use Line number in system alarm transfer
	Bit 5 set	Map 4+2 Open/Closes to an Ademco fast string
	Bit 6 set	Do not set
	Bit 7 set	Use RL to transfer a Tecom V1 & C&K format to 6 digit client code
0209XX		Do not use
020aXX	Bit 0 set	Transfer Caller ID with no connect
	Bit 1 set	Turn on debug format
	Bit 2 set	Transfer Caller ID with unverified panel data. (no account code)
	Bit 3 set	Allow C&K commands for callback clients.
	Bit 4 set	Turn off automatic baud-rate refresh
	Bit 5 set	Transfer Caller ID with verified panel data. (includes account code)
	Bit 6 set	Transfer ModemII formats as a Surgard type "6" string
	Bit 7 set	Transfer Irfast formats with an "ir" header.

Note that default for 0208XX, 0209XX and 020aXX is no bits set.

Surgard Computer Protocol

The Surgard Computer protocol emulate a SurGard Receiver and allows SIA dialler format information and Caller ID information to be transferred to an automation system. In addition Radionics ModemII can also be transferred without a Contact ID translation if desired.

Protocol

Whenever verified alarm information needs to be sent to the computer the FE100 will initiate a transmission. All data sent to the computer in SurGard 685 mode starts with a format identifier character and ends with an end byte (\$14 hex). There are a number of different formats, which can be used depending on the type of alarm. (See table later)

The computer must send an acknowledge character (ACK) within 2 seconds of receiving the alarm packet. The acknowledge character is a single byte, hex value = \$06). If the ACK character is not received within 2 seconds then the alarm packet is re-sent by the FE100 and a Computer timeout system alarm is generated. The alarm packet is re-sent continuously every 2 seconds until an ACK character is received.

It is possible to send a NAK character (\$15) if the alarm data is not understood. If the FE100 receives a NAK whilst waiting for an ACK then the alarm packet will be re-sent immediately.

Whilst no alarms are being received, every 60 seconds the FE100 will send a test message. No acknowledge is required by the FE100 to a test message and should not be sent.

When a packet is received from the FE100, the computer should check whether it matches any of the expected formats and if so an ACK can be sent and the packet processed. If the format is not recognised, a NAK should be sent to cause the packet to be repeated. If the packet timing is uncertain, rather than send a NAK simply wait 2 seconds and the packet will be resent anyway. After 3 tries or so with the wrong format, the packet should be saved to an error file, and an ACK should be sent and an operator alerted to the problem.

The checks that should be performed on the packet are:

- Starting with a legal identifier and ending with a \$14 byte.
- The correct syntax.
- Data is of expected type

The first digit sent in the Surgard protocol is termed the report type. The table below shows all report types currently used by the FE100. The “s” letter represents a space character.

Generic 1RRLssssAAAAAAsXssYY <i>Note 1</i>	RR = receiver number L = Line number AAAAAA = Account code X = Event Code (default = space) G = Area Number YY = Zone number or user number
Sia SRRL[#AAAAAA[sia blocks]	sia blocks are transferred to the automation system as they were received from the panel
Caller ID 4RRLAAAAAATTTTTTTTTT	TT = Telephone number (Leading spaces are used if telephone number is less than 10 digits)
Contact ID 5RRLs18AAAAQXYZGGCCC	QXYZ = Contact ID event and message GG = Group CCC = Contact ID point
Modem II 1RRLssssssAAAAXXYYYY	
Ademco High 8RRLAAAsCCCCsCCCCsC	CCCC = Channel data
Acron Super Fast 9RRLssssAAAACCCCCCCC	
IRFast IRRLddddddddd	dddd = IR native data (see ademir.doc)

Note1 Client codes less than 6 digits have leading spaces
Alarm codes of 1 digit have a leading space.

System Alarms are transferred the same as that for the Ademco 685 Protocol.

SurGard Protocol Special Options

IBF0XX		Time to wait for an ack back in 100ms increments. Default is \$14 hex = 20 decimal = 20 * 100ms = 2 secs If set to 0 then FE100 will not require an ack.
IBF1XX	Bit 0 set	Do not set
	Bit 1 set	Do not set
	Bit 2 set	Do not set
	Bit 3 set	Do not set
	Bit 4 set	Do not set
	Bit 5 set	Do not set
	Bit 6 set	Do not Set
	Bit 7 set	Set to use leading "0" for caller id transfer instead of spaces
IBF2XX		Common event code used for type "1" messages. Default is space
IBF3XX	Bit 0 set	Do not set
	Bit 1 set	Turn on debug format
	Bit 2 set	Do not set
	Bit 3 set	Allow C&K commands for callback clients.
	Bit 4 set	Turn off automatic baud-rate refresh
	Bit 5 set	Don't send CallerID type "4" strings
	Bit 6 set	Do not set
	Bit 7 set	Transfer Irfast formats as a Surgard type "I" string.

