



# Dynatel™ 945DSP

## Subscriber Loop Tester



## Complete Testing of POTS Loops

The 3M™ Dynatel™ 945DSP Subscriber Loop Tester is a low-cost microprocessor-controlled test set that provides full-featured POTS testing.

The Dynatel 945DSP performs a wide range of voice band tests to analyze problems on twisted pair cables. Specific tests and measurements performed by the unit include:

- **Voltage (V)** – detects and measures the presence of central office or foreign DC and AC voltages on R-T, R-G and T-G.
- **Current (mA)** – measures DC loop current.
- **Ground resistance** – when measuring mA, press the set up key to measure and display the ground path resistance (when supported by the switch).
- **Resistance Test ( $\Omega$ )** – measures conductor and insulation resistance up to 30 megohms. Accurate readings in the presence of foreign voltage. Full autoranging.
- **Insulation Soak Test** – monitors the leakage resistance from the test leads to ground and indicates changes in the insulation resistance over time in the presence of high voltage. Increasing resistance is an indication of a wet fault and decreasing resistance is an indication of oxidation which is breaking down and becoming more conductive.
- **Opens** – Measures the open length of tip, ring or cable pair at distances up to 100,000 ft. (30 km).
- **Tone** – provides 577 Hz ID tone for conductor identification, and 404, 1004 and 2804 Hz precision tones for determining circuit loss.
- **Loss** – measures voiceband loss up to 5KHz, displaying frequency and level.
- **Noise** – measures circuit noise and power influence, and displays calculated balance. C-Message Weighting is used in the U.S. and Canada, and a Psophometric Filter where ITU (CCITT) Standards are used.
- **Longitudinal Balance** – this test provides active measurement of line balance.
- **Dial Key** – allows storage of 10-14 digit numbers for testing of active lines.

### Flexible, practical features

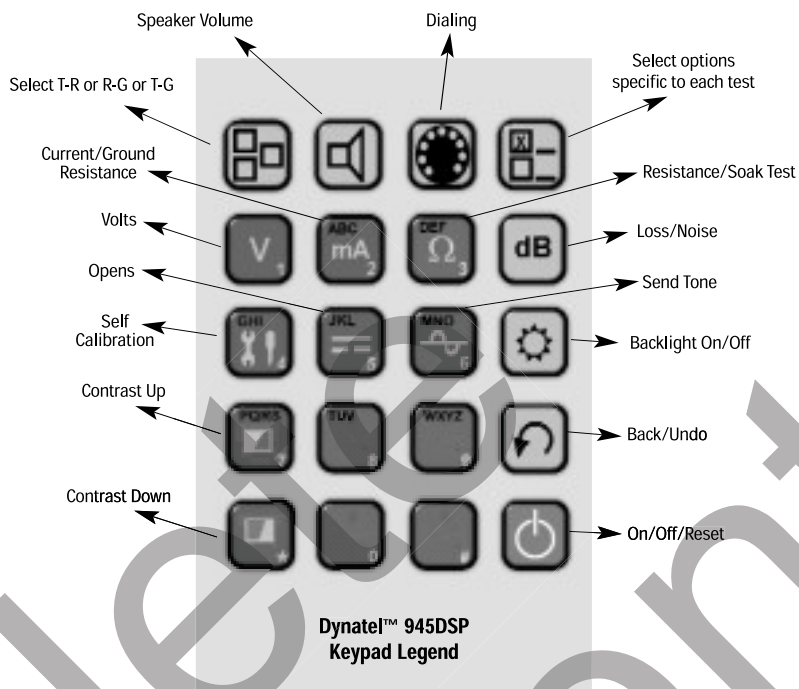
The 945DSP Subscriber Loop Tester is designed for functionality and ease of use. Features include:

- Self-calibration.
- Graphical user interface – user-friendly, icon-based display of test results.
- Replaceable test leads.
- Backlit high resolution/high contrast LCD display.
- Simultaneous display of T-R, T-G and R-G readings in Ohms, Volts and Opens.
- Accepts Alkaline, Ni-Cad or NiMH batteries.

