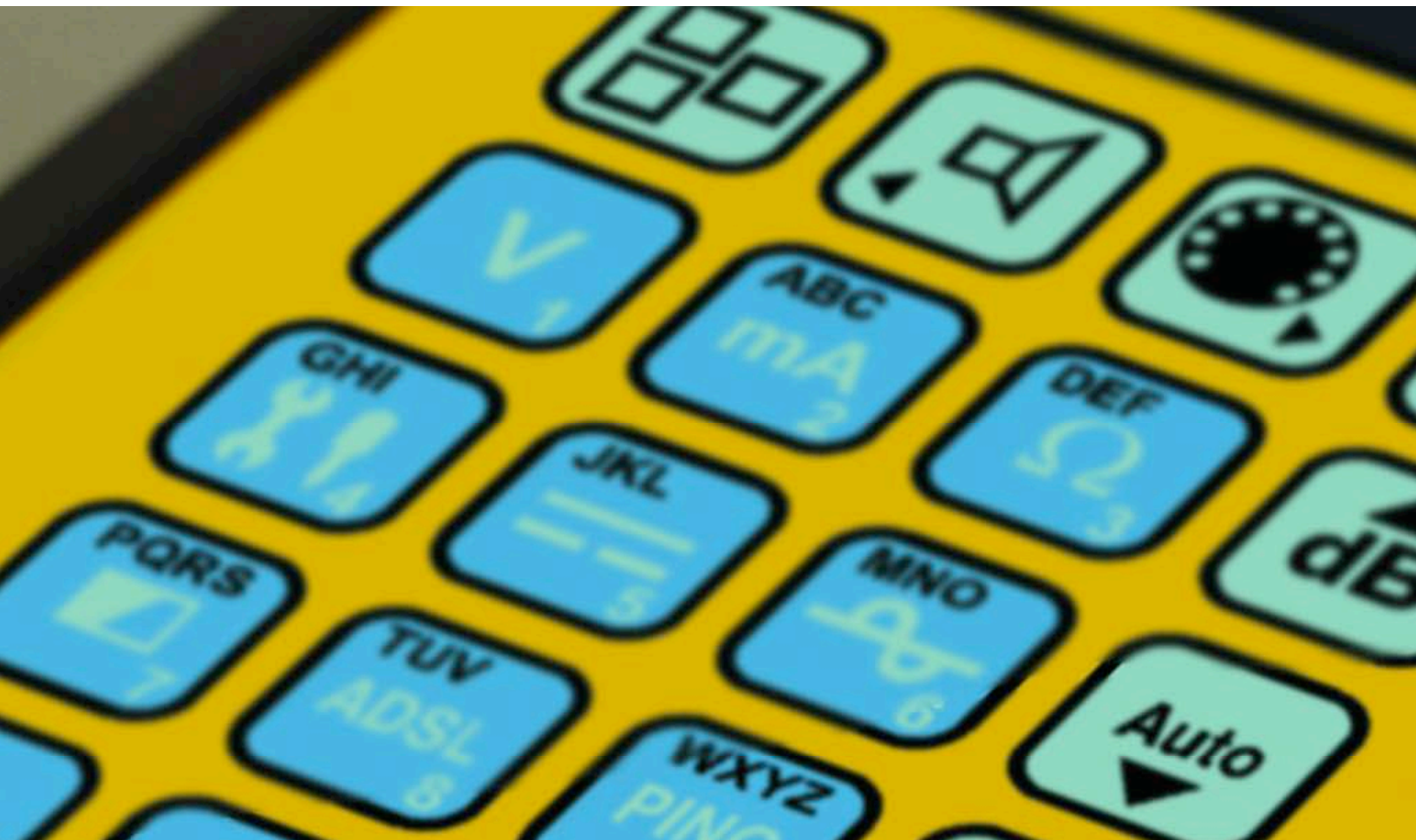




Dynatel™

Qualification Test Sets 949 & 950ADSL



Rugged and portable sets for ADSL testing and measurement.

3M™ DYNATEL™ QUALIFICATION TEST SETS 949 & 950ADSL

The right tool for the job every time.

Enhanced customer services are in high demand, such as fast Internet and data access and video conferencing. The 3M™ Dynatel™ Qualification Test Sets 949 & 950ADSL help you make sure such enhanced customer services can be provided.

The 3M™ Dynatel™ Qualification Test Sets 949 & 950ADSL provide a low cost solution for POTS testing and verification of ADSL modem connectivity at customer locations.