Receiving Caller ID Information

Caller ID information can be received, displayed and printed by the FE100, and transferred to an automation system. To receive Caller ID you need to:

- Ensure your service provider can provide the service (at the right price!)
- You must have FE100-LX line cards fitted (Line Card version 03 or later)

Every telephone call received by the FE100 is checked to see if calling line identity information is present and if so it is decoded and saved to the FE100 buffer just before the call is answered. The buffer entry is displayed on the FE100 VIEW screen and also printed to the printer in a “Current Alarms” report. The format of the display is as follows:

12 18:25:56 03/08/98 11 <field1> <field2> <field3>

The various fields contain information from the network about the calling party:

Field Examples	Description
Time: 03/08 18:34	This indicates the call was received on August 3 rd at 6:34 PM
Caller: 0148678345	This is the Callers telephone number
Name: BILL BLOGGS	This is the Callers name
No Number P	No Caller telephone number because it has been blocked.
No Number O	No Caller telephone number because it is unavailable

If the received data is invalid then the display will be:

12 18:25:56 03/08/98 11 CallerID = \$nnnnnnnnnnnnnnnn.....

If no Caller ID information was detected then the display will be:

12 18:25:56 03/08/98 11 No Caller ID

(Setting the “No Null” option under line card programming will prevent this message)

Selected Special Options

There are many hundreds of special options, most of them associated with format communications. Because of the technical nature of these options, it is not appropriate for the average operator to adjust them; rather they are reserved for use on advice by the manufacturer to adjust the FE100 under unusual circumstances.

The table below describes some of the special options in broad detail, with a few specific ones listed that are more commonly altered.

Special Option Name	Description	Number
MAINS_FREQ	Set mains frequency Xx = 32(50Hz), 3C(60Hz), 00 = no sync	014Exx
COMP_BAUD	Set Computer port baud rate Xx=05(30), 06(600), 07(1200), 0e(9600)	01E6xx
COMP_CONFIG	Set Computer port parameters	01E7xx
ASCII_FIG	Set ASCII dump parameters	0203xx
SYSTEM_RL	Set to use a fixed RL for system alarm transfer	0205RL
COMP_BEEP_CON	Set to prevent beeper on computer fail	020600
AD685_FIG	Set Ademco 685 interface parameters (See page 107)	0207xx
FE100_FIG	Set FE100 interface parameters	020Bxx
PRINT_BAUD	Set printer port baud rate Xx=05(30), 06(600), 07(1200), 0e(9600)	033Cxx
PRINT_CONFIG	Set Printer port parameters	033Dxx
TERM_BAUD	Set terminal port baud rate Xx=05(30), 06(600), 07(1200), 0e(9600)	0457xx
MAX_BTIM	Maximum buffer hold-off time (sec)	07C7xx
LINE_HTIM	Line hold time for line test (100ms)	07C8xx
LINE_TTIM	Time between line tests (min)	07C9xx
LINE_CONFIG	Line parameters	0800xx-0FFFxx
HAND_FIG	Handshake parameters	1000xx-10FFxx
ADFAST_FIG	DTMF format parameters 110314 = Set data wait to 2 sec,	1100xx-110Fxx
IEIFAST_FIG	IEI Fast format parameters	1200xx-120Fxx
SLOW_FIG	Slow (pulse) format parameters	1220xx-122Fxx
MODEM_FIG	Modem Connect parameters	1240xx-124Fxx
PAGER_FIG	Pager parameters	1250xx-1260xx
FE100_ID	FE100 Computer protocol parameters	1520xx-1523xx
CK_FIG	CFSKII/III format parameters	15C0xx-15C7xx

	15C6C1 = Bell freqs for China	
DIRECT_FIG	FE100-FE100 parameters	15C8xx-15D7xx
IRFAST_FIG	Irfast (C1000/C2000) format parameters	1A38xx-1A47xx
ENET_FIG	EarthNet format parameters	1AA8xx-1AB8xx
ACRON_FIG	Acron format parameters	1B68xx-1B7Fxx
C3000_FIG	Irfast (C3000/C4000) format parameters	1B80xx-1B9Fxx
MODEM2_FIG	ModemII format parameters	1BA0xx-1BAFxx
TECOM_FIG	TecomV1 parameters	1BB0xx-1BBFxx
CALLERID_OPTS	CallerID Options	1BC0xx
REQUIRED_55	CallerID required sync chars 1BC105=Reduce Caller ID sync requirement	1BC1xx
CALLERID_WAIT	Wait time for caller ID (100ms)	1BC2xx
RING_QUAL_TIME	Min ring time (10ms)	1BC3xx
SIA_FIG	SIA format parameters	1BD0xx-1BEFxx
SURGARD_FIG	Surgard Computer protocol parameters (See page 110)	1BF0xx-1BF3xx
CKEXTRA_FIG	CFSKII/III extra parameters	1C74xx-1C7Bxx

Adding a line Card

The FE100 can accommodate up to 4 dual line cards, each dual line card having two independent lines, providing a total of 8 lines maximum. Each line card in the FE100 system is numbered 1 to 4. The line cards relate to the line numbers as set out in the table below:

<u>Line card</u>	<u>Line card A/B</u>	<u>Line No.</u>
<i>Line card 1</i>	LINE A (top line) LINE B (lower line)	Line 1 Line 2
<i>Line card 2</i>	LINE A (top line) LINE B (lower line)	Line 3 Line 4
<i>Line card 3</i>	LINE A (top line) LINE B (lower line)	Line 5 Line 6
<i>Line card 4</i>	LINE A (top line) LINE B (lower line)	Line 7 Line 8

Note that each line card in the FE100 system must have its own number. The 4 jumper pins marked "ADDRESS" near U01 are used to set the line-card address as shown below:

<u>Line Card No.</u>	<u>Jumper pins 1 and 2</u>	<u>Jumper pins 3 and 4</u>
1	No	No
2	Yes	No
3	No	Yes
4	Yes	Yes

Line cards should only be added (or removed) with all power disconnected from the FE100, including the back-up battery.

After a line card has been added and the FE100 has been powered up, you need to tell the FE100 receiver that new lines have been added. To do this, simply choose the correct line to configure in SETUP, option "D", and define a handshake for that line. This will automatically configure the line card.

If a line card is not connected but one or more of the handshakes for that line (card) is set to a legal handshake, the FE100 will attempt to talk to that line card and in doing so create an FE100 System alarm, "No Scanning". This alarm will re-occur every 10 seconds as the FE100 attempts to talk to the line card.

Note that if you leave the FE100 in this condition then the buffer will be filled up with "No scanning Alarms" and eventually a Buffer Full condition will be created (See page 116)

Simply make all handshakes for the relevant lines equal to "None" and the FE100 will no longer "talk" to that card.

If the FE100 is powered up with a line card that has no handshakes programmed for either of the lines, then all 6 indicator lamps on the line card will be flashing when the receiver is first powered up. If only one of the lines on the line card is not configured then only the 3 indicator lamps relevant to that line will be flashing. Defining at least one handshake for the relevant line(s) will cause the flashing to cease.

Buffer Full Warning

The alarm reports received by the FE100 receiver are placed in a large memory buffer by the FE100. This memory buffer may be up to 5000 message reports long. The FE100 can be configured to pass on alarms received into its memory buffer to 3 locations:

An External Printer	(Current alarm report in the REPORT menu.)
An External Computer	("E" option in SET-UP menu.)
The Terminal Screen in VIEW mode.	("F" option in SET-UP menu.)

If any one of these 3 operations has been programmed to process alarm reports and stops doing so for an extended period of time, then the buffer will eventually fill up and **NO MORE CALLS WILL BE ACCEPTED BY THE FE100.**

If this occurs then a continuous beeper will sound on the processor card within the receiver, and will not stop until sufficient space in the buffer becomes available.

EVEN TURNING OFF THE FE100 THEN TURNING IT ON AGAIN WILL NOT CLEAR THE PROBLEM BECAUSE THE FE100 REMEMBERS ITS HISTORY BUFFER CONTENTS ON POWER DOWN.

Typing F1 to select the Welcome screen will tell you why the buffer is considered to be full

There may be 3 reasons why the buffer is full :

1. Terminal Acknowledge is turned on ("F" option in SETUP) and the operator has not acknowledged the last 2000 - 5000 alarms by pressing the "A" key in VIEW mode. To remedy, either turn terminal acknowledge off (all unacknowledged alarms will be acknowledged) or start acknowledging alarms using the "A" key in VIEW mode until the beeper stops.
2. A printer "Incoming Alarms" report is in progress but cannot use the printer because it has problems, or the printer is being used for another report. The buffer message on the REPORT screen will say "Saving Alarms". To remedy, fix the printer or abort the Incoming Alarm report by using "Stop Report" and answering yes to the question "Stop Saving alarms?" The buffer message should now say "Not Saving Alarms".
3. The computer interface has been selected to a valid computer interface, and the computer has been off-line for 2000 to 5000 reports. To remedy, fix the computer or de-select the computer interface by selecting no computer interface. (If computer interface is set to none or altered, past alarms not yet transferred to the computer will be lost.

Communication Errors

When a line card receives verified information, the appropriate alarm report is displayed in English language text. Because all information is displayed there is no requirement to display the actual raw information digits that were received by the FE100.

If an error occurs, however, the FE100 will display whatever information was received on the line along with an error number, which describes why the communication failed. Every unverified message within a phone call is displayed. The format identifier will always end in "0" for unverified information. For example \$70 is unverified CFSK. The error number will either be displayed at the start of the string or the end of the string. Each "string" of numbers depends on the format received. At the end of the string of numbers is an Error number describing the reason for the error.

