

Quick Start
Guide

**HP 37717C
Communications
Performance Analyzer**

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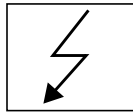
WARNING

For details of safety, see Safety information at the front of the Calibration manual.

Warning Symbols Used on the Product



The product is marked with this symbol when the user should refer to the instruction manual in order to protect the apparatus against damage.



The product is marked with this symbol to indicate that hazardous voltages are present



The product is marked with this symbol to indicate that a laser is fitted. The user should refer to the laser safety information in the Calibration Manual.

**HP 37717C Communications
Performance Analyzer**

About This Book

The Quick Start Guide demonstrates the basic operation of the instrument.

This guide tells you how to select the displays that you want and how to use them to modify the instrument functions.

This guide also tells you about the front panel key functions, the indicators and the connectors.

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Getting Started

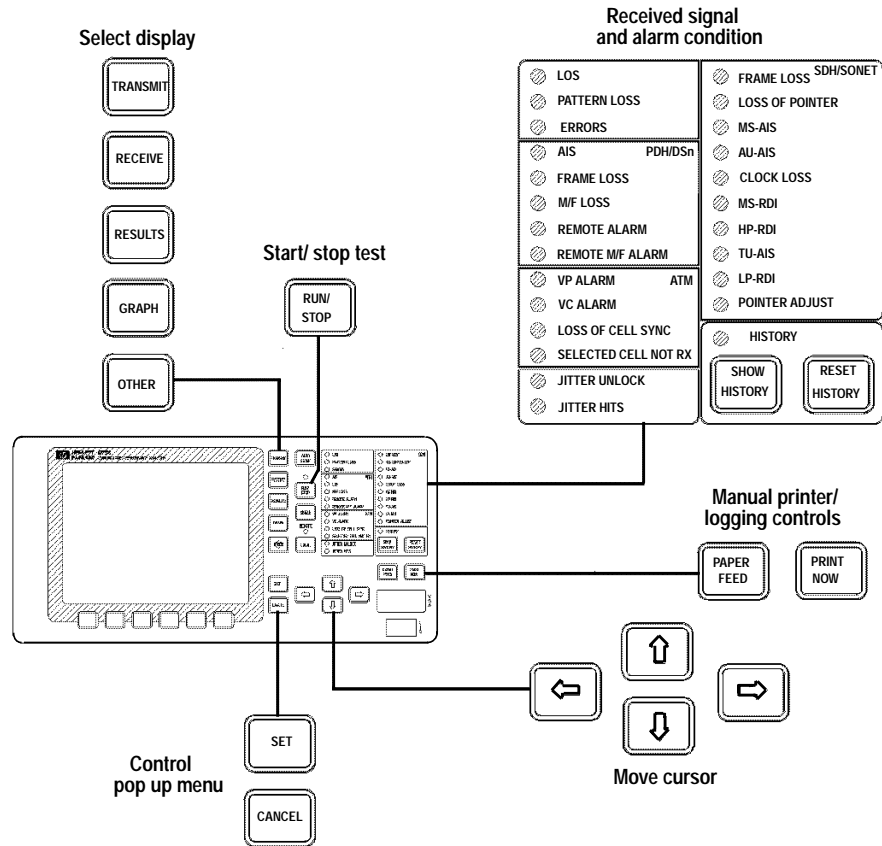
This chapter shows you how to select and
change displays

Getting Started

Getting Started shows you how to select displays and use them to change the instrument settings. Getting started includes the following:

- How to select single or multiple windows
- How to obtain the required display using the display select keys, **TRANSMIT** ; **RECEIVE** ; **RESULTS** ; **GRAPH** ; **OTHER**
- How to modify the display information, using    and  and the display softkeys or pop-up menus
- How to use the other front panel keys
- How to interpret the front panel status indicators
- How to connect to external equipment

Introduction to the 37717C Front Panel



The operator interface is provided by the display and the front panel keys.

The display may be multiple windows or a single window.

When the display is multiple windows, the "active" window is indicated with a color which is different from the color of the three "inactive" windows.

Selecting Displays

A multiple window display is available. The displayed pages are: Transmitter Output, Receiver Input, Results and either Graph or Other (Function).



TRANSMIT

Allows control of the settings associated with the generated signal.

