



**CMAPSi  
User  
Manual**

**Issue Number 3.1  
February 2006**



# CMAPSi

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## Preface

This document describes the pre-installation requirements for the Element Management System (EMS) software, the installation of required system software and the installation and configuration of EMS software.

The version of EMS supplied on this release may also require certain elements of the system firmware to be updated for compatibility. Details of the firmware are given in the release notes and information on updating the firmware is included in this installation guide.

### Intended Audience

This manual is intended for installation and site engineers. It is assumed that the users of this document are familiar with general Microsoft Windows and PC operations and terminology.

### Associated Documents

ATC Technical Description

Element Management System (EMS) User Manual

Maintenance Manual

Operator Manual

### Conventions Used in this Manual

A text box as shown below indicates important points that should be noted:

**NOTE:**

Warnings are highlighted in a text box as shown below:



**Important**





## General

- How to use Windows
- Principles of Interrupted Foldback
- Field colours
- Hardware
- PC configuration

## 1 How to use Windows

- Control menu box
- Title bar
- Toolbar
- Status bar
- Scroll bars
- Context sensitive help
- Annotating a Help Topic

### 1.1 Control menu box



Click on the box to see the control menu.



#### 1.1.1 Restore

Use this command to return the active window to its size and position before you chose the Maximize or Minimize command.

#### 1.1.2 Move

Use this command to display a four-headed arrow so you can move the active window or dialog box with the arrow keys.



**NOTE:** This command is unavailable if you maximize the window.

## Shortcut

Keys: CTRL+F7

### 1.1.3 Size

Use this command to display a four-headed arrow so you can size the active window with the arrow keys.



After the pointer changes to the four-headed arrow:

1. Press one of the DIRECTION keys (left, right, up, or down arrow key) to move the pointer to the border you want to move.
2. Press a DIRECTION key to move the border.
3. Press ENTER when the window is the size you want.

**NOTE:** This command is unavailable if you maximize the window.

## Shortcut

Mouse: Drag the size bars at the corners or edges of the window.

### 1.1.4 Minimize

Use this command to reduce the CMAPSi window to an icon.

## Shortcut

Mouse: Click the minimize icon on the title bar.



Keys: ALT+F9

### 1.1.5 Maximize

Use this command to enlarge the active window to fill the available space.

## Shortcut

Mouse: Click the maximize icon on the title bar; or double-click the title bar.



### 1.1.6 Close

Use this command to close the active window or dialog box.

Double-clicking a Control-menu box is the same as choosing the Close command.



The top Control menu box controls the CMAPSi application. Double clicking on this box closes CMAPSi.

The lower Control menu box controls the current map. Double clicking on this box closes the current map.

## Shortcuts

Keys: CTRL+F4 closes the current map.

ALT+F4 closes CMAPSi.

### 1.1.7 Switch to

Use this command to display a list of all open applications. Use this "Task List" to switch to or close an application on the list.

#### Shortcut

Keys: CTRL+ESC

#### Dialog Box Options

When you choose the Switch To command, you will be presented with a dialog box with the following options:

- Task List  
Select the application you want to switch to or close.
- Switch To  
Makes the selected application active.
- End Task  
Closes the selected application.
- Cancel  
Closes the Task List box.
- Cascade  
Arranges open applications so they overlap and you can see each title bar. This option does not affect applications reduced to icons.
- Tile  
Arranges open applications into windows that do not overlap. This option does not affect applications reduced to icons.
- Arrange Icons  
Arranges the icons of all minimized applications across the bottom of the screen.

### 1.1.8 Next

This option is only available when one or more windows are open. Use it to bring the focus to a different window.

#### Shortcut

Key: CTRL+F6

## 1.2 Title bar



**Figure 1-1 Title Bar**

The title bar is located along the top of a window. It contains the name of the application and document. In the main CMAPSi window, /S is added to the title of a small map and /L to that of a large map.

To move the window, drag the title bar. Note that you can also move dialog boxes by dragging their title bars.

A title bar may contain the following elements:

- Application Control-menu button.

- Document Control-menu button.
- Maximize button.
- Minimize button.
- Name of the application.
- Name of the document.
- Map size (/L large, /S small)
- Restore button.

## 1.3 Toolbars



Figure 1-2 CMAPSi Toolbar



Figure 1-3 ADM Toolbar

The toolbar is displayed across the top of the application window, below the menu bar. The toolbar provides quick mouse access to the main sections of CMAPSi or ADM. To hide or display the Toolbar, choose Toolbar from the View menu (ALT, V, T). See CMAPSi Toolbar and ADM Toolbar.

## 1.4 Status bar

The status bar is displayed at the bottom of the CMAPSi window. To display or hide the status bar, use the Status Bar command in the View menu.

The left area of the status bar describes actions of menu items as you use the arrow keys to navigate through menus. This area similarly shows messages that describe the actions of toolbar buttons as you depress them, before releasing them. If after viewing the description of the toolbar button command you wish not to execute the command, then release the mouse button while the pointer is off the toolbar button. The right areas of the status bar indicate the following:

Indicator	Description
LD	Last download time for current map.
LE	Last edit time for current map.

These fields are left blank if no map is loaded. On the ADM application, these fields are left blank.

## 1.5 Scroll bars

Displayed at the right and bottom edges of the document window. Where there is too much information to be displayed in the window, the scroll bars indicate your vertical and horizontal location in the document and allow you to see the remaining information using the mouse.



## 1.6 Context sensitive help

Context sensitive help is available in three ways:

- Press the F1 key from the location in the program where you need help. The appropriate topic of the Help system will appear.
- Press Shift+F1. The mouse pointer will change to an arrow and question mark. Then click somewhere in the CMAPSi window, such as a Toolbar button. The Help topic for the item you clicked will appear.
- Click on to the part of the screen that you need help about. The Status bar at the bottom of the screen will either show some explanatory text or will suggest you press F1.

## 1.7 Annotating a Help Topic

You can add your own comments to a Help topic. When you annotate a Help topic, Help places a paper-clip icon to the left of the topic title to remind you that you have added text to this topic.

For help on annotating Help topics, choose one of the following tasks:

- Adding Text to a Help Topic
- Copying and Pasting an Annotation
- Removing an Annotation
- Viewing an Annotation

### 1.7.1 Adding Text to a Help Topic

You can add your own comments and notes to a Help topic and view this information later.

To add text to the current Help topic

1. From the Edit menu in Help, choose Annotate.
2. In the Annotate dialog box, type the text you want to add. If you make a mistake, press BACKSPACE to remove any unwanted characters, and continue typing. Text wraps automatically, but you can end a line before it wraps by pressing ENTER.
3. Choose the Save button.

### 1.7.2 Copying and Pasting an Annotation

You can copy text from an annotation and paste it into another annotation in Help or into a document. You can also paste text from documents into annotations.

To copy an annotation

1. Click the paper-clip icon to the left of the topic title. Or press TAB to select the paper-clip icon, and then press ENTER.
2. To copy the annotation to the Clipboard, choose the Copy button. If you want to copy only a portion of the annotation, select the text that you want to copy onto the Clipboard, and then choose the Copy button. You can drag the mouse pointer over text to select it. Or press and hold down SHIFT while you use the arrow keys to select text.
3. Choose the Save button.

To paste an annotation

1. Copy onto the Clipboard the text you want to paste into the annotation.
2. In the Help topic where you want to paste the annotation, click the paper-clip icon to the left of the title. Or press TAB to select the paper-clip icon, and then press ENTER.

3. To paste the contents of the Clipboard at the beginning of the topic, choose the Paste button. Or press SHIFT+INS. Or place the insertion point at the location you want to insert the new text, and then choose the Paste button.
4. Choose the Save button.

### 1.7.3 Removing an Annotation

If you no longer need your comments about a Help topic, you can remove the annotation.

To remove an annotation

1. Click the paper-clip icon to the left of the topic title. Or press TAB to select the paper-clip icon, and then press ENTER.
2. Choose the Delete button.

### 1.7.4 Viewing an Annotation

If you have added comments to a Help topic, you can view them at any time.

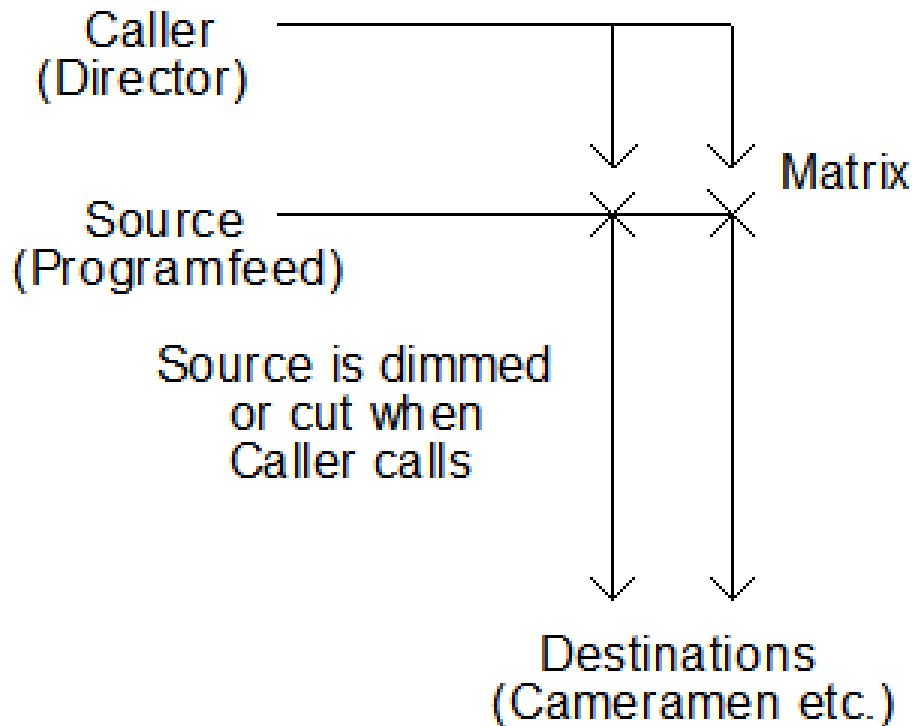
To view an annotation

1. Click the paper-clip icon to the left of the topic title. Or press TAB to select the paper-clip icon, and then press ENTER.
2. When you finish viewing the annotation, choose the Cancel button.

## 2 Principles of Interrupted Foldback

### 2.1 Introduction

An IFB comprises an audio Source, such as the program feed, which is fed to one or more Destinations, e.g. to Cameramen, and a Caller, who might be the Director, who can override the Source.



**Figure 2-1 Interrupted Foldback**

Such an arrangement of Sources and Destinations, with the interrupt facility, is defined in the CMAPSi system and given a port number in the range 400-499, e.g. 400, which becomes the IFB identity. A Caller can be given access to an IFB by having a panel key assigned to talk to the IFB port (e.g. 400).

In the absence of a request from a Caller, the matrix connects the Source(s) defined by an IFB to the Destination(s) assigned by that IFB. Hence, an IFB provides interruptible paths between ports on the matrix.

When a Caller presses an IFB key, the matrix connects the Caller in place of the Source(s) to all the Destination(s) assigned to that IFB. The Source(s) may either be muted (dimmed) by a preset amount, say 3 dB, or cut off altogether, the muting being defined as part of the IFB specification. The default is to cut the Source altogether.

### 2.2 Priorities

Up to 100 IFBs (400-499) can be defined on the system and these can overlap with each other so that the same port can be a Source or Destination in more than one IFB. Also more than one Caller can select the same IFB. Hence, priorities must be defined so as to determine which ports take control.

Rights of access are decided by assigning priorities between 5 (high) and 0 (low) to Source and Caller ports. Source ports are assigned a fixed priority level of 1 so that any Caller port with a

priority level of 2 or above has right of access above that of a Source port. A Caller with a priority level of 1 will be connected to the Destination ports but will not cut or dim the Source. A Caller with a priority level of 0 cannot talk to the IFB.

Where two Callers select the same Destination, the Caller with the higher priority has right of access. If both have the same priority level, both go through. A Caller with priority zero could not trigger the IFB: this fact can be used to prevent some panels from triggering a particular IFB. Priorities are assigned to a panel at IFB level so that a particular panel may have a high priority for one IFB and a low priority for another.

All panels except Source panels are assigned a selectable default level, but individual panels can be set to any level.

Special Function or General Purpose Outputs can be triggered into operation with an IFB.

## 2.3 Special Functions and General Purpose I/O

A Special Function or General Purpose Input can trigger an IFB talk or listen. Conversely an IFB talk or listen can trigger a Special Function or General Purpose Output.

## 2.4 Returns


An IFB can also define Return paths from selected ports on the system. A Return port is normally a Destination port also. A Return port behaves very much like a Source port: any communication from that port will be routed to all (other) Destination ports. Callers listening to an IFB will have the Return ports routed to them if the caller port attributes are set to IFB Return Listen. Hence, with a Call on IFB400 from port 600 to Destination ports 650, 651 and 652, a Return call from port 650 would reach ports 600, 651 and 652 but would not be heard back at port 650.


You can select that all Destination ports be set up as Return ports by default. Return ports do not have to be Destination ports - other ports can be set up as Return ports. Two types of listen can be defined at a panel - Return listen and Destination listen. On an IFB Return listen, the Caller hears any Return undimmed, no matter who triggered the IFB. On an IFB Destination listen, the Caller hears Source and Returns appropriately dimmed: the Caller hears what any Destination hears. The type of listen is set up per panel via the IFB Listen Mode under Ports/Port Type/Attribution - any panel uses one type of listen for all IFBs.

For each IFB, you can define up to 32 Sources, 32 Destinations and 32 Returns. You cannot define a Source port as a Return port.

### 3 Field colours

 Fields with black lettering on a white background cannot be edited or changed.

 Fields with a green background can be edited. Click ONCE on the field and then edit it from the keyboard.

 Fields with red lettering will respond to a DOUBLE click by bringing up a dialogue or causing some other event to occur.



## 4 Hardware

### 4.1 Intercom Control Panels

#### 4.1.1 3123 16-channel Level Control Panels (1U)

16 programmable crosspoint level controls.

Operates with 16 or 32 key control panels.

Calibrated level.

Internal adjustments for gain range.

Can be used with the 3194CR Router to provide input and output level control.

#### 4.1.2 3126 16-key Extension Panel (1U)

16 centrally programmed lever keys (talk/listen).

Connects to either 16 or 32 key control panels.

#### 4.1.3 3190 24-way Intelligent Control Panel (2U)

23 pushbuttons for programmable talk/listen.

Shift key provides an extra 16 pushbutton functions.

Dual row alphanumeric displays.

Reply key, dial keypad and soft programming.

Microphone/loudspeaker and headset operation.

Connection for level control and extension key panels.

Audio and control interface options.

#### 4.1.4 3191 16-key Control Panel (1U)

15 centrally programmed lever keys (talk/listen).

Reply key.

Microphone/loudspeaker and headset operation.

Connection for level control and extension key panels.

Audio and control interface options.

#### 4.1.5 3194 32-key Intelligent Control Panel (2U)

16 pushbuttons and 15 lever keys for programmable talk/listen.

Shift key provides an extra 16 pushbutton functions.

Dual row alphanumeric displays.

Reply key, dial keypad and soft programming.

Microphone/loudspeaker and headset operation.

Connection for level control and extension key panels.

Audio and control interface options.

#### **4.1.6 3195 16 key Control Panel (1U)**

15 centrally programmed lever keys.

Reply key.

Microphone/loudspeaker or headset operation.

Connections for level control and extension key panels.

Audio and control interface options.

#### **4.1.7 3196 32 key Control Panel (2U)**

31 centrally programmed lever keys (Talk/listen).

Reply key.

Microphone/loudspeaker or headset operation.

Connections for level control and extension key panels.

Audio and control interface options.

#### **4.1.8 3197 12-key Intelligent Control Panel (1U)**

Eleven pushbutton keys for programmable talk/listen and one reply key

Shift key doubles the number of pushbutton functions to 22.

Single row of alphanumeric displays.

Rotary encoder with alphanumeric display for level control and access to soft programming features.

Microphone/loudspeaker and headset operation.

Audio and control interface options.

#### **4.1.9 6110 24-key Control Panel (2U)**

23 centrally programmed pushbutton keys for talk/listen and one reply key.

Microphone/loudspeaker and headset operation.

Connection to 6120 24 key extension panel.

#### **4.1.10 6120 24-way Extension Panel (1U)**

This is a 24 key extension panel to connect to any 6000 panel (6110, 6150, 6180, 6190).

#### **4.1.11 6150 24-key Intelligent Control Panel (2U)**

23 centrally programmed pushbutton keys for talk/listen and one reply key.

Microphone/loudspeaker and headset operation.

Connection to 6120 24 key extension panel.

Intelligent programming.



Single row of alphanumeric displays.

#### **4.1.12 6180 16-key Control Panel (2U)**

15 centrally programmed pushbutton keys for talk/listen and one reply key.

Microphone/loudspeaker and headset operation.

Connection to 6120 24 key extension panel.

#### **4.1.13 6190 16-key Intelligent Control Panel (2U)**

15 centrally programmed pushbutton keys for talk/listen and one reply key.

Intelligent programming.

Microphone/loudspeaker and headset operation.

Connection to 6120 24 key extension panel.

Single row of alphanumeric displays.

#### **4.1.14 4011 12-key Intelligent Control Panel (1U)**

Combined display and key switch

1 push button keys for programmable talk/listen.

Shift key provides an extra 11 push-button functions.

12 character alphanumeric displays.

Reply key and soft programming.

Electronic keypad on in-built DTMF.

Microphone/loudspeaker and headset operation.

Rotary encoder for level control.

Audio and control interface options.

#### **4.1.15 4015 16 key Control Panel (1U)**

15 centrally programmed push button keys.

Reply key.

Microphone/loudspeaker or headset operation.

Connections for level control and extension key panels.

Audio and control interface options.

#### **4.1.16 4021 24-key Intelligent Control Panel (2U)**

Combined display and key switch

23 push button keys for programmable talk/listen.

Shift key provides an extra 23 push-button functions.

12 character alphanumeric displays.

Reply key and soft programming.

Electronic keypad on in-built DTMF.

Microphone/loudspeaker and headset operation.

Rotary encoder for level control.

Audio and control interface options.

#### **4.1.17 4024 32-key Intelligent Control Panel (2U)**

31 push button keys for programmable talk/listen.

Shift key provides an extra 32 push-button functions.

Dual row 4 or 8 character alphanumeric displays.

Reply key and soft programming.

Electronic keypad on in-built DTMF.

Microphone/loudspeaker and headset operation.

Rotary encoder for level control.

Connection for level control and extension key panels.

Audio and control interface options.

#### **4.1.18 4026 32-key Control Panel (2U)**

31 centrally programmed push button keys.

Reply key.

Microphone/loudspeaker or headset operation.

Connections for level control and extension key panels.

Audio and control interface options.

#### **4.1.19 4090 16-key Desktop Panel**

16 membrane keys for programmable talk / listen.

Shift key provides an extra 16 keys.

4 or 8 character alphanumeric LED display

Reply key and soft programming

In built keypad, with a station ID key

Microphone / loudspeaker and headset operation

8 pots for level control

Audio and control interface options

#### **4.1.20 4091 16-key Commentator Panel**

16 membrane keys for programmable talk / listen.

Shift key provides an extra 16 keys.

4 or 8 character alphanumeric LED display

Reply key and soft programming

In built keypad, with a station ID key

Microphone / loudspeaker and headset operation

8 pots for level control

Audio and control interface options

2 commentator positions with

- separate headset sockets
- separate analogue input & output XLRs
- separate level control of local feed, sidetone and other commentators Mic
- mic cough button
- lever key for programmable talk/ listen.

Commentators panel special keys

- Com A MicOn air key. Program as a normal key. Also acts as cough switch.
- Com B MicOn air key. Program as a normal key. Also acts as cough switch.
- Lever key left position. Program as a normal key.
- Lever key right position. Program as a normal key.
- Com A mic limiter. \* Program as a normal key. (non-latch only)
- Com B mic limiter. \* Program as a normal key. (non-latch only)

\*When the microphone limiter is on any action programmed becomes active. These are virtual keys and do not appear as physical keys on the panel.

#### **4.1.21 4203 Level Control Panel (1U)**

20 rotary encoders to control crosspoint levels on programmed keys

Designation strip

#### **4.1.22 4203R Level Control Panel (1U)**

16 rotary encoders to control crosspoint levels on programmed keys

Designation strip

#### **4.1.23 4206 20 key Extension Control Panel (1U)**

20 centrally programmed pushbutton keys for talk/listen

Key number selectable

Talk tally LED

Listen tally LED

Designation strip

#### **4.1.24 4206R 16 key Extension Panel (1U)**

16 centrally programmed pushbutton keys for talk/listen

Key number selectable

Direct Access Key indicator LED

Designation strip

#### **4.1.25 4211 12 Key LCD Panel (1U)**

11 centrally programmable LCD keys

Reply key

Microphone/loudspeaker and headset operation

Shift pushbutton provides access to shift page

Rotary encoder for volume control

Rotary encoder for auxiliary volume control

Rotary encoder for crosspoint level control

#### **4.1.26 4212 12 Key LCD Panel and Rotary Encoder (1U)**

11 centrally programmable LCD keys

Reply key

Microphone/loudspeaker and headset operation

Shift pushbutton provides access to shift page

Rotary encoder for volume control

Rotary encoder for auxiliary volume control

Rotary encoders for individual direct access key crosspoint level control

#### **4.1.27 4212R 12 Key LCD Panel and Rotary Encoder (1U)**

11 centrally programmable LCD keys

Reply key

Microphone/loudspeaker and headset operation

Shift pushbutton provides access to shift page

Rotary encoder for volume control

Rotary encoder for auxiliary volume control

Rotary encoders for individual direct access key crosspoint level control

#### **4.1.28 4215 16 Key Control Panel (1U)**

15 centrally programmed push button keys

Reply key

Microphone/loudspeaker or headset operation

Connections for level control and extension key panels

Audio and control interface options

Talk tally LED

Listen tally LED

Designation strip

#### **4.1.29 4215R 16 Key Control Panel (1U)**

15 centrally programmed push button keys  
Reply key  
Microphone/loudspeaker or headset operation  
Connections for level control and extension key panels  
Audio and control interface options  
Talk tally LED  
Listen tally LED  
Designation strip

#### **4.1.30 4216 Custom Panel Interface (1U)**

Audio facilities including microphone output and level control  
Control signals sent to custom panel through serial interface  
Auxiliary audio and control outputs with 4537 card

#### **4.1.31 4217 14 Key Intelligent Control Panel (1U)**

13 centrally programmed push button keys  
Reply key  
Shift pushbutton for additional DAK assignments  
Microphone/loudspeaker or headset operation  
Connections for level control and extension key panels  
Audio and control interface options  
Talk tally LED  
Listen tally LED  
Alphanumeric LED display

#### **4.1.32 4221 24 Key LCD Panel (2U)**

Combined display and key switch  
23 push button keys for programmable talk/listen  
Shift key provides an extra 23 push-button functions  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoder for level control  
Audio and control interface options

#### **4.1.33 4222 24 Key LCD Panel and Rotary Encoder (2U)**

Combined display and key switch  
23 push button keys for programmable talk/listen

Shift key provides an extra 23 push-button functions  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoders for level control on each key  
Audio and control interface options

#### **4.1.34 4222R 24 Key LCD and Rotary Encoder Panel (2U)**

Combined display and key switch  
23 push button keys for programmable talk/listen  
Shift key provides an extra 23 push-button functions  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoders for level control on each key  
Audio and control interface options

#### **4.1.35 4222S 24 Key LCD and Rotary Encoder Supervisor Panel (2U)**

Combined display and key switch  
23 push button keys for programmable talk/listen  
Shift key provides an extra 23 push-button functions  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoders for level control on each key  
Audio and control interface options  
Panel supervisor capability

#### **4.1.36 4222SR 24 Key LCD and Rotary Encoder Supervisor Panel (2U)**

Combined display and key switch  
23 push button keys for programmable talk/listen  
Shift key provides an extra 23 push-button functions  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoders for level control on each key  
Audio and control interface options  
Panel supervisor capability

#### **4.1.37 4224 32 Key Intelligent Control Panel (2U)**

31 push button keys for programmable talk/listen  
Shift key provides an extra 32 push-button functions

Dual row 4 or 8 character alphanumeric displays  
Talk tally LED  
Listen tally LED  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoder for level control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.38 4224R 32 Key Intelligent Control Panel (2U)**

31 push button keys for programmable talk/listen  
Shift key provides an extra 32 push-button functions  
Dual row 4 or 8 character alphanumeric display  
Talk tally LED  
Listen tally LED  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoder for level control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.39 4225 32 Key Intelligent Control Panel (2U)**

31 push button keys for programmable talk/listen  
Shift key provides an extra 32 push-button functions  
Dual row 4 or 8 character alphanumeric display  
Talk tally LED  
Listen tally LED  
Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoder for level control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.40 4225R 32 Key Intelligent Control Panel (2U)**

31 push button keys for programmable talk/listen  
Shift key provides an extra 32 push-button functions  
Dual row 4 or 8 character alphanumeric display  
Talk tally LED  
Listen tally LED

Reply key and soft programming  
Microphone/loudspeaker and headset operation  
Rotary encoder for level control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.41 4226 32 Key Control Panel (2U)**

31 push button keys for programmable talk/listen  
Reply key  
Designation strips  
Talk tally LED  
Listen tally LED  
Microphone/loudspeaker and headset operation  
Rotary encoder for volume control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.42 4226R 32 Key Control Panel (2U)**

31 push button keys for programmable talk/listen  
Reply key  
Designation strips  
Talk tally LED  
Listen tally LED  
Microphone/loudspeaker and headset operation  
Rotary encoder for volume control  
Connection for level control and extension key panels  
Audio and control interface options

#### **4.1.43 4230R 6 LCD Key Half Width Extension Panel (1U)**

5 LCD keys for programmable talk/listen  
Reply key  
Shift key  
Crosspoint level control  
Talk tally LED  
Listen tally LED

#### **4.1.44 4231R 6 LCD Key Half Width Control Panel (1U)**

5 LCD keys for programmable talk/listen  
Reply key



Shift key

Crosspoint level control

Talk tally LED

Listen tally LED

#### **4.1.45 4294 16 Key Desktop Control Panel**

15 centrally programmed push button keys

Reply key

Microphone/loudspeaker or headset operation

Audio and control interface options

Talk tally LED

Listen tally LED

Alphanumeric LCD display

#### **4.1.46 4294R 16 Key Desktop Control Panel**

15 centrally programmed push button keys

Reply key

Microphone/loudspeaker or headset operation

Audio and control interface options

Talk tally LED

Listen tally LED

Alphanumeric LCD display

#### **4.1.47 4295MCI 16 Key Desktop Control Panel**

15 centrally programmed push button keys

Reply key

Microphone/loudspeaker or headset operation

Audio and control interface options

Talk tally LED

Listen tally LED

Alphanumeric LCD display

## **4.2 PDE3531 Custom Panel Card**

The PDE3531 card provides the necessary interfaces for display, switch and lamp combinations in a remote control panel. PDE3531 cards have a modular design and may be cascaded as required.

### 4.2.1 Operation

The PDE3531 board is segmented into three parts. These are P(power), SL(switch lamps), and D(display). Two configurations are available:

1. The first PDE3531 card used in a remote panel must be of P/SL/D configuration. The PDE3531/P/SL/D card contains the 12C line transceivers, psu circuitry and switch/lamp bank selection.
2. Subsequent cards are of SL/D configuration, containing a four-bit comparator to enable the bank and five, eight-bit ports. The ports are divided as follows: one for inputs, two for outputs capable of lamp drive, and two for LED display interface.

Up to seven cards can be cascaded for switches or lamp combinations, including up to four with LED displays.

Remote pots can only be supported by the addition of a version of the PD4203 variable level control panel serving as an extension to the PD4216 Custom Panel Interface.

## 4.3 PDE3614 Master Clock/Diagnostics card

The PDE3614 provides audio monitoring and tone injection facilities for 3000 system diagnostics. It also has dual clock generators for the digital audio bus. This card can replace the PDE 3624 Dual Clock Card in a 3000 Matrix as an option.

Features Include:

- Analogue monitoring and metering of matrix digital audio outputs.
- Tone injection facility for checking audio outputs.
- Dial keypad and alphanumeric LED display for monitor selection and tone injection on output
- busses.
- Internal loudspeaker and headphone jack socket with level control.
- 10-segment LED bar graph for level monitoring.
- AUX O/P jack socket for audio measurement.

### 4.3.1 421 Audio monitoring/metering

The keypad and associated display are used to dial system directory numbers for monitoring of any matrix input or output bus.

A 16-bit D-A converter allows analogue metering and monitoring of the selected signal on the LED bar-graph (-9 to +18) and integral loudspeaker/headphone socket.

### 4.3.2 Audio route checking

A digital tone can be routed to any matrix output bus with keypad selected tone frequency (100Hz to 6kHz).

Injection of tone to output enables checking of external equipment, e.g., control panels, interfaces etc.

## 4.4 DTMF Telephone Interface

Drake System communications can be extended to external telephone lines to provide keypad dialling from intelligent panels and direct routing of incoming calls to system users. Telephone lines are connected via hybrids to audio and control interfaces housed within the Drake Matrix.

- Dial out facility using control panel keypads.
- Auto answer with onward routing to configured control panels.
- IFB and conference (party line) operation.
- Individual line selection from control panels for priority access.
- Incoming call and line busy signalisation.

### Outward Dialling

- Each intelligent panel may be programmed with key access to desired line(s) and keypad dial.
- Operation of line select key seizes the line and makes Audio routes.
- Keypad sends DTMF ring tones for external calling through the telephone interface.

### Incoming Calls

- Incoming calls are auto answered, and allow further 2 digit dialling for desired control panels or
- other matrix destinations.
- Multiple panel call pick-up with led signalisation.
- Private and conference calls.
- Requires additional hardware in both the matrix and 3194 panels - call your Drake representative for more details.



## 5 PC configuration

The CMAPSi and ADM software is intended to run under Windows 3.1 or 3.11 and requires a 486DX, 66MHz (minimum) computer, with 60Mb hard disk, 16Mb RAM, 3.5 inch floppy disk drive, VGA monitor/graphics card, keyboard, mouse/lightpen, two serial ports and network adapter card (if Ethernet used). The software will also run under Windows 95, Windows 98, Me, NT4, 2000 and XP but is not a Windows 95/98/Me/NT4/2000/XP application.

The PC may be linked to the Drake Matrix via Ethernet or RS232 serial link.



## 6 CMAPSi Introduction

The Configuration and Master Assignment Programming System (CMAPSi) is a software package running on an IBM Personal Computer or compatible machine which configures the Drake Intercom System. The configuration data is called a system map and sets up the system. A map is required for each system, of eight possible systems, and allows the following to be implemented:

- Assignment of names and mnemonics to ports, groups and conferences
- Setting of the initial or permanent status of each, non-normally open (default) crosspoint within
- A matrix
- Assignment of functions and assignment of operation modes to individual keys on control
- Panels
- Assignment of function limits and default settings to control panels
- Configuration of external control (General Purpose Interface) input and output actions to either
- Panel keys or Matrix crosspoints
- Production and storage of maps. Each map is stored in its own directory on disk or on a floppy
- Disk (one map per disk)
- Provide audio trunk line assignments for networked systems

CMAPSi follows the 'Windows, Icons, Mouse and Pointer' approach (abbreviated to WIMP) and is based on the Microsoft Windows user interface software. A familiarity with this user interface is advisable before using CMAPSi. A detailed explanation of this environment is given in the Windows user documentation.

In a configuration, Drake systems are central audio mixing matrices to which various control panels and audio input/output can be connected. When configuring a system, information is provided for the following:

- a listing of the port connections and their names that are in the system.
- the characteristics of each matrix crosspoint,
- the action to be performed by each key of every panel,
- any General Purpose Interface control functions using the GPI inputs and outputs.
- any trunk line routing when configuring a networked system,
- When the information in CMAPSi is satisfactory it can be downloaded in a single step to the
- system, without intrusion, using the non-intrusive download option.
- CMAPSi replaces the earlier Central Configuration Facility (CCF) and CMAPS version 3.1 systems.
- It can handle any maps generated by later versions (3.7) of CCF. Note, however, that CCF cannot use maps that have been generated by or used by CMAPSi.