RUGGED, RELIABLE DESIGN

The Dynatel test sets are housed in a light-weight, hand-held case designed for ease-of-handling and portability. Each unit weighs less than 2.5 pounds with the rechargeable battery pack included. The Dynatel brand and its distinctive Dynatel yellow color are your assurances of rugged reliability.



Test set with test leads in soft carry case.



POTS AND ADSL TESTS

Metallic tests conducted by the 3M™ Dynatel™ Qualification Test Sets 949 & 950ADSL include CO and foreign voltage, insulation resistance, loop resistance, and longitudinal balance. As a tone source, the testers are capable of generating 200Hz and 2Mhz sine wave tones. Additional qualification tests include ADSL modem linkup and essential performance measurements including connect rates, error statistics, and bin-graph. Test sets also have the capability to ping to an ISP. ADSL test results can be saved and viewed in the unit or uploaded to a computer as needed. The 950 test set can perform a POTS autotest which can be saved and uploaded to a computer.

3M™ DYNATEL™ QUALIFICATION TEST SET PRODUCT FEATURES

TESTS PERFORMED	949ADSL TEST SET	950ADSL TEST SET
Volts – AC and DC	X	X
Loop Current		X
Resistance Test	X	X
Soak Test		X
Ground Resistance		X
Opens		X
Loss and Noise		X
Longitudinal Balance	X	X
Dial Key		X
Load Coils		X
POTS Autotest		X
Precision Tones to 2Mhz	X	X
ADSL Connectivity	X	X
PING Testing	X	X

FEATURES	949ADSL TEST SET	950ADSL TEST SET
Backlit LCD	X	X
RJ45 Attachment for Test Leads	X	X
Rechargeable NiMH Battery	X	X
Serial Upload to PC	X	X
Storage for 200 ADSL Results	X	X
Storage for 10 POTS Results		X

3M™ DYNATEL™ QUALIFICATION TEST SET 949 & 950ADSL

ADSL MEASUREMENT SPECIFICATIONS

ADSL Standards	ANSI T1.413 ITU-T G.992.2 (G.LITE) ITU-T G.992.1 (G.DMT) - Annex A	
IP Encapsulation	LLC SNAP or VC MUX	
IP Transport Protocols	DHCPoE – IP on Ethernet over ATM DHCPoA - IP over ATM StaticIPoE – IP on Ethernet over ATM StaticIPoA - IP over ATM PPPoE - PPP over Ethernet over ATM PPPoA - PPP over ATM	
PPP Authentication	CHAP or PAP	
Line Impedance	100 ohms, nominally	
FUNCTION	MEASUREMENT	ACCURACY
ADSL Status	Fast Rate Up/Down	+/- 1 kbps
	Interleaved Rate Up/Down	+/- 1 kbps
	Max Rate Up/Down	+/- 1 kbps
	Margin Up/Down	+/- 1 dB
	Attenuation Up/Down	+/- 1 dB
	Capacity Up/Down	+/- 1 %
ADSL Information	FEC Errors Up/Down	+/- 1
	CRC Errors Up/Down	+/- 1
	HEC Errors Up/Down	+/- 1
	Bin Graph	
ADSL Alarms	Loss of Signal (LOS)	
	Loss of Frame (LOF)	
	Loss of Power (LOP)	
	Loss of Margin (LOM)	
Ping	Connection Time	+/- 10mS

3M™ DYNATEL™ QUALIFICATION TEST SET 949ADSL

GENERAL SPECIFICATIONS

Size:	60 mm high x 100 mm wide x 200 mm long
Weight:	Less than 2.5 lb. with battery
Battery:	NiMH 2.1 Ahr – shrink wrap pack, user replaceable through access door on back of unit
Battery life:	8 hours standby (Backlite Off) + 20 full ADSL qualification tests AC/DC adapter connects to the unit through the RJ-45 test lead jack The unit cannot make measurements while powered by the AC/DC adapter Auto shutoff after 5 minutes with no activity, except during charging
Display:	64 x 128 pixel , 57 mm x 31 mm viewing area with LED backlight
Test leads:	Red, black and green leads. 1.5 meter long. Connected to unit via RJ-45 jack
Breakdown Voltage:	360 Vdc, 250 Vac. (the unit will be damaged if exposed to voltages exceeding these limits)
Operating temperature:	-10°C to 60°C except for ADSL and battery charger functions 0°C to 60°C ADSL functions (temperatures > 50°C performance could degrade) 0°C to 50°C battery charger operation
Humidity:	0 to 80% non-condensing
Rain proof/splash proof:	Conforms to IP42
Shock:	Will survive 3 foot drop to concrete
Regulatory:	CE / FCC
ADSL Test Storage:	200 sets of results identified with an alphanumeric label Stored results can be viewed in the test set.
Languages:	English
RS232 Port	An RJ45 to DB9 adapter cable is provided to permit connecting the 949 and 950ADSL to a PC The serial connection supports the following: <ul style="list-style-type: none"> • Upload of test results to the PC • Field software updates

