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ATM Analyzer
ATM150

Features

ATM150

- Standard Interfaces Include DS1/DS3, E1/E3
- Operation up to 155 Mb/s
- Optional Interfaces Include 100 Mb/s Fiber (TAXI), 155 Mb/s OC-3c/STM-1
- QoS (Quality of Service)
- Portable, Economical ATM Test Set
- Propagation Delay Measurement
- Mis-inserted Cell Detection
- Transport Overhead and Alarm Testing
- Remote Control
- Constant Bit Rate (CBR) Voice and Video
- Variable Bit Rate (VBR) Data Mixed Traffic Profiles
- 8,192 Different Destinations
- Up to Four VCI/VPI Addresses
- Powerful Traffic Emulation Capabilities
- Tests Conformance to All ITU G703, G.751, G.832, Bellcore TR-TSY-499, and ATM Forum UNI Specifications Version 3.0

Applications

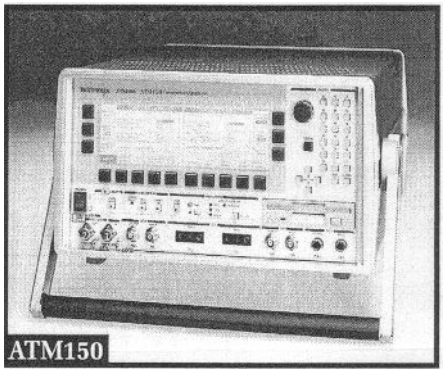
- Factory Conformance and Compliance Testing
- Field Installation and Setup
- Network Testing
- Switch and Network Performance Analysis
- ATM Interface Card Testing, R&D, and Manufacturing
- Traffic Loading

For your local Tektronix representative see the list in the back of this catalog or outside the U.S. call: 1-503-627-1933, inside the U.S. call: 1-800-426-2200.

GPIB IEEE-488 *Product(s) complies with IEEE Standard 488.2-1987.*

CE

See Tektronix on the World Wide Web: http://www.tek.com



ATM150 Cell Generator and Analyzer

The ATM150 offers powerful, real-time, programmable, and portable ATM cell switch and network performance analysis. Particularly effective for verifying the performance of switches and networks under loaded conditions, the economical ATM150 can be used in the field, lab, or manufacturing applications.

ATM offers efficient transport and switching of video, data, and voice traffic across private and public networks. Since ATM is an emerging technology, standards are still in the definition stage. It's critical during this period of change that ATM products and systems be thoroughly tested to ensure proper operation and conformance to current industry specifications. The ATM150 is a powerful, easy-to-use ATM test instrument that will evolve with the standards by virtue of its modular design which allows new physical interfaces, such as DS1, DS3, E1, E3, 100 MB TAXI, STM-1/OC-3c, etc., to be added as standards stabilize.

The ATM150 offers an exceptionally diverse choice of user-selectable cell traffic distributions. These patterns simulate Constant Bit Rate (CBR) voice and video, Variable Bit Rate (VBR) data, and mixed traffic profiles over a range of average and peak bandwidths. Simulated traffic can be used for highly accurate switch and network throughput analysis and benchmarking. The generator can send active cells to 8,192 different destinations. This includes test cells up to four VCI/VPI addresses.

A complete set of alarms and errors is generated and detected by the ATM150.

Characteristics

DS1/DS3 INTERFACE

DS1/DS3 Physical Interface allows ATM150 to generate and analyze cell streams at 44.736 Mb/s or 1.544 Mb/s. Interface can transmit and receive ATM cells within a DS3 frame (either M23 or C-bit) or a DS1 frame (either SF or ESF). These cells can be directly mapped or an IEEE 802.6 Physical Layer Convergence Protocol (PLCP) can be used.

GENERATOR

DS3 Alarm Generation – LOS: Generates all zero output. LOF: Inverts all M and F bits in the DS3 frame. AIS: Inserts a 1010 pattern in the DS3 payload. LCV: Causes one line code violation on the B3ZS code 10 times a second. IDLE: Inserts a 1100 pattern in the DS3 payload. PARITY: M23 mode – all P-bits are inverted. C-bit mode – all parity C-bits are inverted. FERF: Sets X1 and X2 to zero. FEBE: Sets FEBE C-bits to zero.

