



## Manual Changes

### Manual Identification

*Model Number:* **OmniBER 718**  
*Date Printed:* **September 2000**  
*Part Number:* **37718-90218**

**User Guide**

### Manual Change Identification

*Part Number:* **37718-90250**



37718-90250

This supplement contains important information for correcting manual errors and for adapting the manual to instruments containing improvements made after the printing of the manual.

To use this supplement:

Make all ERRATA corrections.

Make all appropriate serial number related changes indicated in the table below.

<b>Serial Prefix or Number</b>	<b>Make Manual Changes</b>	<b>Serial Prefix or Number</b>	<b>Make Manual Changes</b>

\*New Item

**Note:** Manual Change supplements are revised as often as necessary to keep manuals as current and accurate as possible. Agilent Technologies recommend that you periodically request the latest edition of the supplement. Free copies are available from all Agilent offices. When requesting copies, quote the manual identification information from your supplement or the model number and print date from the title page of the manual.

## **ERRATA**

### **Page 23, Jitter:**

#### **Add row to table:**

Optimized jitter receiver intrinsics      210

### **Page 24, Table – Accessory Options:**

**Delete row:** Remote Omnibook controller      600

Insert the enclosed **3 new pages** after **Page 72** in your manual.

### **Page 74:**

#### **Replace Description:**

You can insert 2 Mb/s, 34 Mb/s or 140 Mb/s into an STS-n line signal when option 012 is fitted. DS3, DS1, E3 and E1 can be inserted when option 014 is fitted.

#### **with:**

You can insert 2 Mb/s, 34 Mb/s, 140 Mb/s, DS1 or DS3 into an STS-n line signal, when option 012 is fitted. If option 014 is also fitted, you can insert 2 Mb/s into a DS3 signal.

### **Page 77:**

#### **Replace Description:**

You can drop 2 Mb/s, 34 Mb/s or 140 Mb/s from an STS-n line signal when option 012 is fitted. DS3, DS1, E3 and E1 can be dropped when option 014 is fitted.

#### **with:**

You can drop 2 Mb/s, 34 Mb/s, 140 Mb/s, DS1 or DS3 from an STS-n line signal, when option 012 is fitted. If option 014 is also fitted, you can drop 2 Mb/s from a DS3 signal.

**\*Page 118:**

**Replace description:**

**NOTE** You can only measure Round Trip Delay on a 64 kb/s test signal obtained from a 140 Mb/s, 34 Mb/s, 8 Mb/s or 2 Mb/s PDH/DSn interface or PDH/DSn payload signal.

**With:**

**NOTE** You can only measure Round Trip Delay on a 64 kb/s test signal obtained from a 140 Mb/s, 34 Mb/s, 8 Mb/s or 2 Mb/s PDH interface or PDH payload signal.

**Page 121:**

Insert the enclosed supplementary pages ('**Measuring Service Disruption Time - Additional Capabilities (SONET)**', '**Measuring AIS-Duration**') after **Page 121** in your manual.

## Selecting Test Features

### Setting Transmit tributary timing

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## Setting Transmit tributary timing

### Description

When you choose a DS3 tributary payload in the OmniBER transmitter you can now select where the DS1/E1 tributary payload timing comes from. For DS1 tributaries, you can select the clock reference from the internal reference, an external reference applied to the OmniBER through the mux/insert port or from the timing derived from the incoming signal on the OmniBER receiver.

For E1 tributaries, select the clock reference from the internal reference or from the timing derived from the incoming signal on the OmniBER receiver.

TRANSMITTER OUTPUT		SONET	
MAIN SETTINGS	STRUCT'D PAYLOAD	TEST FUNCTION	OVERHEAD SETUP
TEST SIGNAL			Nx64 kb/s
PAYLOAD	2M		PCM30
2M TIMING			<b>INTERNAL</b>
	DS2		2Mb
	1		1
Nx64	F*.....S.....		31
		Bandwidth	64 kb/s
PATTERN			2 <sup>11</sup> -1 PRBS
PRBS POLARITY			NORM
B/G PATTERN			AIS
B/G PATTERN Nx64 kb/s			NUMBERED
2M CAS ABCD BITS			1111

STATUS:

INTERNAL

DS3  
RECEIVE

MULTIPLE  
WINDOW

### How to:

- 1 On the MAIN SETTINGS page select your required signal and ensure that you have selected a DS3 tributary (as above).