## 7 CMAPSi How to..

### 7.1 How to start

When the Enter Password dialogue appears, type in your password. (The default password is USER.) An asterisk (\*) will appear for each character you type so that no one nearby can see what you type. Click on OK to confirm your entry or Cancel to abort. If you enter the wrong password, an error dialogue will appear and you will not be able access the program. The program will start up with the map that was open when the program was last used, except the first time you use it when you will need to open a map or create a new one.

### 7.2 How to start a new map

CMAPSi can hold map configurations for up to eight systems.

Decide on a system number (1-8) for each system and plan in advance the facilities that are required on each system.

1. Create a new map for each system, giving each a suitable name. The new map may be either large or small size. Sixteen panels and the remotely assignable key are automatically defined with any new map. Note the on-screen comments concerning hardware configuration files.

For each system,

2. Add the panels that are connected to the system.
3. Create any conferences that are required. Conferences that are common to more than one system must be set up with the same port number on all systems.
4. Set up any groups that are required.
5. Set up any permanent conditions that are required on crosspoints.
6. Set up any IFBs required.

When all the systems have been set up, set up the trunk lines between systems.

### 7.3 How to set up links to another system

You can have up to eight matrix systems and these systems can be linked by four-wire audio trunk lines to permit communication between users on different systems.

1. Trunk lines are bi-directional audio lines that connect to the physical ports 600 etc. For each of the trunk lines to be connected to a system, assign the relevant ports as type TRNK in the Port Type window in the Ports window.
2. Repeat this process for each of the systems to be interconnected.
3. In the Network Trunk Lines option in the Elements menu, set up the trunk lines between the TRNK ports of the various systems.

For more information, refer to the Drake Network Commissioning Guide.

### 7.4 How to add a new panel

It is assumed that the appropriate map is already open on CMAPSi, and that hardware ports are available - if not, contact your Drakes representative.

1. Note the hardware port id (1 to 128 for a small map or 1 to 384 for a large map).

2. Refer to Physical Ports and translate the hardware port id into matrix port id; for example, hardware port 1 becomes matrix port 600.
  3. Select Ports from the toolbar or from the Elements menu option.
  4. If the number of the new port is not on the list, go to the first blank row and enter the new port number.
  5. Enter appropriate Alpha mnemonic and Description for the new panel. The Alpha entry is the mnemonic that will appear on the key of another panel when that key is programmed to communicate with this panel.
  6. Double click on the Type field of the new port.
  7. Select the appropriate panel from the resultant Port Type dialogue.
  8. Select Attributes from the Port Type dialogue.
  9. Set up the Attributes for the new panel, as required.
  10. Exit from the Attributes and Port Type dialogues to return to the Panel Ports window.
  11. The panel Input and Output Gain Levels may be set.
  12. If the panel is non-display control panel then the Key Label Strip may be set.
  13. With one of the fields of the new port highlighted, select Define keys for panel....
  14. On the resultant Keys dialogue, for each key to be used:
    - a. Set Route to set an audio path or define a key label (only) if no audio path is required. The audio path can be to another port, a conference or a group.
    - b. If required, set Control to select a control output or special function to be activated when the key is operated. You can program special functions to perform a variety of complex operations on the system.
    - c. Select the required key action for a panel push-button.
- NOTE:** Set the key action for a lever key to Non-latch only.
- d. Set Soft O/W (soft key overwrite) to Yes if local programming of the key from the panel is to be permitted.
  15. If fitting an extension panel, repeat step 12 but with Extension selected in the Panel section.
  16. If you are using control inputs provided by the panel, repeat step 12 but with Control Inputs selected in the Panel section.
  17. Exit the Keys and Panel ports dialogues.

## 7.5 How to add a conference

You can set up a conference that will be accessible to any ports on the system. All that is necessary is to create the conference port.

1. Create a conference on one of the ports 501 to 564 with an appropriate mnemonic and description.
2. On each panel where the user is to participate in the conference, assign the port number of the conference to one of the keys. See step 13 of Add a new panel.
3. It is sometimes useful to set conference keys to Listen only and to designate one key on each panel as a Talk key for all currently selected conferences. Assign the Master Conference Talk port 500 to this Talk key. You will need to create conference port 500 if this does not already exist.

## 7.6 How to add a group

A group is a set of ports that any other port can communicate with using only one key. Group members cannot use the group mechanism to communicate with any other member of the same group (use conference instead).

To add a group:

1. Select Groups from the Toolbar.
2. Create a group with a port number in the range allotted to groups (see Ports) and assign a suitable Alpha mnemonic and Description.
3. On the panels of users that need to communicate with the group, assign the group number to one of the keys on each panel.

## 7.7 Dual names for four-wire I/Os

It is sometimes desirable to assign different names to the input and output of a four-wire I/O. However, the same port cannot be assigned twice with different Alpha identities, e.g. 600, nor can the PDE3621 CODEC have separately mapped inputs and outputs. To overcome this, assign the port to a single-port group and give different names to the group and the port.

For instance, for a port to have Programme Send input and Loudspeaker Talkback output:

- Declare port 600 as type Audio I/O and set it to Valid/Listen.
- Create a Group 100, say, containing Port 600 only and set the Group to Valid/Talk.

For this example, it is assumed that the four-wire port is port 600 and that the single port group is to be port 100 (large map).

1. Select Ports.
2. Enter the required Alpha and Description for port 600 (for four-wire Listen), e.g. PGM.
3. Double click on the Type cell of Port 600 and select Audio I/O from the resultant Port Type dialogue.
4. Select Attributes and set the Listen and Valid attributes for port 600. Clear the Talk attribute.
5. Exit to the top-level menu.
6. Select Groups.
7. Set up Group 100 to contain only port 600.
8. Exit to the top-level menu.
9. Select Ports. Enter the required Alpha and Description for Group 100 (for four-wire Talk).
10. Double click on the Type cell of Group 100 and set the Talk and Valid attributes for Group 100. Clear the Listen attribute, e.g. LSTB.
11. Return to the top-level menu.

<b>NOTE:</b> <b>Setting Talk or Listen only attributes prevents incorrect local assignment on an intelligent panel (3194 or 3197).</b>
--

## 7.8 Configuring a 4-wire port to a Conference

For this procedure, it is assumed that Port 727 is the last four-wire port and the conference is on Port 501. The conference must first have been established as detailed in How to add a Conference.

1. Select Crosspoints (X-pts).
2. Zoom in on and select crosspoint 727, 727.
3. In the Crosspoint Assignment dialogue, go to Edit mode.
4. In the Editing Function section, set Status to Permanently Closed. This ensures that the conference facility is assigned at start up.
5. Set Action 1 to GPI Output or Special Function.
6. In the resultant Function Select dialogue, select Special Function in the Functions section.
7. Enter or select the required Card and Pin No.
8. Double click on the Description cell of the required function.
9. In the resultant GPI Programming dialogue, select the required function - Conf talk/listen , Group talk/listen etc.
10. Select OK and exit back to the Crosspoint Assignment dialogue.
11. Exit back to the top-level menu.

## 7.9 How to set up an IFB

This section describes how to set up the following example IFB on port 400:

Source A program feed on port 632.

Destinations Ports 631 to 640.

Returns Ports 631 to 638 and 641.

Callers on Ports 615 and 616, with port 616 taking the higher priority.

Set Interrupt Dim Level to -12 dB (Source is dimmed by 12 dB when a Caller calls).

1. Ensure that all the above ports have been set up in the Ports dialogue.
2. For each of these ports in turn, double click on the Type cell and select Attributes from the resultant Port Type menu. Set the Access to this Port Attributes for the ports as follows:

Source port 632: Listen and Valid

Destination + Return ports 631-638: Listen, Talk and Valid.

Destination only ports 639, 640: Talk and Valid.

Return only port 631: Listen and Valid

Caller ports 615 and 616: Listen and Valid

3. Select IFBs.
4. Click on the first blank Port No cell, type in the IFB port number 400 and press Return.
5. Edit the default Alpha and Description entries as required.
6. From the Interrupt Dim Level cell, set the level to -12 dB.
7. Click on the new row and select Assign IFB to reach the IFB Assignment dialogue.
8. Assign port 632 as the Source port.

9. Ensure that Default: Return = Destination is selected.
10. Assign ports 631 to 640 as Destination ports.
11. Select Return port 639 and select Delete return 639.
12. Select Return port 640 and select Delete return 640.
13. Assign port 641 as a Return port.
14. Assign a priority level of 4 to Caller port 615.
15. Assign a priority level of 5 to Caller port 616.
16. Exit to the top-level menu.
17. Select Ports to set up Callers.
18. Select Caller port 615.
19. Double click on the Type cell and select Attributes from the resultant Port Type menu.
20. Select the IFB listen mode required for this panel - default is Return.
21. Return to the Panel ports dialogue and select Assign keys for Panel 615.
22. Double click on the Route Alpha cell of key 1.
23. In the resultant Port Select dialogue, select IFBs from the Port Type section. The dialogue will list the available IFB ports.
24. Select the required Talk/Listen mode.
25. Select IFB port 400 from the list and assign it to key switch 1 by clicking on the Route Alpha cell of this switch.
26. Exit the Port Select and OK the Keys dialogue to return to the Panels Ports dialogue.
27. Select Caller port 616 from the Panel Ports dialogue and repeat steps 18-25 to assign an IFB to one of the panel keys.
28. Return to the top menu level.

## 7.10 How to leave CMAPSi

Ensure that all dialogues are closed.

Select Map from the main menu bar and then Exit. Alternatively, double click on the box in the top left hand corner of the CMAPSi window.



## 8 CMAPSi Detailed description

The main page gives access to facilities for changing the current map. The current map name and size is given on the top line of the display and on the status bar.

Many facilities are available both from the menu and the toolbar.

### 8.1 Map

The configuration of the system forms a map of the matrix and details the connections to the ports and the behaviour of the keys and crosspoints in the matrix. This map can be saved to and retrieved from a named directory on disk. The options on this menu are concerned with handling such maps.

Up to eight systems can be used. Each system may have a number of alternative maps, one of which will be the current map for that system.

Each map has its own directory on the hard disk and an additional directory is used for the current map for the system. When you open a map, the map information is copied from the directory of that map to the current directory ready for editing and this map becomes the current map for that system. The new map information will overwrite the old map information. The program gives you the option of saving the old map information (back to its own directory) before it is overwritten. Similarly, when creating a new map, the old current map will be overwritten.

Note that changes to a map are not automatically saved to the map directory but are maintained in the directory until deliberately saved.

There is a directory for each system. This holds the map that is currently in use by that system. The action of opening a map on a system makes that map the current map for that system. The current map for any system is the map that was last opened for that system.

<p><b>NOTE:</b> All the print options are enabled through a licence Key disk. Please contact your Drake representative for further information.</p>
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#### 8.1.1 New

This option creates a new, default map file for a given system. The new map becomes the current map for that system and is opened for editing by CMAPSi. The default map has 16 ports defined. Note that, rather than create a new map, it may be better to open an existing map file that is similar to your desired map and then to use the Save as facility to save the map under a new name. You can then amend an existing map instead of starting with a brand new one.

From the System Size dialogue, select a small or large system map. The middle option is not yet available.

On the New Map dialogue, select the system where the map is to be used from the System option list and enter the name of the new map in the map field. If a map with that name already exists, an error message will appear.

The program prompts for hardware configuration files.

The new map you specify will become the current map, overwriting the old map in the current directory for the system you selected. A dialogue will appear giving you the chance to save the old map before it is overwritten.

### 8.1.1.1 Hardware Configuration Files

When the user selects New Map, the standard new map dialogue will appear and the user will select the system number, map size and new map name.

Before copying the default files to the Current directory, the outgoing map will be searched for the required Hardware Configuration files. If they are found there, the user will be given the option of using these files ( default ), loading the files from a diskette containing a saved Map or cancelling the loading of hardware configuration files. If the user selects OK the existing files will be used for the new map.

If the files are not found in the Current directory, the user will be given the option of loading the files from a diskette containing a saved Map or cancelling the loading of hardware configuration files.

If the user selects Diskette, the diskette drive will have to be selected. The diskette will be searched for the appropriate files and if found they will be added to the new map. If the files are not found then the user will be prompted to either insert another disk or cancel.

If the user selects cancel at any stage, a warning will be displayed and the new map will not be downloaded.

### 8.1.2 Open

Use this option to open and select an existing map on any system.

From the System option list, select the required system (default is current system).

From the Map option list, select the required map from the list of maps attached to the selected system (default is current map).

The selected map will become the current map for the selected system and will be open for editing until another map is opened.

The new map you specify will be copied into the current directory for the selected system, overwriting the old map that was in that current directory. A dialogue will appear giving you the option to save the old map before it is overwritten. If the new map selected is the same as the current map and you have changed the current map, a message will warn you that the current map will revert to its last saved version so that all new changes will be lost.

Changes made to the current map only affect the copy of the map that is located in the current directory. Such changes will only affect the copy that is in the map directory when:

- another map is loaded and changes to the current one are saved or
- the changes are explicitly saved using the Save As.. option with the same map name specified.

### 8.1.3 Load from diskette

Use this option to load a map for a particular system from a floppy disk. The loaded map is added to the list of maps available for that system and becomes the current map for the system until another map is chosen for that system. Only one map can be saved on each floppy disk.

When a map is saved to diskette the trunking information is also saved. When a map is loaded from a diskette the trunking information is compared with that on the hard disk. If different, then the user is given the option to load the trunking information as well, overwriting that which is already there.

The loaded map is also opened for editing by CMAPSi.

To load data from a diskette:

1. Insert the floppy disk in drive A or B.
2. In the Load map from diskette dialogue select the appropriate source drive.



3. From the Destination option list, select the system that the new map is to be used on (the current system is the default).
4. Click on OK to confirm your selection; a dialogue will display the name of the new map and ask you to confirm that it should be loaded. The program will display an error message dialogue if it cannot find a map on the disk. Click on Cancel to abort the loading.

#### **8.1.4 Save as..**

Use this option to save the current map under a new name (on the same system).

Enter the new name in the Map field or choose an existing name from the options list.

The Save as option creates a new directory for the new map and writes the existing current map information into the new map directory. Any changes since the map was saved as the old map name will not be written to the old map directory.

Where the selected map is a small map, the Convert to large option allows the map to be converted to a large type. Conversion is not possible if the small map dummy ports in the range 743-799; an error message will appear.

#### **8.1.5 Save to diskette**

Use this option to save the current map plus trunking information to a floppy disk. Only one map can be saved on each disk.

When a map is saved to diskette, the trunking information is also saved. When a map is loaded from a diskette the trunking information is compared with that on the hard disk. If different, then the user is given the option to load the trunking information as well, overwriting that which is already there.

The loaded map is also opened for editing by .

Place the floppy disk in drive A or B.

In the Save map to diskette dialogue, select the required drive. Select OK to confirm your selection or Cancel to abort the operation.

#### **8.1.6 Delete**

Use this option to delete a map from any of the eight systems.

On the Delete map dialogue, select the system containing the map to be deleted from the System option list.

Select the map to be deleted from the Map dialogue. You cannot delete the map that is currently open. (Use Control F4 to close the current map. See Close.)

Click on OK to confirm your selection or Cancel to abort the operation. A dialogue will ask you to confirm that you really do wish to delete the selected map. Click on Yes to delete or No to abort.

#### **8.1.7 Print**

Please Note : This print option is enabled through a licence Key disk. Please contact your Drake representative for further information.

It is possible to obtain a text output containing details about the current map. It is also possible to print out the key label strips for non-display control panels.

The text details may be sent to a printer or text file. The printer set-up for the map details must be set to portrait.

All or part of the map may be output by selecting the check box(es) of the desired listings. The print dialog will give the following options:-

- Directory Listing  
Check this box if you want to print a list of port descriptions. ( text file = DIRLIST.TXT )
- Port Entries  
Check this box if you want to print a list of port attributes. ( text file = PORTENTR.TXT )
- Group Entries  
Check this box if you want to print a list of groups and their member ports. ( text file = GRUPLIST.TXT )
- Conference Entries  
Check this box if you want to print a list of conferences. ( text file = CONFLIST.TXT )
- Panel DAK assignment  
Check this box if you want to print the key assignments for all control panels. ( text file = PANELCNF.TXT )
- Matrix Crosspoint  
Check this box if you want to print a list of non-default settings for crosspoints. ( text file = XMATRIX.TXT )
- GP Input List  
Check this box if you want to print a list GP Inputs and their functions. ( text file = GPINPUT.TXT )
- GP Output List  
Check this box if you want to print a list of GP Outputs. ( text file = GPOUT.TXT )
- GP Special Functions List  
Check this box if you want to print a list of GP Special Functions and their functions. ( text file = GPSFUNC.TXT )
- Latch List  
Check this box if you want to print a list of GPSF Latches and their functions ( text file = LATCHES.TXT )
- IFBs Description  
Check this box if you want to print a list of all IFB details. ( text file = IFBSDESC.TXT )
- Trunk Configurations  
Check this box if you want to print a list of trunk line set-ups for networked systems. ( text file = TRUNK.TXT )
- Hardware Description  
Check this box if you want to print the rack hardware details. ( text file = HARDWARE.TXT )

The following options are also available

- Select All  
This button toggles all the above check boxes on or off.
- Print Contents / Front Page  
Check this box if you want to print a front page and contents page.
- Printer  
Selects the target as the selected printer
- Text File  
Outputs each selection to a text file in the CURRENT directory. The text file name is given above.
- Delimited Text File  
Outputs each selection to a delimited text file in the CURRENT directory. This delimited text file can then be imported into a spreadsheet application that supports this format. The text file name is given above.

- Print Set-up  
Selects this to set-up the printer

### 8.1.8 Print Labels

**NOTE:** This print option is enabled through a licence Key disk. Please contact your Drake representative for further information.

Selecting this will print Key Label Strips for 3000 series and 4000 series non-display control panels (including non-display extension panels). The label key assignment text is declared within the ports set-up and comprises of two 8 alphanumeric character lines ( Line 1 and Line 2 ) that are printed centred one above the other for each key assignment of that port.

**NOTE:** The Ports assignment Window may be switched between displaying the Key Label Strips and the Port I/O Gain Levels. If the Port I/O Gain Levels are displayed then the Key Level Strips may be displayed by selecting the 'Show Key Labels' button. Note that the button text will change to read 'Show I/O Levels'.

For 3000 series panels, the label strips for the extension panels are always printed whether or not there are any assignments on the extension panel.

For 4000 series panels, the last extension panel printed will be the first extension panel with no assignments made. I.e. if only extension panel 1 has assignments made, then only the labels strips for extension panels 1 and 2 will be printed.

If any key assignment does not have a Key Label Strip declared within the ports set-up then the Alpha for the key assignment is used.

**NOTE:** For 4000 series panels, if the key assignment has been set to 8-character mnemonic display, then instead of the Alpha, the first 8 characters of the port description are used.

All or a sub-set of the non-display control panel Key Label Strips may be printed through the 'Print Label Panel Select' dialog. Select 'All Panels' or enter a range of panels and select OK.

The key label strips may be printed as white text on a black background or vice-versa by checking or clearing the check box in the print labels dialogue.

The key label strips can only be sent to a printer. The printer set-up for key label strips must be set to landscape and a paper size large enough for the key label strips. For 3000 series panels only, legal size paper may be used, but for 4000 series panels A3 size paper must be used for the extension panels. A warning is given if the wrong paper size or orientation is used. If some of the panels will fit on the given paper size, then they are printed out, with a printed warning message given for those panels which would not fit.

### 8.1.9 Print Set-up

**NOTE:** This print option is enabled through a licence Key disk. Please contact your Drake representative for further information.

The print set-up used must be set for the separate print functions. The printer set-up for the map details must be set to portrait. The printer set-up for key label strips must be set to landscape and a paper size large enough for the key label strips. For 3000 series panels only, legal size paper

may be used, but for 4000 series panels A3 size paper must be used for the extension panels. A warning is given if the wrong paper size or orientation is used. If some of the panels fit on the given paper size, then they are printed out, with a printed warning message given for those panels which would not fit.

The printer set-up options are :

- **Default Printer**  
Select this if you want to print to your default printer. The default printer is declared in the Windows Control Panel.
- **Specific Printer**  
Select this to print to another printer other than the Windows default. Additional printers are added using Windows Control Panel.
- **Orientation**  
Selects whether to print Portrait or Landscape. For the printing of map details, set this to portrait. For the printing of Key Label Strips, set this to landscape.
- **Paper**  
This selects the paper size and source. Select A3/Legal paper for printing Key Label Strips.
- **Options**  
Use this to set-up printer dependant settings.
- **Network**  
Select a printer on the Network.

## 8.2 View

Use this option to choose what you want to see on the screen.

The toolbar provides quick access to frequently-used functions.

The status bar along the bottom of the screen gives information about the currently selected option.

The ADM option brings up the ADM software, if available.

### 8.2.1 Show current maps

Use this option to see the maps currently assigned to the eight systems.

### 8.2.2 Exit

Select this option to leave the program.

## 8.3 Element

### 8.3.1 Ports

Use this window to set up the ports of the matrix. The panel ports must be set up with the panel types that are connected. Hence, before beginning, you will need a list of the panel identities and types that are physically connected to the matrix panel ports.

A port can be one of several types. These can include Audio input or output, trunk, group, conference or IFB.

**NOTE:** Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

For ports designated as A IO or TRNK a VOX threshold level may also be set. The VOX threshold is the level threshold at which an event is triggered by voice activation.

Mnemonics and descriptions permit you to define and name the system's resources. The names you define are subsequently used in defining mapped connections through the system. Note that the colours of fields in this window are significant. See Field colours.

The map uses a list of entries, numbered 600 etc. Each directory entry labels a target that can be associated with a panel key. It comprises:

- A directory number (600 etc.).
- A type such as an audio port, group, conference or IFB.
- A hardware identity for the physical ports.
- A mnemonic of up to four alphanumeric characters.
- A textual description of 15 alphanumeric characters.
- Two 8 alphanumeric Key Label Strip fields ( Line 1 and Line 2 ), used for printing Key Label Strips for non-display control panels.
- Port Input and Output Gain Levels
- VOX threshold level (if the port type has been designated as A IO or TRNK).
- The Ports assignment Window may be switched between displaying the Key Label Strips and the Port I/O and VOX Gain Levels.
- If the Port I/O and VOX Gain Levels are displayed then the Key Level Strips may be displayed by selecting the 'Show Key Labels' button. Note that the button text will change to read 'Show Levels'
- If the Key Level Strips are displayed then the Port Gain Levels may be displayed by selecting the 'Show Levels' button. Note that the button text will change to read 'Show Key Labels'

Ranges of map port numbers are pre-allocated as follows:

Small map	Large map	Functions
200 to 299	100 to 199	Groups. Maximum 30 groups containing 20 ports maximum each.
400 to 499	400 to 499 IFBs.	
500	500	Master Conference Talk.
501 to 564	501 to 564	Conferences 1 to 64.
600 to 727	600 to 983	Physical ports 1 to 128 (small) or 1 to 384 (large)
	200 to 399	385 to 584 (large map only)
728	984	RKEY, Remotely assignable key.
729	985	GPI, Key with centrally programmable GPI, but panel can locally reassign key function for making audio routes.
730	986	RJCT, Call Reject key. A key assigned to this can be used to reject selected incoming calls.
731	987	DIAL, Dial Key. A key assigned to this can be used to invoke dial mode on a panel.

732	988	CUT, Call Cut Key. A key assigned to this can be used to mute selected incoming calls.
733	989	GRPA, Group Assign Key. A key assigned to this can be used to group panel keys together
734	990	GRPT, Group Talk Key. A key assigned to this can be used to effectively press the keys that have been assigned by the 'Group
735 to 799	991 to 999	May be used as 'dummy' entries to gain access to GPI programming while providing an Alpha mnemonic for panel keys.

Groups Port No., Alpha mnemonic and Description entries can only changed via the Groups toolbar option or the Element/Function/Groups menu option.

Conference Port No., Alpha mnemonic and Description entries can only changed via the Conferences toolbar option or the Element/Conferences menu option.

IFB Port No., Alpha mnemonic and Description entries can only changed via the IFB toolbar option or the Element/Conferences menu option.

For details of the physical ports, refer to Physical ports.

To change the entry in the Type column, double click on the entry in that column. For a physical port (600 etc.), a Port type dialogue appears; for a Group, Conference or IFB port, an Attributes dialogue appears.

A physical port on the list can be Copied/Pasted or Saved and Loaded as a Template.

### 8.3.1.1 Physical ports

On a Small Map ports 600 to 727 are always connected to the physical ports 1 to 128. Therefore these physical ports are usually known by their map port ids - 600 etc.

On a Large map, there is a maximum of 672 physical ports numbered 600-983 and 200-399 on the matrix. Physical ports 1-384 correspond to matrix ports 600-983 while physical ports 385-584 correspond to matrix ports 200-399. Hence, for instance, physical port 1 is matrix port 600 on both maps.

All audio connections to the system are made through the physical ports, including panels and trunk lines to other systems etc.

The physical ports are predefined on the system and given default port numbers ( 600 etc.), panel type ( 3194), Alpha mnemonics ( PT1 etc.) and textual descriptions ( Port 1 etc.). To change these items (shown on a green background) double click on the item to be changed. For the Port No., Alpha mnemonic and Description, type in the required number or text and press Enter. For panel type, a dialogue appears that allows you to choose from a number of panel types and facilities - see Port type.

You can change the port number if you move a panel from one port to another.

You can set the Input and Output Gain Levels for the port.

If the port is a non-display control panel the Key Label Strips may be set.

Where you have selected a physical port, you can define the keys on the panel by selecting Assign keys for panel.

You can delete a (highlighted) physical port from the list by selecting Delete entry. Take care not to delete a port that is assigned to a Group, Conference, IFB, General Purpose Interface, Crosspoint or Trunk as these will affect other ports and resources.

The Sort by section allows you view the ports in different sorted sequences.

The colours of fields in this window are significant. See Field colours.

To confirm your changes to the map ports, click on Exit. To leave without making the changes, click on Cancel.

#### 8.3.1.1.1 Port type

Use this option to tell the system what is connected to a physical port.

From the list, choose the appropriate option.

Select one of the Intercom Control Panels. This will configure the key mimics for Panel Key Assignment.

The Audio i/o (input/output) option may be a four-wire external, IFB Source, Destination or Return, Remote Panel audio or PA loudspeaker amplifier. The I/O Gain Levels will be automatically defaulted to the levels set in the External Level Set window.

The Dummy option is used as a key label when its key is only used to trigger another event, such as a GPI control operation. The attributes of a dummy key should be set to invalid.

Select Trunk Lines if the port is used to connect this system to another system. See Network trunk lines.

Having made your choice of port type, click on Attributes to set up the attributes associated with the port type.

#### 8.3.1.2 Attributes

This dialogue allows you to set the characteristics of the current port.

This topic discusses all the attributes that are available when you are setting up a panel. For some other types, some attributes are not applicable and are therefore removed from the dialogue.

The top line gives information about the current port.

##### Panel facility level

This section is only available when setting panel attributes.

#### 8.3.1.2.1 Access to this port

Talk:	Other parties may talk to this port by dialling this port number from their keypad.
Listen:	Other parties may listen to this port by dialling this port number from their keypad. (This is required for IFB Sources.)
Soft lock:	Set this option to prevent the user of another port from reconfiguring his panel key attributes to talk or listen to this port when the talk/listen parameters above do not permit it. Take, for instance, a case where Talk is set and Listen is not set. If Soft Lock were not set, another user could use the Soft Programming facility on his/her panel to program a key to listen to this port. With Soft Lock set, this would not be possible. Note, however, that it would be possible if the Soft Programming option for the other panel were set to Lock Override.
Reply key bar:	This is normally set for non-panel ports that have permanent or normally-made crosspoints to panels. Select this option to block the normal signalisation and reply routing on the Reply key. The Reply key normally indicates the source of any audio input to the panel and provides a route for the user to reply to the incoming call. Where a source, such as the broadcast program, is permanently connected via a crosspoint to a panel, this indication and routing on the Reply key are not required. The Reply Key Bar option is set on the source port so that the Reply key indication and routing do not occur on any panel that the source port is connected to.
Valid:	Setting the port access invalid means that port cannot be accessed from elsewhere. This effectively configures the port as a dummy.



### 8.3.1.2.2 Soft programming

This section deals with the ability of the current panel to program the keys on other panels and to override the Soft Lock on target panels.

Lock override:	If you select this option, the current panel will be able to override the Soft Lock placed on another port. Hence, this panel will be able to choose to Listen and/or Talk to any other port.
Normal soft mode:	This is the default level. It allows the panel to perform soft programming on another panel and to override the normal talk and listen attributes set for a port except where Soft Lock is set for that port.
Soft off:	With this option, the panel cannot perform soft programming of its keys.

### 8.3.1.2.3 IFB Listen Mode

This determines how an IFB Caller from this panel will listen to Return IFB communications.

Return mode.	The Caller will only hear Return communications and will hear them undimmed.
Destination mode	The Caller hears Source and Returns just as a Destination would hear them - appropriately dimmed. If there are other Callers on the IFB, they would also be heard.

### 8.3.1.2.4 Signalisation

#### Flash time-out

When a panel is called from another port, an indicator on the panel flashes. The Flash time-out option allows you to define how long the flashing persists. Click on to the Flash time-out field and edit the entry. This can be set between 0 and 255 seconds - 0 gives instant time-out.

#### Flash frequency

When a panel is called from another port, an indicator on the panel flashes. The Flash frequency option allows you to define the frequency at which the indicator flashes. Click on to the Flash frequency field and edit the entry. This can be set to between 0.00 and 10.00 flashes/sec - 0 = continuously on.

### 8.3.1.3 Copy/Paste Ports

For a general discussion on copy/paste facilities, see Copy/Paste Principles.

Only one physical port row can be copied and pasted. The complete panel configuration will be copied to the new port and will overwrite the existing panel configuration on that port including panel type and key configurations.

Note that, while a port is selected for copy/pasting, the Sort by option is disabled.

#### Paste dialogue

If Paste GPOs/SFOs is selected, the Control function operations will be copied in addition to the Route function key operations for the panel.

Maintain Alpha/Description If this is selected, the existing Alpha and descriptive text in the row being pasted over remains unaffected. Otherwise, default text is used.

Select Overwrite to paste over the existing row. Select Cancel to abort the process.

If you are pasting to a free port location, the port number will default to the next free number but the dialogue will provide the opportunity to enter a different number.



#### 8.3.1.4 I/O & VOX Gain Level

The Audio Gain Input and Output levels for all Panels, Audio I/O Ports and Trunk lines may be set in the range -20dB to +18dB in 1dB steps. The default value is 0dB.

For ports designated as A IO or TRNK a VOX threshold level may also be set. The VOX threshold range is from -40dB to 0dB in 1dB steps. The default value is -20dB.

**NOTE:** Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

The values are set in the Ports Window. The value may be entered directly into the correct column or by double clicking the cell, which will produce a spin control by which the level may be incremented or decremented within the given range.

I/O Gain Levels may also be set in the Crosspoint Assignment Window.

Multiple ports may have their Gain Levels set at once through use of the right hand mouse button.

All the External Audio Ports and trunks may have their levels adjusted at once through the 'External Level Set' button.

All changes in the CMAPS settings need to be downloaded to the System to take effect. Any changes made to a particular ports level settings since the previous download will override any online level adjustments made for that port in the ADM Route Assignment Window. Any ports for which the gain Levels were not changed since the previous download will retain any level adjustments made in ADM.

**NOTE:** The Ports Assignment Window may be switched between displaying the Key Label Strips and the Port Gain Levels. If the Key Level Strips are displayed then the Port Gain Levels may be displayed by selecting the 'Show Levels' button. Note that the button text will change to read 'Show Key Labels'

**NOTE:** For input and output levels, all settings are relative to any gain level settings in the map's RDL file. The maximum gain level is +18dBs, taken as a summation of the gain level set off-line in CMAPS and/or on-line in ADM and the gain level set in the RDL file. If the summation of these settings is greater than +18dB, the total gain will still be +18dB and no warning will be given.

**NOTE:** For input and output levels, if the System has a Router Panel attached, any Router Panel Input/Output Pot gain adjustment will override the corresponding Input/Output gain setting set by CMAPSi ( off-line through CMAPS or online through ADM ). Conversely, any new input from CMAPSi will override any Router Panel Input/Output Pot gain adjustment.