### Rugged, weather-resistant design

The 945DSP test set is housed in a lightweight, hand-held case for portability and ease of handling. The unit is weather-resistant and weighs only 1 lb (0.5 kg).

The Dynatel brand and its distinctive Dynatel yellow color are your assurance of rugged dependability.



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## Electrical Specifications

Main Functions	Range	Resolution	Accuracy	Test leads
Voltage (AC)	0 to 75 V 75 to 250 V	1 V 1 V	± 1 V ± 3 V	R-T, R-G, T-G R-T, R-G, T-G
Voltage (DC)	0 to ± 100 V ± 100 to ± 350 V	1 V 1 V	± 1 V ± 3 V	R-T, R-G, T-G R-T, R-G, T-G
Loop Current (DC)	0 to ±110 mA	1 mA	± 2 mA	R-T (Zin = 430 Ω)
Loop Resistance (DC)	0 to 999Ω	1Ω	± 5Ω or 3%	R-T, R-G, T-G
Leakage Resistance and Insulation Soak	1 KΩ to 9.9 KΩ 10 KΩ to 99.9 KΩ 100 KΩ to 999 KΩ 1 MΩ to 9.9 MΩ 10 MΩ to 30 MΩ	10Ω 100Ω 1 KΩ 100 KΩ 1 MΩ	± 3% ± 3% ± 3% ± 3% ± 10%	R-T, R-G, T-G R-T, R-G, T-G R-T, R-G, T-G R-T, R-G, T-G R-T, R-G, T-G
Ground Resistance	0 to 50 Ω	1 Ω	+3 Ω	
Loop loss	-50 to +10 dBm 200 to 5000 Hz	1 dB	± 1 dB	R-T (Zin=600Ω)
Circuit Noise with C-message weighting Psophometric Filter*	0 to 60 dBnc 0 to 60 dBnp	1 dB 1 dB	± 2 dB ± 2 dB	R-T (Zin=600Ω) R-T (Zin=600Ω)
Power Influence with C-message weighting Psophometric Filter*	40 to 100 dBnc 40 to 100 dBnp	1 dB 1 dB	± 2 dB ± 2 dB	R & T-G (Zin=100 KΩ) R & T-G (Zin=100 KΩ)
Opens	0 to 9,999 ft. 10,000 to 99,999 ft (0 to 9,999 m) 10,000 to 30,000m	1 ft. 100ft (1 m) 100m	± 20 ft. ±5% +/- 5% (± 6m, ±5%) +/- 5%	Ring, Tip, Mutual
Frequency during loss, single frequency only	200 to 5000 Hz	1 Hz	± 3 Hz	R-T
Longitudinal balance	0 to 65 dB	1 dB	± 2 dB	T, R-G
Output	Frequency	Amplitude	Attachment	Remarks
ID tone	577.5 Hz	8 Vpp	R-T	Squarewave, interrupted
Precision tone	404,1004, 2804 Hz	0 ± 0.5 dBm	R-T	600 Ω source sinewave

## Physical Specifications

Size	7.5"H x 4"W x 1.5"D (19 cm x 10.2 cm x 3.8 cm)
Net weight	1 lb. with battery and soft case (0.5 kg)
Shipping weight	1.5 lbs (0.7 kg)
Display size	2.25" x 1.25" (5.7 cm x 3.2 cm)

## Environmental Specifications

Operating temperature	0° to 140°F (-18° to 60°C)
Storage temperature	-40° to 140°F (-40° to 60°C)
Humidity	0 to 95%
Vibration	Random 3-axis vibration at 12.5 Grms for 20 minutes
Rain proof/splash proof	Meets UL50, Rain test
EMI/EMC/Safety	Meets FCC part 15, Class A: Digital Devices for the US EN55022 (radiated emissions), EN55024-2 (electrostatic discharge), EN55024-3 (radiated immunity), EN55024-4 (transient immunity) and IEC1010 (product safety) for Europe.