An occasional error string is normal depending on the quality of the phone line and the digital alarm communicator involved. If an error persists with a particular client then obtain advice from your distributor. Listed below are typical error numbers for different formats:

Ademco fast, Extended 4+2 pulse, 4+2 Express or Contact ID

<u>Error</u>	<u>Description</u>
--------------	--------------------

0	A dtmf tone lasted too long (> 300ms)
1	A partial round was received
2	Two subsequent rounds did not compare
3	Illegal number of dtmf tones
4	Number of tones altered between two rounds
5	Checksum digit failed
8	Too much information received to fit in line buffer

Slow formats

<u>Error</u>	<u>Description</u>
--------------	--------------------

0	A data tone lasted too long
1	Packet Framing error
2	Not enough data received for frame
3	Rounds don't compare
4	Illegal number of digits
5	Format mismatch mid-round
6	Checksum failed
7	Tone length in-consistent with format (too long)
8	Too much information received to fit in line buffer
9	Tone length in-consistent with format (too short)
10	Tone length in-consistent with format (too long)

C&K formats

Error Description

- | | |
|---|----------------------------|
| 1 | No reply after 2 tries |
| 2 | Carrier hasn't dropped |
| 3 | Too many bytes received |
| 4 | Less than 2 bytes received |
| 5 | Checksum has failed |

IRfast format (C1000/C2000 panels)

Error Description

- | | |
|---|--------------------------------|
| 1 | Time-out waiting for reply |
| 2 | Not enough bytes received |
| 3 | Checksum or encryption problem |
| 4 | Illegal IR version |
| 5 | Lost Carrier |
| 8 | Illegal command - call doug |
| 9 | Too many bytes received |

IRfast format (C3000/C4000 panels)

Error Description

- | | |
|----|---|
| 1 | Timeout waiting for enough bytes |
| 2 | Packet incomplete |
| 3 | CRC error |
| 8 | Lost carrier |
| 9 | Too many bytes received |
| 10 | Too many bytes received whilst waiting to send. |
| 15 | Logoff command was sent |

Modem II format

Error Description

- | | |
|---|------------------------------|
| 1 | Checksum Fail |
| 2 | Less than 10 bytes |
| 3 | Too many bytes (>100) |
| 4 | Carrier didn't drop in time. |

SIA format**Error < \$80 means no data received****Error => \$80 means had data***Non-Fatal Errors*

\$01 = Timeout for speed sync

\$02 = Timeout for steady tone

\$03 = Timeout for any bytes

Fatal Errors

\$11 = Carrier > 12 secs

\$12 = Carrier loss

\$13 = Too many Naks

\$14 = Abort block Rxed

\$15 = Got tonal ack when no data sent

\$16 = Too many re-sends

\$17 = Got tonal ack when not required.

\$18 = Rxed ack/disconnect from Tx

\$1f = Maximum online time exceeded

Bit 0 set = Had LRC error

Bit 1 set = overrun error

Bit 2 set = parity error

Bit 3 set = framing error

Bit 4 set = Byte timing error

Bit 5 set = Too many bytes error

Bit 6 set = Lost carrier error

Bit 7 set = Got data

FE100 Paging Facility

The FE100 paging facility allows the FE100 to send alarm information to an alpha-numeric pager via any of the major paging networks in Australia or using the PACNET network in New Zealand. Networks which have been tested include Telecom Australia, Skypage, Link, Hutchisons Telecom and PACNET. The intention of this feature is to allow alarm messages from diallers which report into the FE100 receiver or FE100 system alarms to be sent to a pager if the FE100 is un-attended.

How it works

When an alarm is received by the FE100 receiver it may be displayed on the FE100 screen (VIEW mode) and optionally printed to a printer. (Incoming alarms report)

If the pager mode is selected and the report contains alarm (or restore) information, then the FE100 receiver will automatically dial up the paging network computer and transfer a paging message using the PET protocol. The success (or otherwise) of the phone call will be displayed on the FE100 screen.

Note that if the report from the dialler was only an opening, closing or a test report, then no page will be initiated.

The message format transferred to the pager is very similar to that displayed on the FE100 VIEW screen. The receiver number, line number, format and date are not sent to the pager, but the time, client code and descriptive information are sent.

For example, the ademco fast message :

"11 10/30/91 10:34:34 B2 CLIENT 1234 ZONE ALARM Cha 1 Window"

would be sent to the pager as :

"Time=10:34:34****CLIENT 1234 ZONE ALARM Cha 1 Window"

An option in SETUP pager is to allow the 1st line or 2nd line of the recall notes to be sent from the client data-base in addition to the alarm information. This option should not be used with Telecom pagers due to their limited message lengths.

When a page is required to be sent, the FE100 will use the highest line number not being used to initiate the call. If all lines are being used, the FE100 will wait in-definitely for a line to become available.

When a line becomes available the FE100 will dial up the network computer and transfer the paging message to the pager. Before hanging up, the FE100 will check for any further alarms that may have arrived in the meantime and send them as well. Up to three paging messages may be sent per phone call.

If the call fails for any reason, an error message will be displayed and the FE100 will try again. Up to 3 phone calls will be made to try and transfer the information to the pager before the page is abandoned. (A "Page failed" message will be displayed if this occurs)

Setting up the FE100 to initiate paging is very simple. Simply go to the SETUP menu and select "J" for "Set pager". See page 48 for more details.

Turning off the pager facility

The FE100 pager can be turned off by simply selecting the Computer interface to be "None" in the SETUP menu. Re-selecting the computer interface to "Pager" will again enable the FE100 paging facility.

Did the page work ?