DS1 Alarm Generation – LOS: Generates all zero output. AIS: Generates unframed all-ones pattern. LOF (Red): Removes all framing. Yellow: Generates framing appropriate yellow alarm.

PLCP Alarm Generation – LOF: Inverts a bit in the A1 and A2 byte. PARITY: Inverts a bit in the P0-P11 bytes. RAI (Yellow): Sets bit 5 in the G1 byte. FEBE: Inserts one FEBE in each frame. B1: Inserts one BIP error in each frame.

Output Timing – Internal or recovered.

DS1 Output – Rates: 1.544 Mb/s ±20 PPM. Encoding: Bipolar. Impedance: 100 Ω. Level: Cross-connect. Connector: WECO 310 compatible.

DS3 Output – Rates: 44.736 Mb/s ±20 PPM. Encoding: Bipolar with Three Zero Suppression (B3ZS). Impedance: 75 Ω. Level: Cross-connect (700 mV). Connector: BNC.

Data Source – Internal or loop-back.

ANALYZER

DS1 Alarm Monitoring – LOS: Detects all zero input. AIS: Detects an unframed all-ones pattern. LOF (COFA): Detects loss or change of framing. Yellow: Generates framing appropriate yellow alarm. CRC-6: Counts CRC-6 errors in ESF mode. Frame Bit: Counts incorrect framing bits. LCV: Counts line code violations.

DS3 Alarm Monitoring – LOS: Detects sequence of ≥175 zeros. LOF: Detects frame alignment changes or cannot be found. AIS: Detects continuous 1010 pattern in DS3 payload. LCV: Detects line code violation in B3ZS encoding. IDLE: Detects continuous 1100 pattern in DS3 payload. PARITY: M23 mode – detects P-bit parity errors. C-bit mode – detects C-bits parity errors. FERF: Detects if X1 and X2 are zero. FEBE: Detects if FEBE C-bits are zero.

ATM Analyzer
ATM150

PLCP Alarm Monitoring – LOF: Detects PLCP frame alignment changes or cannot be found. PARITY: Detects errors in P bytes and A1-A2 bytes. RAI (Yellow): Detects bit 5 in G1 byte. FEBE: Detects FEBE indications. B1: Detects BIP errors.

Cell Delineation Search Parameters – Alpha: Seven incorrect headers to begin a search for new cell alignment. Delta: Six correct headers to declare delineation.

DS1 Input – Rate: 1.544 Mb/s ±100 PPM. Encoding: Bipolar. Impedance: 100 Ω. Level: Cross-connect. Connector: WECO 310 compatible.

DS3 Input – Rate: 44.736 Mb/s ±100 PPM. Encoding: Bipolar with Three Zero Suppression (B3ZS). Impedance: 75 Ω. Level: Cross-connect. Connector: BNC.

E1/E3 INTERFACE

E1/E3 Physical Interface allows the ATM150 to generate and analyze cell streams at 34.368 Mb/s or 2.048 Mb/s. Interface can transmit and receive ATM cells within an E3 frame or an E1 frame. Cells can be directly mapped or an IEEE 802.6 Physical Layer Convergence Protocol (PLCP) can be used.

GENERATOR

E3 Alarm Generation – LOS: Generates all zero output. FRAME: Errors bits in the E3 frame. LCV: Causes one line code violation on the HDB3 code 10 times a second. PARITY: Errors parity bits. FERF: Inserts FERF bit (G.832). RAI: Sets bit 11 of the frame (G.751).

E1 Alarm Generation – LOS: Generates all zero output. AIS: Generates AIS or TS16 AIS. LOF: Removes all framing. Remote: Generates remote alarm or remote multiframe alarm.

PLCP Alarm Generation – LOF: Inverts a bit in the A1 and A2 byte. PARITY: Inverts a bit in the P0 to P11 bytes. RAI (Yellow): Sets bit 5 in the G1 byte. FEBE: Inserts one FEBE in each frame. B1: Inserts one BIP error in each frame.