## General Specifications

Batteries	4 - Disposable Alkaline (AA or LR6) but will accept user provided Ni-Cad or NiMH batteries with user provided external charger
Dialing	DTMF and Pulse Dialing - 10 Number Storage
Battery life	Alkaline: Up to 25 hours continuous, dependent on temperature and use of backlight.
Display	Graphical LCD with universal icons
Test leads	Removable red, black and green leads; 5 ft. (1.5 m)
Over voltage protection	450 Vdc, 250 Vac. Between any leads to protect the internal circuit
Keypad	Field-rugged, waterproof membrane keypad
Function keys	V (voltage), mA (loop current/ground resistance), Ω (resistance/soak test), OPENS, TONE, DB, AUTO Cal. Two non-testing function keys are '*' and '#'

Note: \* Psophometric filter is available as a special order  
Routine calibration is not recommended or required.

## Ordering Information

To order, specify the 945DSP Subscriber Loop Tester from the list below. All models of the 945DSP test set include alkaline batteries, test leads and soft case.

### 945DSP Subscriber Loop Tester - Complete Units

Stock Number	Product Description	UPC
CE-1006-8872-6	945DSP SLT, Alligator Clip, Bed-of-Nails Leads, C-Message Filter	051141-0445-2
CE-1006-8873-4	945DSP SLT, Alligator Clip, Bed-of-Nails Leads, Psophometric Filter	051141-0445-3
CE-1006-8874-2	945DSP SLT, Alligator Clip, Single Nail Leads, C-Message Filter	051141-0445-4
CE-1006-8875-9	945DSP SLT, Alligator Clip, Single Nail Leads, Psophometric Filter	051141-0445-5
CE-1006-8876-7	945DSP SLT, Test Leads with 4mm Banana Plug, C-Message Filter	051141-0445-6
CE-1006-8877-5	945DSP SLT, Test Leads with 4mm Banana Plug, Psophometric Filter	051141-0445-7

### Replacement Accessories

Stock Number	Product Description	UPC
80-6108-6435-9	1144 Black/Red test lead, Alligator Clip, Bed of Nails, 945DSP & 965DSP	051138-5764-8
80-6108-6437-5	1143 Green test lead, Alligator Clip, Bed of Nails, 945DSP & 965DSP	051138-5765-0
80-6111-6501-2	Black/Red test lead, Alligator Clip, Single Nail, 945DSP & 965DSP	051138-8875-4
80-6111-6499-9	Green test lead, Alligator Clip, Single Nail, 945DSP & 965DSP	051138-8875-2
80-6111-7358-6	1174 Black/Red test lead, Alligator Clip long, Single Nail, 945DSP & 965DSP	051138-8745-9
80-6111-7357-8	1173 Green test lead, Alligator Clip long, Single Nail, 945DSP & 965DSP	051138-8745-2
80-6108-6395-5	Black/Red test lead, 4 mm banana plug, 1.5 m, 945DSP & 965DSP	051138-5760-8
80-6108-6399-7	Green test lead, 4 mm banana plug, 1.5 m, 945DSP & 965DSP	051138-5761-2
CE-1006-8878-3	1152 945DSP SLT Soft Carry Case	051141-0445-8

Single Nail Leads provided with 945DSP Models CE-1006-8874-2 and CE-1006-8875-9 are those with standard length Alligator Clips (ie: 80-6111-6501-2 and 80-6111-6499-9)

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EN 300 386 V1.2.1 (1998-11) EMC & ERM for Telecommunications Equipment

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### Warranty; Limited Remedy; Limited Liability.

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### Telecom Access Products Division

6801 River Place Blvd.  
Austin, TX 78726-9000  
800/426 8688  
FAX 800/626 0329  
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