The FE100 keeps a record of the paging process by creating "FE100 PAGER" entries that will be displayed in VIEW mode, and will be printed in any alarm reports. For each successful page the message :

FE100 PAGER CCCC to 00 Page Ok

will be printed, where CCCC is the relevant dialler client code that contained the alarm. If a page fails (that is the FE100 has given up sending a particular item) the message :

FE100 PAGER CCCC to 00 Page Failed

will be printed.

Under some circumstances special error numbers will be printed as follows :

FE100 PAGER CCCC to 00 Error = EEEE

where EEEE is the error number. This may indicate difficulty with the call. The error number meanings are listed below:

Before modem connect

0209	No dial-tone prior to dialling.
020a	No modem answer tone or carrier.
020b	No marked data.
020c	Software error - Call Doug.

After successful modem connect

0100	Too many tries with same buffer entry.
0101	No response to initial CR after 3 tries.
0102	No keyword in response to initial CR (NZ PACNET).
0103	No keyword in response to initial CR (Aust).
0104	No reply to password.
0105	No key character in reply to password.
0106	Got EOT in reply to password.
0107	Got RS in reply to password.
0108	Got NAK in reply to password.
0109	Abort this phone call (try again if < 3 tries).
010a	Not ID= reply to initial CR.

After successful logon

0110	No reply to page.
0111	No key character in reply to page.
0112	Got EOT in reply to page.
0113	Got RS in reply to page.
0114	Got NAK in reply to page.
0115	Got] in reply to page.
0116	Abort this phone call (try again if < 3 tries).
0120	Carrier failed.

Note that the "Page Ok" message indicates the relevant page was accepted by the network computer. It does not guarantee the page reached your pager, such as would occur if your pager was turned off, batteries were flat or the pager was out of range. It is up to the pager owner to regularly check for these problems.

Ademco Fast Default Messages

Listed below are all the default ademco fast messages for all defined report types. These defaults may be altered by selected new messages from the standard library if desired.

Duress Report (9th channel = 1)

DURESS ALARM	Cha 1	Silent Duress	(mapped to client Zn 09)
DURESS ALARM	Cha 2	Zone 09	(mapped to client Zn 10)
DURESS ALARM	Cha 3	Zone 10	(mapped to client Zn 11)
DURESS ALARM	Cha 4	Zone 11	(mapped to client Zn 12)
DURESS ALARM	Cha 5	Zone 12	(mapped to client Zn 13)
DURESS ALARM	Cha 6	Zone 13	(mapped to client Zn 14)
DURESS ALARM	Cha 7	Zone 14	(mapped to client Zn 15)
DURESS ALARM	Cha 8	Zone 15	(mapped to client Zn 16)

Opening report (9th Channel = 2)

OPENING User X where X = channel 1; 0 to f except a

Bypass Report (9th channel = 3)

BYPASS ALARM	Cha 1	Zone 01	(mapped to client Zn 01)
BYPASS ALARM	Cha 2	Zone 02	(mapped to client Zn 02)
BYPASS ALARM	Cha 3	Zone 03	(mapped to client Zn 03)
BYPASS ALARM	Cha 4	Zone 04	(mapped to client Zn 04)
BYPASS ALARM	Cha 5	Zone 05	(mapped to client Zn 05)
BYPASS ALARM	Cha 6	Zone 06	(mapped to client Zn 06)
BYPASS ALARM	Cha 7	Zone 07	(mapped to client Zn 07)
BYPASS ALARM	Cha 8	Zone 08	(mapped to client Zn 08)

Closing Alarm (9th channel = 4)

CLOSING User X where X = channel 1, 0 to f except a

Zone Trouble report (9th channel = 5)

TROUBLE ALARM	Cha 1	Zone 01	(mapped to client Zn 01)
TROUBLE ALARM	Cha 2	Zone 02	(mapped to client Zn 02)
TROUBLE ALARM	Cha 3	Zone 03	(mapped to client Zn 03)
TROUBLE ALARM	Cha 4	Zone 04	(mapped to client Zn 04)
TROUBLE ALARM	Cha 5	Zone 05	(mapped to client Zn 05)
TROUBLE ALARM	Cha 6	Zone 06	(mapped to client Zn 06)
TROUBLE ALARM	Cha 7	Zone 07	(mapped to client Zn 07)
TROUBLE ALARM	Cha 8	Zone 08	(mapped to client Zn 08)

System Trouble Report (9th channel = 6)

SYSTEM ALARM	Cha 1	Mains Fail
SYSTEM ALARM	Cha 2	Low Battery
SYSTEM ALARM	Cha 3	System Fault
SYSTEM ALARM	Cha 4	Watchdog
SYSTEM ALARM	Cha 5	Comms Problem
SYSTEM ALARM	Cha 6	Comms Fail
SYSTEM ALARM	Cha 7	
SYSTEM ALARM	Cha 8	WalkTest

Zone alarm report (9th channel = 7)