RECEIVE

Allows control of the settings associated with the received signal.

RESULTS

Allows control of the test timing and graph storage and displays the selected measurement results.

GRAPH

Allows management of the stored graphical results.

OTHER

Allows control of Stored Settings, Settings Control, Floppy Disk, Logging, Remote Control, Time & Date, Miscellaneous (Keyboard Lock, Beep on Received Error, Suspend Test on Signal Loss), Option and Option Enable, Calibration, Autsetup and Color Control.

A list of Options fitted is also displayed.

Getting Started
 Selecting Displays

Selecting Multiple or Single Windows

To select single window, use the display keys **TRANSMIT**; **RECEIVE**; **RESULTS**; **GRAPH** and **OTHER** , to select the display required and then press **SINGLE WINDOW**.

Most examples in this manual use SINGLE window. To return to multiple windows, press **MULTIPLE WINDOW**.

Example: To obtain a single window transmit display, Use **TRANSMIT** to make the transmit window active.

<p>TRANSMITTER OUTPUT SDH</p> <p>MAIN STRUCT'D ZITTER TEST OVERHEAD SETTINGS PAYLOAD FUNCTION SETUP</p> <p>SIGNAL SDH-1 INTERNAL CLOCK INTERNAL FREQUENCY OFFSET OFF</p> <p>MAPPING ID AU-4 FOREGROUND TU-3 34 Fb/s 34 Fb/s 34% OFFSET 0 pps CHANNEL TUG3 1</p> <p>TU PAYLOAD UNFRAMED UNSTRUCTURED PATTERN 2*23-1 PRBS INVERT ITU</p>	<p>RECEIVER INPUT SDH</p> <p>MAIN STRUCT'D TEST OVERHEAD SETTINGS PAYLOAD FUNCTION MONITOR</p> <p>SIGNAL SDH-1 TERMINATE LEVEL</p> <p>MAPPING ID AU-4 TU-3 34 Fb/s 34 Fb/s</p> <p>CHANNEL TUG3 1</p> <p>TU PAYLOAD UNFRAMED UNSTRUCTURED PATTERN 2*23-1 PRBS INVERT ITU</p>
<p>RESULTS SDH ERROR SUMMARY</p> <p>RESULT TYPE COUNTS</p> <p>FRAME B1 BIP HS-RES B2 BIP HP-RES B3 BIP LP-RES HP-IEC TU BIP BIT</p> <p>AU POINTER 0 TU POINTER 0</p> <p>ELAPSED TIME ..d ..h ..m ..s</p>	<p>FUNCTION STORED SETTINGS</p> <p>STORED SETTING NUMBER 0</p> <p>SETTING ACTION OFF</p> <p>0 FACTORY DEFAULT SETTINGS 1 2 3 4</p>

STATUS:
 PDM/DSn SDH SONEt

SINGLE WINDOW

Getting Started

Selecting Displays

Use **SINGLE WINDOW** to obtain a single transmit window display

To change the page displayed in the single window, press the page key for the page required (e.g. RECEIVE, RESULTS, GRAPH or OTHER) .

When returning to multiple windows, the current single window display will become the active display within the multiple windows.



Moving Around Multiple Windows

To move the cursor to another of the displayed windows, press the display selection key for that window.

Example: The cursor is in the TRANSMITTER OUTPUT window at the top left of the display.



Getting Started

Selecting Displays

If you want to make changes to the receive display, you need to make the receive display "active". To move the cursor to the RECEIVER INPUT window at the top right of the display, press **RECEIVE**.