POTS MEASUREMENT SPECIFICATIONS

FUNCTION	RANGE	RESOLUTION	ACCURACY*	TEST LEADS
AC voltage:	0 to 250 Vac (input resistance = 1M Ohm ± 5%)	± 1 V ± 2%	R-T, R-G, T-G	
DC voltage	0 to 250 Vdc (input resistance = 1M Ohm ± 5%)	± 1 V ± 2%	R-T, R-G, T-G	
Resistance	0 ohm to 999 ohms 1K ohm to 9.9K ohms 10K ohms to 99.9K ohms 10K ohms to 999K ohms 1M ohm to 9.9M ohms 10M ohms to 30M ohms Active pair: 0 to -60 VDC R-T voltage, 600 ohm to 7K ohms Inactive pair: 0 to -90 VDC R-T voltage, 600 ohms to 1 Megohm	1 ohm 10 ohms 100 ohm 1K ohm 100K ohms 1M ohm	± 5 ohm ± 3% ± 3% ± 3% ± 3% ± 3% ± 10%	R-T, R-G, T-G
Longitudinal Balance	0 – 65 dB	1 dB	±2 dB	TR-G
Precision tone	Frequency 404Hz, 1004Hz, 2804Hz (preset) Source Impedence 600 ohms +/- 5%		Amplitude 0 ± 0.5 dBm	R-T
	Frequency 8000 – 2Mhz (user settable) +/- 10% Source Impedence 100 ohms +/- 5% 577 Hz intermittent trace tone		Amplitude 0 ± 0.5 dBm Amplitude 5V P-P	R-T

*Percent of reading

3M™ DYNATEL™ QUALIFICATION TEST SET 950ADSL

GENERAL SPECIFICATIONS

POTS Test Storage	10 Sets of results, each identified with a 10 digit numeric identifier Stored results can be viewed in the test set
POTS Autotest	Autotest will run the following tests: V (T, R, G), mA, Ground Resistance, Ohms (T, R, G), Opens (T, R, G), Load Coil Count, Noise, PI, LB and Loss (up to 10 voiceband frequencies)

ADDITIONAL POTS MEASUREMENT SPECIFICATIONS (950ADSL)

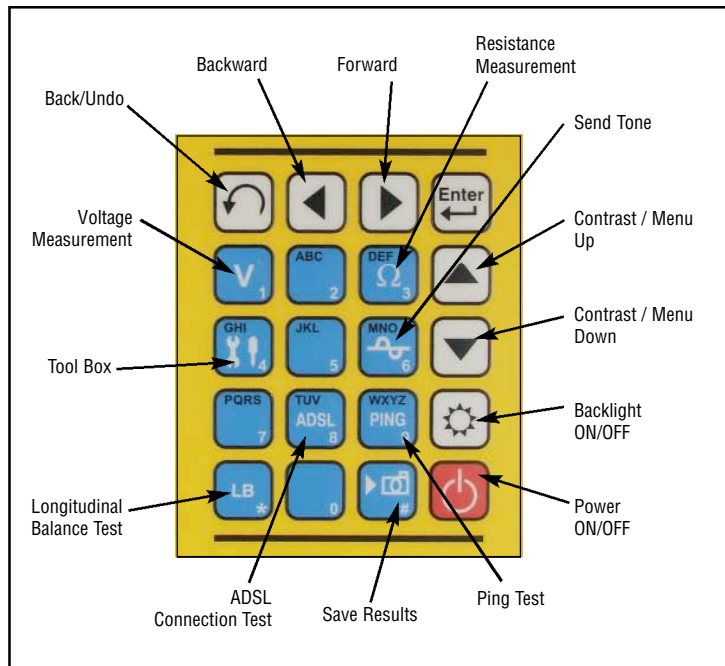
FUNCTION	RANGE	RESOLUTION	ACCURACY*	TEST LEADS
Loop Current (DC)	0 to ±110 mA	1 mA	±2mA	R-T (Impedence = 430 Ω)
Loop Resistance	0 ohm to 999 ohms	1 ohm	± 5 ohm ± 3%	R-T, R-G, T-G
Loop Loss	-50 to +10 dBm 200 to 5000 Hz	1 dB	±1 dB	R-T (Impedence = 600 Ω)
Frequency during loss, single frequency only	200 to 5,000 Hz	1 Hz	±3 Hz	R-T
Noise Metallic with C-message weighting**	0 to 60 dBrc	1 dB	±2 dB	R-T (Impedence = 600 Ω)
Noise to Ground with C-message weighting**	40 to 100 dBrc	1 dB	±2 dB	R & T-G (Impedence = 100KW)
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
Longitudinal Balance	0 – 65 dB	1 dB	±2 dB	TR-G.
Ground Resistance	0 to 50 Ω	1 Ω	± 3 Ω	
Load Coils	Count 0,1,2,3,4 or >4 coils Note: First load must be >3000' from the unit and 3000' of cable must extend beyond the last load coil for an accurate count		+/- 1 coil	