ZONE ALARM	Cha 1	Zone 01	(mapped to client Zn 01)
ZONE ALARM	Cha 2	Zone 02	(mapped to client Zn 02)
ZONE ALARM	Cha 3	Zone 03	(mapped to client Zn 03)
ZONE ALARM	Cha 4	Zone 04	(mapped to client Zn 04)
ZONE ALARM	Cha 5	Zone 05	(mapped to client Zn 05)
ZONE ALARM	Cha 6	Zone 06	(mapped to client Zn 06)
ZONE ALARM	Cha 7	Zone 07	(mapped to client Zn 07)
ZONE ALARM	Cha 8	Zone 08	(mapped to client Zn 08)

Non extended Low battery report (9th channel = 8)

LOW BATTERY

Non extended Test report (9th channel = 9)

TEST

Ademco Contact ID Messages

Ademco Contact ID messages are printed in the following form :

<EVENT> <CATEGORY> GG:PPP <MESSAGE>

The EVENT may be one of the following:

EVENT	MEANING
NEW	New event described by message
OLD	Previously reported message
OLD O/C	Previously reported opening
RESTORE	Restore event described by message
CLOSING	New closing
OPENING	New Opening

The CATEGORY may be any one of the following:

CODE	CATEGORY
10X	EMERG
11X	FIRE
12X	PANIC
13X	BURG
14X	ALARM
15X	24 HR
20X	SUPER
3XX	TROUBLE
40X	OPEN/CLOSE
41X	REMOTE
42X	ACCESS
52X	DISABLE
57X	BYPASS
60X	TEST

The GG digits are known as the group number and refers to a "group of points" or a panel partition or area. Most panels have GG set to 00. The PPP digits are known as the point number and are used to describe the "point" or zone that is in alarm, or for open/close messages are used to describe the user number who performed the opening or closing.

The MESSAGE may be any one of the following :

Message Number	Category	Message
100	EMERG.	Personal
101	EMERG.	Pendant
102	EMERG.	Fail to report
110	FIRE	Alarm
111	FIRE	Smoke detector
112	FIRE	Combustion
113	FIRE	Water flow
114	FIRE	Heat sensor
115	FIRE	Pull station
116	FIRE	Duct sensor
117	FIRE	Flame sensor
118	FIRE	Near alarm
120	PANIC	Alarm
121	PANIC	Duress
122	PANIC	Silent
123	PANIC	Audible
130	BURG.	Alarm
131	BURG.	Perimeter
132	BURG.	Interior
133	BURG.	24 Hour
134	BURG.	Entry/Exit
135	BURG.	Day/Night
136	BURG.	Outdoor
137	BURG.	Tamper
138	BURG.	Near alarm
140	ALARM	General
141	ALARM	Poll loop open
142	ALARM	Poll loop short
143	ALARM	Exp Module fail
144	ALARM	Sensor tamper
145	ALARM	Exp Mod. tamper
150	24HR	Alarm
151	24HR	Gas detected
152	24HR	Refrigeration
153	24HR	Heating System
154	24HR	Water leakage
155	24HR	Foil break
156	24HR	Day Zone
157	24HR	Low gas level
158	24HR	High Temp.
159	24HR	Low Temp.
161	24HR	Air flow

200	SUPER.	Fire Super.
201	SUPER.	Low water Pres.
202	SUPER.	Low CO2
203	SUPER.	Gate Valve
204	SUPER.	Low Water Level
205	SUPER.	Pump activation
206	SUPER.	Pump failure
300	TROUB.	System
301	TROUB.	Mains power
302	TROUB.	Low battery
303	TROUB.	Bad RAM chksum
304	TROUB.	Bad ROM chksum
305	TROUB.	System reset
306	TROUB.	Program altered
307	TROUB.	Self test fail
308	TROUB.	System Shutdown
309	TROUB.	Batt. test fail
310	24HR	Ground Fault
320	TROUB.	Siren/Output
321	TROUB.	Bell/Siren #1
322	TROUB.	Bell/Siren #2
323	TROUB.	Alarm relay
324	TROUB.	Trouble relay
325	TROUB.	Reversing relay
330	TROUB.	Peripheral
331	TROUB.	Poll loop open
332	TROUB.	Poll loop short
333	TROUB.	Exp Module fail
334	TROUB.	Repeater fail
335	TROUB.	Printer Paper
336	TROUB.	Local printer
350	TROUB.	Communications
351	TROUB.	Phone line #1
352	TROUB.	Phone line #2
353	TROUB.	Radio Xmitter
354	TROUB.	Fail to Comm.
355	TROUB.	Radio Super.
356	TROUB.	Radio polling
370	TROUB.	Prot. Loop
372	TROUB.	Prot loop open
372	TROUB.	Prot loop short
373	TROUB.	Fire loop
380	TROUB.	Sensor
381	TROUB.	RF Sensor
382	TROUB.	RPM Sensor
383	TROUB.	Sensor tamper
384	TROUB.	RF Sensor Batt.
400	CLOSING	