TRANSMITTER OUTPUT		SDH		RECEIVER INPUT		SDH	
MAIN SETTINGS	STRUCT'D PAYLOAD	JITTER	TEST FUNCTION	OVERHEAD SETUP	MAIN SETTINGS	STRUCT'D PAYLOAD	TEST FUNCTION
SIGNAL: STM-1		INTERNAL		SIGNAL: STM-1		TERMINATE	
CLOCK: INTERNAL		OFF		LEVEL:			
FREQUENCY OFFSET		OFF					
MAPPING: [0] AU-4		TU-3		MAPPING: [0] AU-4		TU-3	
345 OFFSET		0 ppm		345 OFFSET		0 ppm	
CHANNEL		TUGG 1		CHANNEL		TUGG 1	
TU PAYLOAD		PRAYED		TU PAYLOAD		PRAYED	
PATTERN		2*23-1 PRBS		PATTERN		2*23-1 PRBS	
		UNSTRUCTURED				UNSTRUCTURED	
		INVERT [TU]				INVERT [TU]	
RESULTS SDH		ERROR SUMMARY		FUNCTION		STORED SETTINGS	
RESULT TYPE		COUNTS		STORED SETTING NUMBER		0	
FRAME		....		SETTING		ACTION OFF	
B1 BDP		....		0		FACTORY DEFAULT SETTINGS	
B2 BDP		.... HS-RES		1		.....
B3 BDP		.... HP-RES		2		.....
HP-1EC		.... LP-RES		3		.....
TU BDP		....		4		.....
BIT		....				
AU POINTER		0 TU POINTER					
		0					
ELAPSED TIME		..0 ..h ..M ..S					
STATUS:							
PDH/DSn		SDH		SONET		SONET/SDH JIT	
						SINGLE WINDOW	

Selecting the Graph or Other Display in Multiple Windows

Press **OTHER** or **GRAPH** for the display that you want.

Example: To change the display from **OTHER** to **GRAPH**. Press **GRAPH**.

Getting Started

Selecting Displays

Display with **OTHER** FUNCTION

The screenshot shows the main menu with four main sections:

- TRANSMITTER OUTPUT SBH:** Includes settings for SIGNAL (STM-1), CLOCH (INTERNAL), FREQUENCY OFFSET (OFF), MAPPING (AU-4), FORCEROUND (TU-3, 34 Mb/s), 241 OFFSET (0 PPM), CHANNEL (TUG2, 1), TU PHYLOAD (PARED), and PATTERN (UNSTRUCTURED, IMBERT, ITU).
- RECEIVER INPUT SBH:** Includes settings for SIGNAL (STM-1), LEVEL (TERMINATE), MAPPING (AU-4), TU-3 (34 Mb/s), CHANNEL (TUG2, 1), TU PHYLOAD (PARED), and PATTERN (UNSTRUCTURED, IMBERT, ITU).
- RESULTS SBH:** Shows an ERROR SUMMARY table with columns for RESULT TYPE and COUNTS. Rows include PWRE, B1 BIP, B2 BIP, B3 BIP, HP DEC, TU BIP, and BIT. Below this are AU POINTER and TU POINTER, both set to 0, and a SLAPSED TIME field.
- FUNCTION:** A menu with a highlighted 'OTHER' option. It lists STORED SETTING NUMBER (0) and ACTION (OFF). Below are settings 0 through 4, with setting 0 labeled 'FACTORY DEFAULT SETTINGS'.

At the bottom, the STATUS bar shows several function buttons: STORED SETTINGS, SETTINGS CONTROL, FLOPPY DISK, LOGGING, MORE, and SINGLE WINDOW.

Press **GRAPH** to change to the graph display

This screenshot is similar to the previous one, but the 'FUNCTION' menu is expanded to show a graph display. The graph shows BIT ERROR COUNT on the y-axis and TIME on the x-axis. The time scale ranges from 00:00 to 00:00. A 'NO DATA' message is displayed on the graph. The STATUS bar at the bottom now includes buttons for TEXT RESULTS, ZOOM IN, CHANGE UPPER, CHANGE LOWER, PRINT, and SINGLE WINDOW.

Getting Started
Selecting Displays

Changing the Displayed Folder

Many windows displayed with the **TRANSMIT** ; **RECEIVE** ;and **RESULTS** keys contain a number of “folders” which may be selected with **→** and **←** .

For example, in the display given below there are five “folders” MAIN SETTINGS, STRUCT'D SETTINGS, JITTER and TEST FUNCTION. In this example MAIN SETTINGS is the current selection.



Example:

To change the PDH display shown from MAIN SETTINGS to STRUCTURED SETTINGS.







Use **→**.