Output Timing – Internal or recovered.

E1 Output – Rates: 2.048 Mb/s ±20 PPM. Encoding: HDB3. Impedance: 120 Ω. Connector: Siemens 3-Pin.

E3 Output – Rates: 34.368 Mb/s ±20 PPM. Encoding: HDB3. Impedance: 75 Ω. Connector: BNC.

Data Source – Internal or loop-back.

ANALYZER

E1 Alarm Monitoring – LOS: Detects all zero input. AIS: Indicates when AIS or TS 16 AIS exists for 104 ms. OOF: Detects loss or change of framing. RED: Detects 25 intervals of 4 ms with an OOF. CRC: Counts CRC errors. Frame Bit: Counts incorrect framing bits. LCV: Counts line code violations. FEBE: Counts Far End Block Errors.

E3 Alarm Monitoring – LOS: Detects when sequence of ≥32 zeros occurs. OOF: Detects when frame alignment changes or cannot be found. AIS: Detects all ones pattern. LCV: Counts line code violations. PARITY: Counts parity errors. FERF: Detects FERF (G.832). RAI: Detects RAI (G.751). FEBE: Counts FEBE (G.832).

PLCP Alarm Monitoring – LOF: Detects when PLCP frame alignment changes or cannot be found. PARITY: Detects errors in P bytes and A1-A2 bytes. RAI (Yellow): Detects bit 5 in G1 byte. FEBE: Detects FEBE indications. B1: Detects BIP errors.

Cell Delineation Search Parameters – Alpha: Seven incorrect headers to begin a search for new cell alignment. Delta: Six correct headers to declare delineation.

E1 Input – Rate: 2.048 Mb/s ±100 PPM. Encoding: AMI or HDB3. Impedance: 120 Ω. Connector: Siemens 3-Pin.

E3 Input – Rate: 34.368 Mb/s ±100 PPM. Encoding: AMI or HDB3. Impedance: 75 Ω. Connector: BNC.

REMOTE

Interfaces – RS-232, GPIB, and printer ports.

POWER

Line Voltage – 100/120 or 200/220 V AC.

Power Consumption – 150 W maximum.

PHYSICAL CHARACTERISTICS

Dimensions	mm	in.
Height	203.2	8
Width	355.6	14
Depth	508	20
Weight	**kg**	**lbs.**
Net	13.6	30

ORDERING INFORMATION

For price information: Outside the U.S. contact your local Tektronix representative, inside the U.S. see the price list in the back of this catalog.

ATM150
ATM Test Set
Includes: DS1/3 and E1/E3).

Opt. 03 – OC-3C/STM-1 1310 nm I/O FC Connectors.

Opt. 05 – 100 MB TAXI Opt. Interface.

Opt. 1M – Rackmount.

Opt. 3C – Replace FC connectors with SC connectors.

Opt. 4C – Replace FC connectors with ST connectors.

MEASUREMENT SERVICE OPTIONS

Opt. C3 – Three years of Calibration Services.

Opt. C5 – Five years of Calibration Services.

Opt. R3 – Repair warranty extended to cover three years.

Opt. R5 – Repair warranty extended to cover five years.

See page 449 for further information.

UNIVERSAL POWER PLUG OPTIONS

Opt. A1 – Universal Euro 220 V, 50 Hz.

Opt. A2 – United Kingdom 240 V, 50 Hz.

Opt. A3 – Australian 240 V, 50 Hz.

Opt. A4 – North American 240 V, 60 Hz.

Opt. A5 – Switzerland 220 V, 50 Hz.

RECOMMENDED ACCESSORIES

Transit Case for Transmitter or Receiver – Order 016-1447-00.

10 ft. 25-Pin Male-to-Male RS-232 Cable – Order 012-1384-00.

Rackmount Kit – Order 016-1464-00.

10 ft. 25-Pin Male to 9-Pin Female RS-232 – Cable Order 012-1298-00.

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