

circuit test set

T336B

Features:

- Auto-Ranging Digital LCD
- Dial-Hold & Monitor Provisions
- Push to Measure
- Exclusive Auto-off
- Extended Battery Life
- Small-Lightweight
- Portable, Carrying & Holding Strap
- Tough Metal Case & Cover

Measures:

- Resistance
- dc Volts
- Ground Current
- Loop Current
- Circuit Loss
- Circuit Noise
- Power Influence



Designed To Meet Requirements of A.T. & T. PUB 55020

Introduction

The T336B Circuit Test Set has been designed to carry on a tradition: the tradition of utility, reliability, quality, and serviceability, set by the widely-accepted Wilcom Model T136 Series of Circuit Test Sets.

The Wilcom T336B Circuit Test Set now provides the features most wanted by installation and repair personnel- DIGITAL READOUT and AUTO-RANGING measurements. But the T336B provides MORE, dc Voltage and Resistance measuring capability. These capabilities, coupled with the ability to measure LOOP & GROUND CURRENT, CIRCUIT LOSS, CIRCUIT NOISE and POWER INFLUENCE, give the telecommunications service technician a powerful tool for total evaluation of circuit performance.

Measuring features built into the T336B Circuit Test Set will provide the telecommunication technician powerful circuit diagnostic and measuring capabilities. Technicians of the telephone operating companies, common carriers, inter-connect companies, and large telecommunications users will have many applications for the T336B Circuit Test Set.

General Description

The T336B Circuit Test Set is a compact, tough, light-

weight, portable, battery powered test set designed to evaluate and trouble-shoot telecommunications circuits. The T336B complements and adds to the capabilities of the time tested and proven Wilcom T136 Series of Circuit Test Sets. The T136's are used by installation, repair, and cable maintenance personnel in all the major telephone operating companies of the United States. Additional features and measuring capabilities have been added to the T336B.

These features, combined with the features of the T136 Series Circuit Test Set, result in a very versatile test set for general purpose testing by telephone operating companies, specialized common carriers, inter-connect companies and large telecommunications users.

Features added to the T336B include auto-ranging of level and noise measurements, permitting easier use and increased overall ranges. Also added are provisions for DC resistance measurement. Ranges and impedances are designed to conform the the AT & T requirements for subscriber loop transmission test sets.

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The T336B has an eight-position FUNCTION switch and a 3 1/2 digit liquid crystal display. The display itself ranges from -199.9 to +199.9. The numbers represent volts dc, mA dc, dBm level, or dBrnC noise depending on the FUNCTION switch position. In the resistance positions of the FUNCTION switch the sign indication and decimal point are suppressed and the reading is in ohms or kilohms from 000 to 1999.

Dynamic range for level and noise measurement is 60 db, with 0.1 dB display resolution. Out-of-range measurements are indicated by flashing unused decimal points and colon in the display. The dc measurement ranges over the full range of the display.

For level and noise measurement, a true rms to dB converter is used, combining the functions of detector and log converter. The readout damping time-constant is a compromise value suitable for noise measurement.

The T336B is operated from replaceable 9-volt transistor type batteries. A PUSH-TO-MEAS switch turns the set on. To extend battery life the T336B has an exclusive Auto-off feature after about 60 seconds, unless the PUSH-TO-MEAS button is pressed again. A LOW BATT indicator is included in the display.

Specifications

Measurement Ranges:

OHMS dc: 0 to 1999 ohms
1 ohm resolution
KILOHMS dc: 0 to 1000 kilohms
1 kilohm resolution
GND mA: 0 to ± 199.9 mA
0.1 mA resolution
dc VOLTS: 0 to ± 199.9 volts
0.1 volt resolution
LOOP mA: 0 to ± 199.9 mA
0.1 mA resolution
CKT LOSS: -55 dBm to +5 dBm
0.1 dB resolution
CKT NOISE: 0 dBrnC/60 dBrnC
0.1 dB resolution
PWR INFL: 50 dBrnC/110dBrnC
0.1 dB resolution

Measurement Accuracy:

OHMS: 400 to 1000 ohms; $\pm 1\%$
Other readings: $\pm 2\%$ to ± 2 ohms
KILOHMS: $\pm 3\%$ + 2 kilohms
dc VOLTS: $\pm 2\%$ + 0.2 volts
GND mA:
At 20 mA: ± 0.2 mA
At other readings: $\pm 2\%$ + 0.2 mA
LOOP mA:
At 20 mA: ± 0.2 mA
At other readings: $\pm 2\%$ + 0.2 mA
CKT LOSS: Using 1004 Hz test tone
At -8 dBm: ± 0.1 dB
-40 to +5 dBm: ± 0.2 dB
-55 to -40 dBm: ± 0.3 dB
CKT NOISE: Using 1004 Hz test tone
At 30 dBrnC: ± 0.3 dB
20 to 60 dBrnC: ± 0.5 dB
0 to 20 dBrnC: ± 1.0 dB
PWR INFL:
70 to 110 dBrnC: ± 0.5 dB
50 to 70 dBrnC: ± 1.0 dB

Response Characteristics:

CKT LOSS:
4 kHz,
flat within accuracy specs.
200 Hz to 400 Hz, ± 0.5 db

relative to 1004 Hz.
4 kHz to 15 kHz, ± 0.5 dB
relative to 1004 Hz.
60 Hz, down at least 20 dB
relative to 1004 Hz.
CKT NOISE:
C-Message
Weighting
PWR INFLUENCE:
C-Message
Weighting

Impedance:

OHMS: High resistance
1 mA current source.
KILOHMS: High resistance
1 μ A current source.
GND mA:
430 ohms dc $\pm 1\%$ ring-to-ground
DIAL & dc VOLTS:
Tip and Ring leads and the
DIAL & MONITOR terminals;
1 megohm shunt.
Other FUNCTION positions:
Tip-to-Ring;
430 ohms $\pm 1\%$ dc 600 ohms ac
Return loss > 30 dB
with respect to 600 ohms,
200 Hz to 15 kHz.
Tip and Ring to Ground:
> 10 megohms DC
> 100 kilohms AC

Miscellaneous Characteristics:

Monitor Output: Balanced 600 ohm
output, approximately 0.25 volts at
the center of each auto-range. At
DIAL & MONITOR terminals during
CKT LOSS, CKT NOISE, and PWR
INFL measurement.
Push to Measure:

Push button ON.
Auto-off after approx. 60 seconds.
Detector: True rms.
Longitudinal Balance:
> 100 dB at 100 Hz, decreasing 20 dB/
decade at higher frequencies.
Digital Readout Response: Approximately
One second for 10 dB level
change. Two or three updates per
second for noise fluctuations.

Maximum Ratings:

Tip-to-Ring:
AC to DC: 96V applied through 400
ohms.
Tip or Ring to Ground:
DC: 500 volts
AC: 250 volts

Power:

Batteries:
Two 9V NEDA 1604 or 1604A.
Battery Life:
30 hours continuous, or 1800 opera-
tions of the PUSH TO MEAS switch.

Environmental Conditions:

Operating Temperature: -20° to +50°C
Humidity: 95% at 35°C
40% at 50°C
(non-condensing)
Storage Temperature: -50° to +70°C

Dimensions:

Width: 4-3/3" (11.0 cm)
Height: 6-3/8" (16.0 cm)
Depth: 4.7/8" (11.5 cm)

Weight: 3 lbs. (1.4 kg)

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