



Telecom Unit - 3261A

- Automatically tests telecom transformers in a production environment
- Measures Total Harmonic Distortion, longitudinal and transverse balance and Insertion Loss and Return Loss
- Fast, accurate and repeatable automatic measurements
- Straightforward intuitive operation
- Graph longitudinal and transverse balance, and insertion and return loss against frequency
- Suitable for ADSL, HDSL, ISDN, analog line matching transformers and POTS splitters
- Accurate DC bias current
- Low cost compared to comparable equipment

Telecom component characterisation

3261A Telecom Unit forms the core of a comprehensive component test system. It is configured in conjunction with the Wayne Kerr 3260B Precision Magnetics Analyzer to carry out a wide variety of telecom-related measurements.

Telecoms Fixture model 1008 further enhances the test capability by providing an interface to connect units under test such as transformers.

Complete telecom transformer characterization

Automatic production testing of telecom transformers is available with the 3261A. Transformers are characterized at the press of a button.

Total Harmonic Distortion

Providing unrivalled Total Harmonic Distortion (THD) performance this optional function displays the second, third, fourth and fifth harmonic as well as THD. Measurements as low as -110 dB can be carried out; the user can set a large number of preset fundamental frequencies from 150 Hz to 200 kHz.

Longitudinal balance and transverse balance

This optional function provides longitudinal balance and transverse balance measurements in line with IEEE 455, ITU recommendation O.9 (O.121) and FCC 68.310 over the frequency range 200 Hz to 3 MHz.

Measurement capability is high, longitudinal balance accuracy is ± 1 dB over 80 dB, ensuring that devices can be measured with confidence.

The longitudinal and transverse balance of any component can be completely characterized graphically across the full frequency band enabling component performance to be analyzed in more detail.

Insertion Loss and Return Loss

3261A Telecom Unit measures Insertion Loss and Return Loss from 20 Hz to 3 MHz on transformers and POTS splitters.

The instrument can also measure and display many parameters including Insertion Loss and Return Loss against frequency in a graphical form - ideal in a design or development environment.

Swept measurements in graphical form

It is often important to characterize component performance outside its operating range, especially during component design. The 3261A allows Insertion Loss, Return Loss, transverse and longitudinal balance, and the usual basic transformer parameters, such as Inductance and interwinding capacitance, to be displayed graphically.

Sweeping the full frequency band for the particular measurement the user can identify the maximum and minimum point on the graph and a moveable marker displays the frequency and level. The graph axes can be selected as either a logarithmic or linear scale.

Comprehensive test system

The key to the test system's versatility and accuracy is the combination of a precision impedance analyzer with a dedicated telecomms test unit. This combination provides many advantages.

Where special interface methods are needed the 1008 Telecoms Fixture is available, or customised fixtures can be configured using a blank fixture to ensure high integrity measurements.



3261A Telecom Unit is the core of a comprehensive test system which also incorporates 3260B Precision Magnetics Analyzer and Telecoms Fixture model 1008

ADSL, ISDN and HDSL analogue line matching transformers and POTS splitters

ADSL technology requires tighter specifications and additional measurements when testing line matching transformers. The 3261A provides all the required measurements and performance for ADSL technology, including Total Harmonic Distortion, longitudinal and transverse balance, Insertion Loss and Return Loss.

It not only exceeds the required specifications but also makes all the measurements automatically from the same fixture. For the user it is just a case of connect and test, ideal in a production environment, with no complex set-ups, special jigs or the need to calculate the result from a number of voltage measurements - the 3261A does it all.

The user is able to select the required line side termination from a list of predetermined values. Equipment side terminations are provided by the user and can be connected to the appropriate socket on the 3261A. Once the termination has been fitted no further interaction is required by the user.

Accurate DC bias current

DC bias current can be selected for Insertion Loss, Return Loss and Total Harmonic Distortion.

This function provides high accuracy user selectable DC current in the range 1 mA to 200 mA in 0.1 mA steps (to 20 mA) and 1 mA steps (to 200 mA).

The total production test solution ... in a single fixture

Replacing many discrete instruments, complex jigs and difficult measurements, the 3261A Telecom Unit provides all the functions needed to meet the new telecom standards in a single multi-function unit.

It also replaces all the hard work, high skill levels and uncertainty of manual testing by handling all the complexity internally and presenting the user with the information required quickly and accurately. In a production environment it is just a case of connect and test.

