

TELECOMMUNICATIONS TEST EQUIPMENT

DS3 Transmission Test Sets

Models 3789A/B

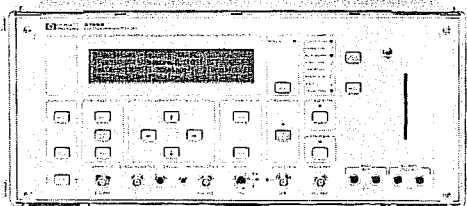
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- Binary bit-by-bit error detection
- Parity, frame and BPV error measurements
- Error analysis to latest recommendations
- Optional DC operation from station batteries
- Single-key measurement setup using preset memory
- Integrated access switch controller

- Built-in DS3 to DS1 demultiplexer (3789B)
- Error & jitter tests at DS1 & DS3 (3789B)
- External events and voltages monitor inputs
- M13 & C-Bit parity generation & measurement (3789B)
- DS3 idle signal generation & detection (3789B)
- Optional built-in data logger

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HP 3789A
RS-232-C



HP 3789B Option 003/010
RS-232-C

HP 3789A DS3 Transmission Test Set

The HP 3789A provides all the basic pattern generation and error measurement capability required for the installation, commissioning and maintenance of DS3 digital transmission equipment including cable, digital radio, satellite and lightwave systems. Its capability can be extended with an optional built-in printer and 24V/48V DC operation. Both RS-232-C and HP-IB remote control capabilities are standard for automated testing or remote monitoring applications. In-service measurements can be performed on systems carrying live traffic and there is a wide choice of test patterns for out-of-service stress testing of equipments and systems.

HP 3789B DS3 Transmission Test Set

The HP 3789B is a more powerful test set offering outstanding monitoring and troubleshooting capabilities. A built-in demultiplexer allows it to perform measurements on both DS1 and DS3 signals from a DS3 access point. On equipment using the new C-bit parity frame format, the HP 3789B can measure the end-to-end performance of a transmission path in both directions simultaneously from a single access point. The instrument can operate with test patterns that are unframed, or framed in M13 or C-bit parity format. A comprehensive error injection facility allows for stress-testing of equipment and interfaces. It can generate and detect the new "DS3 Idle" signal.

Measurements of timing jitter on both the DS3 signal and on any of the twenty-eight embedded DS1 digroups are optionally available. Jitter-induced faults are normally very difficult to fault-find, but the comprehensive error and jitter measurement capability of the HP 3789B diagnoses problems easily and quickly. The built-in access switch controller allows the HP 3789B to selectively measure on a number of DS3 inputs via HP 3756A Access Switches to form a powerful stand-alone monitoring system. An optional built-in disc drive caters for extended data logging applications. Where even more powerful monitoring capability is required, both HP-IB and RS-232-C ports are standard for use with a remote controller.

Applications

- System turn up checks
- Routine testing of trunks
- Fault sectionalization
- Identifying fault mechanisms
- Preventive maintenance
- Service quality verification
- Outage detection & isolation
- Trouble referral verification
- Equipment & route assessment
- Longterm performance monitoring

Product Summary

(Features marked # are available on the HP 3789B only.)

Data Outputs: DS3 Hi, DSX-3, DS3 900' levels, selectable. 6 outputs are provided.

Data Input: Levels; DS3 Hi, DSX-3, DS3 Lo, DSX-3 Lo, 900', 900' Lo.

Measurements

DS3 Errors: Bit (logic), Frame, Parity and Code (BPV) in the form of Error Count, Error Ratio, Error Secs, Error Free Secs.

Error Bursts: The number of bursts with >100 errors is counted.

Error Distribution: Error Seconds containing 1 error, 2 to 10 errors and >10 errors are counted separately.

DS3 Analysis: %Availability, %Unavailability, %Error Secs, %Degraded Mins, Consecutive Severely Errored Secs (CSES). These can

be configured for numeric results or pass/fail results against selectable thresholds.

#DS3 Jitter: Maximum Peak Amplitude; Jitter Hit Count, Hit Bit Count, Hit Bit Ratio, Hit Second Count, Hit Free Second Count.

#DS1 Errors: Bit (logic), Frame, CRC (Extended Superframe Format).

#DS1 Jitter: Maximum pk-pk, Maximum Positive Peak, Maximum Negative Peak, Jitter Hit Count.

#C-Bit Parity Errors: Cp Parity Errors expressed as Error Count, Error Ratio, Error Secs, Error Free Secs, Error Secs Types A, B & C.

#C-Bit Alarms: The Far End Alarm and Control Channel (FEAC) is monitored and decoded. The current alarm status is displayed textually and in bit format.

#FEBC Bits: The Far End Block Error bits are monitored and their information is displayed as Error Ratio, Error Seconds, Error Seconds Types A, B & C.

#DS1 Output

This output provides a selected DS1 digroup signal demultiplexed by the HP 3789B from the input DS3 signal. This output signal may be further demultiplexed by external equipment (such as the HP 3787B Digital Data Test Set) for testing at lower rates.

External Control

Both HP-IB and RS-232-C ports are fitted as standard. Either can be used to control the HP 3789A/B remotely and to pass measurement results to an external printer.

General

Power Supply: AC 115V and 240V, 48 to 66 Hz; DC -22V to -57V (with option 005).

Size: 191mm high; 426mm wide; 559mm deep (7.5 x 16.7 x 22 ins.).

Net Weight: 16kg (35lbs) approx depending on option.

Operating Temperature: 0° to +50°C.

Ordering Information

HP 3789A: The standard package consists of receiver; generator with 6 outputs; both HP-IB and RS-232-C ports fitted; real-time clock; WECO 560A type connectors fitted to Rx and Tx; integral access switch controller. For additional capability select from the following:

Opt 005 Built-in operation from 24V/48V DC supplies. \$875

Opt 010 24-col built-in printer. \$565

HP 3789B: The standard package consists of receiver; generator with 6 outputs; built-in demultiplexer to DS1; both HP-IB and RS-232-C ports; real-time clock; WECO 560A type connectors fitted to Tx and Rx (alternative connector types are available); integral access switch controller. For additional capability select from the following:

Opt 002 2nd measurement capability (including C-bit parity generation/measurement and jitter measurements at DS1). \$550

Opt 003 2nd measurement capability (including C-bit parity generation/measurement and jitter measurements at both DS1 and DS3). \$1,490

Opt 004 Delete option - removes DS1 output capability. -\$350

Opt 005 Built-in operation from 24V/48V DC supplies. \$875

Opt 010* 24-column built-in printer. \$565

Opt 011* Built-in 3.5 inch disc drive. \$720

*NOTE: Options 010 and 011 are mutually exclusive.

HP 3789A DS3 Transmission Test Set \$9,800

HP 3789B DS3 Transmission Test Set \$12,050