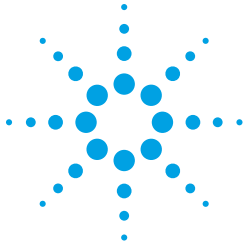


# Agilent OmniBER OTN Family

OmniBER OTN  
communications  
performance analyzer

## Quick Reference Guide



Agilent Technologies





**Agilent  
OmniBER OTN  
Family**

**Quick Reference  
Guide**



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## **In This Quick Reference Guide...**

This guide contains:

- The conventions used within this guide.
- A guide to the instrument's front panel and the Graphical User Interface (GUI).
- Information on how to get help, including an introduction to the Online Help, what is in it and how to use it.
- Quick reference tables to help you quickly select the major instrument functions.

## Conventions Used in This Guide...

- Front panel buttons appear in bold within angled brackets. For example, press **<Menu>**.
- When buttons are connected by a plus (+) sign, for example, **<2> + <4>**, press the listed buttons in sequence.
- Menu items appear in bold. The greater than (>) symbol separates each menu level. For example, **'Test Functions > Errors and Alarms'** indicates that you should choose 'Errors and Alarms' from the 'Test Functions' main menu.
- This Guide applies to SONET, SDH, OTN, PDH and DS<sub>n</sub> network standards.

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# 1 Product Introduction

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For a full list of specifications, see the technical specifications document, available on the instrument webpage, URL:  
<http://www.agilent.com/comms/otn>



### Introduction

The OmniBER OTN family provides a rich feature-set for the development and testing of equipment designed for the Optical Transport Network (OTN G.709), plus the capability for jitter and wander testing, SONET/SDH testing, PDH/DSn testing and next generation SONET/SDH (GFP/LAPS) payload testing.

For more detailed product information, see the OmniBER OTN family brochure, available on the product website:  
<http://www.agilent.com/comms/otn>



### New Features

In addition to the standard OmniBER OTN features this instruments offer the following new features:

#### **J7230B**

- Virtual Concatenation (high & low order) up to 10.7 Gb/s
- LCAS (Link Capacity Adjustment Scheme) test capability



## 2 Getting Help

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You can get help from the Online Help on the instrument, the CD-ROM or the Installation manual.

The Online Help explains how to set up and use the instrument. It also contains a Getting Started section for new users, which includes measurement tutorials to help you learn how to use the instrument.

Also, you will find a comprehensive index and glossary, plus a Telecoms Concepts section with telecoms reference information. You can add your own help files (in HTML format) to the instrument.



### Accessing the Online Help

Press **<Help>** to access the Online Help. To close the help, just press **<Help>** again.

Use the **arrow navigation** and **<Select>** keys to navigate the Online Help. Also, you can press **<Menu>** to display a list of links to the main Online Help sections.

When you next use the Online Help it will display the same page as when you last used it.

### What is in the Online Help?

The Online Help is divided into sections to help you quickly find the information you want. Press **<Home>** to access the Home page.

**Getting Started** - Contains an instrument tour, details of how to use the graphical user interface and the Online Help, plus safety information and measurement tutorials.

**Instrument Setup and Use** - Explains how to set up the instrument, recall stored settings, make measurements and view results. There is an Instrument Setup and Use section for each network that the instrument can test (e.g. SDH, SONET).

**Instrument Details** - Contains supplementary product information. It includes information on:




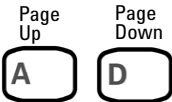

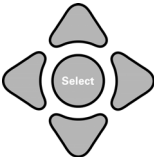
- **System Features** - available options, manufacturing data, setting time and date, using the keyboard lock, printing results, file management and creating/storing your own help files
- **Technical Support** - maintenance, instrument reboot information
- **Frequently Asked Questions**

**Telecoms Concepts** - A reference section including reference tables (payloads, signal rates, overhead bytes, etc.), a summary of the ITU Standards and information on applications.