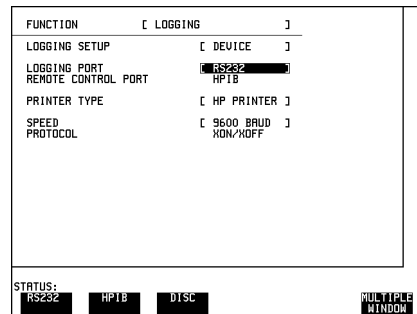


Changing the Instrument Settings

Settings which may be changed are displayed in a different color to those which are fixed. In this manual, variable settings are shown on the displays in [].

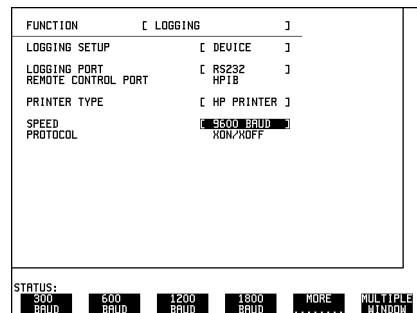
In each of the display areas the field currently able to be changed is marked by a highlighted cursor.

The highlighted cursor is moved around the display using    and .



The menu of selections available, for the highlighted field, appears at the bottom of the display: **RS232**; **HP1B**; **DISK**. The choice from the menu is made using the display softkeys situated immediately below the display.

When a field has more than five choices, as in SPEED shown here, a softkey labelled **MORE** is provided.



Getting Started

Changing the Instrument Settings

When **MORE** is chosen the remainder of the menu is revealed.

FUNCTION	[LOGGING]
LOGGING SETUP	[DEVICE]
LOGGING PORT	[RS232]
REMOTE CONTROL PORT	HP1B
PRINTER TYPE	[HP PRINTER]
SPEED	5600 BAUD
PROTOCOL	NON/XOFF

STATUS:

2400 BAUD	4800 BAUD	9600 BAUD	MORE	MULTIPLE WINDOW
--------------	--------------	--------------	----------------------	--------------------

Modifying Displays with Pop-up Menus

Although the method of modifying the displays with softkeys is always available, it is easier in many cases to use the Pop-up menus.

The pop-up menus are particularly useful for:

- Text entry
- Date/time entry
- Integer, Hexadecimal and Binary entry
- Trace data entry
- Menu selection when there are a large number of choices
- SDH/SONET payload mapping
- ATM physical and adaptation layer selections
- Jitter mask selections

If an attempt is made to set out of range values, the instrument will adopt the nearest possible legal value.

Text, Trace Data, Date and Time, Integer and Hexadecimal Selection.

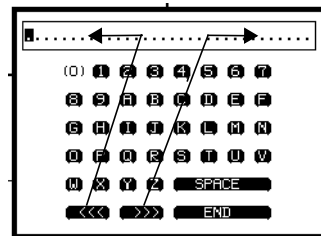
Move the cursor to the field to be changed.

Press **SET** for the pop-up menu.

The current selection is shown in a window at the top of the pop-up menu.





To move through the current setting in the window use **↓**, **↑**, **→** and **←** to select **<<<** or **>>>**.

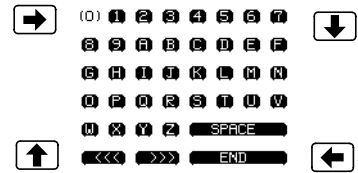
Use **SET** to move to the required field.



Getting Started

Changing the Instrument Settings

Select the required character or function on the pop-up menu with    and .



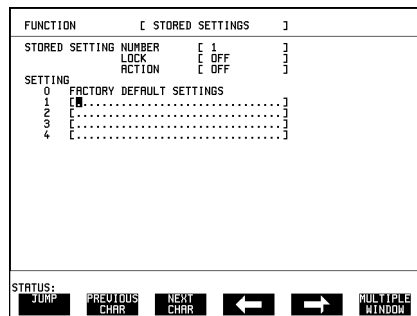
Press **SET** to set the selection in the window at the top of the pop-up menu.

When the required content is displayed in the window at the top of the pop-up menu, select **END** and press **SET** to change the instrument setting to the new value.

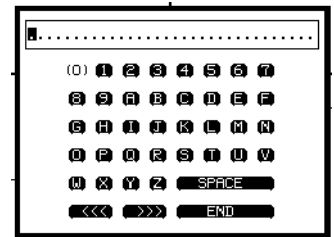
To exit the menu display without making the change, press **CANCEL**.