Notes: * Percent of reading

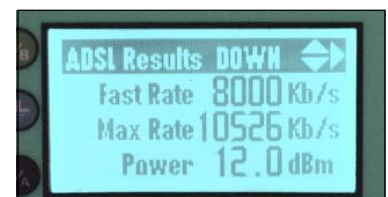
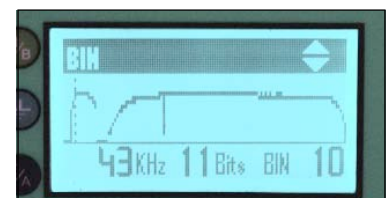
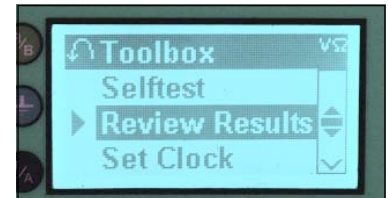
** C-message specification has additional frequency dependent tolerance. Refer to "Subscriber Loop Transmission Test Set Specification", Bell System PUB 55020, January 1982.

3M™ DYNATEL™ QUALIFICATION TEST SET 949 & 950ADSL

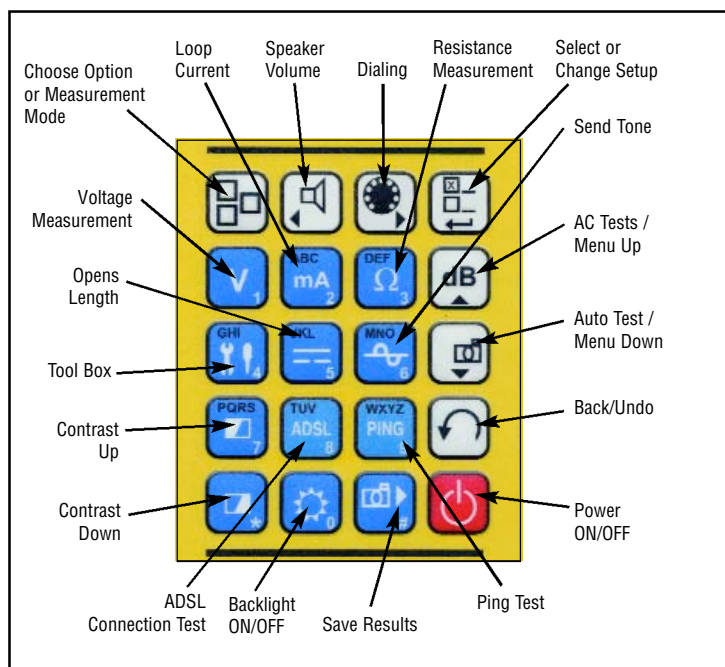
949 KEYPAD FUNCTIONS



SAMPLE SCREENS



950 KEYPAD FUNCTIONS



3M™ DYNATEL™ QUALIFICATION TEST SET 949 & 950ADSL

PRODUCT CONTENTS AND ORDERING INFORMATION

PRODUCT NUMBER	DESCRIPTION
CE100699624	949ADSL Qualification Test Set
CE100699632	950ADSL Qualification Test Set with Enhanced Testing Capability
CE100700687	AC/DC Adapter, 120VAC Input
CE100700695	Test Leads 949/950, Red/Black/Green
CE100700711	Serial Cable
CE100700729	Telephone Patch Cord
CE100700737	Soft Carry Case
CE100700745	Rechargeable NIMH Battery Pack
CE100700752	AC/DC Adapter, 220VAC

To order, call 800/426 8688. For more information, please contact your local 3M representative.

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