**Index** - Contains a list of all features and procedures.

**Glossary** - An comprehensive telecoms glossary.

## Which Keys Do I Press?

	Press the <b>&lt;Help&gt;</b> key access the Online Help. Press it again to take you back to the instrument settings.
	Press this key to return to the <b>Home</b> page.
	Use the <b>&lt;Back&gt;</b> key to go back to the previous page. If you have used the <b>&lt;Back&gt;</b> key, then the <b>&lt;Fwd&gt;</b> key takes you <b>forward</b> to where you have just come from.
	Use these keys to <b>scroll up or down</b> through the displayed page.
	Press <b>&lt;Menu&gt;</b> to display a drop-down list of the main contents of the online help. Use the <b>Arrow navigation</b> keys to select a heading, then press <b>&lt;Select&gt;</b> .
	Use the <b>Arrow Navigation</b> keys to move between hypertext links within an Online Help page. Then press <b>&lt;Select&gt;</b> to jump to the chosen topic.

## Accessing the Index

To find information quickly on a particular topic press **<Menu>** and select **Index** when in the Online Help.

### Creating/Accessing Your Own Help Files

You can add your own help files to the instrument and access them through the Online Help system. This may be useful if you wish to store specific instructions to help users carry out routine procedures or help them with problem solving.

#### Creating Your Own Help Files

See the Online Help for information on how to create your own help files and download them to the instrument:

- 1 Press the **<Help>** to open the Online Help.
- 2 Press the **<Home>** key to open the Home page.
- 3 Select the option **User's Own Help Files**.

#### Accessing Your Own Help Files

To access your own help files installed on the instrument:

- 1 Press the **<Help>** key to open the Online Help.
- 2 Press the **<Menu>** key and select **Your Own Help**.
- 3 The names of your own help files will be displayed as a list of links. Choose a link and press **<Select>** to jump to the file.

## Installation Manual

See the Installation manual for:

- information on how to install and connect the instrument
- safety information
- a product description

## User Resources on the CD-ROM

Use the CD ROM with a PC. It contains training materials and support information, including:

- User documentation
  - User Guide
  - Quick Reference Guide
  - Remote Control manual
  - Installation manual
- Product/application notes
- Multimedia presentations including an instrument tour
- Links to the product website for technical specifications
- Telecommunications glossary
- Frequently asked questions

## 2 Getting Help





### 3

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Only the main selections are listed here. Make your selection, then press the **<Select>** button on the instrument's front panel.

The Smart Test functions are listed first. Smart Test is a unique and powerful feature allowing quick access to commonly-used setup pages, and to the jitter, wander and SignalWizard applications.

Use the front panel **<Smart Test>** and **<Print Control>** keys for fast selection of Smart Test and Print Control functions. Use the **<Menu>** key to access all other functions.



## Smart Test

You can use the front panel **<Smart Test>** button to quickly select one of the following:

Function – Using Smart Test	Path
SignalWizard	Press <b>&lt;Smart Test&gt;</b> , choose <b>SignalWizard</b> then press <b>&lt;Select&gt;</b> .
VCAT Overview	Press <b>&lt;Smart Test&gt;</b> , choose <b>VCAT Overview</b> then press <b>&lt;Select&gt;</b> .
Using Smart Test shortcuts to frequently-used features	Press <b>&lt;Smart Test&gt;</b> , choose <b>Shortcuts</b> . Select an item from the list and press <b>&lt;Select&gt;</b> .
Stop Application	Press <b>&lt;Smart Test&gt;</b> , choose <b>Stop Application</b> then press <b>&lt;Select&gt;</b> .
Reset Instrument to default settings	Press <b>&lt;Smart Test&gt;</b> , choose <b>Reset Instrument</b> then press <b>&lt;Select&gt;</b> .