Example:

The pop-up menu provides a more convenient method of entering stored setting titles. Move the cursor into one of the title fields and press **SET**.



SET



Getting Started

Changing the Instrument Settings

Binary Entry

For fields which require binary data entry, use **SET** to display the pop-up menu.

The current setting is shown in a window at the top of the pop-up menu.

To move through the selected entry with the pop-up menu use **<<<** and **>>>** see page 16.

Binary selection is achieved with **←** = 0 and **→** = 1. This operation enters the selected character, 0 or 1, and moves to the next character.

This method allows rapid setting of binary words. For example:

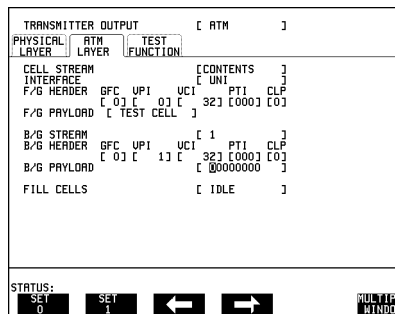
To set the word 11110011 Use **→ → → → ← ← → →**.

Selection of the last character changes the instrument setting to the new value.

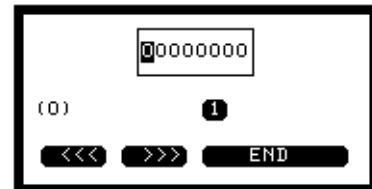
To exit the menu display without making the change, press **CANCEL**.

Example:

The binary pop-up menu maybe used to set up a user defined word. In this example the user defined word is an ATM payload background byte.



SET



Getting Started

Changing the Instrument Settings

Menu Selection

There is a menu selection available as an alternative to any group of soft keys. Display the menu with **SET**. Use **↑** and **↓** to make the selection.

To change to the new value, press **SET**. To exit the display without making the change, press **CANCEL**.

Example:

FUNCTION		STORED SETTINGS	
STORED SETTING NUMBER	[0]	ACTION	[OFF]
SETTING			
0	FACTORY DEFAULT SETTINGS		
1	[.....]		
2	[.....]		
3	[.....]		
4	[.....]		

STATUS:

STORED SETTINGS	SETTINGS CONTROL	FLOPPY DISK	LOGGING	MORE	MULTIPLE WINDOW
-----------------	------------------	-------------	---------	------------	-----------------


SET

STORED SETTINGS
SETTINGS CONTROL
PRINTER
REMOTE CONTROL
TIME & DATE
MISCELLANEOUS
OPTIONS
OPTION ENABLE
SELF TEST
MODULE DEBUG
DEMO MODE
CALIBRATION
SELFTEST DEBUG
COLOUR PALETTE

Getting Started

Changing the Instrument Settings

Making Selections using Pictorial and Graphic Displays.



In some cases selection is simplified with a pictorial or graphic "map" display. This facility is available where the display has a  symbol. These displays are obtained in the same way as the pop-up menus using **SET**. Some of these displays include menus which allow the settings to be changed.



NOTE

Details of the pictorial display depend on the optional modules fitted to the instrument.

SDH Payload Mapping

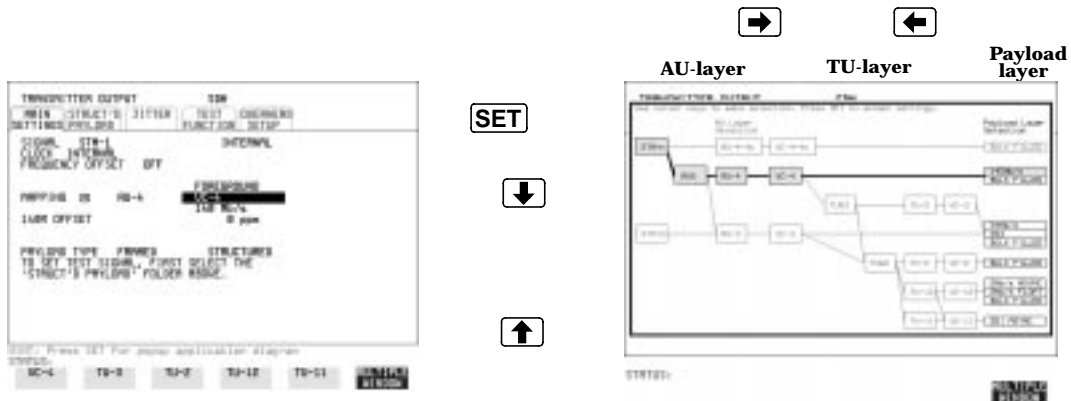
With the cursor in the MAPPING field, press **SET** to display the payload map.