**NOTE:** Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

##### 8.3.1.4.1 Setting I/O & VOX Gain Levels for Multiple Ports

The Audio Gain Input and Output levels for multiple Panels, Audio I/O Ports and Trunk lines may be set in the range -20dB to +18dB in 1dB steps. The default value is 0dB. All selected ports will be set to the same Input and Output levels.

For ports designated as A IO or TRNK a VOX threshold level may also be set in the range -40dB to 0dB in 1dB steps. All selected ports will be set to the same VOX level.

**NOTE:** Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

To set the Levels for Multiple Ports carry out the following:-

1. Select the Ports to be altered

Either

To change Input Levels only :- with the left hand mouse button pressed, drag the cursor down the Input Level column only until all the desired ports are selected.

To change Output Levels only :- with the left hand mouse button pressed, drag the cursor down the Output Level column only until all the desired ports are selected.

To change VOX Levels only :- with the left hand mouse button pressed, drag the cursor down the VOX Level column only until all the desired ports are selected.

To change all levels :- with the left hand mouse button pressed, drag the cursor down any of the level columns only until all the desired ports are selected.

The selected ports should have only their level columns highlighted.

Or

with the left hand mouse button pressed, drag the cursor down any columns except the level columns until all the desired ports are selected. This may be used if the columns are not currently displayed.

The selected ports only should have all their columns highlighted.

2. Select the Right Hand Mouse button and select Set Levels or press Ctrl+I If only the Input and/or Out columns or VOX are highlighted in 1 above, the 'Set I/O Gain & VOX Trigger Level' window should be displayed. If all columns are highlighted, then a pop-up menu should appear, select 'Set Levels', then the 'Set I/O Gain & VOX Trigger Level' window should be displayed.
3. Set the desired values for the levels. The value may be entered directly into the correct column or by double clicking the cell, which will produce a spin control by which the level may be incremented or decremented within the given range.

**NOTE:** Selecting/deselecting the appropriate check boxes in the dialogue will enable/disable the changing of the various levels regardless of how the ports were selected in 1 above.

Select OK to make the changes or Cancel to abandon them.

#### 8.3.1.4.2 Setting I/O Gain Levels for External Audio Ports

The Audio Gain Input and Output levels for ALL external Audio I/O Ports may be set or adjusted in the range -18dB to +18dB in 1dB steps. The default value is 0dB.

Select the 'External Level Set' button to display the 'External Audio Ports I/O Gain Level Setting' window.

To set the Audio I/O Ports Levels, select the 'Overwrite Existing Setting' radio button. All external Audio I/O Ports Output levels will be set to the same set level, with the Input levels being set to the inverse of this set value ( e.g. if Output Level is set to -4dB Input level will be set to +4dB ).

To adjust the Audio I/O Ports Levels, select the 'Add to Existing Setting' radio button. All external Audio I/O Ports Output levels will be adjusted by the same set amount, with the Input levels being

adjusted by the inverse of this set value ( e.g. if Output Level is adjusted by -1dB Input level will be adjusted by +1dB ).

**NOTE:** If the adjustment would take the set level outside the limits of -20dB to +18dB, the level will be set to the broken limit.

A VOX threshold level can only be "set" (implicit level); it cannot be "adjusted" (incremental level).

Whether setting or adjusting a level the desired value is set in the same manner. The Output Level ( implicit or incremental ) may be entered directly into the correct column or by double clicking the cell, which will produce a spin control by which the level may be incremented or decremented within the given range.

**NOTE:** The Input Level is automatically set to the inverse of this value.

Select OK to set all currently define Audio I/O Port levels.

**NOTE:** This will also set the default Audio I/O Gain Level to the given value. Any further defined port set as Port Type = Audio I/O Port in any map will automatically have their Output Level set to this value with the Input Level set to the inverse of this value.

Select Cancel to abandon the changes.

### 8.3.2 Keys

Use this option to define the actions to be performed by the keys on the panel that is connected to the current port. You can set the functions of keys on the main panel, an extension panel or of control inputs to the panel. The Panel section at the right of the window shows the identity of the current panel and allows you to select Main, Extension or Control inputs. The window will list the keys or inputs appropriate to the selection you make.

The colours of fields in this window are significant. See Field colours.

For the Main unit, the window shows a picture of the unit as currently configured. The list shows the configuration and action of the panel keys numbered in sequence from left to right and top to bottom; for example, for sixteen keys the sequence would be:

1

9

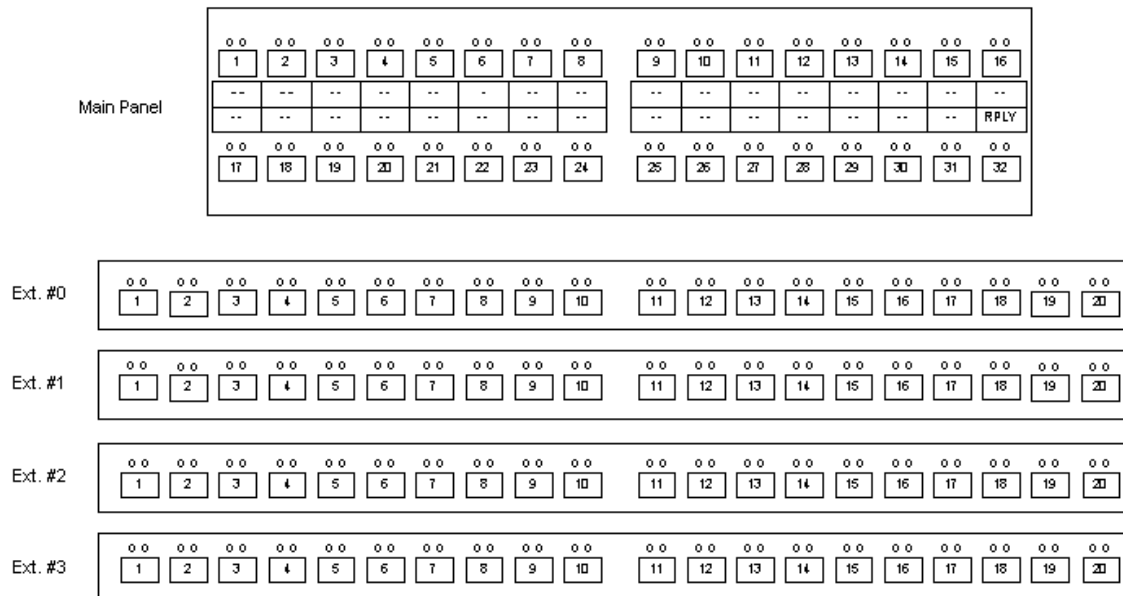
For 3000 series panels, the Extension option lists the keys on the relevant Extension panel or main panel shift page if appropriate.

For 4000 series panels, up to 4 Extension panels are supported. The key list of the required extension panel may be selected from the drop down extension panel list. Where the panel also supports shift pages, the key lists may be selected from the Shift Page drop down list. Please note in this case, the Extension Panels and the Shift Pages cover the same program keys, but shown in different formats.

**NOTE:** Not all key assignments are shown in both formats.

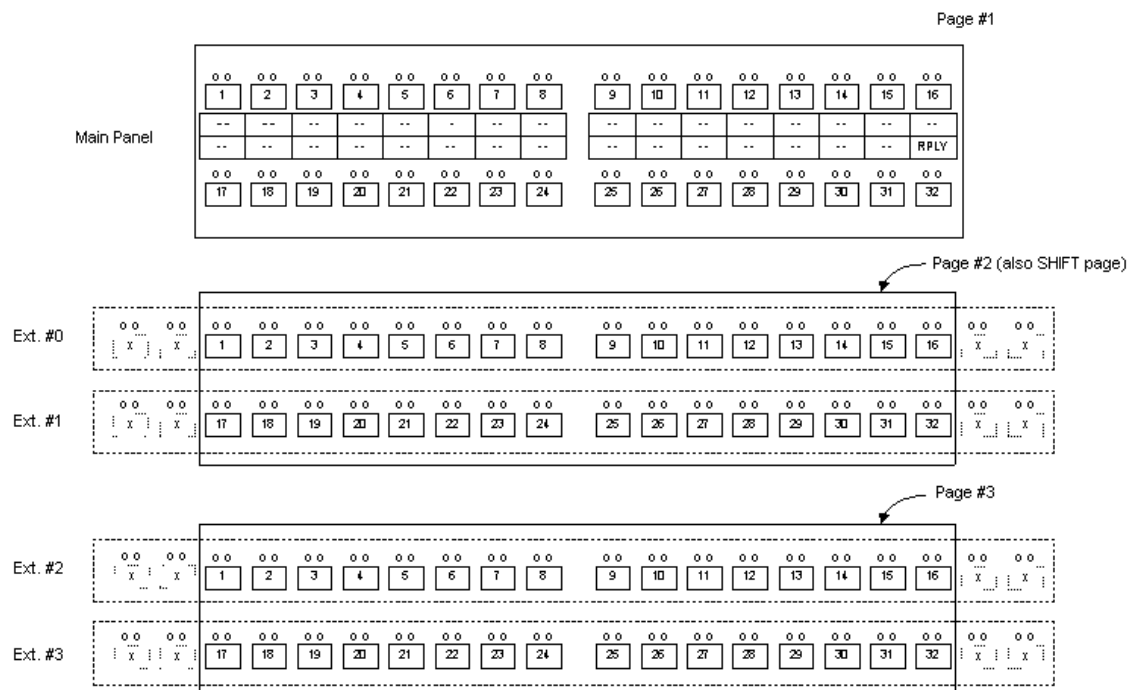
If an extension panel is connected, then the relevant shift page cannot be viewed on the main panel.

i) Main panel with up to 4 x 20 key extension panels



**Figure 8-1 Main and Extension Panels**

ii) Main panel and 2 x 32 Shift Pages.



**Figure 8-2 Main Panel and Shift Pages**

The Control Inputs option lists general-purpose electrical inputs that may be available at the panel. These inputs are only available if an options card is fitted in the panel. Please refer to user guide/installation guide/technical manual for further details.

The lists allow you to define, for panel keys or control inputs:

Route function audio connections to be selected by the switch or control input.

Use Control function to specify a general-purpose interface (GPI) output or Special Function that will be activated when the key is pressed or a control input occurs. Control function is auxiliary to Route function and can only be defined after a Route function has been defined for a given switch. If no audio connection is required for the switch, you can define Route function as a dummy that merely specifies the required mnemonic for the switch. See Port type.

To define a Control function connection, double click in the Alpha column of Control function.

A Function Select dialogue will appear.

Key action - locking, non-locking etc.

Software overwrite (o/w) - if set to Yes, this permits local programming at the control panel of the switch operation.

Use the Unassign Key option to remove the configuration from a key.

Use the Unassign GPI option to remove the Control function assignment only from a key.

Use the Initialise Key Actions option to set all the keys on the panel to default (natural) settings for that panel type.

One or more keys can be copied and pasted within this dialogue or to the same dialogue for another physical port. Similarly, where the same keys data applies to several panels, data in the Keys dialogue for one panel can be saved to a template and then loaded into the Keys dialogue for the other panels.

Select OK to confirm your changes or Cancel to abort them.

<b>NOTE:</b> Do not configure the last key in the Main unit ( key 16 or 32 ) : this is the Reply key.
---

### 8.3.2.1 Port select

The Port Select dialogue is used in two places and operates in a different way in each:

Keys Route function - selecting ports for Route function of panel keys.

Network trunk port select - selecting ports for network trunk lines.

#### 8.3.2.1.1 Keys Route function

Route Function defines an audio connection to another port. To define this connection, double click in the Alpha column of Route Function. A Port Select dialogue will appear.

A given panel switch or control input can connect a user to any defined port, group or conference on the matrix. Select Port, Group, Conference or IFB from the Port Type section. Depending on which Port Type you select, the Port Select dialogue lists the available ports, groups, conferences or IFBs.

If only a control function is required, without an audio path, set up one of the ports as a dummy and allocate this as Route Function. Certain ports have been reserved for use as dummies - see Ports.

From the Systems option list, select the system that contains the port, group, conference or IFB that you want the panel switch or control input to select.

In the Mode section, select Talk, Talk+Listen or Listen, where Talk means that the user of the current port can talk to the selected port, group or conference when the switch is made or the control input is present.

4000 series panels may also be set to Talk+F/Listen ( Talk and Forced Listen ). When this key is assigned the panel constantly listens to the selected port, group or conference , and can talk to the selected port, group or conference when the switch is made.

To assign a particular Port, Group, Conference or IFB to a switch or control input on the panel:

1. Select the required System, Port Type and Mode in the Port Select window.

2. Click on one of the fields of the required port, group, conference or IFB on the list, e.g. 601. (Leave the Port Select window open.)
3. In the Keys window, click on the Route function Alpha or Mode field of the relevant switch or control input. The Alpha mnemonic of the selected item will appear in the Alpha field and the mode will appear in the Mode field in the Keys window. The selected switch or control input is now programmed to connect the user to the selected port, group or conference with the selected talk/listen mode.
4. Repeat steps 1 to 3 to assign any Port, Group, Conference or IFB to Route function of any switch or control input on the panel.
5. On completion, select Exit in the Port Select dialogue.

#### 8.3.2.1.2 Network trunk port select

1. From the Systems option list, select the system that contains the port, group, conference or IFB that you want to connect to.
2. From the ports list, click on the port you want to connect to.
3. Click on Exit. The selected port and system will appear in the currently highlighted local or remote port.

#### 8.3.2.2 Function select

The Function Select dialogue lists either GPI outputs or Special Functions according to what is selected in the Function section. Select the category required.

Use the System options list to select the system containing the GPI output or Special Function you wish to activate.

Use the Sort by section to choose the order in which the functions are displayed.

You can edit the Card or Pin number by double clicking on the field and typing in the new entry.

The card and pin number must physically exist on your system or connections will have no effect.

Press Enter to confirm your entry.

To assign a GPI Output or Special Function to a panel switch or control input,

1. Select the required System and Function in the Function Select window.
2. Click on one of the four fields of the required GPI Output or Special Function on the list, e.g. 1201. (Leave the Function Select window open.)
3. In the Keys window, click on the Control function Alpha or Mode field of the relevant switch or control input. The Alpha mnemonic of the selected item will appear in the Alpha field and mode E (Enable) will appear in the Mode field. The selected switch or control input is now programmed to activate the selected GPI Output or Special Function.
4. Repeat steps 1 to 3 to assign any GPI Output or Special Function to Control function of any switch or control input on the panel.
5. On completion, select Exit in the Port Select dialogue.

#### 8.3.2.3 Key action

This option allows you to control the type of operation performed by a push button on the panel. For lever switches, the mode of operation is determined by its mechanical construction. There are three types of mechanical lever switch operation:

Momentary	Contact is made (or broken) while the key is held down.
Latched	The switch stays in the on or off position that it has been set to.
Interlocked	A group of switches are mechanically linked so that the operation of one



	switch deactivates all the others in the group.
The Key Action option provides four ways of enhancing the operation of a push button switch:	
Normal (LNL )	If pressed very briefly (<0.25s), this toggles the switch between on and off. If pressed for longer, a momentary contact is obtained.
Latch only ( L )	The switch toggles between on and off every time it is operated.
Non-latch only (NL)	The contact is closed while the key is pressed.
Dual Talk/Listen (DTL )	( 4000 series panels only ) When pressed and released within < 200mS, a Dual Talk and Listen switch makes the listen route on the key release and latches the switch. When pressed for > 200mS the talk route is made  ( Note: no talk route is made for approximately 200mS after a switch is pressed until the panel has determined if a key is latched or held ).  To operate as a Dual Talk and Listen switch, the switch must be locally or centrally configured with a Talk+Listen entry.
Interlock group (G x )	This simulates a group of keys that are mechanically linked. Up to 8 groups can be defined (A to H). Select Make before break if you want the new switch contact to make before the previously activated switch contact breaks. Select Deactivating if you want activation of a new switch to deactivate the previously activated switch. The program will not allow you to exit the dialogue if you have only allocated one switch to a particular group.

Any of these options can be assigned to push-button switches. Assign the Non-latch only option to lever keys.

The Special 1 and Special 2 options allow you to specify that the key will perform a special function that is peculiar to a particular application. Drake will inform you if these options have any application in your software. By default, Special 1 activates the Call Busy signalisation on a panel key such that the red LED for that key will flash while that destination port is busy on another call.

Use the Store/Load Template options to copy the key action from one key to another or others.

#### 4000 Series Panels Only

Dial Mode	The 4000 system uses Telephone Hybrid units to dial to external telephone lines. Calls are originated by pressing the panel key with the 'DIAL' mnemonic and then selecting the Telephone Hybrid unit to call. A DAK's route and control configuration in CMAPSi sets up the control that causes a telephone line in the matrix to go 'off-hook' and to create talk/listen routes to the port number corresponding to the Telephone Hybrid unit. The DAK also has to be configured as being of type 'DIAL' by setting the Dial Mode field in the Key Action section of Panel Port assignments. Note that only momentary action DAKs should be assigned as being of type 'DIAL'. See Dial Mode Operation.
8 Character Mnemonics	Odd numbered DAKs, excluding the DAK before the REPLY key, can be programmed centrally or remotely by CMAPSi to have 8 character mnemonics (N.B. the top left DAK is DAK #1). The '8 Character Mnemonic' field for the Key Action attribute enables 8 character mnemonics. The default setting of the '8 Character Mnemonic' field is off; corresponding to 4 character mnemonics. When a DAK is configured to have 8 character mnemonics, the first 8 characters of the DAK assignment's directory description field is displayed above or below the DAK pair. The second DAK in the pair can also be programmed, but there is no mnemonic associated with this assignment on the display. See 8 Character Mnemonic Operation

##### 8.3.2.3.1 Dial Mode Operation

The 4000 system uses Telephone Hybrid units to dial to external telephone lines. Calls are originated by pressing the panel key with the 'DIAL' mnemonic and then selecting the Telephone Hybrid unit to call. A DAK's route and control configuration in CMAPS sets up the control that causes a telephone line in the matrix to go 'off-hook' and to create talk/listen routes to the port number corresponding to the Telephone Hybrid unit. The DAK also has to be configured as being of type 'DIAL' by setting the Dial Mode field in the Key Action section of Panel Port assignments.

Note that only momentary action DAKs should be assigned as being of type 'DIAL'. Each panel that requires access to DIAL mode must have one key assigned to this port.

Pressing a DIAL key automatically enters DIAL mode, from where the mnemonics of all DAKs assigned as being of type DIAL flash. All other DAK mnemonics remain, but do not flash. The 'REPLY' key mnemonic is replaced by the word 'EXIT'. Pressing 'EXIT' at this stage causes the panel to return to normal operation.

Pressing a DAK with a flashing mnemonic causes the panel to display the digits 0..9, \*, and #, to allow telephone number dialling. The telephone line is taken off hook when the DAK is pressed.

The display shows the digits that have been pressed. While a digit key is pressed the panel establishes an isolate route to the telephone dialling unit in the rack. The isolate route prevents any listeners to the panel from hearing the DTMF tones generated during dialling. The panel microphone is dimmed during dialling to prevent external noise from interfering with the DTMF tones.

Pressing the 'RLSE' key causes the telephone line to be placed back on hook and the 'RLSE' text to be replaced by 'CNCT'. Selecting 'CNCT' causes the telephone line to be taken off hook again and the 'CNCT' text to be replaced by 'RLSE' once again.

Pressing the 'EXIT' key causes the panel to return to normal operation. If the line was off hook when 'EXIT' was pressed, the selected DIAL type DAK is latched.

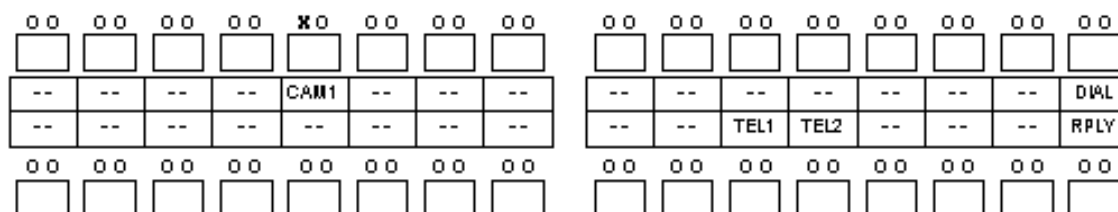
A Telephone Hybrid line can be accessed by pressing the DIAL type DAK without having to enter DIAL mode. In this case, if the DAK has been programmed (using GPSFs), the line will be held off hook until no keys (talk or listen) which are GPSF programmed to hold the line off hook are active.

Configuring a DIAL type DAK as a talk and forced listen entry is not barred by CMAPS. A warning message is displayed, as the assignment would permanently keep the Telephone Hybrid unit line off-hook.

It should be noted that there is no protection against a panel leaving a telephone line off hook. ADM and panel busy indication can be used to tell if a panel is holding a Telephone Hybrid line off hook, but there is no central line administration facility.

On entering DIAL mode all LED signalisation is cleared. Pressing a digit key causes the relevant digit's DTMF to be generated while the key is pressed. The red LED on the key is lit while the key is pressed.

The following sequence of diagrams illustrates how to make and release a call to a telephone line. DAKs with the mnemonics TEL1 and TEL2 have been configured by CMAPS as DIAL keys. If enabled, busy signalisation indicates that DIAL DAKs are active.



**Figure 8-3 Dial Sequence 1**

Press DIAL key - TEL1 and TEL2 flash. RPLY key mnemonic is replaced by EXIT



00	00	00	00	00	00	00	00
--	--	--	--	CAM1	--	--	--
--	--	--	--	--	--	--	--
00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
--	--	--	--	--	--	--	DIAL
--	--	*TEL1*	*TEL2*	--	--	--	EXIT
00	00	00	00	00	00	00	00

**Figure 8-4 Dial Sequence 2**

Select TEL1, dial display is shown.

All DAK signalisation is cleared

00	00	00	00	00	00	00	00
1	2	3	4	5	*		
6	7	8	9	0	#		
00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
DIAL	:						
	RLSE						EXIT
00	00	00	00	00	00	00	00

**Figure 8-5 Dial Sequence 3**

Start dialling numbers

00	00	00	00	00	00	00	00
1	2	3	4	5	*		
6	7	8	9	0	#		
00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
DIAL	:	089	8				
	RLSE						EXIT
00	00	00	00	00	00	00	00

**Figure 8-6 Dial Sequence 4**

Press RLSE to cancel call and go on-hook

00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
DIAL	:						
	CNCT						EXIT
00	00	00	00	00	00	00	00

**Figure 8-7 Dial Sequence 5**

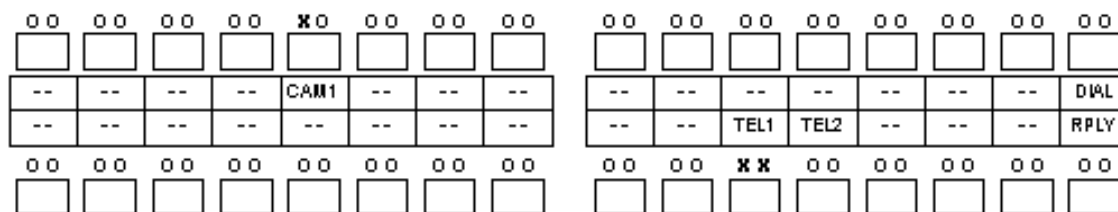
Press CNCT to go off-hook and start dialling again

Dial telephone number (e.g. 01707391312 )

00	00	00	00	00	00	00	00
1	2	3	4	5	*		
6	7	8	9	0	#		
00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00
DIAL	:	017	0739	1312			
	RLSE						EXIT
00	00	00	00	00	00	00	00

**Figure 8-8 Dial Sequence 6**

Press EXIT key to return to DAK mode



**Figure 8-9 Dial Sequence 7**

Press TEL1 to cancel telephone call

After a red button reset on the matrix or non-intrusive download configuration from CMAPSi, telephone line connections are retained and panel displays will return to the state they were in prior to the reset. After a 'red reset' configuration download from CMAPSi, or a panel power failure, the telephone line connections go on-hook and the call is disconnected.

#### 8.3.2.3.2 8 Character Mnemonic Operation

On 4000 series Panels, odd numbered DAKs, excluding the DAK before the REPLY key, can be programmed centrally or remotely by CMAPSi to have 8 character mnemonics (N.B. the top left DAK is DAK #1). The '8 Character Mnemonic' field for the Key Action attribute enables 8 character mnemonics. The default setting of the '8 Character Mnemonic' field is off; corresponding to 4 character mnemonics.

When a DAK is configured to have 8 character mnemonics, the first 8 characters of the DAK assignment's directory description field is displayed above or below the DAK pair. The second DAK in the pair can also be programmed, but there is no mnemonic associated with this assignment on the display.

CMAPSi allows upper and lower case characters to be entered for the directory entry description field. This text is converted to a combination of upper and lower characters corresponding to the talk/listen attributes when the directory description is used as the mnemonic for a DAK entry. The mnemonics displayed above the REPLY key are always 4 upper case characters, and correspond to the mnemonic of the directory entry.

A DAK that is part of an '8 character mnemonic' pair can only be centrally or remotely configured; local configuration of these DAKs is not possible.

Two special DUMMY port entries ( Call Cut and Call Reject ) are also available, and can be assigned to the second DAK to give additional control of the route(s) created by the first DAK of the pair.

Call Reject Operation for 3000 series control panels requires the call reject key ('\*' on the keypad) or a configured Call Reject DAK to be pressed and held, followed by the DAK(s) whose route(s) were to be call rejected being pressed. When a DAK pair is configured for 8 character mnemonics, a single key press only is needed to 'call reject' the call associated with the first DAK, providing the 2nd DAK has been configured as a call reject key.

The 2nd DAK can be programmed to perform a Cut Operation using the Call Cut entry. When this DAK is pressed, the listen route associated with the 1st DAK is cut (approximately -60dB) while the 2nd DAK is pressed or latched. The call signalisation on the 1st DAK is not affected by the cutting of the route, neither is any general-purpose function attached to the listen crosspoint. The red LED on the 2nd DAK is lit while the listen route associated with the 1st DAK is cut. The level setting of a listen route can be altered (by rotary encoder or pot. panel) while the cut is active, but the actual audio level will not be adjusted until the cut is removed from the key. Releasing the 2nd DAK removes the cut on the route. The red LED on the CUT key is cleared. When a DAK with a 4-character mnemonic is configured as a CUT key, the DAK press is ignored.

#### 8.3.2.4 Initialise key actions

Use the Initialise Key Actions option to set all the keys on the panel to default settings (latch/non latch etc.) that suit the types of key actually fitted on the panel. The default key actions for different key types are:

- Push button LNL
- Lever key NL
- GPI/Control NL

A warning dialogue will give you the chance to change your mind before the settings are changed. If the keys are already set to their default settings, the displayed settings will not change. Note that the key actions will not change if you change the panel type; on changing a panel type, key 1, for instance, will remain a LNL type (say) unless you change it either directly or using the Initialise Key Actions option. You should use the Initialise Key Actions option before changing individual key settings since the Initialise Key Actions will overwrite all existing key settings.

### 8.3.2.5 Copy/Paste keys

For a general discussion on copy/paste facilities, see Copy/Paste principles.

A number of rows can be selected. In fact all rows can be selected, using the Select All Keys option in the Copy/Paste dialogue.

#### Paste dialogue

Clear unassigned keys Where a number of key description rows are copied and one or more rows is blank (unassigned), you have the option, when pasting these rows into a dialogue, of clearing unassigned keys in the destination text corresponding to these blank rows or of leaving the keys unaffected, pasting in only rows that are not blank.

If Paste GPOs/SFOs is selected, the Control function operations will be copied in addition to the Route function key operations for the panel.

Select Paste to paste the first (or next) row as shown under Next Key to paste.

Select Skip to skip pasting the Next Key to paste.

Select Paste All to paste all rows from the clipboard to the dialogue.

Use Cancel to abort the operation.

4000 panel key data cannot be pasted into 3000 Key data and vice-versa.

### 8.3.3 IFBs

Use this option to define IFBs on the system. Each IFB defines connections between Source and Destination ports and is identified by a port number between 400 and 499. An IFB may also define Return paths from a Destination (or other) port back to the Caller and other Destination ports.

Activation of an IFB by a Caller interrupts or dims the Source-Destination paths, connects the Caller to the Destinations and connects the Return paths to the Caller. A caller will only hear return ports if the IFB Listen Mode attribute is set for the calling panel. See Principles of Interrupted Foldback for more information on IFBs.

To define a new IFB, click on the next unused Port No. cell and type in the port number between 400 and 499. Press Return. Default Alpha, Description and Interrupt Level values will be allocated to the port. Click on the Alpha cell and enter a short title as you would wish it to appear on a panel switch. Click on the Description cell and enter a suitable description. Leave the Interrupt Dim Level set to Cut, if the Source is to be cut off when a Caller interrupts, or select a suitable dim level from the options list.

To edit IFB details, click on the relevant cell and type in the new details.

The three right-hand columns show the Source, Destination and Return ports that have been assigned to each IFB. Where more than one port has been assigned, a pull-down options list allows you to view the list.

The Delete option allows you to delete the currently selected IFB from the list.

Use the Exit option to save any changes and exit. Use the Cancel option to exit without saving changes; a warning message will ask you to confirm that you really want to lose the changes.

To change the ports assigned to the IFB, either double click in the Source, Dest. or Return cells of the IFB row or click once to highlight any cell on the row and select the Assign IFB option. An IFB Assignment window will appear.

### 8.3.3.1 IFB Assignment

Use this option to assign Source, Destination and Return ports to an IFB, to set IFB priorities and to assign a special function or General Purpose Input/Output to the IFB.

The panel at the top of the window shows the IFB port number, Alpha, description and interrupt dim level.

The three right-hand columns show the Source, Destination and Return ports that have been assigned to this IFB.

The left-hand section of the window shows the ports that are available for selection as Source, Destination and Return ports. This section also shows the IFB priority level assigned to each port.

For more information on priorities, refer to Priorities. Source ports have a fixed priority level of 1. The left-hand section can also be used to set the priority levels of ports that call this IFB. Hence, if the panels on ports 600 and 601 have keys programmed to call this IFB, you can select the respective priorities for calls from these ports; e.g. priority level 5 for port 600 and a lower priority, say 4, for port 601. To set a Caller priority, click on the relevant cell and select the required priority level from the options list.

Use the Set Default Panel Priority options list to select the default priority level for Callers.

Use the Sort by option to sort the ports list by Port No., Alpha or Type.

#### 8.3.3.1.1 IFB Ports

To assign a Source port to the IFB, click on the Source column. The left-hand section of the column turns to light green and a green arrow appears above it. To assign a port as a Source, double click on any cell of the required port ports list in the left-hand half of the window. An error message will appear if an invalid port is selected. Ports may also be added as follows:

1. Select the port in the Ports list and double click the first free port cell in the Source/Destination/Returns list.
2. Enter the port number in the first free cell in the Source/Destination/Returns list.

Destination and Return port selection is similar to Source port selection. Where you want all or most Destination ports to be able to return an IFB call, select the Default: Return = Destination option; each selected Destination port will then be duplicated in the Return column. Ports assigned a Return path can reply to the IFB Caller while the IFB is active. Return ports do not have to be Destination ports but cannot also be Source ports.

Any port can be deleted from the list by highlighting it and selecting the Delete option.

**NOTE:** It is possible to assign different alphas to inputs and outputs of a four-wire input/output by creating a group containing a single port entry.

#### 8.3.3.1.2 SFOs and GPOs

An IFB can be arranged to trigger a Special Function (SFO) or generate a General Purpose Output (GPO) when it is called. SFOs and GPOs must have been programmed in before they can be linked with an IFB.