## Transmitter Functions

Function – Transmitter Interface	Path
Setting Tx signal rate, interface, code, operating level	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>Physical</b> then press <Select>.
Setting Tx OTN top level	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>OTN</b> then press <Select>.
Setting SDH Tx mapping	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>SDH</b> then press <Select>.
Setting SONET Tx mapping	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>SONET</b> then press <Select>.
Setting Tx GFP/LAPS framing protocol	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>GFP/LAPS</b> then press <Select>.
Generating Tx Ethernet payloads	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>Ethernet</b> then press <Select>.
Setting Tx test pattern	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>Pattern</b> then press <Select>.
Setting Tandem Connection Monitoring (SDH only)	Press <Menu>, choose Tx/Rx > <b>Transmitter Settings</b> > <b>SDH</b> then press <Select>.
Setting Thru Mode	Press <Menu>, choose Tx/Rx > <b>Thru Mode</b> then press <Select>.

Function – Transmitter Interface	Path
Coupling Transmit and Receive settings	Press <Menu>, choose <b>Tx/Rx</b> > <b>Coupling</b> then press <Select>.
Recall or Save instrument configuration	Press <Menu>, choose <b>System</b> > <b>Stored Settings</b> then press <Select>.

## Receiver Functions

Function – Receiver Interface	Path
Setting Rx signal rate, interface, code, operating level	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>Physical</b> then press <Select>.
Setting Rx OTN top level	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>OTN</b> then press <Select>.
Setting SDH Rx mapping	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>SDH</b> then press <Select>.
Setting SONET Rx mapping	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>SONET</b> then press <Select>.
Setting Rx GFP/LAPS framing protocol	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>GFP/LAPS</b> then press <Select>.
Setting up Rx Ethernet payloads	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>Ethernet</b> then press <Select>.
Setting Rx test pattern	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>Pattern</b> then press <Select>.
Setting TCM (SDH only)	Press <Menu>, choose <b>Tx/Rx</b> > <b>Receiver Settings</b> > <b>SDH</b> then press <Select>.
Coupling Transmit and Receive settings	Press <Menu>, choose <b>Tx/Rx</b> > <b>Coupling</b> then press <Select>.
Recall or Save instrument configuration	Press <Menu>, choose <b>System</b> > <b>Stored Settings</b> then press <Select>.

## Results

Function – Results and Measurement Timing/Logging	Path
View Trouble Scan results	Press <Menu>, choose <b>Results</b> > <b>Trouble Scan</b> then press <Select>.
View Alarm Seconds results (OTN for example)	Press <Menu>, choose <b>Results</b> > <b>Errors and Alarms</b> > <b>OTN</b> then press <Select>. Select the <b>Alarms Seconds</b> tab.
View Measurement Errors results (OTN for example)	Press <Menu>, choose <b>Results</b> > <b>Errors and Alarms</b> > <b>OTN</b> then press <Select>. Select the <b>Errors</b> tab.
View Jitter/Wander measurement results	Press <Menu>, choose <b>Results</b> > <b>Jitter/Wander</b> then press <Select>.
View VCAT delay measurement	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>VCAT Delay</b> then press <Select>.

Function – Results and Measurement Timing/Logging	Path
Measure Performance Analysis	Press <Menu>, choose <b>Results</b> > <b>Performance Analysis</b> then press <Select>.
View OPU offset results	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>OPU Offset</b> then press <Select>.
Measure AU/SPE Pointer activity	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>Pointers</b> then press <Select>.
View GFP/LAPS error and alarms	Press <Menu>, choose <b>Results</b> > <b>Errors and Alarms</b> > <b>GFP</b> then press <Select>. Select the <b>Errors</b> tab. Press <Menu>, choose <b>Results</b> > <b>Errors and Alarms</b> > <b>LAPS</b> then press <Select>. Select the <b>Errors</b> tab.
View GFP/LAPS frame and byte events	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>GFP</b> then press <Select>. Select the <b>Detail</b> tab. Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>LAPS</b> then press <Select>. Select the <b>Detail</b> tab.
View Ethernet error and alarms	Press <Menu>, choose <b>Results</b> > <b>Error and Alarms</b> > <b>Ethernet</b> then press <Select>. Select the <b>Errors</b> tab.
View Ethernet frame and byte events	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>Ethernet</b> then press <Select>. Select the <b>Detail</b> tab.