To change between AU- layer, TU-layer and Payload layer selections, use  and .

To select the mapping you want, use  and .

To change to the new value, press **SET**. To exit the map display without making the change, press **CANCEL**.

.Example:



Getting Started

Changing the Instrument Settings

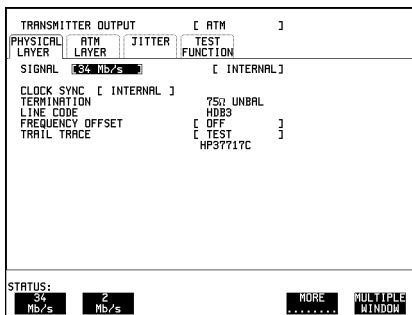
ATM Physical Layer Selections

With the cursor in the ATM, PHYSICAL LAYER, SIGNAL field, press **SET** to display the physical interface. Use **←** and **→** to select the interface you want.

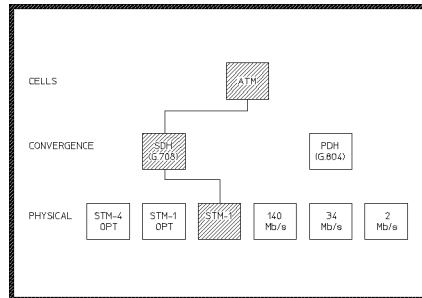
To change to the new value, press **SET**.

To exit the map display without making the change, press **CANCEL**.

Example:



SET



Getting Started

Changing the Instrument Settings

Jitter Mask Selection

Graphical displays of jitter mask selections are available. The current settings are shown by a marker on the graphical display.

Jitter Mask set to Off

To obtain a graphical display, move the cursor to RANGE, MODULATION FREQUENCY, or AMPLITUDE and press **SET**.

To change a value, use **←** **→** **↑** and **↓** to select the parameter you want to change, RANGE, MOD FREQ OR AMPLITUDE.

Press **SET** for a pop-up menu.

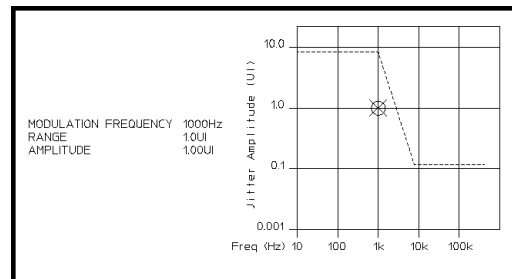
Make your selection from the pop-up menu as described in [Modifying Displays with Pop-up Menus](#) page 16 and press **SET** again to select the new value.

The marker on the graphical display will move to the new position and set the new value.

To exit the graphical display with the new value set, press **CANCEL**.



SET



Getting Started

Changing the Instrument Settings

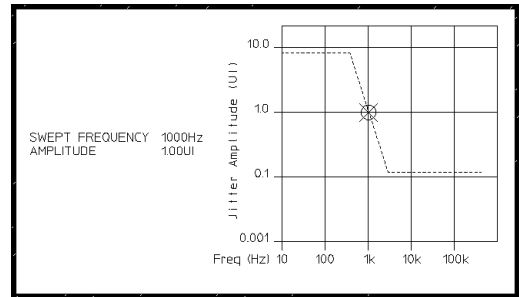
Jitter Mask set to Swept

To obtain a pictorial display, move the cursor to JITTER MASK [SWEPT] and press **SET**. The marker moves continuously through the sweep range.

To exit the pictorial display use **CANCEL**.



SET



To change the frequency, press **SET** for a pop-up menu.

