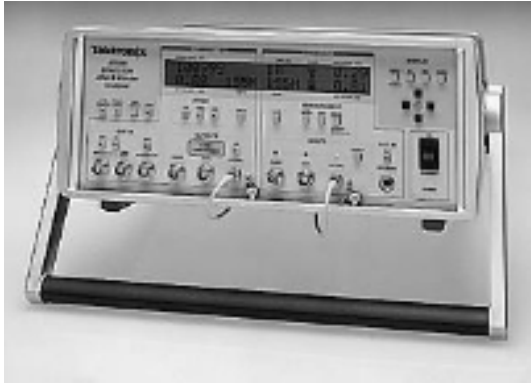


SDH/SONET Analyzers

SJ300E



SJ300E

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Characteristics

Transmit and Receive Line Rates

STS-1 - 51.84 Mb/s.

STS-3/STM-1e - 155.52 Mb/s.

OC-1 - 51.84 Mb/s.

OC-3/STM-1 - 155.52 Mb/s.

OC-12/STM-12 - 622.08 Mb/s.

Pattern Generation/Measurement

Generator - Internal 27 PRBS or external "through data."

Receiver - A PRBS signal of pattern length 27 or a SDH/SONET formatted signal with the payload portion consisting of all zeros or all ones.

Jitter Generation

Generator -

Jitter frequency: 1 Hz to 1/125 of baud rate.

Frequency accuracy: ± 20 ppm.

Jitter amplitude: Up to 22 UI^{P-P} depending on jitter frequency.

Resolution: 0.01 UI.

Resolution accuracy: $\pm 1\%$, ± 0.01 UI.

Transmitter Outputs

Clock Out -

Frequency: 51.84, 155.52 or 622.08 MHz ± 20 ppm.

Level: ECL nominal levels.

Impedance: 50 Ohm to -2 V terminated.

Connector: BNC (internal) with external CLOCK OUT. Same frequency as external clock.

Data Out -

Baud rate: Equals frequency of CLOCK OUT, NRZ.

Impedance: 50 Ohm to 2 V terminated.

Connector: BNC.

Optical Out -

Baud rate: Equals frequency of CLOCK OUT.

Connector: FC/PC.

Mean output power (EOL): -9 dBm \pm 3 dBm.

Center wavelength: 1305 nm \pm 35 nm.

Spectral width (at -3 dB): 5 nm maximum.

Ref Clock Out -

Output: Same as CLOCK out without added jitter.

Amplitude: 0.4 to 1.2 V_{p-p} into 50 Ohm.

Impedance: 50 Ohm AC-coupled, to ground.

Connector: BNC.

Transmitter Inputs

Clock In -

Frequency: 51.84, 155.52 or 622.08 MHz \pm 100 ppm.

Level: ECL nominal levels.

Impedance: 50 Ohm or AC-coupled.

Connector: BNC.

Thru Data In -

Level: ECL nominal levels.

Impedance: 50 Ohm to -2 V terminated, NRZ.

Connector: BNC.

External Modulation In -

Impedance: 50 Ohm terminated to ground.

Connector: BNC connector.

Sensitivity: 0.1 V/UI.

Accuracy: \pm 5%.

Amplitude limits: \pm 0.8 V maximum.

Rate-of-change limits:

52 MHz: \pm 0.135 V/ μ s.

155 MHz: \pm 0.405 V/ μ s.

622 MHz: \pm 1.62 V/ μ s.

Receiver Peak-to-Peak Jitter

Wide Mode -

Jitter amplitude: Up to 16 UI_{p-p} depending on the jitter frequency and receiver baud rate.

Resolution: 0.01 UI.

Amplitude accuracy:

52 MHz: $\pm 1\%$, ± 0.01 UI.

155 MHz: $\pm 1\%$, ± 0.02 UI.

622 MHz: $\pm 1\%$, ± 0.03 UI.

Fine Mode -

Frequency response: First-order high-pass filter with cutoff frequencies that depend on receiver baud rate as follows:

52 Mb/s: 14 Hz + 3 Hz.

155 Mb/s: 30 Hz + 10 Hz.

622 Mb/s: 120 Hz + 35 Hz.

Jitter amplitude: Up to $0.6 U_{I_{p-p}}$ depending on the jitter frequency and receiver baud rate.

Resolution: 0.001 UI.

Amplitude Accuracy:

52 MHz: $\pm 3\%$, ± 0.002 UI.

155 MHz: $\pm 3\%$, ± 0.003 UI.

622 MHz: $\pm 5\%$, ± 0.009 UI.

Transfer Functions

Range - +3 to -50 dB.