Use the Set Action option to set up a function link to the current IFB. From the resultant Function Select window, use the Function section to select the type of function required, highlight the

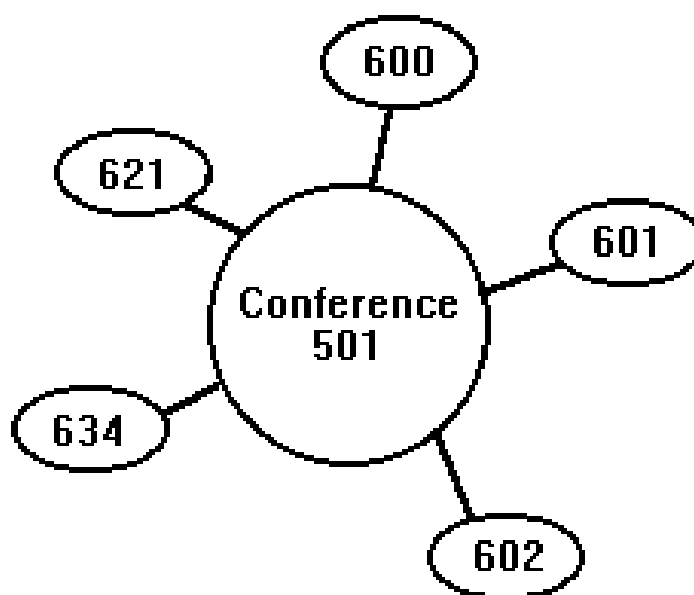
required function from the resultant list and select Exit. The selected function will appear in the Action window.

Use the Clear Action option to remove a function link. The Action window will clear.

Conversely, a General Purpose Input or SFO can be set to activate an IFB talk or listen.

### 8.3.4 Conferences - Party lines

This option allows you to define a conference that allows users to join in a discussion. In the USA, a conference is called a Party Line.



**Figure 8-10 Conferences**

Unlike a group, users are not specifically assigned to a conference. To participate in a conference, a user only needs a panel switch programmed to talk or listen to the conference. The conference will be between all users who have operated the relevant conference switches on their panels.

It is usual to program switches to listen (only) to conference ports and then to have a common Talk switch on the panel. Operating the Talk switch connects the user to talk to all the conferences he is currently listening to. This Talk switch connects to port 500 Master Conference Talk on the matrix.

Up to 64 conferences can be defined on ports 501 to 564 of the matrix. The Conference option allows you to define conferences, giving them descriptive names and mnemonics. Where a panel key routes to a conference port, the mnemonic for the conference appears on the panel key. You must also define the Master Conference Talk port 500 if this is to be used.

To define a new conference, double click on the next vacant No. field, type in the new port number and press Enter. The port number must be an unused number between 500 and 564. Default Alpha mnemonic and Description entries will appear.

The colours of fields in this window are significant. See Field colours.

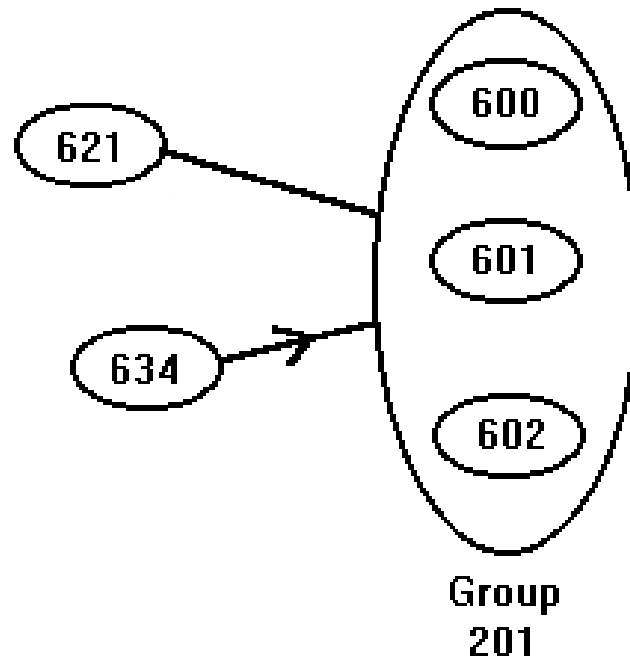
To change the default Alpha mnemonic and Description, click on the field and edit it. Press Enter to confirm your entry.

To delete a conference, click on any field of the conference and select Remove nnn, where nnn is the conference number.

Select OK to exit the Conference window.

### 8.3.5 Groups

Use the Groups option to set up groups of ports. A Group is a designated set of ports and is identified by a port number between 200 and 299 (small map) or 100 and 199 (large map). Any panel not in the group can be set to communicate with a defined group by assigning an appropriate group port number to a panel key. The group facility does not provide communication within the group.



**Figure 8-11 Groups**

To create a new group:

1. Click on to the first blank number field, type in a new group number in the appropriate group range and press Enter. A default Alpha mnemonic and Description will appear. Click on to the Alpha and Description fields and edit them as required.
2. Click on to one of the group fields.
3. Add ports to the group either by double clicking on ports in the middle part of the list or clicking once on the group and then selecting Add port. The program will not allow you to add a duplicate port to a group.

Repeat the procedure to create other groups.

The colours of fields in this window are significant. See Field colours.

To delete a group, select the group and press the Delete group button. A warning will appear and ask if you really want to delete the group.

To delete a port from a group, select the group and either double click on the port to be removed in the right hand list or click once on the port and select Delete port. A warning will appear and ask if you really do want to delete the port. If the last port is deleted, the group entry will be removed.

A Copy/Paste facility is available for copying group data from one group to another.

On completion of the group assignments, either select OK to confirm or Cancel to abort the operations.

### 8.3.5.1 Copy/Paste Groups

For a general discussion on copy/paste facilities, see Copy/Paste principles.

A number of rows can be selected. In fact all rows can be selected, using the Select All Groups option in the Copy/Paste menu.

#### Paste dialogue

If Maintain Alpha/Description is selected, the existing Alpha and descriptive text remains unaffected. Otherwise, default text is used.

For each row pasted individually, you may enter the new group number by typing the new group number in the Enter Group Number for pasting box. The number defaults to the next unused group number in the group sequence, starting from the number in the Enter Group Number for pasting box.

Select Paste to paste the first (next) stored group to the group shown under Enter Group Number for pasting .

Select Skip to skip pasting the next stored group.

Select Paste All to paste all groups stored on the clipboard to the dialogue.

Use Cancel to abort the operation.

### 8.3.6 Crosspoints

This option allows you to assign particular, fixed conditions to crosspoints on the matrix.

Because of the large number of ports involved, an initial page is provided for a small map that enables you to choose a particular area of interest on the matrix. You can then zoom in on this area; the actual crosspoint details for the chosen area are shown on a second page. For a large map, two initial pages are provided so that choosing a range of input/output ports is broken into two stages.

For a large map, the initial page shows all the physical ports on a map sub-divided into four areas covering ports 200-399 and 600-983. A black square indicates the area covered by the second page. The square can be dragged around an area with the mouse or moved to a different area by clicking on that area. Move the square to cover the required area or enter the range of input and output ports in the Zoom to Range section. Select Zoom to zoom to the selected area. The second page is the same as the initial page of the small map except that it covers the range of ports selected in the initial page.

The initial page for a small map has lists of available input and output ports and a map of the matrix from ports 600 to 727 (physical ports 1 to 128). Black dots on the map show where particular non-default conditions have been applied to crosspoints.

To choose the area of interest, either:

- In the input and output port lists, highlight the ports at the starting point of the area of interest.
- The input and output ports will appear in the Zoom to section. Select Zoom to zoom in on this area.
- Double click on a point on the map. The second page will appear showing ports all around the selected point.

On choosing your area of interest, a crosspoint assignment page appears.

#### 8.3.6.1 Crosspoint assignment

This page allows you to view or change any permanent conditions assigned to matrix crosspoints.

Only physical port crosspoints can be viewed and edited.



The lower part of the window shows the crosspoints with input ports downwards and output ports across. The axes are marked with the port numbers and alphanumeric mnemonics. Scroll bars to the right and below allow you to change the area of view. The conditions at the crosspoints are illustrated by symbols.

The Highlighted Crosspoint section shows the conditions assigned at the currently highlighted crosspoint including the I/O Gain Levels.

The Editing Function section is used to edit conditions at a crosspoint.

The colours of fields in this window are significant. See Field colours.

### Viewing conditions

To view the conditions at a crosspoint, without changing those conditions:

1. Check that Editing Function is shown as disabled. If not, click on Go to View Mode.
2. Click on the crosspoint of interest on the map. The Highlighted Crosspoint section will show the crosspoint conditions.

### Editing conditions

To edit the conditions at a crosspoint:

1. Check that Editing Function is shown as enabled. If not, click on Go to Edit Mode.
2. In the Editing function section, set up the conditions to be assigned to the crosspoint.
3. On the map, click on the crosspoint to be changed. The symbol at the crosspoint will change to reflect the changed condition.
4. Repeat step 3 to assign the same conditions to other crosspoints.

### Editing I/O Gain Levels

To set the Input/Output gain levels:

1. Select a crosspoint
2. Adjust Input or Output level of either the Input or Output Port by entering in the value or incrementing/decrementing the value by use the adjacent spin control. Values may be set may be set in the range -20dB to +18dB in 1dB steps.

**NOTE:** The Editing Function does not need to be enabled to adjust the I/O Gain Levels.

**NOTE:** Adjusting the 'Gain Level' settings displayed in the Highlighted Crosspoint section do not adjust the gain at the 'crosspoint' but the audio input/output gain levels for both the source and destination ports of the selected crosspoint. Hence it will not just be the gain of the selected crosspoint that is adjusted but the gain for all input and output for the adjusted ports.

**NOTE:** All gain adjustments are reflected in the Ports Window.


On completion of your assignments, select Exit and select Exit from the Crosspoints dialogue.

To abort the changes, select Cancel from the Crosspoints dialogue.

#### 8.3.6.1.1 Conditions

The conditions that can be assigned to crosspoints are as follows:

##### Status

	Normally open	The junction switch is open unless a relevant switch on a panel is used to make the connection. This is the normal condition for crosspoints.
---	---------------	---



	Normally closed	The junction switch is closed unless a relevant switch on a panel is used to open the connection.
	Permanently open	No connection can be made at the junction. Panel switches and special functions have no effect on the junction.
	Permanently closed	The junction is permanently connected. Panel switches and special functions cannot affect this connection.

#### Level

Not currently operative.

#### Action 1 or 2

	A crosspoint can be set to activate one or two general-purpose interface (GPI) outputs or Special Functions when the crosspoint is activated.
--	---

To select an action, choose GP Action or Special Function from the option list and then choose the required function from the Function Select list. When you exit from the Function select dialogue, the selected function will appear in the Action option list.

#### 8.3.6.1.2 Crosspoint condition symbols

	normally open.
	normally closed.
	permanently open.
	permanently closed.
	action (1 or 2).

Status and action symbols can be combined, e.g.:

	normally closed with action.
--	------------------------------

### 8.3.7 C37 GPI inputs/outputs and Special functions

General-purpose interface (GPI) inputs provide a means of controlling matrix operations from outside the matrix.

GPI outputs allow the matrix to control operations external to the matrix.

Special Functions provide programmed operations.

These inputs, outputs and functions are all identified by a card number and a pin number on the card. For the GPI inputs and outputs, these card numbers (1-16) and pin numbers are actual physical points at which inputs are received and outputs are provided. For Special Functions, the card number (17-32) and pin number is only a notional identity: no physical card exists - the card and pin number are used as a means of addressing and identifying the function.

To add a new GPI input, GPI output or Special Function:

1. Double click on the first blank Card field, type in the card number and press Enter.
2. Double click on the blank No field, type in the pin number and press Enter.

Similarly, you can change the card or pin number by clicking on and editing the field.

The colours of fields in this window are significant. See Field colours.

To delete an assignment, click on the item and select Delete nnnn, where nnnn is the Alpha mnemonic of the item.

Select options from the Sort by section to view the list in different orders.

Having defined a GPI Input or Special Function, you can arrange for a sequence of programmed steps to be carried out when a signal appears on that input or when the function is selected. To

set up a program for an input or function, click on the Alpha or Description field for the function and select Program xxxx. See Programming.

Select Exit on completion of the assignment.

### 8.3.7.1 Programming

Use the Programming window to set up a program that can be triggered when a GPI input occurs or when the system selects a Special Function. The program facilities are the same in both cases.

The identity of the GPI input or special function is shown at the top of the window.

A program can specify up to 128 operations, including special functions that can themselves each specify a further 128 operations.

The table allows you to specify the operations that will be carried out when the program is initiated.

Operations are numbered 1 to 128 in the first column and will be carried out in the listed sequence.

Thirteen different functions are available. Each function has parameters that must be specified in the remaining columns of the table. Functions vary as to what parameters they require.

Parameters that are relevant for a given function are shown on a green background

The thirteen functions are described in the following sections.

#### 8.3.7.1.1 Audio

Use this to specify an audio routing between two ports. The ports can be on different systems. The connection is one way only. If a bi-directional link is required, two links must be specified, one in each direction.

The Action of the operation can be to enable or disable the connection.

Use the Sys and Alpha fields to specify the two ends of the link. Double click on one of the fields and select the system and port from the resultant dialogue. Click on Exit when ready.

Use the Loc (Local) priority field to establish the relative priority (1 to 5) of the connection - 5 is the highest priority. Where two ports are competing for connection to the same port, the port with the higher priority will be connected or will inhibit the connection (if disable action selected).

See also Logic A B C.

The Logic A B C fields allow you to "AND" or "OR" two or three operations to produce a particular effect. The effect would only be obtained when the operations combine simultaneously to produce A, B and C.

Example:

To arrange that a particular audio routing only be established when requested simultaneously by a particular port "AND" a GPI input:

1. Assign a Special Function to a key on the panel and program the Special Function to specify the required audio connection. Select Logic A and B in the Special Function command but leave C blank. If this Special Function is called on its own, the connection will not be established because the C is missing.
2. Program the GPI input to establish the same audio connection as in step 1. Select Logic C in this operation and leave A and B blank. This input alone will not establish the connection because of the missing A and B.

If the programmed key is pressed while the GPI input is present, the audio connection will be established. This example shows "AND" logic. "OR" logic would have both panel key and GPI with A, B and C so that either would establish the route.

#### 8.3.7.1.2 Conference talk/listen

Use this command to establish a talk or listen connection from a port to a conference in the local system. The conference must have been established (see Conference - Party line) before a connection can be specified.

Double click on the From ALPHA field and select the port from the list in the resultant dialogue.

Double click on the To ALPHA field and select the conference from the list in the resultant dialogue.

#### **8.3.7.1.3 Isolate**

This option provides a point-to-point private line between one port and another on the same system. The connection can only be interrupted by a connection that has a higher priority.

The connection is one way only. If a bi-directional link is required, two links must be specified, one in each direction.

The Action of the command can be to enable or disable the connection.

Use the Sys and Alpha fields to specify the two ends of the link. Double click on one of the fields and select the system and port from the resultant dialogue. Click on Exit when ready.

Use the Loc (Local) priority field to establish the relative priority (1 to 5) of the connection at a crosspoint- 5 is the highest priority. Where two ports are competing for connection to the same port, the port with the higher priority will be connected or will inhibit the connection (if disable action selected).

The Src (Source) and Dst (Destination) priority levels relate not to an individual crosspoint but to a whole row of source crosspoints (source priority) or a column of destination crosspoints (destination priority).

The source priority level will cause all crosspoints in the specified source row to be turned off unless the local priority of any crosspoint in that row is equal or higher than the source priority level.

Similarly, the destination priority level will cause all crosspoints in the specified destination column to be turned off unless the local priority of any crosspoint in that column is equal to or higher than the destination priority level.

Example:

A command sets up an isolated private line from port 601 to 602, with source and destination priorities set to 4. While this command is active:

- the user of port 601 cannot talk to any other port over a link that has a priority less than 4 and
- the user of port 602 cannot hear from any other port over a link that has a priority less than 4.

#### **8.3.7.1.4 P/C output and Def P/C output**

In the normal use the yellow LED's on the panel are controlled by audio routes to the panel.

However CMAPSi provides the facility to drive these panel control outputs by GPI inputs and Special Functions. All of the possible 48 keys are mapped one to one with the panel control outputs, i.e. panel control output 1 drives the top left key yellow LED on the main panel while output 48 drives the last key yellow LED on the extension panel. The table gives the panel control output assignments for intercom panels.

The Def (default) P/C (panel control) output prevents the normal operation of the particular LED and output in response to the audio routing. This allows the output to be controlled by a P/C output operation.

The P/C output option controls the operation of the particular LED and output according to the input from the selected port. The P/C output can only control the LED and output if a Def P/C output is also applied to that LED and output.

To control a given panel LED and output, both operations must be carried out simultaneously.

Double click on the first Alpha field and select from the list the port that is to control the panel control output.

Double click on the second Alpha field and select the panel control output that is to be controlled.

3000/4000 Series panels ( except 4091 panel - see below )

Output	Alpha	Function		
1-48	LEDxx	Turns on yellow LED in keys 1-48		
49	MC MT	Panel microphone cut		
50	LS MT	Panel loudspeaker cut		
51	LS DM	Panel loudspeaker dim		
52	AUX01	Headset select/mic cut-off		
		3190/91	3194/95/96/97	4000 Series
53, 54	AUX02,03	Not used	Not used	Not used
55	AUX04	Mic gain 0 1 0 1	Not used	Not used
56	AUX05	Mic gain 0 0 1 1		
		50 60 70 80 db		
57, 58	AUX06-07	Auxiliary outputs	Auxiliary outputs	Auxiliary outputs
59	AUX08	Auxiliary output	Not used	Not used
60	AUX09	Auxiliary output	DTMF enable (3194 only)	Not used
61-64	AUX10-13	Auxiliary outputs	Not used	Not used

To program a 3195B panel, select a 3194 panel and assign keys 17 to 31 inclusive.

To program a DSC3195C panel, select a 3195 panel and assign keys 1 to 15 inclusive.

4091 - Commentator Panel

Output	Alpha	Function
1-32	LEDxx	Turns on yellow LED in keys 1-32
33	LEDMA	Light Green LED on Com A MicOn key
34	LEDMB	Light Green LED on Com B MicOn key
35	SPR_1	not used
36	MCGMD	Turn on remote control of Com mic levels
37	LIMA	Enable Com A mic limiter
38	LIMB	Enable Com B mic limiter
39	SPR_2	not used
40	SPR_3	not used
41	CRLYA	Control Com A output relay
42	CRLYB	Control Com B output relay
43	CMAG1	Turn on Com A mic gain level bit 1

44	CMAG2	Turn on Com A mic gain level bit 2
45	CMAG3	Turn on Com A mic gain level bit 3
46	CMBG1	Turn on Com B mic gain level bit 1
47	CMBG2	Turn on Com B mic gain level bit 2
48	CMBG3	Turn on Com B mic gain level bit 3
49	MC MT	Panel microphone cut
50	LS MT	Panel loudspeaker cut
51	LS DM	Panel loudspeaker dim
52	AUX01	Headset select/mic cut-off
53, 54	AUX01,03	Not used
55 56	AUX04 AUX05	Not used
57-58	AUX06-07	Auxiliary outputs
59	AUX08	Not used
60	AUX09	Not used
61-64	AUX10-13	Not used

### Control Com A/B output relay

Disable this control to turn OFF the commentators relay to the local output.

### Commentator Mic Gain Mode (MCGMD)

If remote dynamic control of the Commentators mic amp is required by a router panel (PD 4025), then this feature can be enabled via custom configuration of the system map prior to leaving Drake.

Setting MCGMD OFF (by default) allows control of mic. amp by P/C control output of LEDs 43-48 (CMAG1-3 & CMBG1-3).

Setting MCGMD ON allows control of mic. amp by Router panels.

### Commentators Gain (CMxGy)

When the MCGMD P/C control is off, the commentators mic. amp. gains can be controlled by :-

LEDs 43-45 - CMAG1, CMAG2, CMAG3 for Commentator A .

LEDs 46-48 - CMBG1, CMBG2, CMBG3 for Commentator B.

COMM A Gain	LED 43	LED 44	LED 45	GAIN
COMM B Gain	LED 46	LED 47	LED 48	
	OFF	OFF	OFF	Undefined (Approx. 30dB)
	ON	OFF	OFF	45 dB
	OFF	ON	OFF	50 dB (default)
	ON	ON	OFF	55 dB
	x	x	ON	60 dB

The default state of the bits is initialised to 010 (50dB) by default.

**NOTE:** Different mic gains can be achieved by activating different GPSFs that have the correct bits set.

## 6000 Series Panels

Output	Alpha	Function
1-48	LEDxx	Turns on yellow LED in keys 1-48
49	MC MT	Panel microphone cut.
50	LS MT	Panel loudspeaker cut.
51	LS DM	Panel loudspeaker dim.
52-64	AUX01-13	Not used.

### 8.3.7.1.5 GPI output and Special function

Use the GPI output option to provide or inhibit an electrical output signal from the system for an external application.

Use the Special Function option to trigger or inhibit a Special Function.

Double click on the Action field to toggle between enable and disable.

Double click on the first Alpha field and select the GPI output or Special Function to be triggered or inhibited.

### 8.3.7.1.6 IFB Talk/Listen

Use this command to establish a talk or listen connection from a port to an IFB in the local system.

The IFB must have been established (see IFB) before a connection can be specified.

Double click on the From ALPHA field and select the port from the list in the resultant dialogue.

Double click on the To ALPHA field and select the IFB from the list in the resultant dialogue.

### 8.3.7.1.7 Group Talk/Listen

Use this command to establish a talk or listen connection from a port to a group in the local system. The group must have been established (see Groups) before a connection can be specified.

Double click on the From ALPHA field and select the port from the list in the resultant dialogue.

Double click on the To ALPHA field and select the Group from the list in the resultant dialogue.

### 8.3.7.1.8 GPSF Latch Action

Use this command to action a GPSF Latch. The latch must have been established (see GPSF Latches) before a latch can be specified.

Double click on the From ALPHA field and select the latch from the list in the resultant dialogue.

Double click on the Action to toggle the latch action between:-

- Set To set the latch state.
- Reset To reset the latch state.
- Toggle To toggle the latch state.

## 8.3.8 GPSF Latches

A GPSF latch acts like a normal GPSF, in that it can be triggered by an action, and when triggered can generate other actions. The difference is that the state of the latch can be made to

toggle from on to off back to on each time it is triggered, with the state being maintained over system resets or downloads. See Latch Operation.

There can be up to 128 latches which are identified a latch number (1 - 128).

To add a new LATCH

1. Double click on the first blank latch field, type in the latch number and press Enter.

Similarly, you can change the latch number by clicking on and editing the field.

The colours of fields in this window are significant. See Field colours.

To delete an assignment, click on the item and select Delete nnnn, where nnnn is the Alpha mnemonic of the item.

Select options from the Sort by section to view the list in different orders.

Having defined a Latch, you can arrange for a sequence of programmed steps to be carried out when the latch is set, reset or toggled. To set up a program for a latch, click on the Alpha or Description field for the function and select Program xxxx. See Latch Programming.

Select Exit on completion of the assignment.

### 8.3.8.1 Latch Operation

An example of operation is the following. If a GPSF under a key is programmed to trigger a latch, it changes the latch state when the key goes on, but does not change it back when the key goes off.

It changes the latch state again, next time the key goes on.

For those with an understanding of digital logic design, the following may be of interest.

A normal GPSF can be considered to be a 3 input AND gate, with the 3 inputs being the A,B and C logic bits programmed from CMAPSi.

A GPSF latch can be considered to be a T-type flip-flop, with set and reset inputs. It obeys the following truth table:

Reset	Set	Toggle	Output ( Q )	Output-bar ( Q-Bar )
1	X	X		
0	X			
0	1	Output-bar	Output	
0	Y	Output	Output-bar	

Output-bar is the inverse of Output.

Both Output and Output-bar can be programmed to generate actions.

X represents "Don't care".

Y represents any state other than the transition from 0 to 1.

#### Initialisation

Latch states are preserved over system resets and downloads. The only exception is a black reset, which forces all latches to off (output ( Q ) = 0, output-bar ( Q-Bar ) = 1).

The latch status is saved in Non-Volatile RAM so it is preserved on power loss.

After a reset or a download, no latch outputs are affected until the system has settled down. The purpose of this is so that if permanent crosspoints or pressed panel keys have actions to toggle a latch, the latch is not toggled after every reset or download but maintains the state from before the reset or download.



## Notes

Inputs have no stacking capability, in that if two actions are generated to, for example, set a latch, and then one action is deleted, the latch set input will no longer be regarded as on, so any subsequent toggle action would change the state of the latch to off. This is the same rule as that which applies to local outputs on panel yellow LEDs.

## Examples

### Latch

By programming a GPI to the toggle input of a latch, each time a user presses an externally wired push button, the latch state will switch over.

### Monostable

By programming a GPI to the toggle input of a latch, and the output to reset the latch, each time a user presses an externally wired push button, the latch state will pulse on.

### Oscillator

By programming the set input permanently high, and the output to reset the latch, the latch will oscillate continuously, changing state each cycle. The frequency of oscillation is variable and cannot be guaranteed.

### Binary Counter

By programming an output-bar to drive another latch toggle input, a chain of latches can form a binary counter.

## 8.3.8.2 Latch Programming

Use the Programming window to set the functions that can be triggered when a latch is set, reset or toggled for both its outputs ( output ( Q ) and its complement output-Bar ( Q-Bar )).

The identity of the latch is shown at the top of the window.

A program can specify up to 128 operations for both the Q and the Q-Bar functions, including special functions that can themselves each specify a further 128 operations.

Each table allows you to specify the operations that will be carried out when the latch is set, reset or toggled. Functions are numbered 1 to 128 in the first column and will be carried out in the listed sequence.

Thirteen different functions are available. Each function has parameters that must be specified in the remaining columns of the table. Functions vary as to what parameters they require.

Parameters that are relevant for a given function are shown on a green background.

## 8.3.9 Network trunk lines

Use this option to identify where trunk lines connect between systems. Trunk lines connect between physical ports 600 to 727. From any system, you can specify the trunk lines between all systems.

In order to identify trunk lines with this option, you must first have specified which physical ports are connected to trunk lines under the Ports option.

Use the Local port and Remote port options to specify the two ends of each trunk line. Double click on the relevant field and, in the resultant Port Select dialogue, select the system and one of the ports in that system. Only ports that have been designated as trunk ports (see Ports) will appear in the list. Select Exit from the Port Select dialogue; the port that is highlighted in the list will appear in the Local or Remote port field.

The colours of fields in this window are significant. See Field colours.

In the Type field, the Pool option is the default.



Use the Delete trunk option to delete the currently highlighted item. Use the Clear reserved for option to delete the contents of the currently highlighted Reserved for field.

#### **8.3.9.1 Pool**

Pool lines are available for connecting any port on one system to another system, as and when required. A pool line is used for the duration of the call and then released for use elsewhere. A single pool line can take one panel from system 1 to all panels in system 2. The panels in system 1 making individual calls to system 2 will require two pool lines.

#### **8.3.9.2 Not used**

The Not used option is used to take a trunk line out of service temporarily or to reserve a trunk line for future use.

#### **8.3.9.3 Reserved local**

Use this option to reserve a trunk line for a particular port on the local system, i.e. the system specified in the Local port (left hand) column. Double click on the Reserved for field and, from the resultant dialogue, select the port on the local system that the trunk is to be reserved for. The user of that local port then has a direct line to the destination system and can select ports on that system without having to wait for a pool line.

#### **8.3.9.4 Reserved remote**

Use this option to reserve a trunk line for a particular port on the remote system, i.e. the system specified in the Remote port (right hand) column. Double click on the Reserved for field and, from the resultant dialogue, select the port on the remote system that the trunk is to be reserved for. The user of that remote port then has a direct line to the destination system and can select ports on that system without having to wait for a pool line.

#### **8.3.9.5 Conference**

Use this option to link conferences on different systems so that users on both systems can access the same conference. Before setting up the trunk lines, you must set up conferences on the two systems, giving both the conferences the same number, e.g. 501. Double click on the Reserved for field and, from the resultant dialogue, select the conference number from the list.

#### **8.3.9.6 Change password**

Use this option to change the entrance password. (The default password is USER.)

Type the current password in the Old password field. An asterisk (\*) will appear for each character you type so that no one nearby can see what you type.

Type the new password in the New password field and then retype it in the Retype new password field (to guard against mistyping).

Click on OK to confirm the new password or Cancel to abort.

## **8.4 Comms**

When a map has been completed, it must be downloaded to the Drake matrix that it is intended to configure. Use the Download option on the Comms menu or on the toolbar to initiate this transfer.

Use the first three options on the Comms menu to select the method of communication that will be used to transmit the map information to the matrix.

Select:

- Ethernet                      if an Ethernet connection is used,
- Serial- system              if you are downloading through the serial port directly to the RAM memory of the target or
- Serial - EPROM              if you are downloading to an EPROM programmer.

For a change in Comms to take effect, you must exit CMAPSi and restart the application. Any change will then effect ADM as well as CMAPSi. If you select Serial - EPROM, you must change back to Serial - system or Ethernet, after programming the EPROM, before connecting ADM.

## 8.5 Help

- Index                      Offers you an index to topics on which you can get help.
- Using Help              Provides general instructions on using help.
- About                      Displays the version number of CMAPSi.

To obtain help that is relevant to the current screen (context-sensitive help), press F1.

To obtain help about an object on the screen such as a menu option, press SHIFT+F1 and then click on the object.

### 8.5.1 Help index

Use this command to display the opening screen of Help. From the opening screen, you can jump to step-by-step instructions for using and various types of reference information.

Once you open Help, you can use the List of Contents to navigate around the Help system.

### 8.5.2 Using help

Use this command for instructions about using Help.

To obtain help that is relevant to the current screen (context-sensitive help), press F1.



To obtain help about an object on the screen such as a menu option, press SHIFT+F1 and then click on the object.


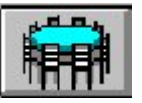





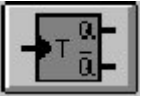


For the Help system Table of Contents, help is available by clicking on '?' on the table of contents toolbar.

### 8.5.3 About CMAPSi

Use this command to display the copyright notice and version number of your copy of CMAPSi.

## 8.6 Toolbar

	Download current map to matrix.
	Set up matrix ports.

	Set up Interrupt Foldback facilities on the matrix .
	Set up conferences(Party lines).
	Set up a Group.
	Set up matrix crosspoints.
	Set up General Purpose Inputs.
	Set up General Purpose Outputs.
	Set up Special Functions.
	Set up GPSF Latches
	Gives access to the Assignment, Diagnostic and Monitoring facility.
	Brings up front page of the Help system.

### 8.6.1 Download

Use this option to send the current map to a system. Communication is via the method selected on the Comms menu.

To use the configuration, it must be installed into the microprocessor card of the system. This may be accomplished by downloading the configuration to the System directly to the Matrix over Ethernet or a serial link, or by downloading the configuration into EPROM (Erasable Programmable Read Only Memory) devices that are then inserted into sockets on the Matrix processor boards. When the configuration is downloaded directly to the Matrix, it is stored in the NVRAM (Non Volatile Random Access Memory) devices on the Matrix processor boards.

The configuration is loaded into EPROM devices using a 'EPROM programmer' that is a separate piece of equipment and not part of CMAPSi. The configuration data is downloaded to the EPROM Programmer via the serial link of the computer. CMAPSi therefore has three similar but different downloading functions:

- Downloading to NVRAM via Ethernet.
- Downloading to NVRAM via the serial link.

- Downloading to a EPROM programmer via the serial link.

**NOTE:** For details of how to connect the to the various systems or to an EPROM Programmer please refer to the Installation Manual.

#### 8.6.1.1 Method

Downloading to the System and to an EPROM Programmer is very similar. Check the System or EPROM Programmer to ensure that it is in suitable condition to receive the data. Details of the serial connector are given under Serial.

**NOTE:** The System must be powered up to receive the download data. When the conditions are satisfactory (possibly after corrective action), select Download from the toolbar or from the Comms menu. A dialogue appears giving the options.

Red Reset	This will do a map download followed by a Red Reset that will reconfigure all panels to the new map.
Non-Intrusive Reset	This will do a map download followed by a non-intrusive reset. The revised configuration is sent in the background to all panels on the system without interrupting normal operations. On completion of the process, the panels switch over to the new configuration.
No Reset	The changes will be downloaded but not implemented until a Red Reset is carried out on the system.
Cancel	No download takes place.

**NOTE:** If no dialogue appears prior to the download, this indicates that a file (\*.scc) is missing from the system map directory. Contact Drake Electronics technical support.

During download, a descriptive box is displayed which indicates the progress of the download. At the end of the download, a further box is displayed informing you of the fact. For a serial connection, the download may take several minutes depending on the complexity of the system.

If you experience difficulty with a serial download, you can slow down the download by changing settings in the ADPMAIN.INI file located in the Windows directory. Set the Compression, Fast and Maplength entries to '0'. The default settings, for maximum speed, are '1'.