Function – Results and Measurement Timing/Logging	Path
View Service Disruption results	Press <Menu>, choose <b>Results</b> > <b>Network Measurements</b> > <b>Service Disruption</b> then press <Select>.
View Optical Power results	Press <Menu>, choose <b>Results</b> > <b>Signal Quality</b> > <b>Optical Power</b> then press <Select>.
View Frequency results	Press <Menu>, choose <b>Results</b> > <b>Signal Quality</b> > <b>Frequency Meas</b> then press <Select>.
View Measurement Record System	Press <Menu>, choose <b>Graph</b> > <b>Graph Manager</b> then press <Select>.
Setting Measurement Timing	Press <Menu>, choose <b>Results</b> > <b>Measurement Setup</b> > <b>Logging</b> then press <Select>.
Setting up Measurement Logging (logging settings, interval reports)	Press <Menu>, choose <b>Results</b> > <b>Measurement Setup</b> > <b>Logging</b> then press <Select>.



## Test Functions

Function – Test Functions	Path
Adding Errors and Alarms to the transmit signal	Press <Menu>, choose <b>Test Functions</b> > <b>Errors and Alarms</b> then press <Select>.
Adding delay to VCAT signals	Press <Menu>, choose <b>Test Functions</b> > <b>VCAT Delay</b> then press <Select>.
Generating/monitoring Jitter/Wander	Press <Menu>, choose <b>Test Functions</b> > <b>Jitter/Wander</b> then press <Select>.
Add Runt/Jumbo Frames	Press <Menu>, choose <b>Test Functions</b> > <b>Runt/Jumbo Add</b> then press <Select>.
Adding Frequency Offset to the transmitted line signal	Press <Menu>, choose <b>Test Functions</b> > <b>Frequency Offset</b> then press <Select>.
Adding Pointer Adjustments	Press <Menu>, choose <b>Test Functions</b> > <b>Pointer Adjustment</b> then press <Select>.
Inserting or dropping the Data Communications Channel/ General Communications Channel	Press <Menu>, choose <b>Test Functions</b> > <b>DCC/GCC Drop/Insert</b> then press <Select>.
Setting Transmit/Receive Triggers	Press <Menu>, choose <b>Test Functions</b> > <b>Trigger Output</b> then press <Select>.

Function – Test Functions	Path
Perform instrument Self Test	Press <Menu>, choose <b>System</b> > <b>Self Test</b> then press <Select>.
Switch off Test Functions	Press <Menu>, choose <b>Test Functions</b> > <b>Switch Off</b> then press <Select>.

## Overhead Monitor

Function – Selecting Receiver Overhead Monitor	Path
Using Rx Overhead Monitor Trace Messages	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Trace Messages</b> then press <Select>.
Using Rx Overhead Labels (Signal Labels, Sync Status)	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Labels</b> then press <Select>.
Using Rx Overhead APS Messages	Press <Menu>, choose <b>Overhead Monitor</b> > <b>APS Messages</b> then press <Select>.
Using Rx Overhead Bytes	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Byte Monitor</b> then press <Select>.
To Capture an Overhead Sequence	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Sequence Capture</b> then press <Select>. Select the <b>Sequence Capture</b> tab.

<b>Function – Selecting Receiver Overhead Monitor</b>	<b>Path</b>
To Capture Data (OTN frames, SONET/SDH Overheads)	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Data Capture</b> then press <Select>.
To Monitor the DS3 FEAC	Press <Menu>, choose <b>Overhead Monitor</b> > <b>DS3 FEAC</b> then press <Select>.
To Monitor the DS1 Loopcodes	Press <Menu>, choose <b>Overhead Monitor</b> > <b>DS1 Loop Codes</b> then press <Select>.
To Monitor the Spare Bits	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Spare Bits</b> then press <Select>.
To Monitor the Signalling Bits	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Signaling Bits</b> then press <Select>.
To Monitor the Sa Bits	Press <Menu>, choose <b>Overhead Monitor</b> > <b>Sa Bits</b> then press <Select>.