Resolution - 0.01 dB.

Note: The maximum jitter amplitude received cannot exceed the maximum receiver input range.

Receiver RMS Jitter

Wide Mode -

Frequency response: First-order high-pass filter at the greater of 12 kHz and the selected high-pass filter. Third-order, maximally flat, low-pass filter at 1/125 of the receiver baud rate.

Jitter range: Measures RMS value of jitter that meets the wide mode peak-to-peak jitter tolerance.

Resolution: 0.01 UI.

Amplitude accuracy:

52 MHz: $\pm 3\%$, $\pm 0.01 U_{I_{rms}}$.

155 MHz: $\pm 3\%$, $\pm 0.01 U_{I_{rms}}$.

622 MHz: $\pm 3\%$, $\pm 0.02 U_{I_{rms}}$.

Fine Mode -

Jitter range: Measures RMS value of jitter that meets the

peak-to-peak requirements.

Resolution: $0.001 U_{I_{rms}}$.

Amplitude accuracy:

52 MHz: $\pm 3\%$, $\pm 0.001 U_{I_{rms}}$.

155 MHz: $\pm 3\%$, $\pm 0.002 U_{I_{rms}}$.

622 MHz: $\pm 5\%$, $\pm 0.003 U_{I_{rms}}$.

Window range: 1 to 99 seconds or infinity.

Resolution: 1 second.

Selectable high-pass filters:

52 Mb/s: 10 Hz, 100 Hz or 20 kHz.

155 Mb/s: 10 Hz, 500 Hz or 65 kHz.

622 Mb/s: 10 Hz, 1000 Hz or 250 kHz.

Threshold range: 0.000 to $16 U_{I_{p-p}}$.

Resolution: $0.001 U_{I_{p-p}}$.

Receiver Inputs

Clock In -

Rate: 51.84, 155.52 or 622.08 Mb/s ± 20 ppm.

Level: ECL nominal levels.

Impedance: 50 Ohm terminated to -2 V or AC-coupled.

Connector: BNC.

Data In -

Rate: 51.84, 155.52 or 622.08 Mb/s ± 20 ppm.

Level: ECL nominal levels.

Impedance: 50 Ohm terminated to -2 V, NRZ.

Connector: BNC.

Optical In -

Rate: 51.84, 155.52 or 622.08 Mb/s ± 20 ppm.

Connector: FC/PC.

Power: -22 to -5 dBm.

Wavelength: 1200 to 1600 nm.

Laser Safety - Class 1 laser product.

Ref Clock In -

DS1: 1.544 Mb/s AMI, framed all 1s.

Framing: ESF/SF.

E1: 2.048 Mb/s HDB3, framed all 1s.

2 MHz: 2.048 MHz square wave.

Connector: WECO 310 (100 Ohm balanced), BNC (75 Ohm unbalanced).

Receiver Outputs

Ref Clock Out -

Level: 0.4 to 1.2 V_{p-p}, AC-coupled.

Impedance: 50 Ohm to ground.

Connector: BNC.

Bits Wander (Opt. 06)

Frequency Range - 0 to 10 Hz.

Amplitude Range -

MTIE: 99,999 ns.

TDEV: 99,999 ns.

Amplitude Resolution - 1 ns.

Amplitude Accuracy - +5%, +2 ns.

Slew Rate - +80,000 ns/s maximum.

MTIE Observation Time Range -

Internal: 0.1 to 99.9 seconds.

External: 0.02 to 105 seconds.

TDEV Integration Time Range -

Internal: 0.1 to 99 seconds.

External: 0.02 to 1000 seconds.

BITS IN Input -

WECO 310 (100 Ohm balanced), BNC (75 Ohm unbalanced).

DS1: 1.544 Mb/s AMI, framed all 1s.

E1: 2.048 Mb/s HDB3, framed all 1s.

2 MHz: 2.048 MHz square wave.

BITS OUT Output -

WECO 310 (100 Ohm balanced), BNC (75 Ohm unbalanced).

DS1: 1.544 Mb/s AMI, framed all 1s.

E1: 2.048 Mb/s HDB3, framed all 1s.

2 MHz: 2.048 MHz square wave.

Power

AC Line - 115 V/230 V AC \pm 10%.

Safety - UL1244, CSA231, EN61010-1.

Power Consumption - 100 W maximum.

Physical Characteristics

| Dimensions | mm | in. |
|------------|-----|------|
| Height | 152 | 6 |
| Width | 366 | 14.4 |
| Depth | 419 | 16.5 |
| Weight | kg | lb. |
| Net | 10 | 22 |

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



Tektronix Measurement products are manufactured in ISO registered facilities.



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