Use **←**, **→**, **↑** and **↓** to make your selection from the pop-up menu and press **SET** again to select the new value

To exit the graphical display with the new value set, press **CANCEL**

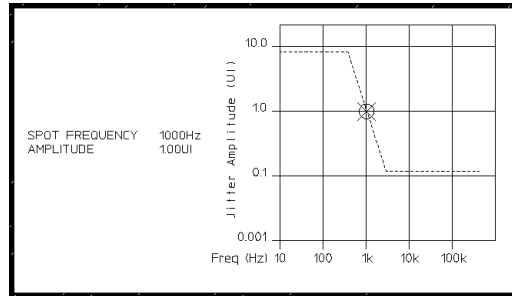
Getting Started Using with a Monitor

Jitter Mask set to Spot

To obtain a graphical display, move the cursor to SPOT FREQUENCY and press **SET**.



SET



To change the frequency press **SET** for a pop-up menu of the values available.

Use **←**, **→**, **↑** and **↓** to make your selection from the pop-up menu and press **SET** again to select the new value.

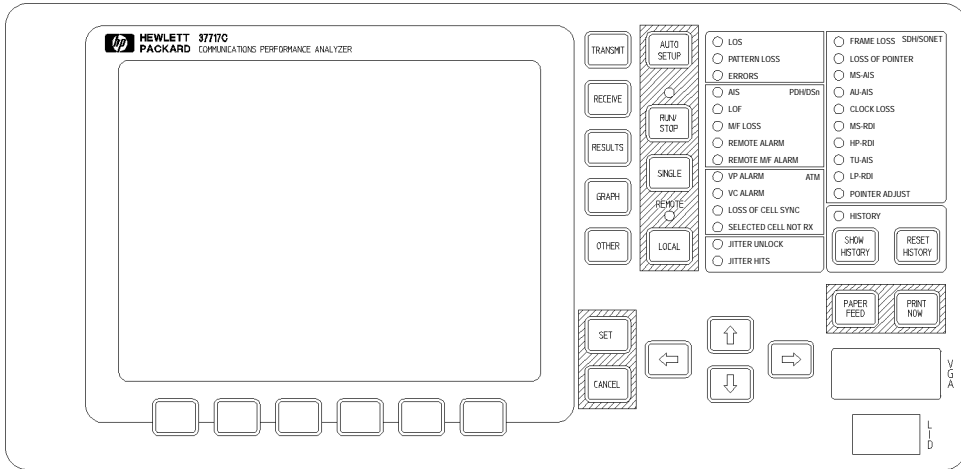
The marker on the graphical display will move to the new position and update the value.

To exit the graphical display with the new value set, press **CANCEL**

Using with a Monitor

For ease of viewing at a distance, the instrument display may be presented on a monitor. The monitor should be connected to the HP 37717C front panel VGA connector.

Using the Other Front Panel Keys



AUTO SETUP

The test set attempts to match the settings to the received signal.

RUN/STOP

Terminates the current test period if one is in progress. Starts a new test period. The indicator above the key is lit when a test period is in progress.

SINGLE

Adds a single bit error to the output data pattern each time the key is pressed.

LOCAL

Returns the instrument from remote operation to Local (keyboard) operation. The indicator above the key is lit when the instrument is under Remote Control.

SET

Displays the pop-up menu for the currently highlighted field. This key also confirms the selection made.

CANCEL

Clears the pop-up menu without changing the selection.

PRINT NOW

The selected measurement results are logged, immediately, to the selected printer.

PAPER FEED

The paper in the internal printer is advanced.

CAUTION

Do not press **PAPER FEED** while attempting to load a new roll of paper in the printer. It could result in a paper jam and disable the printer. Wait until the paper is fed through the printer mechanism before pressing **PAPER FEED**.