To enable retries on error for serial download the Fast entry must be set to '0'. Please note, for the serial download retry mechanism to work the correct Rack System software must be fitted. For further information please contact Drake Electronics technical support.

Data should be downloaded to EPROMs in accordance with EPROM Programmer's instructions at start address 10000H.

**NOTE:** EPROM Programmers should have at least 128 Kbytes internal RAM available.

Two 512 Kbit EPROM's should be programmed to reside on the Microprocessor board,(PDE6642, positions IC2 ( programmed with the even byte data ) and IC6 ( programmed with the odd byte data), 512 Kbit ).

When the configuration has been downloaded into EPROM's they can be inserted into the microprocessor board in the positions indicated.

If the system is fitted with a spare Microprocessor board, change the EPROMs in the slave unit first and replace it. Perform a RED Push Button Reset (swap microprocessors) to make the slave the new master processor. Remove the other Microprocessor (now the slave) and replace the EPROM's. Replace the microprocessor.

Caution: If the system is fitted with a single Microprocessor card, then it is advisable to power down the system before removing the Microprocessor card and replacing the EPROM's. Re-install the microprocessor board before powering up again.

When the configuration has been downloaded directly to a System, it can be made operational by performing a RED Push Button Reset. This configuration is stored in the NVRAM.

The EPROM configuration is invoked by a BLUE Push Button Reset unless there is no NVRAM map, in which case it is used automatically.

#### 8.6.1.1.1 ADPMAIN.INI

This .ini file controls serial downloading to the Drake Racks

[ADPMAIN]

ConfigPath=C: \par Default Layout=  
Close Network Manager=1

[Settings]

ADMGlobal=0 ; set to 1 to enable Global ADM facility

SysInfo=0 ; set to 1 to enable ADM SysMessage Information Dialogue

[Download]

Compression=1 ; 0 = OFF, 1 = ON \*

Fast=1 ; 0 = OFF, 1 = ON \*

OutputToFile=0 ; 0 = OFF, 1 = ON

; The output file name is 'CURRENT.OUT' and is found in the  
; current map directory e.g. c:.out

MapLength=1 ; 0 = 60, 1 = 220 \*

If 'Fast' is set to '0', then serial download retry is enabled. This provides error correction on serial download. If a download package is not acknowledged by the Rack, then it is re-sent a maximum of 3 times before timing out. Please note, for the serial download retry mechanism to work the correct Rack System software must be fitted. For further information please contact Drake Electronics technical support.

If one of the systems is a 6000 system it can be marked as such in 'FrameType' section . This will allow ADM to display the correct hardware mimic and enable CMAPSi compatibility with the 6000 matrix ( see 6000 Matrix Compatibility)

[FrameType] ; 0=3000/4000(9U) , 1 = 6000 , 2 = 3000/4000(4U)

System1=0

System2=0

System3=0

System4=0

System5=0

System6=0

System7=0

System8=0

#### 8.6.1.1.2 6000 Matrix Compatibility

If one of the systems is a 6000 system it can be marked as such in 'FrameType' section of the ADPMAIN.INI file in the Windows directory :-

[FrameType] ; 0=3000/4000(9U) , 1 = 6000 , 2 = 3000/4000(4U)

System1=0

System2=1 ; set as 6000 system

System3=0

System4=1 ; set as 6000 system

System5=0

System6=0

System7=0

System8=0

For those systems marked as 6000 ( = 1 ) then CMAPSi will access the 6000 maps developed in CCF and will allow these files to be downloaded only.

These maps are by default in the C:directory, but if different the map directory may be set in the Initialisation section of the DSCi.ini file in the Windows directory.

[Initialisation]

6000 Path=c: ; set the CCF map path

To disable this feature, but to be still able to mark a system as 6000 ( for ADM ) set the '6000 Mode' = 0 in the Initialisation section of the DSCi.ini file in the Windows directory.

[Initialisation]

6000 Mode=0 ; 0 = disable CMAPSi 6000 mode, 1 = enable : default = enable

### 8.6.1.2 Matrix Processor Operation

Each processor board in the central matrix may contain up to two separate configuration data sets, one in EPROM and one in NVRAM (Non-volatile RAM).

The data set in NVRAM is downloaded from the PC and may be changed frequently and is invoked by a RED Push Button Reset. The data set in EPROM can only be changed by fitting new EPROM's programmed by downloading from to an EPROM Programmer. Where NVRAM is provided and configured, normal system operation will be from the NVRAM configuration data set that will reflect the current operational requirements. The EPROM configuration data set will be used as a fallback should, for any reason the NVRAM data set not be usable. The EPROM configuration is invoked by a BLUE Push Button Reset. Where NVRAM is not provided, the system operation will be from the EPROM configuration data sets.

### 8.6.1.3 Power-up Sequence

On power-up, the processor board checks the validity of the NVRAM. If it is valid, this configuration is used. The green LED flashes at one-second intervals at a 50/50 mark space ratio.

Should the NVRAM data set be invalid, the processor board checks the validity of the EPROM map. If it is valid, this configuration is used. The green LED flashes at one-second intervals at a 20/80 mark space ratio.

If neither data set is valid then the system does not commence operation. The green LED double flashes at one-second intervals at a mark space ratio of 20/20/20/40.

A full system reset (i.e. all routes and latched keys cleared) only occurs if the black button is being pressed. If neither of these constraints is met, then power-up restores all previously latched keys and audio routes.

#### 8.6.1.4 Red Push Button

The red push button is used for a number of reset actions as follows.

Red button only - When a dynamic download has been initiated, the new map is transferred from the RAM buffer into the NVRAM when the red push button only is pressed. The local programming on control panels remains unaffected unless the new map has changed to the panel's configuration.

In a dual processor system, when the Master is reset by pressing the red RESET button the Slave automatically becomes the Master and the previous master becomes the slave.

Red and Blue buttons - Pressing both of these buttons simultaneously forces the system to use the PROM map instead of the NVRAM map.

Red and Black buttons - Pressing both of these buttons simultaneously forces the system, including the control panels, to perform a complete reset (i.e. a cold start reset).

#### 8.6.1.5 Blue Push Button

Depressing the blue push-button on a processor board (until the green LED begins to flash), while that board is being reset by depressing the red RESET push-button, forces the board to use the EPROM configuration. In the case where the EPROM configuration is invalid, the system does not commence operation.

The green LED must recommence flashing 50/50 or 20/80 before releasing the blue push-button.

#### 8.6.1.6 Black Push Button

Depressing the black push-button on a processor board (until the green LED begins to flash) while that board is being reset, (either by re-application of power or manually by depressing the red RESET push-button), forces the board to reset the entire system.

The green LED must recommence flashing 50/50 or 20/80 before releasing the black push-button.

#### 8.6.1.7 Downloading new panel software

New panel software, located initially in the processor, can be downloaded as follows:

With the new components fitted on the processor card in the Matrix, hold the black, blue and red push buttons down simultaneously and then release the red push-button.

Wait for the green LED to flash and then release the black and blue push buttons.

Panels with displays will respond by displaying the message `downloading xx%' indicating the proportion of software downloaded to the panel. After 99% the panels perform a `checksum' test and then reconfigure. Panels without displays will appear inactive for a period. The whole process will take between 5 and 15 minutes, depending upon the number of panels connected to the system.

If multiple downloads cycle, contact your Drake representative.

#### 8.6.1.8 Dynamic download

Configuration data is downloaded into a RAM buffer area of the master processor. On completion of download from CMAPSi, a red reset or non-intrusive reset is automatically triggered which writes the new map into the NVRAM. The master processor then transfers the contents of it's NVRAM into the slave processor (if fitted). The new map is now operational on the system.

Normal operation continues uninterrupted during the download of data into the RAM buffer. On pressing the RED reset button or after a red reset on download, all currently operating call connections remain made provided that the new configuration does not alter the route being used.



However, the control panel keys are locked out for a short period with the displays showing 'Configuration in Progress', while the system reconfigures, before normal operation recommences (i.e. no new calls can be made while the map is being transferred into NVRAM). This is to prevent incorrect routing occurring during map transfer.

If the map was downloaded with the 'Non-Intrusive' option then only the altered parts of the system are reconfigured. This will be non-intrusive as the system will not be entirely re-initialised and the panels will not be locked out completely as in a Red Reset.

Success or failure of a non-intrusive download is only indicated through the system message monitor under ADM.

A non-intrusive download will fail if:

- The map trunk lines have been altered.
- The system hardware has been altered through the RDL file.
- The number of systems on the network changes.
- The system panels are not running 'non-intrusive reset' software.

In these cases a 'Non-Intrusive' download message will be sent to the ADM system message monitor the new map will have to be downloaded with the Red Reset option.

If only some of the panels on a system can accept a non-intrusive download, then those panels will be re-configured non-intrusively, while the panels that cannot accept a non-intrusive download will be re-configured intrusively and they will be locked out for a short while as in a Red Reset. An error message will also be sent to the ADM system message monitor for each panel that cannot accept a non-intrusive download.

Use the System Information option in the ADM Message Monitor to view the state of the downloaded map in the system.

### **8.6.1.9 Dual processor operation**

#### **8.6.1.9.1 Master/Slave Description**

In a system that has two processor boards, one processor becomes the Master and the other becomes the Slave. This decision is determined dynamically as described below.

The Master processor board illuminates its red LED's marked "MAS", "MGB" and "SER" and also takes control of the entire system operation.

When both processor boards are reset simultaneously, e.g. when power is first applied, both processors compete to become Master by bidding where the bid is dependent on whether its own data set is NVRAM, EPROM or none valid. The bids are ranked in the following order of decreasing precedence: NVRAM, EPROM, none. Where the bids are the same, the processor in slot 2 becomes the Master.

If the Master is reset by pressing the red RESET button the Slave automatically becomes the Master and the previous master becomes the slave.

To reset either Red, Black or Blue, hold both Reds, Blacks or Blues to reset both processors.

#### **8.6.1.9.2 Processor Failure**

If one processor fails or has been extracted, the other automatically takes over control of the system.

Card 1 output pin 1 becomes active (low).

### **8.6.1.10 Panel Initialisation**

A panel uses an extract of the configuration data set. This is sent to a panel whenever:



- (a) A processor board is reset (this includes the re-application of power or a manual reset) whilst the black button is pressed or directly after a new configuration has been loaded via CMAPSi which involves new panel configuration data.
- (b) The panel is plugged into a different port.
- (c) The panel is plugged into the same port, but during disconnection, the system has been made to operate with a different map.

A black and red button reset causes all panels to be re-initialised and any local assignments made are lost. Situations (b) and (c) above cause the one panel to be re-initialised whilst normal operation continues.

**NOTE:** Removal of a panel with any keys in the ON position will cause any routes set up by those keys to be maintained by the system. The only way to clear down these routes is to either reset the whole system or to re-plug the panel into the same port, in which case activated keys and any local assignments made, are restored.



## 9 ADM

### 9.1 ADM Introduction

The Drake Assignment, Diagnostics and Monitoring (ADM) facility allows interactive changes to Drake Intercom/Talkback systems, and provides extensive diagnostic and monitoring features.

Running both ADM and CMAPSi under Windows allows instant changeover between on-line assignment/diagnostics under ADM and off-line system configuration under CMAPSi.

The PC running CMAPSi and ADM is connected via an RS232 serial or Ethernet link to the Matrix.

An RS232 link can only be used for a single matrix system. An Ethernet link must be used on networked, multiple systems.

All the features of the ADM software are incorporated within a set of modules, each performing a specific task:

- Panel Key Assignment & Monitoring
- Route Assignment & Monitoring
- Conference Assignment & Monitoring
- System Message Monitoring providing comprehensive system diagnostics
- Hardware Monitoring
- General Purpose Interface Monitoring.
- IFB Assignment and Monitoring.

More than one module can be run at the same time. For example, the Panel Key Assignment and the Route Assignment modules could be run concurrently. Also each module can have more than one copy. An example of this could be the Hardware Monitor running twice, monitoring two different systems.

The powerful features mentioned above are all made possible because the ADM has been designed to run under Microsoft Windows. Therefore, to use the ADM properly, you should have a basic understanding of the Windows environment. If you are unfamiliar with Windows, refer to the 'Basic Skills' chapter in the Microsoft Windows User's Guide.

Most modules have separate assignment and monitor screens. Assignment screens only show assignments that have been made by the ADM. Monitor screens show all activity, wherever they originated. The ADM can request an assignment but this can be overruled by a CMAPSi setting.

Where an ADM is Ethernet connected, it has control over the assignments of other ADMs as well as its own. This is termed Global ADM.

### 9.2 Module windows

Module Windows are the cornerstone of the ADM. They each perform specific functions for the ADM. Two or more of these modules, or more than one copy of each module can be loaded, and will all run at the same time. The following modules are available:

- Panel Key Assignment & Monitoring
- Route Assignment & Monitoring
- Conference Assignment & Monitoring
- System Message Monitoring
- Hardware Monitoring

- GPI Monitoring
- IFB Assignment and Monitoring.

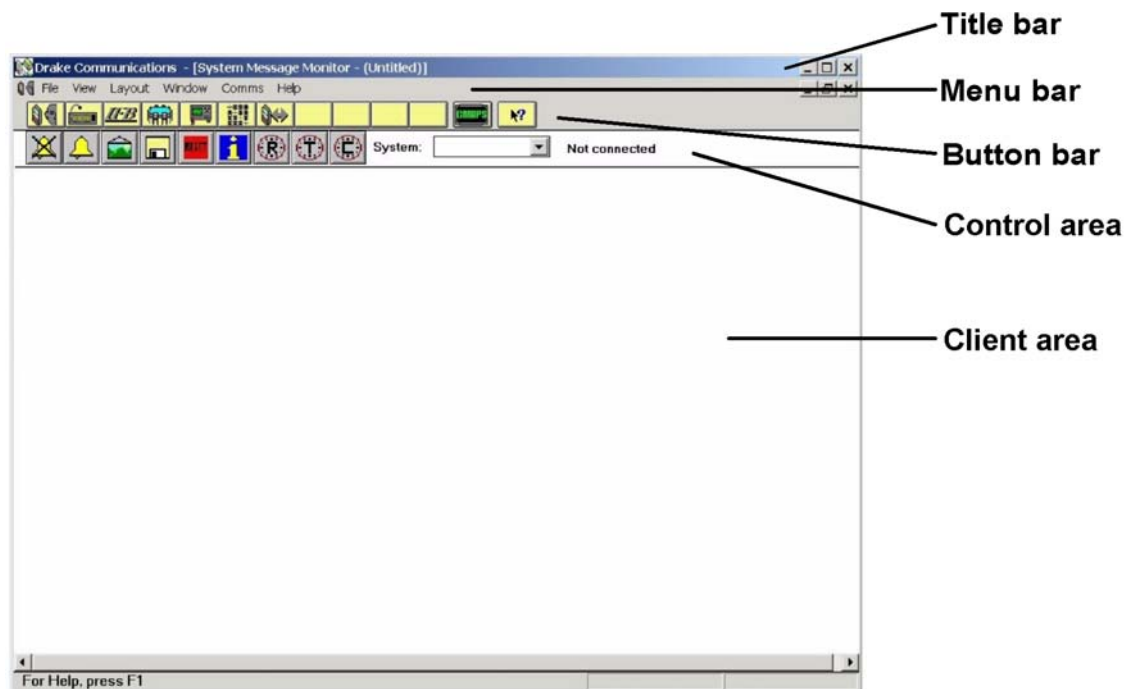
The New option off the Windows menu allows you to start up an extra copy of a module. A module can be closed down by double clicking on the top left-hand corner of the module window, in the usual Windows fashion.

Each module can be configured to perform a particular function with a particular system and this configuration can be saved to a file for future use. A set of modules, each configured and saved in a file, can itself be saved as a Layout. A given layout can be designated as the default that will be used when the software is started up.

Note that although ADM and Windows are capable of servicing almost any number of open windows, system performance may decrease if an excessive number are opened simultaneously. It is therefore advisable to limit the number of open windows to five or six.

### 9.2.1 Window Layout

The general layout of the windows is shown in the illustration below. Note the following screen areas:



**Figure 9-1 Window Layout**

#### **Title Bar**

This screen area displays the name of the current monitoring module.

#### **Menu bar**

This provides access, via sub-menus, to all the ADM facilities.

#### **Button bar**

The buttons on this bar give quick access to the module windows, CMAPSi and to these Help pages. Operating a module button will open a new window if one does not already exist. If there is more than one window open of a given type, pressing that module button cycles through those windows.

#### **Control Area**

This area contains buttons and a system selection box for a module. Each button has a specific function. Sometimes when a button is selected, a dialog window will appear giving the user various options or parameters to select.

**Client Area**

This area displays the information concerning the monitoring facility selected.



## 10 ADM How to..

### 10.1 How to load a module

A module is loaded by opening a module window. Select the required module from the button bar or from the list in the Windows menu.

Use the New option on the Windows menu to create extra module windows of a given type.

Hence, Route modules can be set up to monitor two different systems.

Having loaded a module, it is necessary to connect it to the system to be monitored.

### 10.2 How to connect to a system


From any module that is loaded, the user can connect to a Drake system that is on the network. To make the connection, select a system from the selection box in the control area of the loaded module.

If, after connection, the ADM loses communication with the connected system, then an audible alarm is generated and the connection status changes to 'Not Connected'. When communications are re-established, the audible alarm is repeated and the connection status changed to 'Connected'. The ADM requests the system for an update, so that the latest information is presented to the user.

Confirming a change in the connectivity status takes 12 seconds. The time interval prevents the ADM from re-requesting the system for updates after spurious failures on the network.


### 10.3 How to assign a route

This topic explains how to make a crosspoint connection on the matrix, connecting one port to another. A route assigned in this way connects one port or panel to another without the need for a user to operate a panel keyswitch.

1. Select the Route button on the button bar.
2. Select the system where the new route is required.
3. Press  to assign a route.
4. Select the Groups.
5. Select direction of audio route.
6. Select the ports between which you want to define an audio route.
7. Press the Add button or double click on one of the port selections to make the assignment.

### 10.4 How to monitor a route


This topic explains how to monitor the states of crosspoints between a group of ports.

1. Select the Route button on the button bar.
2. Select the system where the route is located.
3. Press  to monitor routes.

4. Select the group you wish to monitor.


## 10.5 How to assign a conference

This topic explains how to connect a user to talk or listen to a conference. The ADM cannot create a new conference; any conference must have been created already using CMAPSi.

1. Select the Conf button on the button bar.
2. Select the system where the conference is located.
3. Press  to assign a port to a conference.
4. Select the Groups/conference.
5. Select direction of audio route.
6. Select the conference and select the port that is to join the conference.
7. Press the Add button or double click on one of the port selections to make the assignment.


## 10.6 How to monitor a conference

This topic explains how to monitor who is talking or listening to a conference.

1. Select the Conf button on the button bar.
2. Select the system where the conference is located.
3. Press  to monitor a conference.
4. Select the conference you wish to monitor.

## 10.7 How to assign panel keys remotely


There are three ways to assign panel keys: locally at the panel, centrally via CMAPSi or remotely via ADM. In order to be able to assign keys remotely via ADM, keys on a panel must have been designated as remotely assignable via CMAPSi (see Ports). Such keys on a panel will display the Alpha 'RKEY' (unless reprogrammed by CMAPSi).

1. If necessary, use CMAPSi to assign the appropriate port to keys of the panel to reserve them for remote assignment. Once reserved in this fashion, panel keys cannot be soft programmed locally.
2. Select the Panel button on the button bar.
3. Select the system where the panel is located.
4. Press  to assign keys.
5. Select the panel from the Panel Selection Box.
6. Select function (talk, listen or both) for the panel key.
7. Select the key from the list below the talk/listen box.
8. Select the group.
9. Select the port to assign to the key.
10. Press the Add button or double click on the port selection to make the assignment.



## 10.8 How to define a message filter

The ADM System Messages module can display messages of various types, such as fatal error or warnings. You can define a filter that will control the messages that will be displayed, as follows:


1. Select the Sys button on the button bar.
2. Select the system when the panel is located.
3. Press  to display message options.
4. In the Filter Name box, enter the name of the new filter.
5. Set Filter Attributes.
6. Select Save.
7. Select OK.

## 10.9 How to turn off or disable an alarm

Visible and/or audible alarms can be generated as a result of a hardware failure, giving an alarm from the Hardware module, or a system failure, resulting in an alarm from the System Messages module.

### Audible alarm

For an audible alarm, you must locate the module that is generating the alarm before you can turn it off. For a hardware failure, one of the panels displayed in the Hardware module window will appear in red. For a system failure, a system message will indicate the failure. Having located the

module that is generating the alarm, press  to cancel it.

### Visible alarm


A visible alarm results in a dialogue on the screen. Select OK in the dialogue to acknowledge the alarm. You will then have to trace the source of the alarm to the Hardware or System Messages module, as in the case of the audible alarm.

### Alarm settings

Visible and audible alarms can be set to occur on various types of alarm. See Hardware module and System Messages module.

## 10.10 How to assign a port to an IFB


An IFB is identified by a port number in the range 400-499. Such a port number cannot be assigned to an IFB remotely by the ADM software - it must be created by CMAPSi and downloaded to the matrix. However, once an IFB has been created, ports can be assigned to it from the ADM, as follows:

1. Ensure that suitable IFBs have been created on the matrix by CMAPSi.
2. Select the IFB button on the button bar.
3. Select the system where the IFB port is located.
4. Press  to assign a port to an IFB.
5. In the left-hand Alpha column, select the IFB to be modified.
6. Set the IFB interrupt level.
7. Double click on the Source column.

8. Select the appropriate group from box above the second column.
9. Double click on the required Source port from the second column.
10. Repeat steps 8 and 9 to define all the required Source, Return and Destination ports.
11. The IFB is now set up. Calls can be made to the IFB from any panel. A call can also be made from the ADM as follows:
12. Click on the Caller column.
13. Select the appropriate group from box above the second column.
14. Double click on the Caller port from the second column.
15. Set the priority of the Caller port by clicking on the Prty list.
16. Repeat steps 12-14 to define any other IFB callers.

For further information on IFBs, refer to Principles of Interrupted Foldback.

## 10.11 How to monitor an IFB

1. Select the IFB button on the button bar.
2. Select the system to be monitored.
3. Press  to monitor IFBs. The display will show the IFB activity.

## 10.12 How to save a layout

A Layout comprises a set of configured module windows.

1. Set up the modules as required and Save each module configuration under a suitable name. Use the New option from the Windows menu to generate any duplicate module windows that are required, e.g. Route modules monitoring different systems.
2. Close any module windows that are not required for the layout by double clicking on the top left-hand corner of the window.
3. Click on Save As... on the Layout menu and save the Layout under a different name.
4. To designate this saved layout as the default that will be used at start-up, click on Set Default on the Layout menu.

## 11 ADM Detailed Description

### 11.1 File

Each module can be configured to perform a particular function with a particular system and this configuration can be stored on disk for future use. When a module configuration file is opened (loaded), a window is opened for it and the module settings are instantly created.

Each module has its own type of configuration file:

File category	Module
panel	Panel key assignment
route	Route assignment and monitor
conf	Conference assignment and monitor
sysmsg	System message monitor
hardware	Hardware monitor
GPI	General Purpose Interface monitor
IFB	IFB Assignment and Monitor.

A set of configuration files can be saved as a Layout

#### 11.1.1 Open

To open or delete an existing configuration file:

1. Select Open from the File menu. A dialog box will appear.
2. Select the configuration type to be loaded.
3. Select the name of the file to be loaded.
4. Select OK to open the file or Delete to delete the chosen file.

#### 11.1.2 Save

To save configuration data for the current module to a file, select Save from the File menu. If no file exists for the current module configuration, you will be asked to supply a name for the new file, as in Save as...

#### 11.1.3 Save as...

Use this option to save the configuration of a module to a file.

1. Select Save as... from the File menu. A dialog will appear.
2. Select the configuration type that matches the module environment to the saved.
3. Enter the name for the new file.
4. Select OK to save the file.

#### 11.1.4 Save all

This option will save all the configurations, requesting permission to overwrite previous files where necessary and creating new ones where required.

### 11.1.5 Exit CMAPSi

Select this option to leave the program.

## 11.2 View

Use this option to choose what you want to see on the screen.

The toolbar provides quick access to frequently-used functions.

The status bar along the bottom of the screen gives information about the currently selected option.

The CMAPSi option brings up the CMAPSi software.

## 11.3 Layout

A Layout file contains information about the arrangement of module windows. For instance, a particular layout might comprise a conference window and two route layouts, configured to monitor different systems. A Layout file contains a list of module Configuration files and details of the arrangement of the module windows on the screen.

When you load a layout file, you quickly recreate a stored display environment.

### 11.3.1.1 Load layout

To load a windows layout from a file:

1. Select Load from the Layout menu.
2. From the resultant dialog, select the layout to be loaded.

The name of the layout will appear on the main window title bar.

### 11.3.1.2 Save layout

1. Arrange and resize the windows as required.
2. Save any new configurations.
3. Select Save from the Layout menu.

The current windows will be saved under the current layout name shown on the main window title bar.

### 11.3.1.3 Save layout as..

1. Arrange and resize the windows as required.
2. Save any new configurations.
3. Select Save as... from the Layout menu. A dialog will appear.
4. Enter the layout name you want the layout to be saved as.
5. Select OK to save the layout.

**NOTE:** If you try to save a layout that contains any windows the configuration of which has not been saved, the program will force you to save the window configuration before the layout is saved.

#### 11.3.1.4 Set default layout

Use this option to make the current Layout file the default that will be used at start-up.

Note that this does not mean that the current screen layout or content will be used, only that the specified Layout file, as it will exist at the time of start-up, will be used. The current screen layout may contain a different set of modules from those contained in the current Layout file. The current screen layout would have to be Saved to the default layout file in order for the current layout to become the default.

### 11.4 Comms

Use this option to control the method of communication with the Drake system. The Comms option performs the same function as the CMAPSi Comms option except that the Serial - EPROM facility is not provided, since it is not appropriate for ADM operation

### 11.5 Window

Use this option to configure and lay out the module windows.

#### **New**

Creates a new module window in addition to the default windows that are already available, thus providing for multiple windows of the same type. Hence, it is possible to have, say, two Route windows monitoring different systems at the same time. A module window can be closed down by double-clicking in the top left-hand corner box of the window, in the usual way; this shuts down the module as well as closing the window.

#### **Cascade**

Overlaps all open windows. The top of each window appears below the previous window's title bar.

The active window appears at the front.

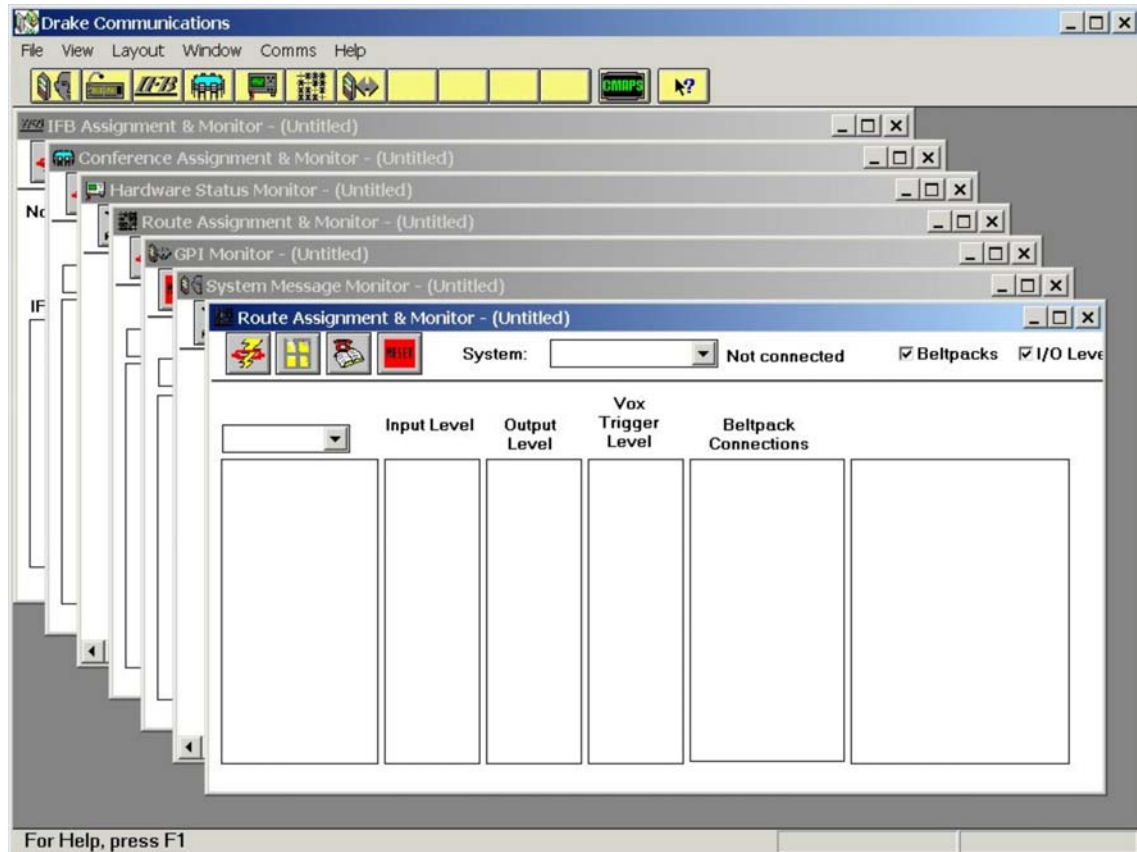


Figure 11-1 Cascading Windows

### Tile Horizontally

Resize windows so that all open windows appear on the screen without overlapping in a horizontal plane.

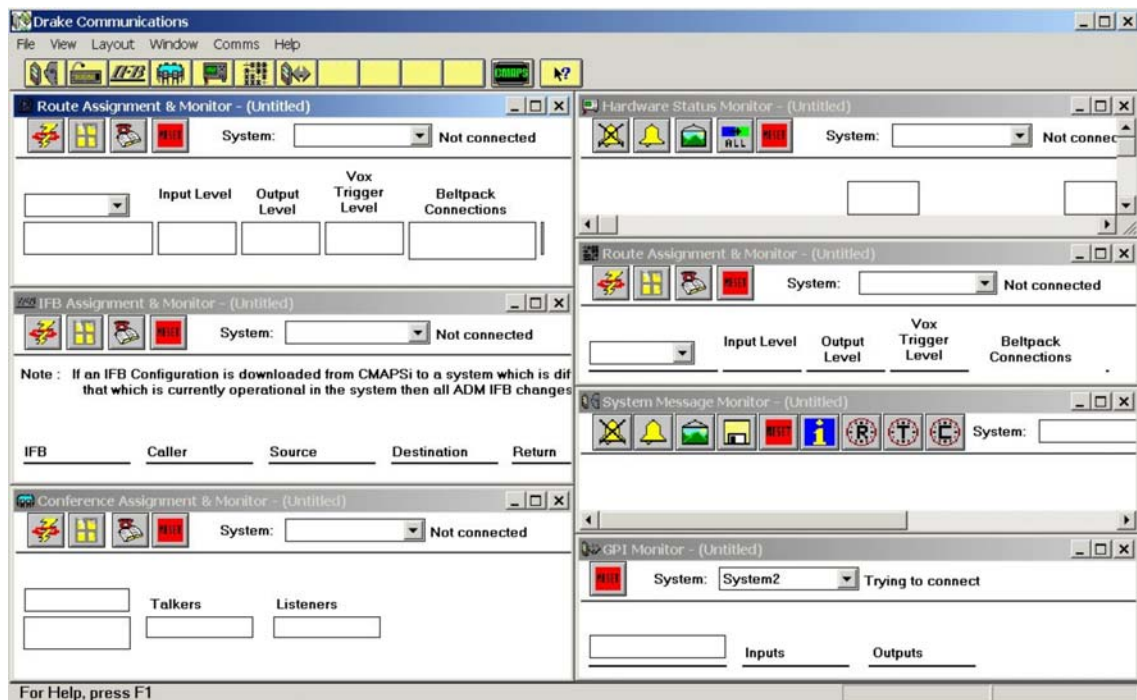
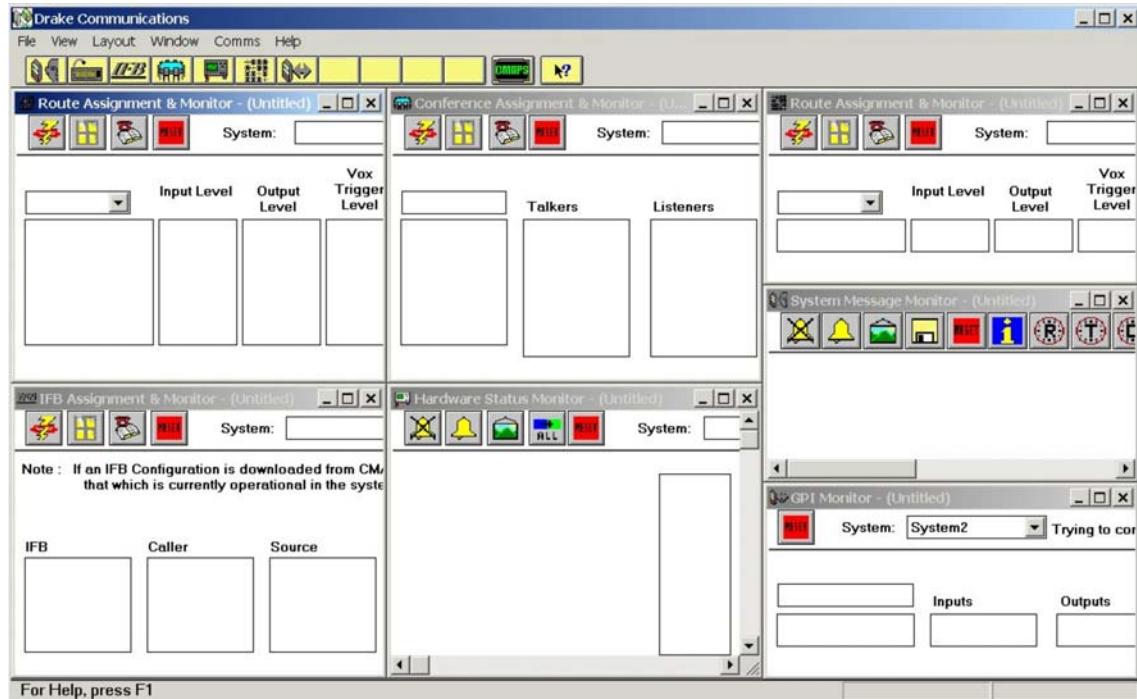


Figure 11-2 Horizontal Windows

## Tile Vertically

Resize windows so that all open windows appear on the screen without overlapping in a vertical plane.