401	CLOSING	By User
402	CLOSING	Group/User
403	CLOSING	Automatic
404	CLOSING	Late
405	CLOSING	Deferred
406	CLOSING	Cancel
407	CLOSING	Remote
408	CLOSING	Quick-arm
409	CLOSING	Key switch
411	REMOTE	Callback Req.
412	REMOTE	Access OK
413	REMOTE	No access
414	REMOTE	System shutdown
415	REMOTE	Dialler Disable
421	ACCESS	No Access, User
422	ACCESS	Access by User
520	DISABLE	Siren/Output
521	DISABLE	Bell/Siren #1
522	DISABLE	Bell/Siren #2
523	DISABLE	Alarm relay
524	DISABLE	Trouble relay
525	DISABLE	Reversing relay
551	DISABLE	Dialler
552	DISABLE	Radio
570	BYPASS	Zone
571	BYPASS	Fire
572	BYPASS	24 Hour
573	BYPASS	Burglary
574	BYPASS	Group
601	TEST	Manual trigger
602	TEST	Periodic
603	TEST	Periodic Radio
604	TEST	Fire
605	TEST	Status follows
606	TEST	Listen-in On
607	TEST	WalkTest

Fixed Library Words

Listed below are the current library descriptions at time of printing. The blank descriptions are for future expansion.

000		001	Zone 01	002	Zone 02
003	Zone 03	004	Zone 04	005	Zone 05
006	Zone 06	007	Zone 07	008	Zone 08
009	Zone 09	010	Zone 10	011	Zone 11
012	Zone 12	013	Zone 13	014	Zone 14
015	Zone 15	016	Zone 16	017	Opening
018	Closing	019	Partial open	020	Partial close
021	Tamper	022	Cabinet tamper	023	Panic
024	*Hold-up!	025	Silent Duress	026	Audible Duress
027	Mains fail	028	Low Battery	029	Burglary
030	*Medical!	031	Test	032	WalkTest
033	Comms. Test	034	Battery Test	035	System Test
036	System fault	037	Comms. Problem	038	Comms. Fail
039	Line Fault	040	Checksum	041	Program Status
042	Day Monitor	043	Radio Diagnostic	044	Smoke
045	Heat	046	*Fire!	047	Flame
048	Polling Loop	049	Expansion module	050	Watchdog
051	Isolate	052	Restore	053	Open/Close
054	*Duress!	055	Alarm	056	Emergency
057	Acknowledged	058	Fuse	059	Cancel
060		061		062	
063		064	Custom word	065	Custom word
066	Custom word	067	Custom word	068	Custom word
069	Custom word	070	Custom word	071	Custom word
072	Custom word	073	Custom word	074	Custom word
075	Custom word	076	Custom word	077	Custom word
078	Custom word	079	Custom word	080	Factory
081	Warehouse	082	Store	083	Shop
084	Computer room	085	Gallery	086	Office
087	Plant room	088	Machine shop	089	Drawing room
090	Paint shop	091	Assembly plant	092	Manager Office
093	Main Office	094	Boiler Room	095	PABX Room
096	Perimeter	097	Exterior	098	Interior
099	Ground floor	100	1st Floor	101	2nd Floor
102	3rd Floor	103	4th Floor	104	5th Floor
105	6th Floor	106	7th Floor	107	Surgery
108	Stairs	109	Reception	110	Sunroom
111	Showroom	112	Safe	113	Lift
114	*Vault!	115	Front room	116	Back room
117	Waiting room	118	Liquor store	119	Meeting room

120	Middle room	121		122	
123		124		125	
126		127		128	Foil
129	Roller-door	130	Glass-break	131	Reed-switch
132	Vibration	133	PIR detector	134	Detector
135		136		137	
138		139		140	
141		142		143	
144	Basement	145	Attic	146	Apartment
147	Den	148	Ceiling	149	Cellar
150	Coatroom	151	Driveway	152	Fence
153	Guestroom	154	Flat	155	Foyer
156	House	157	Laundry	158	Nursery
159	Patio	160	Recreation room	161	Window
162	Door	163	Living room	164	Pool
165	Bar	166		167	Hallway
168	Lounge room	169	Kitchen	170	Bedroom
171	Study	172	Bathroom	173	Family room
174	Toilet	175	Garage	176	Shed
177	Carport	178	Atrium	179	Dining room
180	Upstairs	181	Downstairs	182	Roof
183	Front door	184	Back door	185	Side door
186	Entry door	187		188	Exit door
189	Fire door	190	Sliding door	191	
192	Library	193	Art room	194	Workshop
195	Assembly hall	196	Class Room	197	
198	Staff Room	199	Gymnasium	200	North Wing
201	South Wing	202	East Wing	203	West Wing
204	Canteen	205	Games room	206	Auditorium
207	Function room	208		209	
210		211		212	
213		214		215	
216		217		218	
219		220		221	
222		223		224	Industrial
225	Water-flow	226	Gas	227	Refrigeration
228	Temperature low	229	Temperature high	230	Pressure
231	Air Flow	232	Pump	233	Liquid Level
234	Leakage	235		236	
237		238		239	
240	Custom word	241	Custom word	242	Custom word
243	Custom word	244	Custom word	245	Custom word
246	Custom word	247	Custom word	248	Custom word
249	Custom word	250	Custom word	251	Custom word
252	Custom word	253	Custom word	254	Custom word
255	Custom word				