## Overhead Setup

Function – Selecting Transmitter Overhead	Path
Setting Tx Overhead Trace Messages	Press <Menu>, choose <b>Overhead Setup</b> > <b>Trace Messages</b> then press <Select>.
Setting Tx Overhead Labels (Signal Labels, Sync Status)	Press <Menu>, choose <b>Overhead Setup</b> > <b>Labels</b> then press <Select>.
Setting Tx Overhead APS Messages	Press <Menu>, choose <b>Overhead Setup</b> > <b>APS Messages</b> then press <Select>.
Setting Tx Overhead Bytes	Press <Menu>, choose <b>Overhead Setup</b> > <b>Byte Setup</b> then press <Select>.
Setting Tx Overhead Sequences	Press <Menu>, choose <b>Overhead Setup</b> > <b>Sequence Generation</b> then press <Select>.
Setting Up the DS3 FEAC	Press <Menu>, choose <b>Overhead Setup</b> > <b>DS3 FEAC</b> then press <Select>.
Setting Up the DS1 Loopcodes	Press <Menu>, choose <b>Overhead Setup</b> > <b>DS1 Loopcodes</b> then press <Select>.
Setting Up the Spare Bits	Press <Menu>, choose <b>Overhead Setup</b> > <b>Spare Bits</b> then press <Select>.
Setting Up the Signalling Bits	Press <Menu>, choose <b>Overhead Setup</b> > <b>Signaling Bits</b> then press <Select>.
Restore Byte Default values	Press <Menu>, choose <b>Overhead Setup</b> > <b>Restore Defaults</b> then press <Select>.

## System Functions

Function – Remote Control, Date/Time Settings, Preferences, Calibration	Path
View System Options, Software Revision	Press <Menu>, choose <b>System</b> > <b>Options</b> then press <Select>.
System Preferences: MS-REI/REI-L result monitor selection MS-AIS/AIS-L alarm monitor selection G.826 collect ES, SES, BBE enable Enhanced RDI enable Select M0, M1 byte usage Beep on Error audio control Save System Preferences settings as default	Press <Menu>, choose <b>System</b> > <b>Preferences</b> then press <Select>.
Set up remote operation via RS 232, GPIB or LAN	Press <Menu>, choose <b>System</b> > <b>Remote Control</b> then press <Select>.
Setting Time and Date	Press <Menu>, choose <b>System</b> > <b>Time and Date</b> then press <Select>.
Calibrate instrument	Press <Menu>, choose <b>System</b> > <b>Calibration</b> then press <Select>.

## System Functions – File Manager

Function – File Manager	Path
Copy/delete logging files to/from the floppy disk drive	Press <Menu>, choose <b>System &gt; File Manager</b> then press <Select>. Select the <b>Logging</b> tab.
Copy/download Screen Dumps to/from the floppy disk drive	Press <Menu>, choose <b>System &gt; File Manager</b> then press <Select>. Select the <b>Screen Dump</b> tab.
Copy/download Stored Settings to/from the floppy disk drive	Press <Menu>, choose <b>System &gt; File Manager</b> then press <Select>. Select the <b>Settings</b> tab.
Copy/download your own User Help files to/from the floppy disk.	Press <Menu>, choose <b>System &gt; File Manager</b> then press <Select>. Select the <b>User Help</b> tab.

## Print Control

Use the front panel **<Print Control>** button to select one of the following:

Function – Print Control	Path
Copy a snapshot of the logging results to a Printer/File	Press <b>&lt;Menu&gt;</b> , choose <b>Results &gt; Measurement Setup &gt; Logging</b> then press <b>&lt;Select&gt;</b> .
Copy a screen dump of current window to a file or Printer	Press <b>&lt;Print Control&gt;</b> .