**Figure 11-3 Windows Control Menu**

The ADM also supports the standard Windows Control menu commands, including the Minimise command. When a module window is minimised, an icon representing the window appears at the bottom of the main environment window. Double-click the icon to maximise the window.

## Arrange icons

Where there are icons in the live window, this command arranges them neatly.

## 11.6 Help

To obtain help that is relevant to the current screen (context-sensitive help), press F1.

To obtain help about an object on the screen, such as a menu option, press SHIFT+F1 and then click on the object.

### 11.6.1 Help contents

Use this command to display the opening screen of Help. From the opening screen, you can jump to step-by-step instructions for using CMAPSi and various types of reference information.

Once you open Help, you can use the List of Contents to navigate around the Help system.

### 11.6.2 Help search


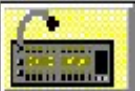


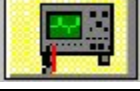




Use this option to search the Help system for a particular topic.



### 11.6.3 About ADM..

Use this command to display the copyright notice and version number of your copy of ADM.

## 11.7 Toolbar

	System messages
	Panel assignment
	IFB assignment
	Conferences - Party lines
	Hardware monitor
	Route assignment
	GPI monitor
	CMAPSi
	Help

### 11.7.1 Route assignment

The Route Assignment and Monitor module allows you to assign and monitor audio routes by making specific crosspoints on the matrix. Routes assigned by the ADM can also be de-assigned or inhibited. Note that the ADM does not monitor the audio on the routes. The module monitors the reported state of the audio crosspoints. The ADM can request a crosspoint connection but this can be overruled by CMAPSi setting the crosspoint permanently open.

The Route Assignment and Monitor module allows you to monitor and adjust the Audio Input and Output Gain Levels of the ports. The level shown will only reflect the level set in CMAPS I/O Gain Level assignment and ADM adjustments. It will not show any changes made through a Router Panel Pot gain adjustment , or any levels set in the Maps RDL file. All settings are relative to any gain level settings in the map's RDL file and in dBs.



**NOTE:** If the I/O Gain Levels are adjusted in CMAPS and downloaded to the System, any changes made to a particular ports level settings since the previous download will override any level adjustments made for that port in ADM Any ports for which the I/O gain Levels were not changed since the previous download will retain any level adjustments made in ADM.

The main screen is split into two areas:

### The control area

The control area contains buttons and a system selection box. Each button has a specific function.

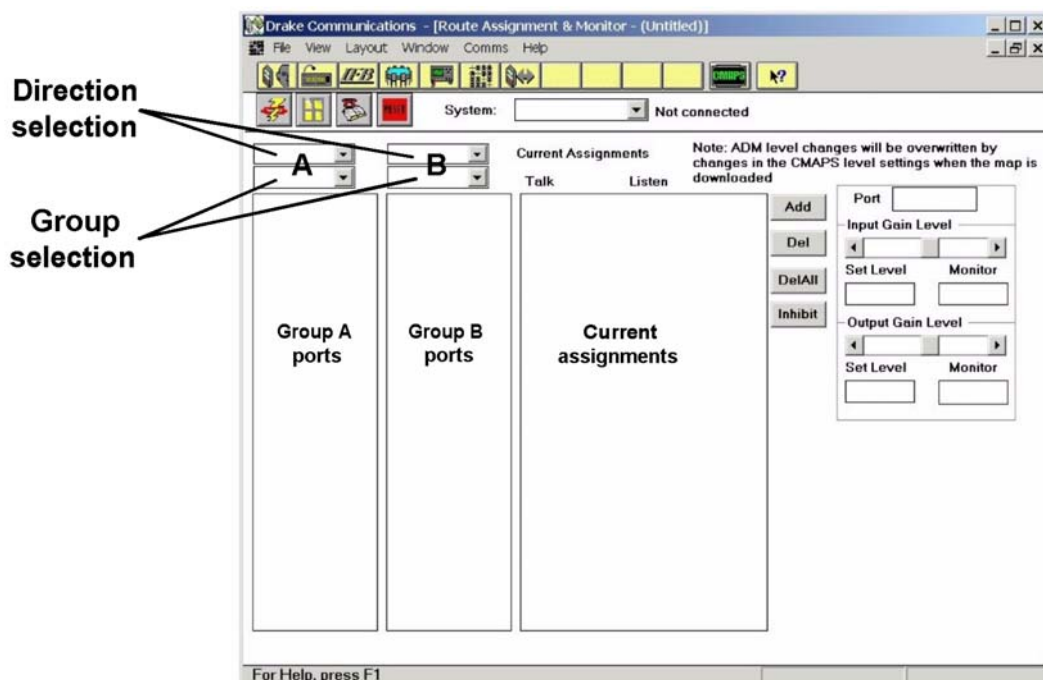
Sometimes, when a button is selected, the contents of the Client Area will change.

	To assign, monitor, inhibit or delete Route Assignments and to adjust I/O Gain Levels
	Route and I/O Gain Level monitoring
	Group define
	Reset

### The Client area

The contents of this area will depend on the button function. For example, the monitor screen will be displayed if the Route Monitoring button in the Control Area is selected.

#### 11.7.1.1 Assigning a route



## Figure 11-4 Route Assignment

Use this option to set up a route between ports. When a route is thus established, the user at the Talk port will be connected to the Listen port without the need to operate a keyswitch on either panel.

On-line Level adjustments are also made through this window.

### Direction Selection boxes

These specify the direction of the audio route from the ports selected below the box. When you open the selection box, the following list of choices appear:

- Talk
- Listen
- T+L (Talk and Listen)

When a selection is made in one box, the selection in the other box automatically changes; for example, if the selection is changed to Listen in box 1, then the selection in box 2 will automatically change to Talk. This is because if one audio port is set to listen, then the other panel must be talking, unless they are both talk and listen. If box 1 is changed to T+L, then the other box changes to T+L.

### Group Selection boxes

The selection boxes above the first and second columns, when opened, will list all available groups. All but one of these groups will be user defined. If the user has not defined any groups yet, then only the All Ports group is included as default, and is made up of all the audio ports in the system. To define your own group, see Define Group.

### Port List boxes

The Group A and Group B boxes list the ports in the group selected.

**NOTE:** Whatever port is selected in Group A is selected as the current port in the Level Adjustment window.

### Current Assignment List box

The Current Assignment List box contains a list of assignments that have been made by all ADMs connected to the same system.

### Method

To make an assignment:

1. Select the Groups.
2. Select direction of audio route.
3. Select the ports between which you want to define an audio route.
4. Press the Add button or double click on one of the port selections to make the assignment.

#### 11.7.1.2 Assignment deletion

To delete an assignment:

1. Select assignment to be deleted from the Current Assignment List box.
2. Press Del or double click on the selection to delete the assignment.

To delete all assignments, press DelAll.

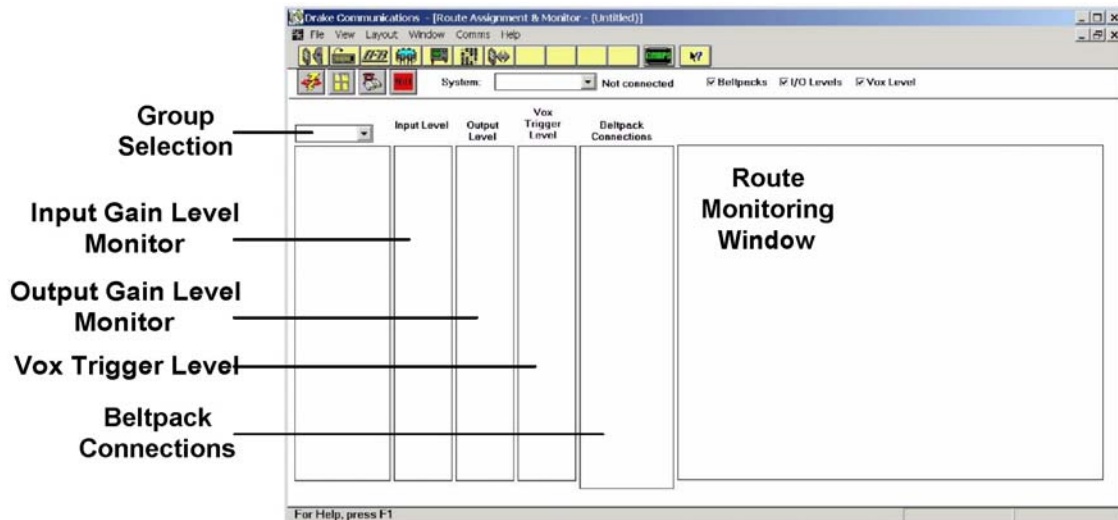
### 11.7.1.3 Assignment Inhibit

Use this option to inhibit routes between ports. A route does not need to be made to be inhibited. Normally closed routes in CMAPSi may be inhibited but permanently closed ones may not. To inhibit an assignment:

1. Select assignment to be inhibited from the Current Assignment List box.
2. Press Inhibit or double click on the selection to inhibit the route.

Inhibits are shown in red in the current assignment list box with 'INHIBIT' written after it.

### 11.7.1.4 Route monitoring



**Figure 11-5 Route Monitoring**

Use this option to monitor the state of matrix crosspoints. This module monitors all connections for the selected group of ports, irrespective of how the connection was set up.

#### Group Selection box

The Group Selection box, when opened, lists all available groups. All but one of these groups will be user defined. If the user has not defined any groups yet, then only the All Ports group is included as default, and is made up of all the audio ports in the system. To define your own group, see Define Group.

#### Port List boxes

The Ports column lists the ports in the group selected.

#### Input Gain Level Monitor Window

The Input Gain Level Monitor Window shows all the Ports' current input gain levels in dBs. If a port's input gain level has been set to cut then CUT is shown in red for that port.

#### Output Gain Level Monitor Window

The Output Gain Level Monitor Window shows all the Ports' current input gain levels in dBs. If a port's output gain level has been set to cut then CUT is shown in red for that port.

**NOTE:** The Input and Output gain levels shown will reflect the levels set in CMAPSi I/O Gain Level assignment, ADM level adjustments or any changes made through a Router Panel Pot gain adjuster, whichever is the latest change. All settings are relative to any gain level settings in the map's RDL file and in dBs

## The VOX Trigger Level Monitor Window

The VOX trigger level monitor window shows the VOX trigger level in dBs from for all ports mapped to CODEC cards in the map's RDL file.

**NOTE:** The VOX trigger levels shown reflect the levels set in CMAPSi Gain Level Assignment or ADM Level Adjustment (whichever is the latest).

**NOTE:** VOX levels will be visible only if enabled in DCSI.INI file (as described in the CMAPSi Installation Guide). Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

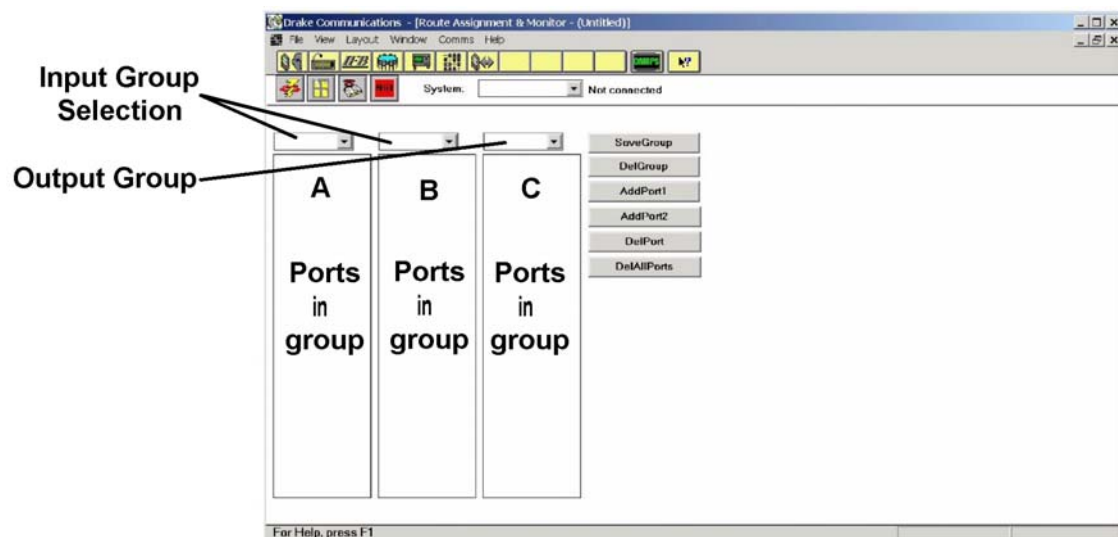
## Route Monitor Window

The Route Monitor Window shows all the current routes associated with the ports shown in the list box. If there are more routes than can fit the window, scroll bars are provided.

To monitor routes, select the required group from the Group Selection box.

If a route is inhibited, it is removed from the Monitor Window.

## 11.7.2 Group Define



**Figure 11-6 Group Define**

Use this option to define a group of ports that can be used in any ADM module. A group of ports is commonly created for use in a particular application. Using a group reduces the number of ports shown in a ports list to manageable proportions. A group defined for one module will also be available in other modules where groups are used.

### Group Selection boxes

The input group selection boxes, when opened, will list all available groups. All but one of these groups will be user defined. If the user has not defined any groups yet, then only the All Ports group is included as default, and is made up of all the audio ports in the system. From the list of groups, select groups that contain ports required in the new group.

### Port List boxes

The A and B list boxes below the group selection boxes contain lists of ports that make up the group selected. The C list box shows the ports that have been selected for the output group.

To define and save a group:

1. Select groups in the first and second groups that contain ports that can be used to define the new group.
2. Insert ports into the new group by double clicking on the ports.
3. Enter name of new group in box at top of column C.
4. Select SaveGroup.

To delete a group, select group to be deleted from the Output Group box and press DelGroup.

#### Key to buttons

SaveGroup	Saves the group being defined. The group is immediately available for selection from any of the group selection boxes.
DelGroup	Deletes the group. Its entry is deleted from all group selection boxes.
AddPort1	Add the port selected in column A to the output group (C).
AddPort2	Add the port selected in column B to the output group (C).
DelPort	Delete port selected in column C.
DelAllPorts	Delete all ports listed in column C.

#### 11.7.2.1 I/O & VOX Gain Level Adjustment

The screenshot shows a software interface for adjusting gain levels. It is divided into three main sections: 'Input Gain Level', 'Output Gain Level', and 'Vox Trigger Level'. Each section contains a horizontal slider bar with a central knob. Below each slider are two buttons: 'Set Level' and 'Monitor'. In the 'Input Gain Level' and 'Output Gain Level' sections, both 'Set Level' and 'Monitor' buttons display '0dB'. In the 'Vox Trigger Level' section, both 'Set Level' and 'Monitor' buttons display '-20dB'. At the top of the window, there is a 'Port' label followed by a text box containing four dashes '----'.

Figure 11-7 Gain Level Adjustment

The Input and Output Gain Levels may be adjusted separately on-line through the Route Assignment Window between the range -20dB to +18dB in 1 dB steps and CUT through slider bars.

If a port is mapped to a CODEC card, this will add the VOX threshold level controls to the appropriate dialogs when that port is being adjusted. For VOX-enabled ports to appear as such in ADM windows, the "Enable ADM Vox=" in the [VOX] section DCSI.INI must be set equal to 1.

For ports designated as A IO or TRNK a VOX threshold level may also be set. When such a port is selected in the Route Assignment Window, the adjustment group in that window is extended to accommodate VOX threshold level adjustment. The VOX threshold is the level threshold at which an event is triggered by voice activation and may be set in the range -40dB to 0dB in 1dB steps. All selected ports will be set to the same VOX level.

**NOTE:** Programmable VOX level adjustments apply only to PDE4631 VOX cards and PiCo units.

The port to be adjusted is selected from the Group A Ports in the Route Assignment Window and is displayed above the slider bars.

The desired level is adjusted by moving the slider bars. The level to be set is displayed above the bar. CUT is selected by moving the bar completely to the left and is shown in red (input and output levels only).

**NOTE:** The setting is only sent to the System when the mouse button is released from the slider bar.

The actual gain level set in the System is monitored in the corresponding Set Level Monitor Window. CUT levels are displayed in red (input and output levels only).

**NOTE:** The levels shown will reflect the levels set in CMAPSi Level assignment,

ADM level adjustments or any changes made through a Router Panel Pot gain adjuster, (input and output levels only) whichever is the latest change. All settings are relative to any gain level settings in the map's RDL file and in dBs.

**NOTE:** Any changes made to a particular Port's Input, Output or VOX level in ADM will be overwritten when a map is downloaded if the corresponding level for that Port has been changed in CMAPS since the previous download.

### 11.7.3 Conferences - Party lines





The Conference Assignment and Monitor module allows the user to assign members to a Conference and lists the members taking part in any conference. Members assigned to a Conference by the ADM can also be de-assigned.

ADM can monitor a Conference or Group and can assign ports to it, but ADM cannot create a conference (or Group). Conferences and Groups can only be created by CMAPSi.

The main screen is split into two areas:

#### The Control Area

This area contains buttons and a system selection box. Each button has a specific function. Sometimes when a button is selected, the contents of the Client Area will change.

	To assign or delete Conference Assignments
	Conference Monitoring
	Group Define
	Reset

## The Client Area

The contents of this area will depend on the button function. For example, the monitor screen will be displayed if the Conference Monitoring button is selected.

### 11.7.3.1 Conference assignment

Use this option to assign or de-assign ports to conferences or groups. The window will only monitor ADM assigned ports.

#### Talk/listen box

This specifies the direction of the audio route for the port selected from the Ports in the Group box. When you open the selection box, the following list of choices appears:

- Talk
- Listen
- T+L (Talk and Listen)

Hence, selecting Talk for a port means that the port will be able to talk to the conference.

#### Group Selection box

This box, when opened, lists all available groups. All but one of these groups will be user defined. If the user has not defined any groups yet, then only the All Ports group is included as default, and is made up of all the audio ports in the system. To define your own group, see Define Group.

#### Ports in Group box

This lists the ports in the selected group.

#### Ports in Conference boxes

These boxes list the ports assigned by the ADM to the conference selected in the Conference Selection box.

#### Method of Port Assignment

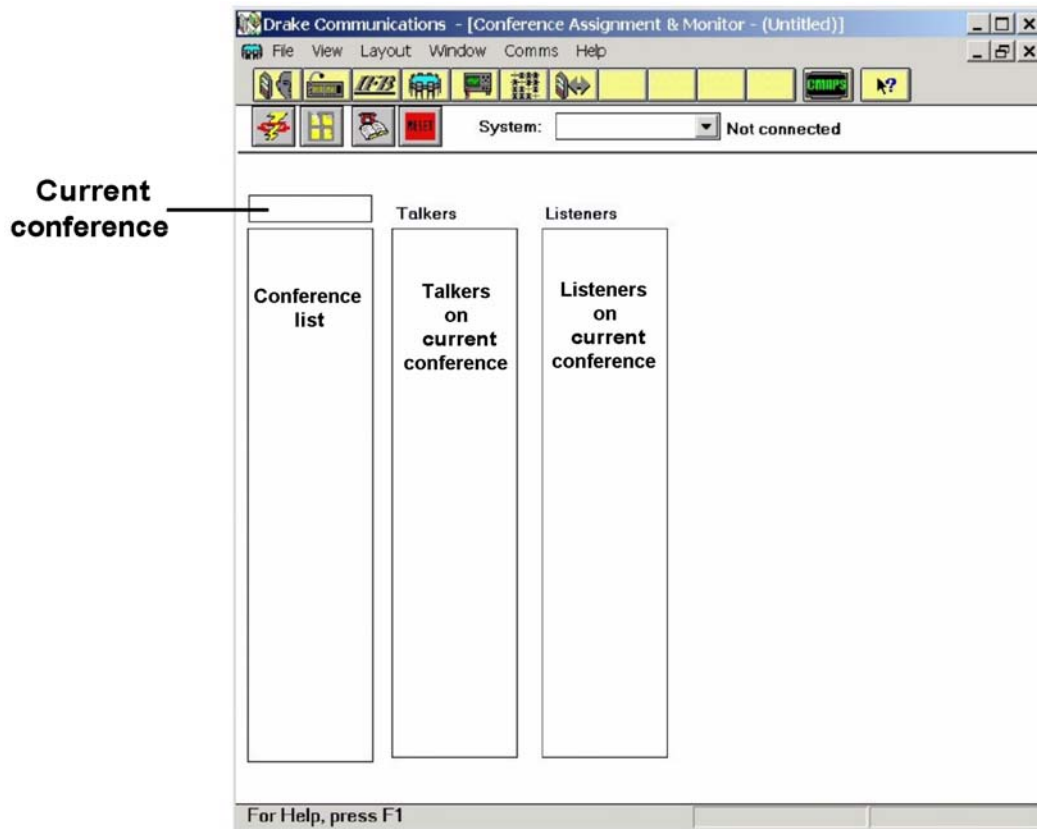
To make an assignment:

1. In the Group Selection box, select the required group.
2. In the Talk/listen box, select direction of audio route.
3. For a group or conference assignment, select the conference from one of the Conference Selection boxes
4. From the Ports in Group box, select the port that is to join the conference.
5. Press the Add button or double click on one of the port selections to make the assignment.



**NOTE:** If a conference layout is saved (see File/Save), the conferences selected in the Conference Selection boxes are retained and will automatically come up when the conference layout is loaded or ADM is reconnected to the system.

### 11.7.3.2 Conference Monitoring



**Figure 11-8 Conference Monitoring**

Use this option to view the members taking part in a conference. The window will show all ports using the selected conference, even ports assigned locally or by CMAPSi.

#### Conference List box

The Conference List box contains a list of all the conferences within the system. The Current Conference box shows the conference that is currently selected for monitoring.

#### Talkers and Listeners List boxes

These list all the talkers and listeners on the conference selected in the Conference List.

To see a list of members of a given conference, select the conference from the Conference List.

### 11.7.4 Panel assignment

The Panel Key Assignment module allows you to assign panel keys that have been reserved for remote assignment. Such keys can also be de-assigned.

The main screen is split into two areas:

#### The Control Area

This area contains buttons and a system selection box. Each button has a specific function. Sometimes when a button is selected, the contents of the Client Area will change.

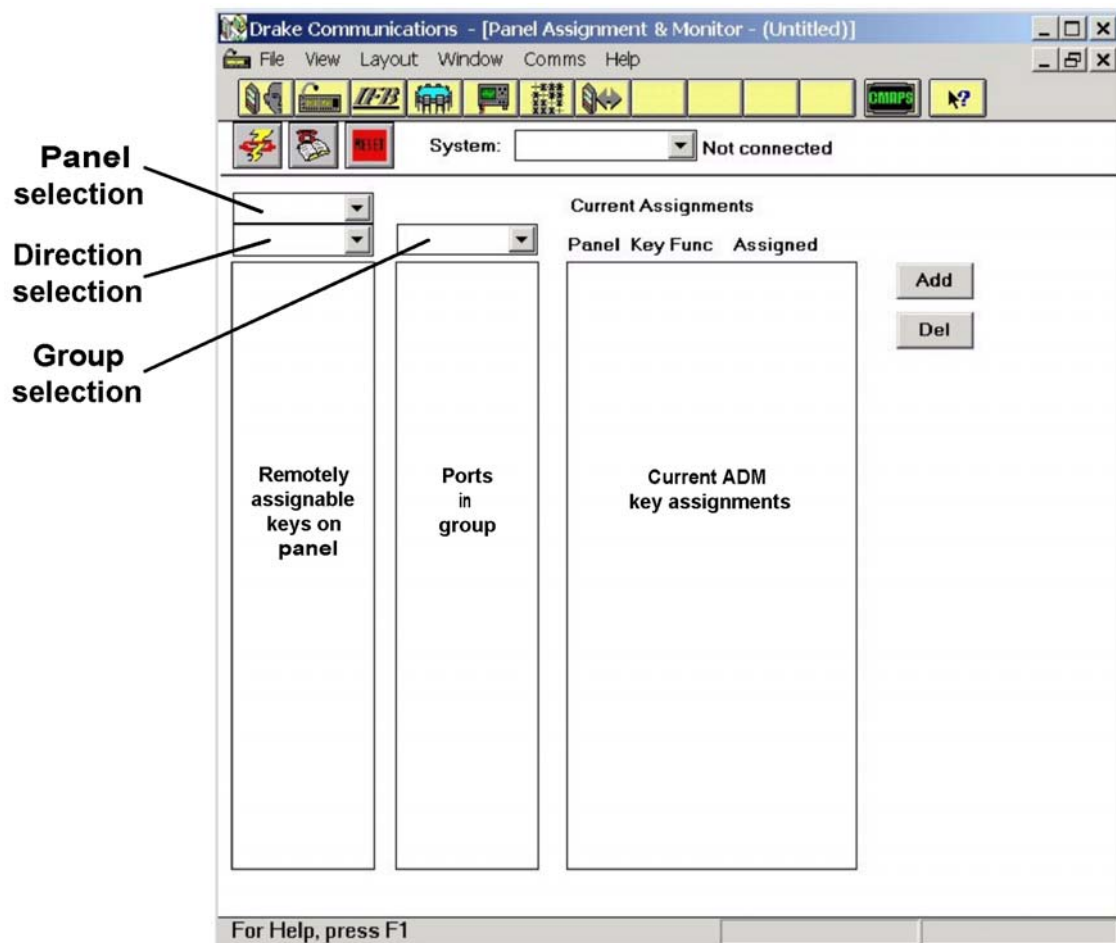


	To assign, monitor or delete Panel Key assignments
	Group Define
	Reset

## The Client Area

The contents of this area will depend on the button function. For example, the assignment screen will be displayed if the Panel Assign button is selected.

### 11.7.4.1 Panel Key assignment



**Figure 11-9 Panel Key Assignment**

Use this option to assign a port to a key on a panel. This is only possible where a panel key has been designated as a Remotely Assignable Key via CMAPSi (see Ports); such keys will be assigned an Alpha of 'RKEY', unless this is changed by CMAPSi.

#### Panel Selection Box

This box contains a list of all the panels within the selected system. On selecting a panel, the column below lists the keys on that panel that have been designated as remotely assignable.

### Direction Selection Box

This specifies the function to be assigned to the panel key. When you open the selection box, the following list of choices appears:

- Talk
- Listen
- T+L (Talk and Listen)

### Group Selection boxes

This lists all available groups. All but one of these groups will be user defined. If the user has not defined any groups yet, then only the All Ports group is included as default, and is made up of all the audio ports in the system. To define your own group, see Define Group.

When you select a group, the list of ports defined for that group will appear in the list box below.

### Port List boxes

This lists the ports in the group selected.

### Current Assignment List box

The Current Assignment List box contains a list of assignments that have been made by all ADMs connected to the same system.

### Method of Key Assignment

To assign a panel key:

1. Ensure that the key has been designated as a Remotely Assignable Key via CMAPSi.
2. Select the panel from the Panel Selection Box.
3. Select function (talk, listen or both) for the panel key.
4. Select the key from the list of remotely assignable keys.
5. Select the group containing the port to be assigned.
6. Select the port to assign to the key.
7. Press the Add button or double click on the port selection to make the assignment.




## 11.7.5 Hardware monitor



Use this option to monitor the status of the rack-mounted cards for a system and its associated panels. Note that the Power Supply Units are not monitored.

### The Control Area

This area contains buttons and a system selection box. Each button has a specific function.

Sometimes when a button is selected, a dialog window appears, giving the user various options or parameters to select.

	Use this option to cancel an audible alarm.
	Alarm options
	Visual alarm options

	<p>Acknowledge All. Use this option to acknowledge previously faulty cards or panels that are now OK. Card/panel display colour turns from blue to green.</p>
	<p>Reset</p>

### The Client Area

This area displays a diagrammatic representation of the rack mounted cards and the system panels. The following colour coding is used to indicate the state of the cards and panels:

- Green OK
- Blue Failed, but now OK. Use Acknowledge All function to restore green status.
- Red Faulty or missing.

### Panel/card details

Click on a panel or card to see details of the panel or card. For display purposes, only one type of panel is shown, irrespective of the type of panel actually fitted.

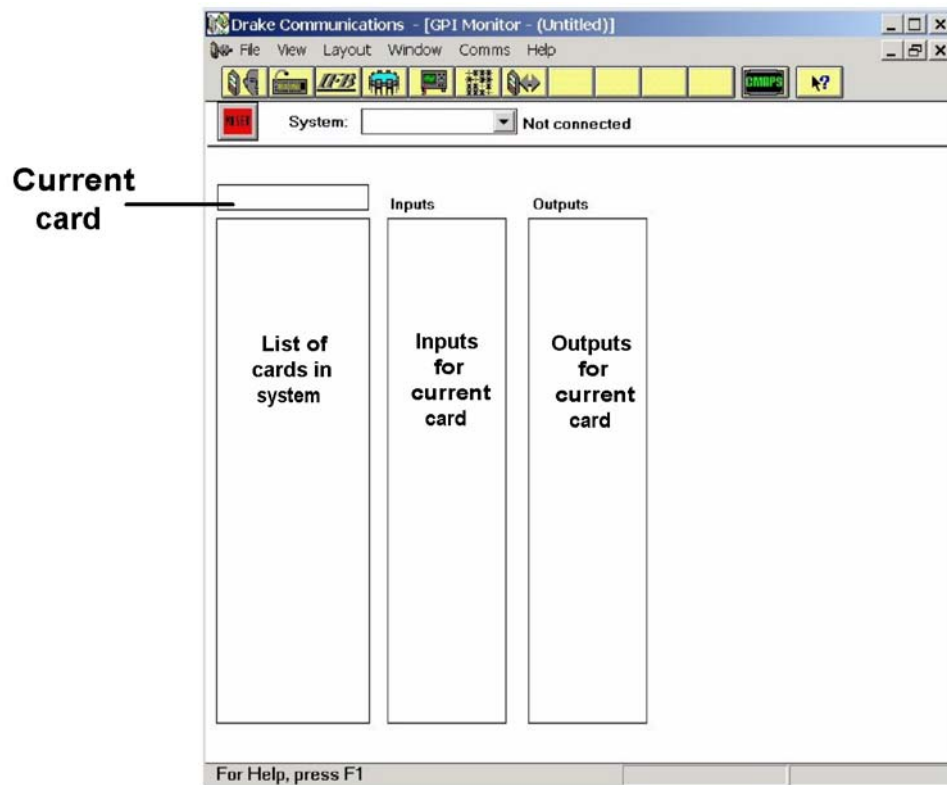
#### 11.7.5.1 Alarm options

Use this option to select what audible or visual alarms shall occur. There are two sources of alarm:

- on rack error (from the processor etc.)
- on panel error.