Monitoring Status

<input type="checkbox"/> LOSS	<input type="checkbox"/> FRAME LOSS SDH/SONET
<input type="checkbox"/> PATTERN LOSS	<input type="checkbox"/> LOSS OF POINTER
<input type="checkbox"/> ERRORS	<input type="checkbox"/> MS-AIS
<input type="checkbox"/> AIS PDH/DSn	<input type="checkbox"/> AU-AIS
<input type="checkbox"/> FRAME LOSS	<input type="checkbox"/> CLOCK LOSS
<input type="checkbox"/> M/FFRAME LOSS	<input type="checkbox"/> MS-RDI
<input type="checkbox"/> REMOTE ALARM	<input type="checkbox"/> HP-RDI
<input type="checkbox"/> REMOTE M/FFRAME ALARM	<input type="checkbox"/> TU-AIS
<input type="checkbox"/> VP ALARM ATM	<input type="checkbox"/> LP-RDI
<input type="checkbox"/> VC ALARM	<input type="checkbox"/> POINTER ADJUST
<input type="checkbox"/> LOSS OF CELLSYNC	
<input type="checkbox"/> SELECTED CELL NOT RX	
<input type="checkbox"/> JITTER UNLOCK	
<input type="checkbox"/> JITTER HITS	

Displaying Status History

The Status indicators on the front panel convey information regarding the current status of the instrument. If an alarm has occurred during the current Test Period, the indicator above **SHOW HISTORY** is lit. To view which alarms have occurred, press and hold **SHOW HISTORY**. When **SHOW HISTORY** is released the status indicators return to displaying the current status.

SHOW HISTORY

When pressed and held, the Status indicators display any alarms which have been set during the current Test Period. This continues until **SHOW HISTORY** is released at which time the current status is displayed. The indicator above the key is lit to signify that an alarm has occurred during the current Test Period.

RESET HISTORY

Resets the history store such that the historical and present status are the same. This can also be achieved by starting a new Test Period.

General Alarm Indicators

- Loss** No data transitions at the input port.
- Pattern Loss** The received data pattern is not in synchronization with the internally generated reference data.
- Errors** A measured error has occurred. The indicator will remain lit for 100 ms.

PDH / DS_n Alarm Indicators

These are active when a PDH / DS_n signal is received

- AIS** The All Ones AIS signal is detectable in the presence of a 1 in 10⁻³ error rate.
- Frame Loss** Frame alignment lost or out of alignment condition.
- M/Frame Loss** Multiframe alignment lost.
- Remote Alarm** Remote alarm, x-bit or yellow alarm bit is set.
- Remote M/
Frame Alarm** Remote Multiframe Alarm bit is set.

ATM Alarm Indicators

These are active when an ATM signal is received.

- VP Alarm** Virtual Path AIS or FERF has been detected.
- VC Alarm** Virtual Channel AIS or FERF has been detected.
- Loss of Cell
Sync** Cell Sync Loss has been detected.
- Selected Cell
Not RX** The selected cell has not been received. Selected cell not received.

Jitter Alarm Indicators

- Jitter Unlock** The jitter receiver has lost phase lock. Jitter measurement is suspended until lock is regained.
- Jitter Hits** A jitter hit has been detected.

SDH Alarm Indicators

These are active when an SDH signal is received.

FRAME LOSS	Loss Of Frame has been detected.
LOSS OF POINTER	Loss of pointer has been detected.
MS-AIS	Multiplexer Section AIS has been detected.
AU-AIS	Path AIS has been detected.
CLOCK LOSS	The transmitter clock is not synchronized to the selected reference.
MS-RDI	Multiplexer Section RDI (FERF) has been detected.
HP-RDI	Path RDI (FERF) has been detected.
TU-AIS	TU Path AIS has been detected. .
LP-RDI	TU Path RDI (FERF) has been detected. .
POINTER ADJUST	A pointer change in the foreground signal has been detected.

SONET Alarm Indicators (Option 120)

These are active when a SONET signal is received.

LOF/SEF	Loss of Frame or Severely Errored Frame has been detected. Status message on bottom of display states which has occurred.
LOP-P/LOP-V	Loss of Pointer has been detected.
AIS-L	Line AIS has been detected.
AIS-P	STS Path AIS has been detected.
CLOCK LOSS	The transmitter clock is not synchronized to the selected reference.
RDI-L	Line Remote Defect Indication (RDI) has been detected.
RDI-P	STS Path RDI has been detected.
AIS-V	Virtual Tributary path AIS has been detected.

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Monitoring Status

RDI-V VT path RDI has been detected.

**POINTER
ADJUST** A pointer change in the foreground signal has been detected.

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In This Book

This book demonstrates the basic operation of the instrument. It tells you how to select the displays that you want and how to use them to modify the instrument functions.

This guide also tells you about the front panel key functions, the indicators and the connectors.