### **3 Quick Reference Tables**



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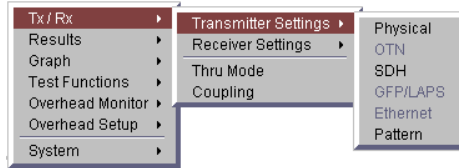
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**Notes:**

## Notes:

## Navigating the Graphical User Interface



### Using the Instrument:

1. Press the **<Menu>** key.
2. Use the Arrows and **<Select>** key to choose a title from the menu.
3. Use the Arrows and **<Select>** key to set up the instrument, by moving around the folders, drop-down boxes, text/numeric-entry boxes and dialog boxes.

### Using an External Mouse/Keyboard:

1. Connect a mouse and keyboard.
2. Switch on the instrument.
3. Right-click to display the menu.
4. Choose a GUI page title and set up the instrument using the mouse. To enter data, use the external keyboard instead of the instrument keypad.

## Front Panel/Graphical User Interface (GUI)

Status and Alarm LEDs,  
**<Show More>** and History **<Reset>** Keys

Online Help:  
Press **<Help>** for help using the GUI and front panel keys.

Active Window:  
Press **<Window>** to change the active window.

Context Sensitive Help: Displays information about the active part of the GUI.

Function Keys:  
**<Run/Stop>**,  
**<Smart Test>**,  
**<Single Error>** and  
**<Help>**

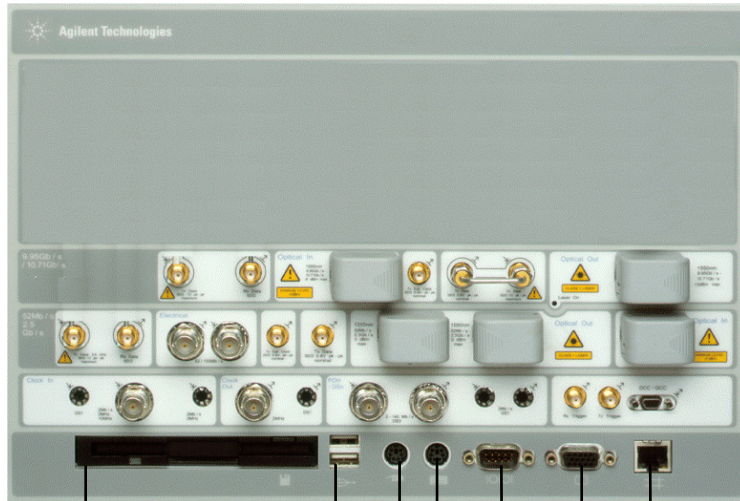
Navigation Keys:  
Arrows, **<Select>**,  
**<Menu>**, **<Window>** and **<Cancel>**

**<Print Control>** Key

Summary Diagram:  
Displays current settings,  
test function indicators and  
elapsed measurement time.

Instrument Status Line

# Connector Panel



Expansion slots

10Gb/s Interfaces

52Mb/s -2.5Gb/s Interfaces

PDH/DSn Interfaces, Trigger/DCC Ports

Clock Ports

Floppy Drive  
USB Port  
Mouse Port  
Keyboard Port  
RS232 Port  
VGA Port  
LAN Port

## Sources of Help

### Online Help:

Includes information on setting up the instrument, adding your own help files to the instrument, plus a technology reference section.

To access help information for new users, including the measurement tutorials:

1. Press the **<Help>** key.
2. Press the **<Home>** key (top left key on the keypad).
3. Select 'Getting Started' using the arrow keys and **<Select>** key.
4. Use the keys on the top row of the keypad to navigate the Online Help.

### CD-ROM:

Includes all user documentation, product notes, frequently-asked questions, a glossary and multimedia training presentations.

### Installation Manual:

Includes information on connecting the instrument, plus safety information.



**In this book:**

- \* Overview of user interface
- \* Quick Reference Tables for selection of main instrument functions.
- \* Sources of detailed information
- \* Introduction to the comprehensive Online Help Facility.

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