Use the boxes in the dialog to toggle the alarms on or off. Press OK to confirm your selection and exit. Press Cancel to abort the selection.

## 11.7.6 GPI monitor



**Figure 11-10 GPI Monitor**

Use this option to monitor the status of General Purpose Interface (GPI) inputs and outputs.

The main screen is split into two area:

The Control Area, containing the Reset button and a system selection box.

The Client Area, showing GPI status.

The list below the Card 01 R box contains a list of all the GPI cards in the system.

R denotes a real card.

P denotes a phantom card. A phantom card does not actually exists, but provides an address that identifies a program function that can be assigned to a key or crosspoint, just like a real card output.

The Input and Output boxes show the states of the inputs and outputs of the selected card.

The following GPI cards are used:

Cards	Use
1-4	Real d.c. cards in matrix.
5-12	Cards dedicated to telephone interfaces 1-8.
13-16	Vox inputs 600-727.
17-32	Special functions.

## 11.7.7 System messages







The system Message Monitor can display and log system messages. These messages are generated by the communications system to support the ADM's diagnostics facility. This module enables the user to specify which type of message to display and, as a separate option, which type of messages to log. For example, the user can log all messages in the background but for immediate attention, only display specific messages.

The main screen is split into two areas:

### The control area

This contains buttons and a system selection box. Each button has a specific function.

Sometimes when a button is selected, a dialog window appears giving the user various options or parameters to select.

	Alarm cancel
	Alarm options
	Message display options
	Disk log options
	Reset
	System Information

### The Client area

This area displays the incoming messages.

#### 11.7.7.1 Alarm cancel

When a message is received, an audio alarm is activated. To cancel this alarm, press the Alarm Cancel button. To stop alarms being generated in the first place, modify the Alarms options.

#### 11.7.7.2 Alarm options

This option allows you to set a filter such that only certain message classes and individual messages will generate audio and visual alarms.

On selecting alarms options, the Alarm Options dialog box will appear.

To set the audio alarm, from the Audio Alarm On Filter list, choose the type of messages for which audio alarms are to be generated and press OK.

To set the visual alarm, from the Visual Alarm On Filter list, choose the type of messages for which visual alarms are to be generated and press OK.

The Define option allows you to define your own filter.

#### 11.7.7.2.1 Filter define

This option allows you to define your own filter. On selection, a Define Filter dialog appears.

To define a new filter:

1. In the Filter Name box, enter the name of the new filter.
2. Set Filter Attributes.
3. Select Save.
4. Select OK.

To modify an existing filter:

1. Select the filter to be modified from the Filter Name box.
2. Set Filter Attributes.
3. Select Save.
4. Select OK.

To delete a filter:

1. Select the filter to be deleted from the Filter Name box.
2. Press Delete..
3. Select OK.
1. From the five classes of messages available, select the types that are to be included in your filter:
  - Fatal errors
  - Non-fatal errors
  - Warnings
  - Information
  - Diagnostics

You can select one or more of these classes for your filter. To include a class, select the All.. option. To exclude a class, select the No.. option.

2. Specify or select exception to message class.

To exclude or include a particular message(s), depending on your selection in step 1, then specify the system message number using the Except option in conjunction with the Save button.

To remove a message number, highlight it and press Delete.

System Log messages cannot be filtered out: they are always sent to the disk log.

#### 11.7.7.3 Message display options

This allows you to set a filter such that only certain message classes and individual messages will be displayed. On selecting this option, the Display Options dialog appears.

From the Filter list, select the type of message that is to be displayed and press OK.

The Define option allows you to define your own filter.

#### 11.7.7.4 Disk log options

This allows you to set a filter so that only selected message classes and individual messages will be logged to disk. The user can also set the log file name, the directory where log files are stored, the size of log files and other attributes of the log file. On selecting this option, the Disk Log Messages dialog appears.

To set the disk log filter, select the type of message that are to be displayed from the Filter list and select OK.

### File attributes

Those files that are selected to be logged by the filter are stored on disk in log files. The number of log files and the size and type of each log file is selected by the user.

From the LOG DIRECTORY, select the directory where log files are to be stored. Note that if a secondary (floppy) drive is designated, the time taken to write the message log may have a noticeable effect on system performance.

Under the LOG FILE heading, enter the log file Name:. Eight characters maximum. Do not enter the file extension: this is automatically generated by the ADM and used to indicate the log file sequence.

Enter the maximum size of individual log files at Max size:. If no entry is made in this box, logfile size is set to zero.

**NOTE:** A message normally takes up to 80 bytes, so that 64 Kbytes can store about 800 messages.

Enter the maximum number of log files at Number of files:. The file sequence is shown by the extensions: 001, 002 etc.

From the following two options, choose what the system will do when the requested number of log files are full:

Circular Files Overwrite the earliest log files when the maximum number of files is reached.

Stop when full Stop and generate an alarm when all the files are full.

Press OK to exit the dialog.

### 11.7.7.5 Reset

The Reset button allows you to reset the communications with the module window. Therefore, if you have an established connection, it will perform the task of disconnecting from the selected system and then re-establishing the connection. The system will be asked to reset the current status information so that the data displayed in the window can be refreshed.

### 11.7.7.6 System Information

The System Information button requests a diagnostic report from the system. This feature can be used to check what state the download is in (what map was sent, was it accepted, was it red reset etc.) or at the request of a Drake representative for debugging purposes. All 'system log' message are written to the disk log and cannot be filtered out.

The application can be set to give extra system information - refer to System information enhancement.

The following information is returned as 'System Log' message types :-

Returned Messages

a :38:31.81 (500) System Log : Diagnostic report (0) requested by ADM (Report start)

b :38:32.25 (501) System Log : STD N308D [Aug 23 1996 14:48:32]

c :38:32.80 (502) System Log : Report on map held in RAM: (RAM map report header).

d :38:33.35 (503) System Log : Sys 3 p1355\_1e/S [29/8/96 15:34:19]

e :38:33.78 (502) System Log : Report on map held in NVRAM: (NVRAM report header)

f :38:34.33 (503) System Log : Sys 3 small/S [28/8/96 15:1:24]  
g :38:34.77 (502) System Log : Report on map held in PROM: (PROM map report header)  
h :38:35.32 (518) System Log : No valid map present  
i :38:35.87 (504) System Log : Current map is from NVRAM  
j :38:36.31 (505) System Log : WARNING: Valid RAM map not copied to NVRAM  
k :38:36.86 (506) System Log : Last download was 0 days 0 hours 4 minutes ago  
l :38:37.41 (507) System Log : Last reset was BLACK, 0 days 2 hours 14 minutes ago  
m:38:37.85 (508) System Log : R1 M+S-G+?-?-P+P-?-?-A-A-?-?-D-?-F+F-?-?-  
n :38:38.40 (508) System Log : ?-?-?-?-?-?-?-?-?-?-?-?-?-?-?-?  
o :38:38.84 (509) System Log : Master processor is in slot 1  
p :38:39.44 (523) System Log : NID status = 1  
q :38:39.88 (522) System Log : Panel state 0 on 2 panels  
r :38:40.43 (522) System Log : Panel state 1 on 2 panels  
s :38:40.87 (522) System Log : Panel state 8 on 188 panels  
t :38:41.42 (517) System Log : Diagnostic report complete (end of report).

#### 11.7.7.6.1 F7661 Enhancement

The program can be set to give extra system information by modifying the ADPMAIN.INI file in the Windows directory, as follows:

1. Load the ADPMAIN.INI file into Notepad and locate the [Settings] heading. Under this heading, add Sysinfo=1:

[Settings]

Sysinfo=1

2. Save the file and exit Notepad.
3. Run the CMAPSi application.

With Sysinfo set to 1, selecting System Information brings up a dialogue that provides extra system information options, some of which are intended for use only by Drake engineers.

The Information Type box provides Standard and Other types of system information. The Other type is intended only for Drake engineer use.

To select an option:

1. Select the option from the Standard option list. The Parameters list will change to reflect the option's permitted parameters, with a brief description of each parameter.
2. Type in any parameters that are required by the selected option.
3. Press the Send button.

Any resultant system information will appear in the System Monitor window.

The standard information options that are available are as follows:

Information	Description
Map information	This is the standard default map information. There are no parameters
Memory dump	Dumps the contents of a memory location specified by the single parameter (0x000000-0xFFFFFE - on an even boundary). Intended for use by Drake engineers.
Panel information	The single parameter specifies the panel directory number.



	Intended for use by Drake engineers.
Router Description Language (RDL) information	This option dumps the rack's current maps RDL hardware description file.
Panel action listing	Enables/disables panel monitoring for a group of panels. Three parameters are required: 1 First panel directory number; e.g. 600. 2. Last panel directory number; e.g. 604. 3. 0 to disable or 1 to enable panel monitoring for this group of panels.
Crosspoint information	Gives information on a crosspoint defined by two parameters: 1. Source panel directory number, e.g. 600. 2. Destination panel directory number; e.g. 635. Intended for use by Drake engineers.

#### 11.7.7.6.2 Software version

Current Rack Software version.

#### 11.7.7.6.3 State of RAM Map

State of map held in RAM - this will either show the latest map downloaded (map name, system, size and download date and time) without a reset - or state 'No valid map present'.

#### 11.7.7.6.4 State of NVRAM Map

State of map held in NVRAM - this will either show the current map (map name, system, size and download date and time) or state 'No valid map present'.

#### 11.7.7.6.5 State of PROM map

State of PROM map - this will either show the current map (map name, system, size and PROM download date and time) or state 'No valid map present'.

#### 11.7.7.6.6 Source of current map

Statement of where current map is run from - NVRAM or PROM.

#### 11.7.7.6.7 Downloaded map not saved

A warning is given if a map was downloaded and for some reason (e.g. download with no reset) was not copied to NVRAM. Note that once a map is copied to NVRAM, the RAM version is invalidated and the RAM map report will state 'No valid map present'.

#### 11.7.7.6.8 Download time

Time since last download.

#### 11.7.7.6.9 System reset data

Last system reset type and time since it occurred.

#### 11.7.7.6.10 Rack card configuration

Rack card configuration information (used by Drake engineers only).

#### 11.7.7.6.11 Master processor card location

Which processor card is the Master.

#### 11.7.7.6.12 Non-intrusive download

Non-intrusive download state (used by Drake engineers only).

#### 11.7.7.6.13 Panel state data

Panel state information (used by Drake engineers only).

#### 11.7.7.7 System messages list

This lists the system messages generated by the system. They will be reported and logged if the System Message Monitor is set to do so.

System Messages are classed under the following five classes or categories:

Information	For information only; no action need be taken.
Status	For information only; no action need be taken.
Warning	If the ADM's System Message Disk Logging facility has been disabled, then manually record details of the warning, including date, time and system status. No further action need be taken at this time.
Error	Record details of the error. Contact Drake support team.
Fatal Error	Record details of the error. Contact Drake support team.
System log	Requested system information

#### Crosspoint and Conference Messages

The crosspoint and conference messages only indicate a control panel's request to make or break crosspoints, not necessarily the actual event.

Crosspoint Message format:

Crosspoint	make or release	`requesting panel'	`source panel' >>	`destination panel'
------------	-----------------	--------------------	-------------------	---------------------

Conference Message format:

Conference	`conference number'	talk or listen	make or release	`requesting panel'
------------	---------------------	----------------	-----------------	--------------------

**NOTE:** `talk or listen' refers to whether the `requesting panel' is talking to or listening to the conference.

The crosspoint route monitor information is derived from the low-level software that drives the hardware. Crosspoints can still be shown as made even though the hardware state has changed.

#### 11.7.8 IFB assignment

This facility allows on-line assignment of IFB Sources, Destinations and Returns, as well as the modification of IFB priorities and interrupt dim levels. For further information on IFBs, refer to Principles of Interrupted Foldback.

The main screen is split into two areas:

##### The Control Area

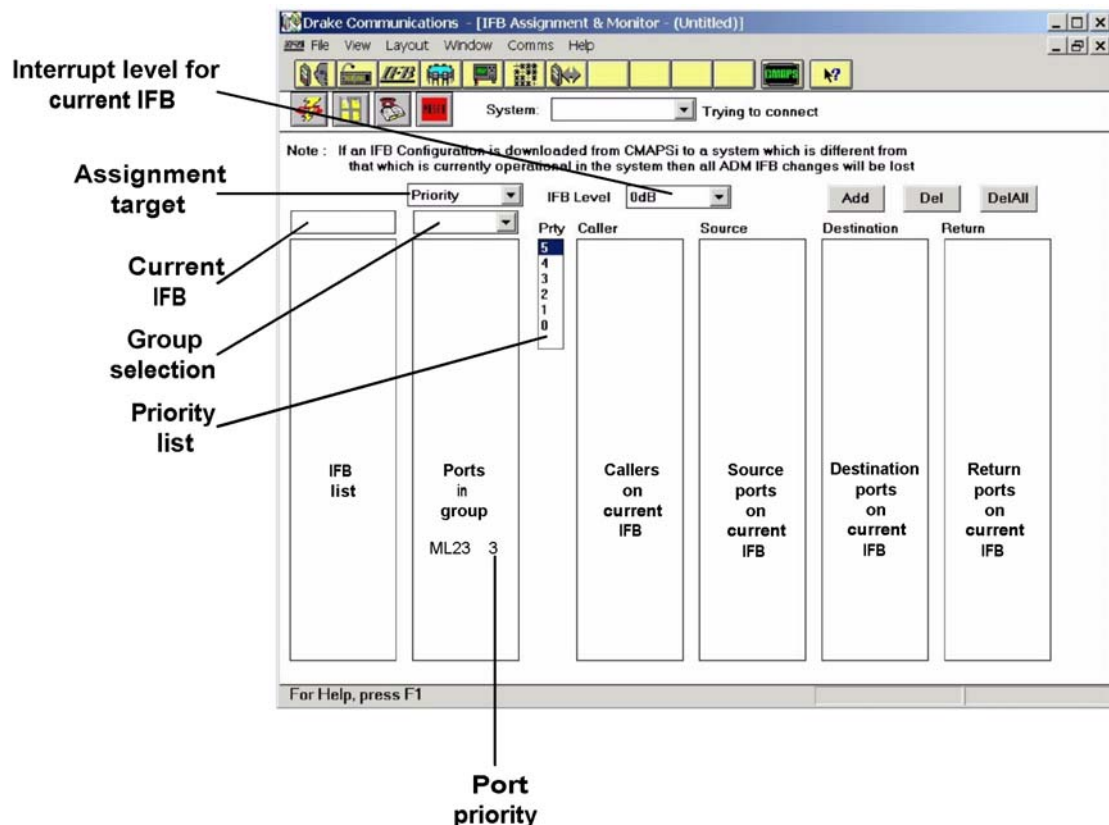
This area contains buttons and a system selection box. Each button has a specific function. Sometimes when a button is selected, the contents of the Client Area will change.

	To assign and monitor IFBs. Only one IFB at a time can be monitored with this option.
	To monitor IFBs. This option monitors all IFBs.
	Group define
	Reset

### The Client Area

The contents of this area will depend on the button function. For example, the monitor screen will be displayed if the IFB Monitoring button is selected.

#### 11.7.8.1 IFB assignment and monitoring



**Figure 11-11 IFB Assignment**

This window has the dual function of assignment and monitoring of IFB facilities. Only the currently selected IFB can be monitored by the option. Use the Monitor option to monitor all or a group of IFBs.

New IFBs cannot be created on-line by ADM: only IFBs created and downloaded from CMAPSi can be modified by ADM.

The monitoring facilities show the current connections established by the selected IFB, i.e. Source- Destination connections and interrupting calls that are in progress.

#### 11.7.8.1.1 Alphas column

The left-hand column lists the Alphas of all the IFBs defined on the system. Entries cannot be edited and must be set up in CMAPSi. To modify or monitor an IFB, select the alpha entry. The selected entry appears in the IFB Selection box above the column.

#### 11.7.8.1.2 Ports/priorities list

The second column lists the Alphas of ports in the system that can be assigned to an IFB, in any capacity, along with their IFB priorities. The list may include panels, audio inputs/outputs and groups (with only one port entry). The list may be a subset of the total list, as determined by the Port List Filter. If the Assignment Target is set to Caller, then panels with IFB priority 0 will not be displayed since they cannot be assigned as an IFB Caller.

The IFB priority assigned to each port is shown alongside the port Alpha in the list if the assignment target is set to Caller or Priority. This can be set using the Assignment Target (Priority) and Prty list. You cannot set group or audio output priority levels and the priority level of program (Source) ports is fixed at a default level of 1 that cannot be changed.

#### 11.7.8.1.3 Assignment target list

This is the top box above the Ports list. It lists the various assignments that can be made to or with ports in the Ports list:

Caller	With this option selected, clicking on a port will assign that port to the Caller list.
Destination	With this option selected, clicking on a port will assign that port to the Destination list.
Level	With this option selected, changing IFB Level changes the IFB interrupt dim level for the current IFB.
Priority	With this option selected, select a port from the ports list and double click on the required priority level from the Prty list.
Return	With this option selected, clicking on a port will assign that port to the Return list.
Source	With this option selected, clicking on a port will assign that port to the Source list.

#### 11.7.8.1.4 Ports list filter

This drop down list shows all the groups defined in a Group Define window. Where a group is selected, only the ports in that group will appear in the Ports list. By default, the list shows all ports.

#### 11.7.8.1.5 Priority Assignment list

This is a list of possible IFB panel priorities 0 (lowest) to 5 (highest). With Target Assignment set to Priority, select a port from the Ports list and double click on the required priority from the list.

#### 11.7.8.1.6 IFB Interrupt dim level

This shows the interrupt dim level for the current IFB. Interrupt dim level is the dimming level applied to a Source/Destination crosspoint while the IFB is active. Changing the IFB Level changes the Interrupt Dim Level for the currently selected IFB. This dim level will also apply to a low-priority Caller.

#### 11.7.8.1.7 Caller list

This lists the Alphas of all Callers that are currently calling the selected IFB (the selected IFB is the one highlighted in the Alphas column). During the call, the Source and any lower priority Callers will appear in red in the list with the dim level shown in brackets.

To select the Caller list, either click on it or select it from the Assignment Target list. It is possible to trigger a call to an IFB from a given port via the ADM. This is done by adding a port to the Caller list:

1. Select the Caller list.
2. Select the port from the Ports list.
3. Select Add.

This triggers the IFB so that the selected port calls the Destination(s) and dims the Source(s), according to the interrupt dim level set for that port.

Ports, audio inputs and groups containing a single valid port and set to Talk+Listen or Talk are valid. A conference or audio output cannot be selected as a Caller. A Caller with a priority level less than that of the Source (1) cannot interrupt the Source to trigger the IFB.

To remove a port from the Caller list, terminating an IFB call, select the port and click on Del.

To remove all Callers from the list, stopping all calls, select the list and click on DelAll.

#### **11.7.8.1.8 Source list**

This lists the Alphas of all Sources programmed to feed the current IFB (the current IFB is the one highlighted in the Alphas column). While a call is in progress, the Source will appear in red in the list with the dim level shown in brackets.

To select the Source list, either click on it or select Source from the Assignment Target list.

To add a port to the Source list:

1. Select the Source list.
2. Select the port from the Ports list.
3. Select Add.

When a port is added, its priority in this IFB is set to the Source default priority level (1). A port already on the Caller list cannot be added to the Source list.

To remove a port from the Source list, select the port on the list and click on Del or double click on the port.

To remove all Sources from the list, select the list and click on DelAll.

When a port is removed from the list, its priority level will be set to the default panel priority level.

#### **11.7.8.1.9 Destination list**

This lists the Alphas of all Destinations programmed to be fed by the current IFB (the current IFB is the one highlighted in the Alphas column).

To select the Destination list, either click on it or select Destination from the Assignment Target list.

To add a port to the Destination list:

4. Select the Destination list.
5. Select the port from the Ports list.
6. Select Add.

To remove a port from the Destination list, select the port on the list and click on Del or double click on the port.

To remove all Destination ports from the list, select the list and click on DelAll.

#### **11.7.8.1.10 Return list**

This lists the Alphas of all Return ports programmed to feed the current IFB (the current IFB is the one highlighted in the Alphas column).

To select the Return list, either click on it or select Return from the Assignment Target list.

To add a port to the Return list:

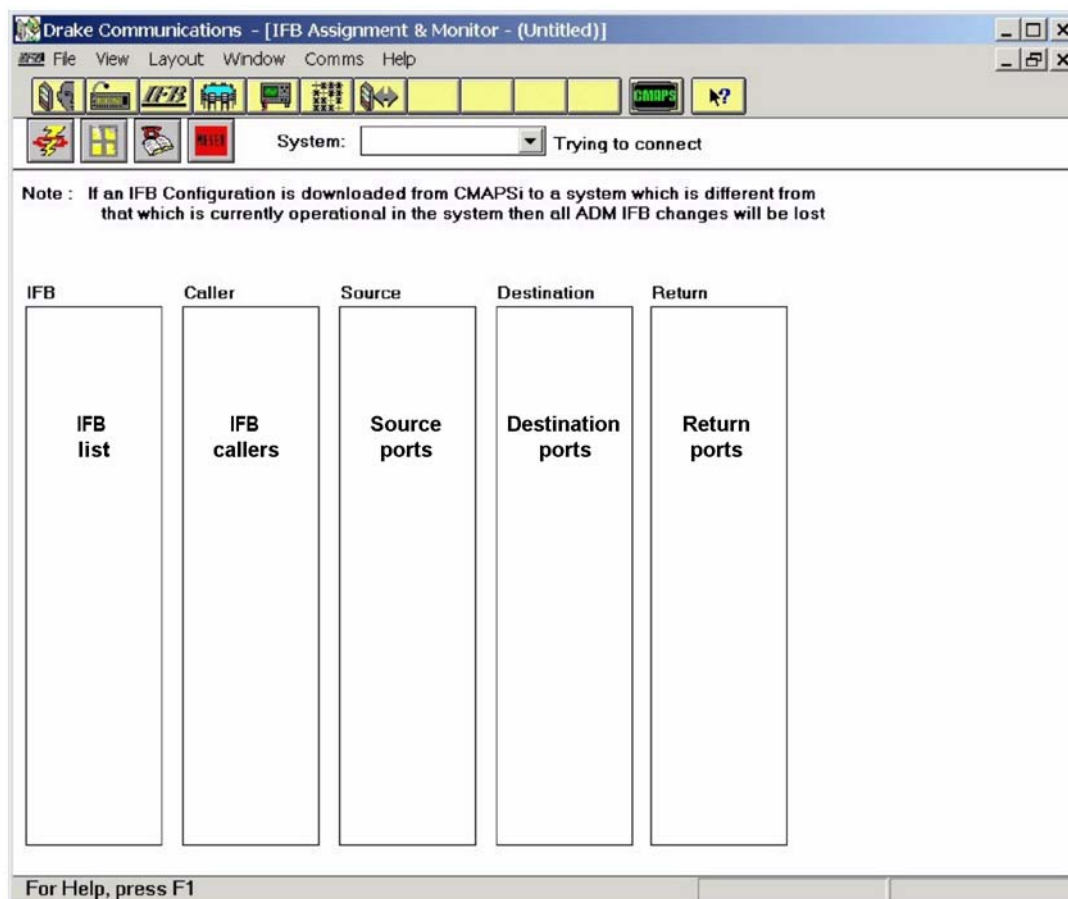
1. Select the Return list.

2. Select the port from the Ports list.
3. Select Add.

To remove a port from the Return list, select the port on the list and click on Del or double click on the port.

To remove all Return ports from the list, select the list and click on DelAll.

### 11.7.8.2 IFB monitoring



**Figure 11-12 IFB Monitoring**

Use this option to monitor all IFBs on the selected system.

### 11.7.9 F78 CMAPSi

Use this option to access the CMAPSi facility.

## 11.8 ADM Multi-Colour Setup

This facility uses colour coding to identify which PC has assigned a port to a conference.

If several PCs are in use on the system, each can assign ports to conferences and, using this facility, the identity of the one used to assign a particular port to each conference can be seen on one or more of the PCs on the system.

The colour coding for each PC can be defined by the user and the choice of colour is made using RGB coding.

The colour which is allocated to each PC and the ability to see the colours identifying other PCs set in INI files.

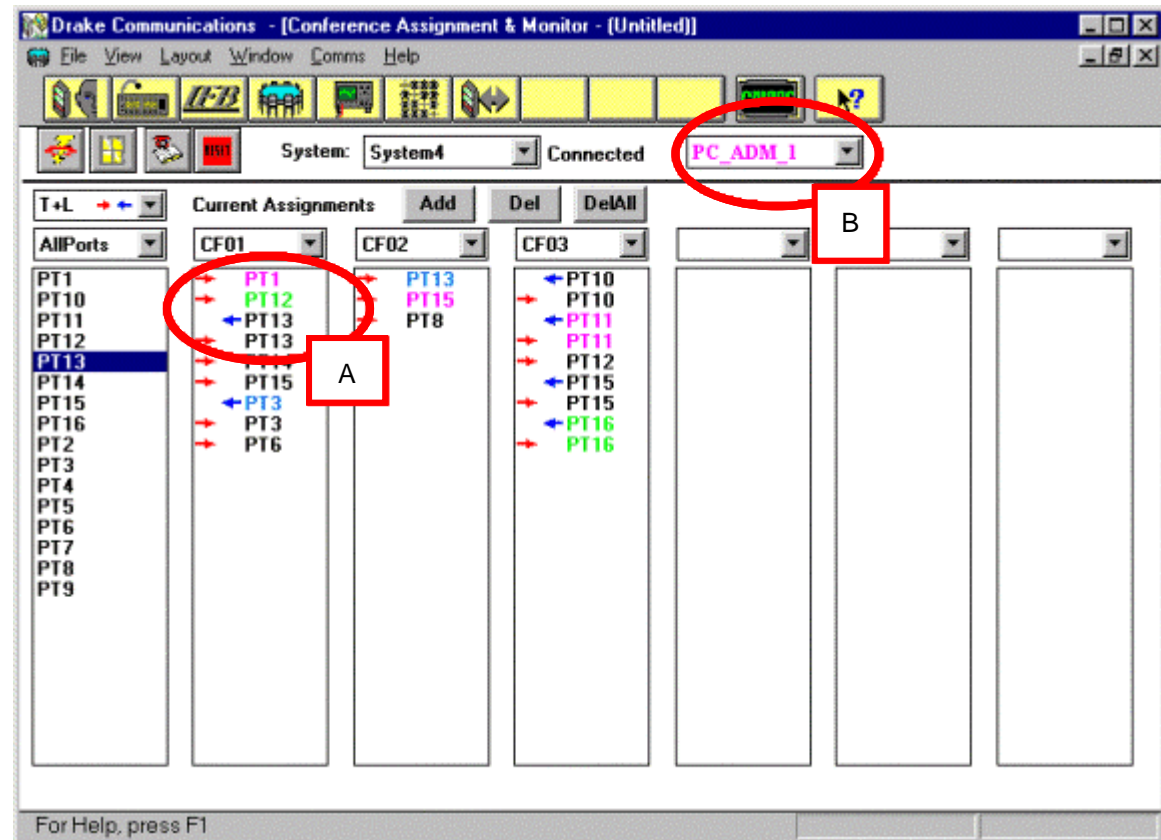
Each PC is identified using its TCP/IP address.

The Colour ID facility applies only to the ADM Conference dialog.

## 11.8.1 The Colour Display

There are two ADM conference dialogs, the Assignment dialog and the Monitor dialog.

### 11.8.1.1 The ADM Conference Assignment Dialog



**Figure 11-13 ADM Conference Dialog**

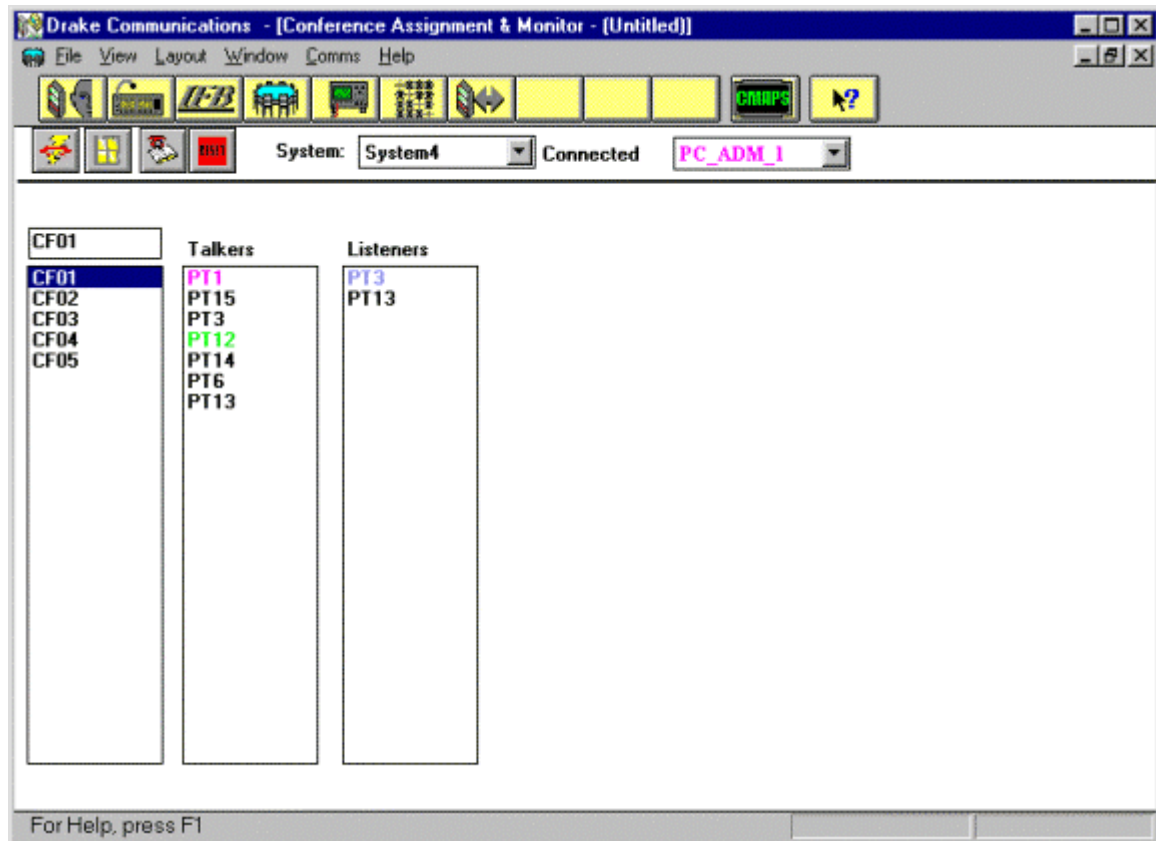
In the above illustration:

- The port IDs, such as those highlighted as “A” are in colour if the facility is correctly enabled (the arrow colours are standard CMAPSi: red = talk, blue = listen). The colour in which a port is displayed indicates which PC on the system made the assignment of that port.
- The drop-down list which is highlighted as “B” shows the names of every PC on the system which has a colour-code allocated to it. The PCs are presented in their allocated colours in the order in which they are listed (in ADM\_ID.INI – see below).

This list box is not visible if the colour ID system is disabled.



### 11.8.1.2 The ADM Conference Monitor Dialog



**Figure 11-14 ADM Conference Monitor**

The presentation in this dialog is similar to that in the Conference Assignment Dialog.

## 11.8.2 Implementation

The facility is implemented by including code in two INI files, ADM\_ID.INI and ADPMAIN.INI on every PC which views which ports have been assigned to conferences.