## Selecting Test Features

### Setting Transmit tributary timing

The screenshot shows the TRANSMITTER OUTPUT configuration window with the TEST FUNCTION tab selected. The settings are as follows:

Parameter	Value
TEST SIGNAL	Nx64 kb/s
PAYLOAD	DS1
DS1 TIMING	INTERNAL
Bandwidth	64 kb/s
PATTERN	2 <sup>11</sup> -1 PRBS
PRBS POLARITY	NORM
B/G PATTERN	RIS
B/G PATTERN NX64 kb/s	NUMBERED

Below the window, the STATUS bar shows DS1 and 2M. A MULTIPLE WINDOW button is also visible.

- 2 Select the Struct'd Payload tab to set up the test signal and the required timing.
- 3 Select your test signal from 64 kb/s, Nx64 kb/s, 56 kb/s or Nx56 kb/s to allow you to choose your DS1/2M timing.
- 4 Choose between DS1 and 2M for your DS3 payload.

The screenshot shows the TRANSMITTER OUTPUT configuration window with the TEST FUNCTION tab selected. The settings are as follows:

Parameter	Value
TEST SIGNAL	Nx64 kb/s
PAYLOAD	DS1
DS1 TIMING	INTERNAL
Bandwidth	64 kb/s
PATTERN	2 <sup>11</sup> -1 PRBS
PRBS POLARITY	NORM
B/G PATTERN	RIS
B/G PATTERN NX64 kb/s	NUMBERED

Below the window, the STATUS bar shows INTERNAL, MUX, and DS3 RECEIVE. A MULTIPLE WINDOW button is also visible.

- 5 Choosing DS1 gives the timing choice shown above. Select INTERNAL to time the DS1 signal from the internal clock in the OmniBER transmitter; select MUX to time the DS1 signal from the signal applied to the OmniBER via the mux/insert

## Selecting Test Features

### Setting Transmit tributary timing

port on the OmniBER PDH Transmitter module; select DS3 RECEIVE to time the signal from the clock recovered by the OmniBER from the signal applied at the PDH Receiver **RECEIVE IN** port.

TRANSMITTER OUTPUT		SONET	
MAIN SETTINGS	STRUCT'D PAYLOAD	TEST FUNCTION	OVERHEAD SETUP
TEST SIGNAL	2M	Nx64 kb/s	PCM30
PAYLOAD		INTERNAL	
2M TIMING	DS2	1	
	1		
Nx64	F*.....S.....	Bandwidth	64 kb/s
			2^11-1 PRBS
PATTERN			
PRBS POLARITY			NORM
B/G PATTERN			RIS
B/G PATTERN Nx64 kb/s			NUMBERED
2M CAS ABCD BITS			1111

STATUS:

INTERNAL DS3 RECEIVE

MULTIPLE WINDOW

- 6 Selecting 2M as the payload signal allows you to choose the clock reference as above. Select INTERNAL to time the 2M signal from the internal 2M clock in the OmniBER; select DS3 RECEIVE to time the 2M signal from the 2M clock recovered by the OmniBER from the DS3 signal applied at the PDH Receiver **RECEIVE IN** port.

Selecting Test Features

**Setting Transmit tributary timing**

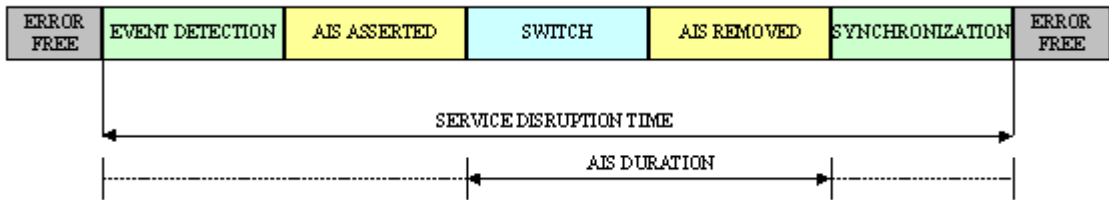


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## Measuring Service Disruption Time - Additional Capabilities (SONET)

**Description:**

Automatic Protection Switching ensures that data integrity is maintained and revenue protected, when equipment failure occurs. APS uses control signals carried by the K-bytes in the Line Overhead. Service Disruption is the time between periods of error-free operation, where an event is detected, an AIS inserted, the APS activated and the AIS removed.



**Requires Option 355** The Service Disruption measurement calculates the time interval between receipt of the first bit error and the last bit error occurring before the error-free signal resumes. The error burst is assumed complete when more than 200ms have elapsed without any errors being received.

When the instrument has a PDH/DSn module fitted, standard Service Disruption measurements are available (“Measuring Service Disruption Time” page 119). For additional Service Disruption capabilities, Option 355 is required.