All the user has to do is press the start button and the 3261A Telecom Unit makes all the measurements and displays a Pass/Fail banner.

Technical specifications Telecom Unit – 3261A

General

Line side termination: 50, 75, 100, 120, 135, 600, 900 Ω
Equipment side termination: Customer is required to supply centre tapped 1% resistor

Insertion Loss

Drive level*: -65 dBm to +20 dBm
Drive level units: dBm, dB μ V, V
Frequency range: 20 Hz to 3 MHz
Basic Accuracy**: 0 to -3 dB \pm 0.1 dB

*Varies with line impedance

**Varies with frequency

Return Loss

Drive level*: -60 dBm to +25 dBm
Drive level units: dBm, dB μ V, V
Frequency range: 20 Hz to 3 MHz
Basic Accuracy**: 0 to 25 dB \pm 1 dB
25 to 30 dB \pm 2 dB
30 to 35 dB \pm 3 dB

*Varies with DUT impedance

**Varies with frequency

Transverse balance (analogue voiceband)

Drive level: 0 dBm (0.775 V rms)
Frequency range: 200 Hz to 10 kHz
Basic Accuracy: to 80 dB \pm 1 dB

Transverse balance (digital)

Drive level: 0 dBm (0.316 V rms)
Frequency range: 10 kHz to 3 MHz
Basic Accuracy:
to 55 dB \pm 1 dB (\leq 1.55 MHz)
to 45 dB \pm 1 dB ($>$ 1.55 MHz)
45 dB to 55 dB \pm 3 dB ($>$ 1.55 MHz)

Longitudinal balance (analogue voiceband)

Drive level: 1 V rms
Frequency range: 200 Hz to 10 kHz
Basic accuracy: to 80 dB \pm 1 dB

Longitudinal balance (digital)

Drive Level: 0 dBm
Frequency Range: 10 kHz to 3 MHz
Basic Accuracy:
to 55 dB \pm 1 dB (10 kHz to 1.1 MHz)
to 45 dB \pm 1 dB ($>$ 1.1 MHz)
45 dB to 55 dB \pm 3 dB ($>$ 1.1 MHz)

Total Harmonic Distortion

Maximum drive level: 6 V rms (\pm 2%) at the DUT
Drive level units: Vrms, Vp-p, dBm
Frequencies: 150, 300, 500, 600, 5k, 10k, 15k, 20k, 25k, 30k, 40k, 50k, 100k, 150k and 200 kHz

DC bias current

Output current: 1 to 200 mA
Step size: 0.1 mA (1 to 20 mA), 1 mA (20 to 200 mA)
Basic accuracy: \pm 1% \pm 1 μ A (1 to 20 mA),
 \pm 1% \pm 10 μ A (20 to 200 mA)
Compliance voltage: 22.5 V (into line side termination)

Power Supply

Input voltage: 115 V AC \pm 10% or 230 V AC
 \pm 10% (selectable)
Frequency: 50/60 Hz

Environmental

Installation category: II (in accordance with IEC664)
Temperature range: Storage -40°C to 70°C,
Operating 0°C to 40°C. Full accuracy 15°C to 35°C.
Relative humidity: up to 80% non-condensing
Pollution degree: 2 (mainly non-conductive)
Altitude: up to 2000 m

Safety

Complies with the requirements of EN61010-1

EMC

Immunity: EN61326-1
Emissions: EN55022 Class A

Mechanical

Height: 150 mm (6")
Width: 440 mm (17 ³/₈")
Height: 520 mm (20 ¹/₂")
Weight: 14 kg

Order codes

Description

3261A Telecom Unit

Supplied with: -

- Mains lead
- User manual
- 8 BNC and link interconnecting leads
(for connection between 3260B and 3261A)
- 1JBLANK fixture, short circuit trim fixture
- HF compensation fixture

Note: - The 3261A can only be used in conjunction with the 3260B Precision Magnetics Analyzer.

Options

/A Total Harmonic Distortion measurement

/B Longitudinal and Transverse Balance measurement

Accessories

Telecom Fixture

Telecom Production Test Software

Device specific fixture for a customer transformer

Note: - The customer should provide a drawing and sample of the particular transformer requiring a fixture.

Blank fixture containing PCB and pins allowing the user to adapt the fixture for a specific component.

Order code

1J3261A

1J1008

PT3261

1JFIXTURE-01

1JBLANK



Telecoms Fixture model 1008

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