FE100 Wiring

Processor Card Connections

- The 16.5V, 1.5Amp AC plug pack is wired to the terminals marked A.C. It should be plugged into the same GPO as the terminal or computer.
- The 6.5AmpHour, seal lead-acid gel type battery should be connected to the terminals marked BATT. Note the polarity must be correct or the 2-amp fuse will blow. The battery should be used for no other purpose than running the FE100. No other connections should be made to the battery.
- The line cards should be connected via the supplied 10way ribbon cable. Ensure that the plugs are securely plugged in.
- The terminal/PC used to operate the FE100 should be connected as per page 69. Plug the AC power for the terminal into the same GPO as the plug-pack above.
- The PC used as the automation system (if present) should be connected as per page 72. Plug the AC power for the computer into the same GPO as the plug-pack above.
- If a printer is to be connected to the FE100 directly, then it should be connected as per page 71. Plug the AC power for the printer the same GPO as the plug-pack above.

The GPO referred to above should be the output of a general purpose UPS to provide additional backup power and also provide further protection from mains surges.

Line card Connections

The telecom lines should be connected as per the supplied leads.

- If a lead with a 605 plug is supplied, then use pins 6 and 2 of the 605 plug to connect to the telecom line.
- If a lead with a 4way RJ plug is supplied, then use the middle 2 pins to connect to the telecom line. Note that the lead has a 4way RJ plug at one end and a 6way RJ plug at the other end. The 6way plug must plug into the FE100-LX line card.
- An optional (but desirable) protection earth can be connected to the spade lug marked "EARTH" This will provide protection against surges for both lines A and B.

Specifications

Dimensions	Length	<i>240 mm</i>
	Width	<i>270 mm (440 mm)</i>
	Height	<i>180 mm</i>
Minimum operating ambient temp.		<i>0 degrees C</i>
Maximum operating ambient temp.		<i>50 degrees C</i>
A.C. Supply Voltage (via plug pack)		<i>16 to 19 volts</i>
D.C. Supply Voltage		<i>11 to 14 volts</i>
Minimum voltage for program updates		<i>11.8 volts</i>
Nominal Battery charge voltage		<i>13.75 volts</i>
Maximum Battery charge current		<i>300 ma</i>
Battery fuse (on processor card)		<i>2 or 3 amp</i>
Low battery detection voltage		<i>11.8 volts</i>
Recommended battery capacity		<i>6 amp hour.</i>
Supply Current (2 lines, idle)		<i>170 ma</i>
Supply Current (4 lines, idle)		<i>270 ma</i>
Supply Current (6 lines, idle)		<i>370 ma</i>
Supply Current (8 lines, idle)		<i>470 ma</i>
Additional current per line connected		<i>20 ma</i>
Number of user pass-codes		<i>3</i>
Pass-code length, case sensitive		<i>8 chars</i>
Number of user priority levels		<i>3</i>
Real-time clock source		<i>50 Hz mains</i>
On-board clock when mains fails		<i>Yes</i>
Calendar length		<i>256 years</i>
Date format		<i>dd/mm/yy</i>
Clock format		<i>24 hour.</i>
Resolution		<i>1/10 sec</i>
A.C. fail detection time		<i>3 seconds</i>
Printer baud rate		<i>300/1200 Baud, 8 data</i> <i>1 stop, no parity.</i>
Computer baud rate (default)		<i>1200 Baud, 8 data</i> <i>1 stop, no parity.</i>
Typical Computer formats		<i>Ademco 685</i> <i>SurGard</i>
Terminal baud rate (default)		<i>9600 Baud, 8 data</i> <i>1 stop, no parity</i>

Remote terminal communications	<i>1200 Baud, 8 data CCITT V.22</i>
Statistics maintained per line	<i>Total calls Total no connects Total errors Peak traffic Peak time</i>
Maximum number of line cards per receiver	<i>4</i>
No. Of lines per card	<i>2</i>
Digital signal processing	<i>Yes</i>
Telecom Connection mode (Australia)	<i>Mode 5</i>
Digital decoding/generation	<i>Yes</i>
Ring detect time (standard)	<i>150 ms</i>
STD. tone detection	<i>Yes</i>
Line isolation voltage	<i>> 3.5 KV AC RMS.</i>
Handshakes output level	<i>- 2.5 dBm</i>
Slow formats receive sensitivity	<i>-44 dBm</i>
Call progress tone sensitivity	<i>-45 dBm</i>
Modem output level (1)	<i>-10 dBm</i>
Modem sensitivity	<i>-45 dBm detect</i>
DTMF output level	<i>- 4 dBm</i>
DTMF decode sensitivity	<i>-45 dBm</i>
DTMF decode minimum digit duration	<i>20 ms</i>
DTMF decode minimum gap duration	<i>20ms</i>
Return loss (typ.)	<i>20 dB.</i>
Maximum line current	<i>120 ma</i>
Terminal Type :	<i>ANSI OR WYSE 30</i>

Notes

1. Line Cards marked with the “China” option have a Modem Output level adjusted to a higher level, approximately -5dBm.