Option 355 offers additional Service Disruption measurements and AIS-Duration measurements, together with an improved results display. Also, the Service Disruption measurements have been extended to cover OC-48c, OC-12c, OC-3c and OC-1. For details of measurement parameters, see the Technical Specifications.



## Making Measurements

### Measuring Service Disruption Time - Additional Capabilities

#### Measurement Parameters

Measurement begins with a single bit error, which exists for >56 microseconds. Measurement ends when >200ms elapses without any errors being received. The maximum Service Disruption duration is 2 seconds.

**Accuracy:** 50µs or better, for unframed signals.

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#### NOTE


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For enhanced Service Disruption, Option 355 is required. This option extends capability to OC-12c and OC-48c, and allows AIS-duration measurements.

#### HOW TO:

- 1 If interfacing at SONET set up the SONET transmit and receive interfaces and payloads required. See “Setting SONET Transmit Interface” page 29 and “Setting SONET Receive Interface” page 47.
- 2 Press **RUN/STOP** to start the measurement.
- 3 Invoke the protection switch.
- 4 View the results on the **RESULTS** **SERVICE DISRUPT** display.

RESULTS	SRUC	DISRUPT	TABLE
#	DURATION(s)	ELAPSED TIME	AIS
1	0.000375	00d 00h 00m 02.768136s	N
2	0.000750	00d 00h 00m 03.268636s	N
3	0.000375	00d 00h 00m 05.269511s	N
4	.....		
5	.....		
6	.....		
7	.....		
8	.....		
9	.....		
10	.....		

STATUS:  
CUMUL ATIVE      SHORT TERM      TABLE      MULTIPLE WINDOW 

## Making Measurements

### Measuring Service Disruption Time - Additional Capabilities

#### Results Displayed

All measurements are time-stamped (relative to the start of measurement storage).

#### HOW TO:

- 1 Press the right arrow key to highlight the results format (e.g. **TABLE**) on the **RESULTS** display.
- 2 You can then use the front panel softkeys to choose from the following results formats:
  - **CUMULATIVE** results
  - **SHORT TERM** results (configurable, see "Controlling Service Disruption Measurement Storage " Supplement page 4)
  - **TABLE** of results (displays first ten disruption events, along with their duration and time of detection).

RESULTS	SRUC DISRUPT	CUMULATIVE
EVENT	DURATION	DATE TIME
LONGEST	0.000750s	13-FEB-02 11:54:04
SHORTEST	0.000375s	13-FEB-02 11:54:04
LAST	0.000375s	13-FEB-02 11:54:06
BURSTS	3	
ELAPSED TIME		00d 00h 00m 17s

STATUS:

TROUBLE SCAN	TIMING CONTROL	SDH RESULTS	PDH PAYLOAD	MORE .....	MULTIPLE WINDOW
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The Cumulative and Short Term Results pages show the following data:

- **LONGEST** - Duration (ms) of longest burst of errors during measurement period.
- **SHORTEST** - Duration (ms) of shortest burst of errors during measurement period.
- **LAST** - Duration (ms) of last burst of errors detected during measurement period.
- **BURSTS** - Total number of error bursts during measurement period.

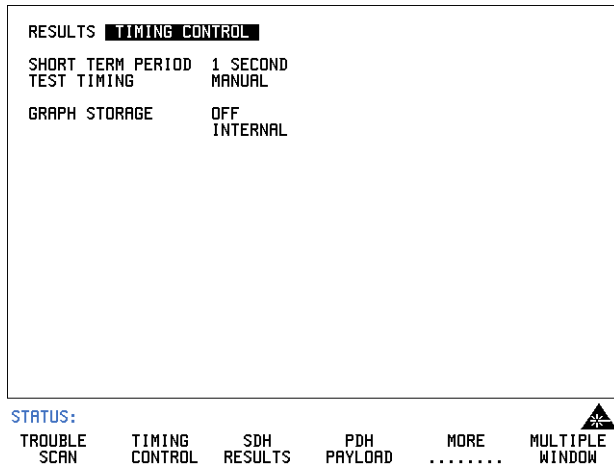
## Making Measurements

### Measuring Service Disruption Time - Additional Capabilities

#### Controlling Service Disruption Measurement Storage

The first ten Service Disruption Measurements are stored, including the time of the and length of the disruption. You can control measurement test timing using the **RESULTS**, **TIMING CONTROL** window. Available selections (using the front panel softkeys) include:

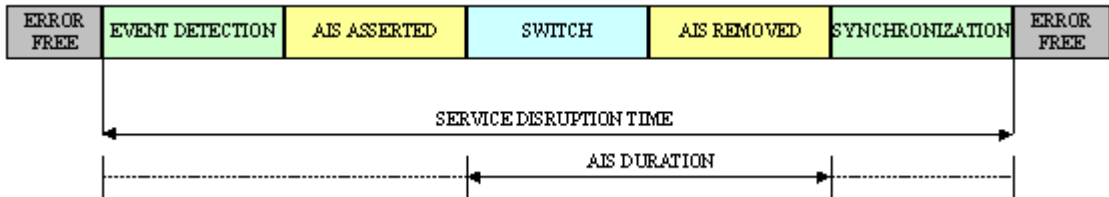
- Manual
- Single - 1 hour, 24 hours, 72 hours, 7 days, User Program (1-100 seconds, 1-100 minutes, 1-100 hours, 1-100 days)
- Timed - any valid time and date



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## Measuring AIS Duration

**Description:** AIS duration is defined in the figure below.



**Requires Option 355** The AIS Duration Measurement is available on all optical rates, when Option 355 is fitted. For measurement parameters, see the Technical Specifications. The AIS Duration measurement is calculated by assessing the number of frames the AIS-P is present and converting this into the amount time elapsed.

### AIS Duration Measurement Definition

The measurement starts on detection of an all ones pattern in the H1 and H2 bytes, present for three consecutive super-frames. The measurement stops at the absence of an all ones pattern in the H1 and H2 bytes, for three consecutive super-frames, or by the single occurrence of an active NDF with a valid (in range) pointer value. The maximum AIS Duration is 2 seconds.

**Accuracy:** 125 $\mu$ s (1 frame)

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### NOTE

Option 355 is required for AIS Duration Measurements. With Option 355 fitted, AIS Duration Measurements are available at optical rates for ATM TestCell payloads, POS PRBS payloads and SONET bulk-filled tributary signals.

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## Making Measurements

### Measuring AIS Duration

AIS Duration Measurement is selected from the **RESULTS** page.

#### **HOW TO:**

- 1 Set up the SONET transmit and receive interfaces and payloads required. See “Setting SONET Transmit Interface” page 29 and “Setting SONET Receive Interface” page 47.
- 2 Press **RUN/STOP** to start the measurement.
- 3 Invoke the protection switch.
- 4 View the results on the **RESULTS** **AIS-P DISRUPT** display.

#### **Results Displayed**

The AIS-P Duration Results page is available for SONET rates OC-1, OC-3c, OC-12c, OC-48c. All measurements are time-stamped (relative to the start of measurement storage; resolution 1us). This allows correlation between the AIS Duration and Service Disruption measurements.


#### **HOW TO:**

- 1 Press the right arrow key to highlight the results format (e.g. **TABLE**) on the **RESULTS** display.
- 2 You can then use the front panel softkeys to choose from the following results formats:
  - **CUMULATIVE** results
  - **SHORT TERM** results (configurable, see "Controlling AIS Duration Measurement Storage " Supplement page 7)
  - **TABLE** of results (displays first ten disruption events, along with their duration and time of detection).

## Making Measurements

### Measuring AIS Duration

RESULTS	AIS-P DISR	CUMULATIVE	
EVENT	DURATION	DATE	TIME
LONGEST	0.000875s	13-FEB-02	11:44:30
SHORTEST	0.000500s	13-FEB-02	11:44:30
LAST	0.000500s	13-FEB-02	11:44:32
BURSTS	3		
ELAPSED TIME		00d 00h 06m 28s	

STATUS: 

TROUBLE SCAN    TIMING CONTROL    SDH RESULTS    PDH PAYLOAD    MORE .....    MULTIPLE WINDOW

The Cumulative and Short Term results pages show the following data:

- **LONGEST** - Duration (ms) of longest AIS Duration measurement.
- **SHORTEST** - Duration (ms) of shortest AIS Duration measurement.
- **LAST** - Duration (ms) of last AIS Duration measurement.
- **BURSTS** - Number of error bursts during the measurement period.

### Controlling AIS Duration Measurement Storage

The first ten AIS Duration Measurements are stored, including the time and length of the AIS Duration. You can control measurement test timing using the **RESULTS**, **TIMING CONTROL** window. Available selections (using the front panel softkeys) include:

- Manual
- Single - 1 hour, 24 hours, 72 hours, 7 days, User Program (1-100 seconds, 1-100 minutes, 1-100 hours, 1-100 days)
- Timed - any valid date and time

Making Measurements  
**Measuring AIS Duration**