There is no need to carry out any of this configuration on a PC which only assigns ports to conferences; only those on which the colour-coded assignment are being viewed.

An example of an application would be where three PCs are used on a system and they are numbered and named: Mtg\_Room (PC#1), Ctl\_Room (PC#2) and Office (PC#3). All PCs can assign ports to conferences but only Ctl\_Room (PC#2) needs to view the assignments. There is no requirement for colour-specific INI file entries on PC#1 or PC#3.

### 11.8.2.1 ADM\_ID.INI

This file is in the C:\CMAPSi folder and these entries are required on PC#2 only. If the ADM\_ID.INI file does not exist, or if there are no PC entries (see below) then the conference ID colour system is disabled and presentation of each item is in the default colour.

Entries are required in two sections, System and PC\_n where n is the identification number of the PC. In the above example, the required entries would be:

```
[System]
Colour ID=1
```



```
[PC_1]  
Name=Mtg_Room  
IP=127.168.42.67  
Colour=255,0,0
```

```
[PC_2]  
Name=Ctl_Room  
IP=127.168.42.68  
Colour=0,255,0
```

```
[PC_3]  
Name=Office  
IP=127.168.42.69  
Colour=0,0,255
```

In this example, Colour ID=1 enables the facility (0 disables it) and ports assigned by Mtg\_Room (PC#1), Ctl\_Room (PC#2) and Office (PC#3) are presented in red, green and blue respectively. Name is the 8-character PC name which must obey the normal rules for valid characters. IP is the TCP/IP address of each PC.

#### 11.8.2.2 ADPMAIN.INI

This file is in the C:\Windows folder and this entry is required on PC#2 only to be able to see the colour coding of assignments made by any other PC:

```
[Settings]  
ADMGlobal=1
```



## 12 Introduction to Firmware Upgrade

This modification information describes how to upgrade the firmware in a 4000 Series II Matrix.

### 12.1 Background information

The 4000 Series II CPU stores not only the **rack** (system) firmware but also four different panel codes, as follows:

- Two pushbutton types (4224RBL style panels using coax or CAT5)
- Two LCD Key types (4222RBL style panels using coax or CAT5)

Storing the software on the CPU means that any system upgrades are done at a central location and not locally at each panel. This saves time and effort.

The panel firmware code is stored on the CPU (both CPUs if you have a redundant system) as a master copy.

The panels can then be forced to take a copy of this software in order to update themselves. This is performed at the matrix or every time a panel is powered ON.

Every time a panel is powered ON, it checks the version of software and Checksum it has against that on the CPU:

- If they are the same, the panel switch-on process continues.
- If they are different, the panel assumes that the CPU is holding the latest copy and will upload the software from the CPU to itself.

The firmware updates for both CPU and panel codes are done using CMAPSI.

#### Cautions

##### Maps waiting in memory

**After a firmware download is completed the matrix will automatically reset. Any Maps that have been downloaded to the matrix without a Red Reset or Non-Intrusive Reset and are in memory but not being used will now operate. If the maps are incorrect intercom facilities can stop working or change their operation in line with the new configuration.**

##### Redundant CPUs

**It is a good idea to remove one of the two CPUs in a redundant system before downloading new firmware in case the wrong file is sent and the system is unable to work. Replacing the other card will provide a fall back in case of error.**

##### ADM Message Log

**It is a good idea to read the system log in ADM before you download firmware. See the Section 'Check that you have the correct files'.**

## 12.2 Updating rack / CPU firmware

### 12.2.1 Check that you have the correct files

Drake will have sent you a copy of the rack firmware via email, diskette or CD-ROM. The file name will be similar to RA4???.4kr. (If the file is a ZIP file, containing files named like Pnl???.4kp, these are panel software files – see the section 'Panel firmware update.)

Proceed as follows:

4. Go to the PC diagnostics application ADM, which can be found from within CMAPSi by clicking on the ADM icon or pressing F2.
5. Select Window \System Messages or click on the far left Icon.
6. Select your system number (Ethernet operation) or Serial System.
7. Click on the "I" (Information) Button and read the messages.
8. You will see something like this:

```

18/11/2003 12:38:00.83, 500, System Log      , 41,D diagnostic report (0) requested by ADM
18/11/2003 12:38:01.16, 614, System Log      , 42,Boot CPU441D (B00T) [Sep 29 1999]
18/11/2003 12:38:01.76, 615, System Log      , 43,DRAM 8192KB, reset code 02000000
18/11/2003 12:38:02.26, 621, System Log      , 44,Loaded current application from bank A
18/11/2003 12:38:02.70, 655, System Log      , 45,ID 460: ports 192, eth 1, spv 1, fspk UL
18/11/2003 12:38:03.25, 501, System Log      , 46,RA443K (STD) [Jul 31 2003 17:39:34]
18/11/2003 12:38:03.69, 672, System Log      , 47,Panel firmware 1 type 89 version PRH55B
18/11/2003 12:38:04.18, 672, System Log      , 48,Panel firmware 2 type 85 version BRH57G
18/11/2003 12:38:04.73, 672, System Log      , 49,Panel firmware 3 type 88 version PRG55B
18/11/2003 12:38:05.17, 672, System Log      , 50,Panel firmware 4 type 84 version BRG55B
18/11/2003 12:38:05.77, 712, System Log      , 51,Current time is Wed Oct 8 07:06:34 2003
18/11/2003 12:38:06.21, 502, System Log      , 52,Report on New Map:
18/11/2003 12:38:06.76, 702, System Log      , 53,Temporary Map: no map present
18/11/2003 12:38:07.20, 502, System Log      , 54,Report on Standard Map:
18/11/2003 12:38:07.75, 503, System Log      , 55, Sys1(1) intb03_1/L [18/11/03 12:33:47]
18/11/2003 12:38:08.14, 502, System Log      , 56,Report on Reserve Map:
18/11/2003 12:38:08.79, 702, System Log      , 57,Reserve Map: no map present
18/11/2003 12:38:09.29, 504, System Log      , 58,Standard Map is loaded
18/11/2003 12:38:09.78, 507, System Log      , 59,Last reset RED,0 days 0 hours 3 min ago
18/11/2003 12:38:10.22, 508, System Log      , 60,R1 M+P+C+C-H+?-F+
18/11/2003 12:38:10.66, 508, System Log      , 61,  ?-?-S+?-?-?-?-
18/11/2003 12:38:11.16, 523, System Log      , 62,NID status = 0
18/11/2003 12:38:11.76, 522, System Log      , 63,Panel state 0 on 8 panels (600...)
18/11/2003 12:38:12.20, 522, System Log      , 64,Panel state 1 on 34 panels (602...)
18/11/2003 12:38:12.75, 510, System Log      , 65,Panel firmware PRH55B on 3 panels (600...)
18/11/2003 12:38:15.17, 569, System Log      , 70,Highest xpt usage since black reset = 20%
18/11/2003 12:38:15.77, 517, System Log      , 71,Diagnostic report complete

```

Line 46, in bold, indicates the current software fitted in the master CPU, (RA443K). Lines 47 –50 show that the panel software in CPU memory banks 1 – 4 is for Pushbutton HDLC v55B, LCD key HDLC v57G, Pushbutton Generic (co-ax) v55B and LCD key Generic v55B.

Line 53 indicates that there is no Map waiting in temporary memory that will become active after a firmware download reset. A map name would be given if there were.

After the firmware downloads re-check with ADM that the new software has been loaded.

## 12.2.2 Starting a Rack firmware download

Proceed as follows:

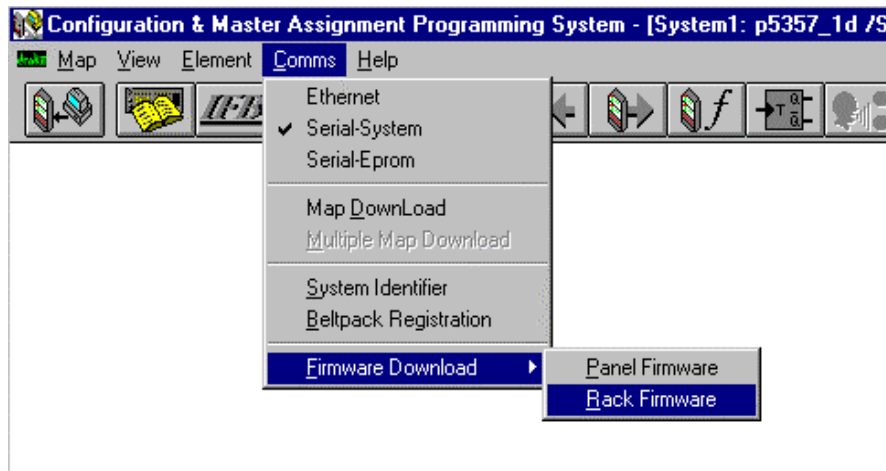
1. Create a folder called firmware on your C: drive and copy the new files to this folder.

### Note

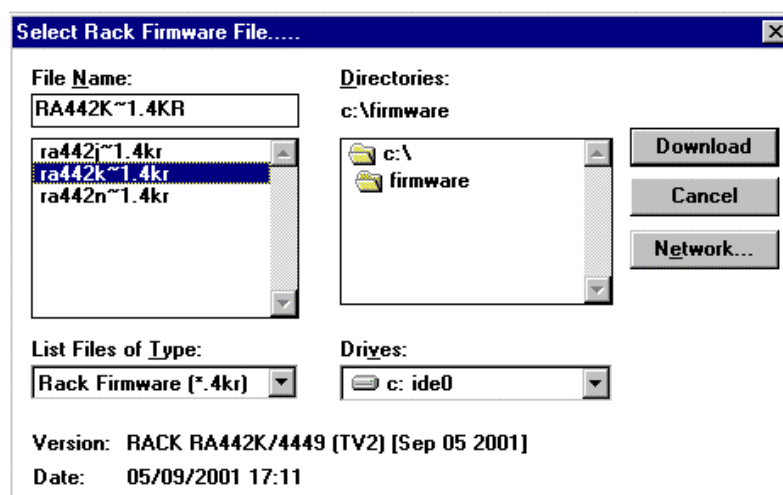
**RA44xxx files are for 4RU/ 9RU matrices**

## RA41xxx files are for PICO matrices

9. Start CMAPSi and then select comms\firmware download\rack firmware.



10. Select the file:



11. Select download.
  - For Ethernet connected matrices, the download takes 3-5 minutes.
  - For serially connected matrices, the download takes 15-20 minutes.
12. After the download is complete the matrix will reset itself and panels and FreeSpeak Beltpacks will return to their default configuration.

## 12.3 Updating panel firmware

Drake will have sent you the files containing the panel firmware via email, diskette or CD-ROM. The files will be zipped with a name like BRH57G.zip.

The 4000 Series II CPU has four memory blocks to store four different panel codes. These are normally:

- Two pushbutton types (4224RBL style panels using coax or CAT5)
- Two LCD Key types (4222RBL style panels using coax or CAT5)

The panels will upload the correct software from the CPU automatically.

### 12.3.1 Check that you have the correct files

Proceed as follows:

2. Go to the PC diagnostics application ADM, which can be found from within CMAPSi by clicking on the ADM icon or pressing F2.
3. Select Window \System Messages or click on the far left Icon.
4. Select your system number (Ethernet operation) or Serial System.
5. Click on the "I" (Information) Button and read the messages. (see example below).

```
18/11/2003 12:38:02.70, 655, System Log      , 45,ID 460: ports 192, eth 1, spv 1, fspk UL
18/11/2003 12:38:03.25, 501, System Log      , 46,RA443K (STD) [Jul 31 2003 17:39:34]
18/11/2003 12:38:03.69, 672, System Log      , 47,Panel firmware 1 type 89 version PRH55B
18/11/2003 12:38:04.18, 672, System Log      , 48,Panel firmware 2 type 85 version BRH57G
18/11/2003 12:38:04.73, 672, System Log      , 49,Panel firmware 3 type 88 version PRG55B
18/11/2003 12:38:05.17, 672, System Log      , 50,Panel firmware 4 type 84 version BRG55B
```

Note the memory bank that has the same three starting letters, e.g. BRH or PRG.

### 12.3.2 Starting a Panel firmware download

Proceed as follows:

6. Create a folder called firmware on your C: drive and copy the new files to this folder.

#### Note

**PRGxxx files are for 4224 style panels connected via COAX / VIDEO cable**

**PRHxxx files are for 4224 style panels connected via RJ45 / CAT5 cable**

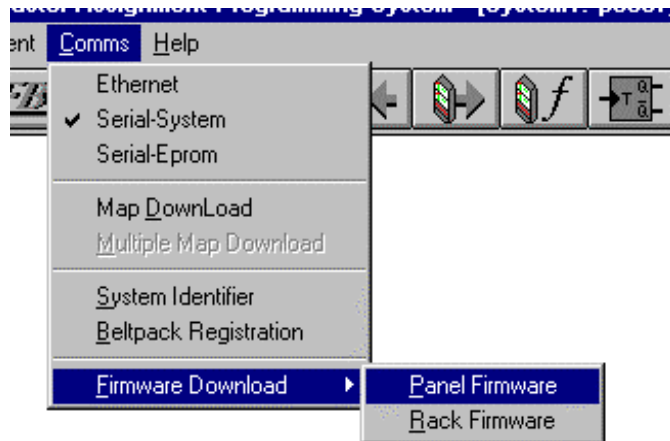
**BRGxxx files are for 4222 style panels connected via COAX / VIDEO cable**

**BRHxxx files are for 4222 style panels connected via RJ45 / CAT5 cable**

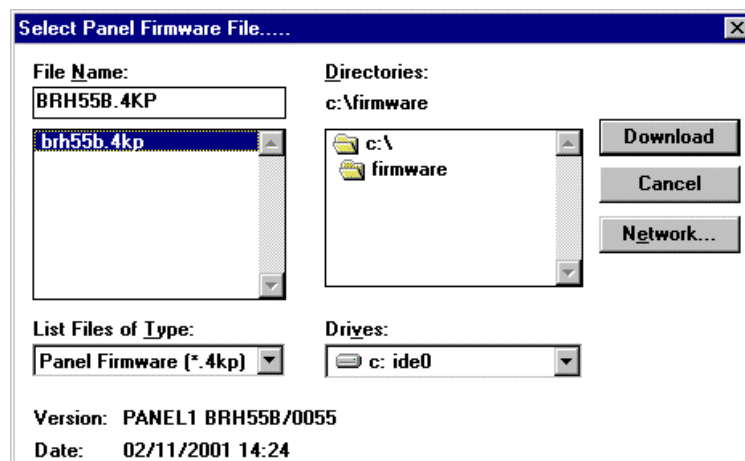
- These files are suitable for all matrices Pico, 4RU & 9U.

**Note: Pico matrices only support RJ45 / CAT5 connected panels**

13. Start CMAPSi and then select comms\firmware download\panel firmware.



14. Select the file. (Each file can be sent to one of the four memory slots on the CPU, thus PNL\_1 BRH55B will go into memory slot 1.)



15. Select download.
  - For Ethernet connected matrices, the download takes 3-5 minutes.
  - For serially connected matrices, the download takes 10-15 minutes.
16. After the download, you need to force a bootstrapping reset on the CPU (see next section).
17. This will force all the panels on the system to upload the new panel firmware.
18. Alternatively, you can power cycle (turn off/on) each panel individually. This will force the panel to take the new panel firmware.

## 12.4 How to do a bootstrapping reset

Proceed as follows:

7. Press and hold the red, blue and black push-buttons on the Processor Card(s). Then release the red button while still holding the blue and black buttons.
8. When the green LED begins to flash, release the blue and black buttons.

9. Control Panels will have firmware downloaded from the Master Processor Card. This process is known as bootstrapping.
10. Panels with a display will count from 0 - 100%.
11. Panels without a display will flash their first eight RED LEDs. Each red flashing LED will go off as the count progresses.

**Caution**

**Allow the Black/Blue reset to complete its operation before attempting another reset. This could lead to the bootstrap process not being completed successfully.**

**Caution**

**Any local panel programming is also lost throughout the whole system.**



## 13 Glossary

### 13.1 ADM

The Assignment, Diagnostic and Monitoring Facility allows interactive changes to Drake Intercom/Talkback systems and provides extensive diagnostic and monitoring facilities.

### 13.2 Alpha mnemonic

The Alpha mnemonic is a four character alphanumeric code that is assigned to every port of a matrix. This code appears on the small LCD associated with panel keys to indicate:

- the port that will be selected key when the key is operated.
- for the Reply key, the source of a call to the panel.

4000 Panels can be set to show an 8 Character Mnemonic instead of the 4 character Alpha

### 13.3 Call Cut Key

Dummy Ports 732 ( Small map ) and 988 ( Large map ) have been designated as the Call Cut key. A key assigned as a Call Cut key mutes an incoming call, but only operates in association with a designated 8 character mnemonic key assignment.

### 13.4 Call Reject Key

The Call Reject key permits the user to reject a designated incoming call. To reject a call, press the Call Reject key followed by the key assigned to the caller. If no key is assigned to the caller, press the Call Reject key followed by the Reply key: this will reject the current call. The caller will receive no indication that the call has been rejected.

The call reject operation inhibits the Source and Destination routes associated with the key. These routes will be remade when a call is made to or from that port (or the system is Red Reset).

On panels equipped with a keypad, the \* key functions as a Call Reject key. The Call Reject Key also operates in association with a designated 8 character mnemonic key assignment.

To program a Call Reject key on a panel, assign port 730 (small map) or 986 (large map) to the key either locally or using CMAPSi.

### 13.5 Control Input

One of (up to) 8 control inputs on a panel, and which can perform operations in the same manner as a panel key, and thus use the panel key structures. The number of inputs depends on the type of options card fitted to a panel.

### 13.6 Copy/Paste principles

Use this option to copy and paste a single cell or single or multiple rows of data from CMAPSi dialogue boxes. The number of rows that may be selected for copying depends on the dialogue box being displayed. Data can be copied or cut to the clipboard and pasted back into the same type of dialogues, thus enabling quick and easy copying of existing setups.

Copy/paste facilities are currently available only on the Ports, Keys and Groups dialogues. The facilities are basically the same except that the pasting facilities vary.

There are two types of copy/paste operation:

Row.	When not in edit mode, as indicated by a black rectangle surrounding the active cell, copy and paste operate on one or more complete rows. This mode is reached by single clicking on the cell and clicking the right-hand mouse button.
Text.	In edit mode, as indicated by highlighted text in the cell, copy and paste only operate on all the text within a single cell. This mode is reached by double clicking on the cell, moving the cursor away from the cell and pressing the right-hand mouse button. A small menu appears giving copy, cut and paste options. All the text in the cell is copied and pasted. This mode is only available on textual cells in the Ports and Groups dialogues.

Four options are available:

Copy.	The marked row(s) is/are copied to the clipboard, leaving the marked row(s) unaffected.
Cut.	The marked row(s) is/are copied to the clipboard and removed from the dialogue.
Paste.	The marked row(s) is/are replaced by the row or rows from the clipboard. Certain Options are available when pasting.
Clear.	The data is cleared from the row(s) selected.

To reach the copy/paste facility, select the row(s) to be copied, cut, pasted or cleared and click the right-hand mouse button. The cut/paste/template dialogue will appear. Select the required option from the dialogue. Alternatively, hot keys are available, as follows:

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Select all rows (where appropriate)	Ctrl+A

Use of Cut or Copy overwrites any existing data on the windows clipboard.

Data cannot be copied from one type of dialogue to another; e.g. data copied from the Ports dialogue cannot be pasted into a Keys dialogue, key data copied from a 4000 panel cannot be copied into a 3000 panel and key data copied from a 3000 panel cannot be copied into a 4000 panel.

From the Ports dialogue, only one row can be copied. To select multiple rows, where this is possible, drag the cursor over cells in the rows to be copied. The rows will be highlighted.

Where a single row is pasted to multiple rows, the same data will be copied into each of the multiple rows. When pasting multiple rows, the rows on the clipboard will replace the existing rows, one for one, no matter how many rows are highlighted on the dialogue. For example, if there were two rows on the clipboard but four rows were highlighted in the dialogue, only the first two of the four highlighted rows would be replaced. Similarly, if only one row were highlighted, that and the next row would be replaced.

On pasting, a warning dialogue will ask you to confirm the paste operation(s), one row at a time. The warning dialogue varies with the type of data being pasted. It is not possible to copy data between different map sizes.

## 13.7 Crosspoint

A crosspoint is a point on a matrix where input and output ports cross. If a connection is made at a crosspoint, then communication is established between the input port and the output port.

## 13.8 Current map

A current map represents the current configuration of a system. When a map is opened, it becomes the current map on a system and remains in force until a different map is opened for that system.

Each system that has maps will have one current map and may have other maps that can be selected for use with that system. In network operations, where remote systems are being accessed, the current map on the remote system represents its configuration.

Every map is kept in its own directory. In addition, the current map for each system also has its own directory.

## 13.9 DAK - Direct Access Key

A DAK (Direct Access Key) is a key on a control panel that can be programmed, either locally or centrally, to connect the user to a designated port.

## 13.10 Dial Key

Dummy ports 731 (small map) and 987 (large map) have been designated as the Dial Mode key. A key assigned as a Dial Mode key invokes dial mode on those panels that support this feature (4000 series panels only). On panels that do not support this feature, this assignment will act as a dummy key.

## 13.11 Dummy

A dummy port entry - used in key assignment to enable a key to be used for a GPIO/Special Function operation only.

## 13.12 Ethernet

Ethernet is a type of LAN or computer network.

## 13.13 Extension Panel

An extension panel is a panel that is added to a main panel to increase the number of keys available.

### 3000 Series Panels

3000 Series panels support only 1 16 key extension panel.

### 4000 Series Panels

4000 Series panels may have up to 4 20 key extension panels

**NOTE:** Where a panel supports both shift pages and extension panels, if an extension panel is connected, then the relevant shift page cannot be viewed on the main panel - see Keys

## 13.14 GPI - General Purpose Interface

These are electrical inputs and outputs provided by printed circuit cards plugged into the system rack. GPI outputs allow the system to control external events. GPI inputs can be programmed with up to 128 operations to control occurrences within the system.

The number and location of the cards are as follows:

Card	Location
1	Slot 3
2	Slot 18
3	Slot 19
4	Separate frame
5-12	Not allocated
13	Vox 1 to 32
14	Vox 33 to 64
15	Vox 65 to 96
16	Vox 97 to 125

Card numbers 17 to 32 are used as addresses to identify Special Functions within the software.

## 13.15 Group Assign Key

To program a Group Assign key on a panel, use CMAPSi to assign port 733 (small map) or 989 (large map) to a panel key.

The Group Assign key allows the user to assign keys to a group. To assign a key to the group, press and hold the Group Assign key then press the keys that are to be added to the group. The red LED is lit on a key that is a member of the group. To remove a key from the group, press the key again while still holding the Group Assign key.

The group is activated by the Group Talk Key.

## 13.16 Group Talk Key

To program a Group Talk key on a panel, use CMAPSi to assign port 734 (small map) or 990 (large map) to a panel key.

The Group Talk key allows the user to activate the routes associated with keys that are assigned to the group. The Group Talk key effectively causes all the keys that are part of the group to be pressed while the Group Talk key is pressed.

The red LED is lit on each key that is assigned to the group. Call indication is allocated to the keys as if each key had been pressed separately.

The keys assigned to the group are selected using the Group Assign Key.

## 13.17 IFB

Interrupted FoldBack. This provides a Caller with the ability to talk over a normal audio feed (Source) to an operator (Destination). An IFB defines matrix connections between a Source and Destination ports while allowing IFB Callers to interrupt the Source and talk to the Destinations.

See Principles of IFB.

## 13.18 Layout

An ADM layout is a set of suitably configured modules with windows suitably arranged. A layout can be saved to and retrieved from disk.

## 13.19 Map

A map is a planned configuration of ports on a matrix that can be downloaded to a communication matrix to control its operation.

Two sizes of map are available - small and large. A small map can handle up to 128 physical ports. A large map can handle up to 584 physical ports.

## 13.20 Master Conference Talk

It is possible to program a single key on a panel so that the user can talk to any conference to which he/she is listening. This is done by assigning the key to port 500 Master Conference Talk.

## 13.21 Matrix

A matrix (map) can be defined as a rectangular array of elements arranged in rows and columns.

In CMAPSi, the matrix represents paths through the system from vertical input ports on the left to horizontal output ports along the top. Making a connection at a matrix crosspoint results in a circuit between a vertical input and a horizontal output port. By using a matrix arrangement, any input port can be connected to any output port.

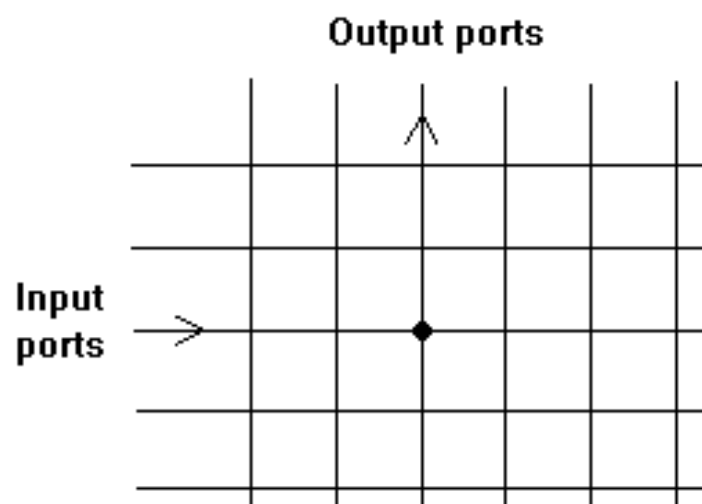


Figure 13-1 Matrix

Crosspoint connections are controlled by:

- keys on panels at the ports.

- control inputs to panels.
- general purpose inputs and special functions.

In addition, crosspoint connections can be made permanently open or closed. See Crosspoint Assignment.

## 13.22 Module

An ADM module is a program designed to perform a specific function. Each module has its own window and can be configured to perform functions on a particular system. A number of instances of a module can be running at the same time, e.g. monitoring routes on different systems.

A module configuration can be saved to and retrieved from disk.

## 13.23 Options

When pasting rows from the clipboard, some options are available, depending on the dialogue. These can be set globally from the Options option of the main Copy/Paste menu. Relevant options can also be set from individual Paste warning dialogues. The options are:

- **Maintain Alpha/Description**  
If this is selected, the existing Alpha and descriptive text remains unaffected. Otherwise, default text is used.
- **Paste GPOs/SFOs**  
With this selected, the Control assignments will be copied in addition to the Route port assignments for the panel. Note that any program assigned to the GPO or SFO will not be copied along with the key assignment. Hence, if rows are copied from one map to another, the GPO or SFO may not have the same program assigned to it or it may have none at all.
- **Clear unassigned keys**  
Where a number of key description rows are copied and one or more rows is blank (unassigned), you have the option, when pasting these rows into a dialogue, of clearing unassigned keys in the destination text corresponding to these blank rows or of leaving the keys unaffected, pasting in only rows that are not blank.

## 13.24 Panel

A key panel with microphone and loudspeaker/headset that can be the source and/or destination of audio. Panels connect to physical ports 1 to 128 that map onto matrix ports 600 to 727.

## 13.25 Panel Control Outputs

These are control outputs obtained from a panel. The outputs are:

- LED1 to LED48.
- Mic Mute.
- LS (loudspeaker) Dim.
- LS Mute.

The names are used for GPI programming only.

## 13.26 Party line

This is the American name for a conference.

## 13.27 Remotely assignable key

There are three ways in which a panel key can be programmed:

- Locally at the panel
- Centrally via CMAPSi
- Remotely from ADM or a Router panel.

To allow remote assignment of a panel key from ADM or a Router, that key must be reserved for this purpose from CMAPSi. This is done by assigning a special port number to it - 728 for a small map; 984 for a large map. A key reserved in this way displays the default mnemonic 'RKEY'.

Only keys assigned to this port can be remotely assigned by the ADM or a Router Panel.

See also; Panel key assignment from ADM Port assignment from CMAPSi

## 13.28 Reply Key

The Reply key is a dedicated panel key automatically assigned to talk to the source of an incoming message unless disabled by the Reply Key bar option.

## 13.29 Route

A route is formed between ports by making a connection at a crosspoint on the matrix.

## 13.30 RS232 interface

An RS232 serial interface may be used to connect the PC, on which CMAPSi and ADM run, to the Drake system. The cable connections are as follows:

Matrix end	PC 9-way	or	PC 25-way	
3	3	or	2	Tx data
2	2	or	3	Rx data
7 (screen)	5	or	7	Ground return
-	4, 6, 8, 1	or	20, 6, 5, 8	DTR, DSR, CTS, DCD linked together.

Notes:

1. To ensure EMC compliance, an overall braided screened cable must be used. The screen should be bonded to the metal shell of the D type connectors at both ends.
2. The cable length should be such that cable capacitance is less than 2500 pF.

## 13.31 Serial

A serial interface is a type of communication that a computer commonly uses with peripherals. It is termed a serial interface because the 7 or 8 bits that make up each character are sent one after another along a single wire. By default CMAPSi uses 9600 Baud, 8 Bits, 1 Stop Bit and Even Parity.

## 13.32 SF - Special Functions

Special functions are programmable functions that can be triggered by a panel key, a General Purpose Interface (GPI) input or by another Special Function. A Special Function comprises up to 128 commands that can control audio paths, GPI outputs, control panel outputs or other Special Functions.

Although Special Functions are purely software functions, they are identified as card and pin numbers in the same way as GPI inputs and outputs. The identities of these phantom cards are cards 17 to 32 with pins 1 to 32. Hence, up to 512 (16 x 32) Special Functions can be identified. See Programming.

## 13.33 System

A system is a single connection matrix. Up to eight systems, numbered 1 to 8, can be networked together using network trunks.

## 13.34 Templates

These options allow you to use a particular dialogue configuration in other similar dialogues. Except in the case of the Ports dialogue, the template will hold the complete set of data in the dialogue. For the Ports dialogue, only the currently highlighted physical port data will be saved to the template.

The Template facility is very similar to the Copy/Paste facility except that, whereas Copy/Paste uses the Windows clipboard with the result that copied data will be overwritten by any other Copy activity, the Template facility retains the data stored for each different type of dialogue. Hence, Keys template data will be retained until different Keys data is stored in the template.

**NOTE:** A Key template saved for a 4000 series panel cannot be loaded into a 3000 series panel and vice-versa.

To use the template facility:

1. Set up a dialogue with the required configuration.
2. Select Store as Template to store the current configuration as a template. This option is also available from the Copy/Paste menu accessed by clicking the right-hand mouse button. Alternatively, use Ctrl+S.
3. In other dialogues that require the same or a similar configuration, select Load Template. Alternatively, press Ctrl+L or select the Load Template option from the Copy/Paste menu. The current dialogue or port will adopt the configuration stored in the template. A warning dialogue will ask you to confirm that you really do wish to replace the existing settings with the template settings.

On loading a template into certain dialogues, you can control what will be overwritten in the dialogue - as with Copy/Paste. Where applicable, these options will appear in the warning dialogue that appears before the template data is loaded. See Options. Also, in the Keys dialogue, Key data can be loaded line by line as described for Copy/Paste Keys dialogue.

Templates are only valid within a given system; e.g. templates saved in system 1 are not valid in System 2.

## 13.35 Trunk line

A trunk line is an audio interconnection between matrix systems. It is implemented by audio input/output ports designated as TRNK in the port attribute dialog.



Control interconnections are by Ethernet link.

Trunks are used when an audio route is requested from a port on one system to a port on another system. Most trunk lines are allocated from a free pool - it is possible for no trunk to be available when one is required.

You should not assign a key routing to a trunk port - a key should be assigned to the destination panel on the destination system. The system will allocate a trunk line when a connection request is made.

## 13.36 VOX

Voice activated GPI input - GPI cards 13-16 are reserved for VOX inputs.

Each codec card has 16 inputs, so two codec cards provide inputs for one GPI card.

Port	VOX GPI
600	Card 13 Input 1
601	Card 13 Input 2
-	etc.
-	
631	Card 13 Input 32
632	Card 14 Input 1
-	etc.
-	
663	Card 14 Input 32
664	Card 15 Input 1
-	etc.
-	
696	Card 16 Input 1
-	etc.
-	
727	Card 16 Input 32

Your hardware configuration file may redirect these GPIs to other ports in large maps. Contact your Drake representative for further information.