3M Dynatel 965 DSP-B Specs Provided by www.AAATesters.com

3M

Dynatel[™] 965DSP

Subscriber Loop Analyzer



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Complete testing of POTS and ISDN subscriber loops

The 3M[™] Dynatel[™] 965DSP Subscriber Loop Analyzer is a microprocessor-controlled integrated test set that provides full-featured POTS and wideband testing. The functions include fault location and repair verification on twisted-pair, quad and coaxial cable (utilizing capacitance bridge, resistance bridge and Time Domain Reflectometer (TDR) functions).

The Dynatel 965DSP subscriber loop analyzer executes a wide range of individual tests, or performs automatic test routines to categorize and sectionalize problems. Specific tests and measurements performed by the unit include:

- Voltage detects and measures the presence of central office (exchange) or foreign DC or AC voltages.
- Tone provides test tones for conductor identification and transmission testing. 10 default tones, user selectable as ID tone, voiceband, or wideband. Wideband goes up to 1.2 MHz, voiceband to 20 kHz, ID tone to 1000 Hz.
- Current measures DC loop current.
- Resistance measures conductor and insulation resistance up to 1000 megohms.
- TDR full-featured TDR with user-selectable pulse widths, length, gain zoom, filter and Vp. Five modes of operation:

Single trace – provides graphical representation of events on a pair.

Dual trace – allows active comparison of two traces. **Differential** – displays difference between two circuits.

Crosstalk – displays the crosstalk from one pair to another.

Memory – allows comparison of an active trace with a trace stored in memory.

Peak – displays a history of maximum and minimum values with the live trace.

- Resistive fault location displays distance to fault.
- Opens locates opens at distances up to 100,000 ft. (30 km).
- Load coil count indicates the presence of load coils in a loop circuit and distance to the first load coil.
- Wideband loss loss measurements to 1200 kHz for pre-qualifying ISDN, HDSL and ADSL.
- Loss measures voiceband loss.
- Noise measures noise metallic and noise to ground in dBrnc or dBm0p.
- Longitudinal balance provides active measurement of line balance.
- Autotest allows an automatic test of active, inactive and wideband (56K/64K DDS, ISDN, HDSL, T1, E1 and ADSL) lines with pass/fail limits.
- Ground resistance allows the 965DSP to measure the resistance of the ground path.
- Special resistance allows the 965DSP to measure the loop resistance and the resistance difference between two conductors on a pair.
- K-Test allows RFL measurement when both wires in a pair are faulted and there is no separate good pair available.



3M Dynatel 965DSP with 3M Far End Device

- Ringers measures and displays capacitance associated with one or more ringers and the equivalent count.
- Level Trace measures and displays the AC impedance of the unterminated line as a function of frequency.
- 3M's FED and CTCs Smartstrap™ support for wideband auto test.

Flexible, practical features

The 965DSP subscriber loop analyzer is designed for functionality and ease of use. Features of the unit include:

- IR port infrared port for downloading future software programs and uploading test results to a PC or printer.
- Self-calibration internal instrument calibration and set-up procedures.
- Graphical user interface user-friendly, icon-based display of test results.
- Replaceable test leads.
- HELP function an internal help menu provides information as needed during operation.
- Telephone internal telephone or "talk set."
- Rechargeable nickel metal hydride batteries with battery charger and alkaline battery holder.
- Object oriented software design for easy upgrades, investment protection.
- Backlit high resolution/high contrast LCD display.

Rugged, weather resistant design

The hand-held 965DSP test set is housed in a lightweight, ergonomically designed case for portability and ease of handling. The unit is weather-resistant and weighs only 3.3 pounds (1.5 kg).

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

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4 5 RFL Strap 6 AD/DC Adapter Cable

$3M^{\scriptscriptstyle\mathsf{TM}}$ Dynatel $^{\scriptscriptstyle\mathsf{TM}}$ 965DSP Subscriber Loop Analyzer

Main Functions	Range	Resolution	Accuracy	
Voltage (DC)	0 to 99.9 V 100 to 300 V	0.1 V 1 V	1% ± 0.5 V 3%	
Voltage (AC)	0 to 99.9 V 100 to 250 V	0.1 V 1 V	1% ± 0.5 V 3%	
Current	0 to 59.9 mA 60 to 110 mA	0.1 mA 0.1 mA	1% ± 0.3 mA 2%	
Resistance (DC) with CO voltage	0 to 9999 Ω 0 to 9999 Ω 10 k to 99.9 k Ω 10 k to 99 k Ω 1 M to 9.9 M Ω 10 M to 99 M Ω 100 M to 990 M Ω	1 Ω 1 Ω 0.1 kΩ 1 kΩ 0.1 MΩ 1 MΩ 10 MΩ	$1\% \pm 5 \Omega$ $1\% \pm 50 \Omega$ 1% 3% 3% 5% 10%	
Opens (no noise)	0 to 3,000 ft (0 to 1000 m) 3,000 to 10,000 ft (1 km to 3 km) 10,000 to 50,000 ft (3 km to 15 km) 50,000 to 100,000 ft (15 km to 30 km)	1 ft (1 m) 1 ft (1 m) 10 ft (10 m) 100 ft (100 m)	1% ± 3 ft (1 m) 3% 5% 10%	
RFL Fault range Resistance to fault (no noise)	0 to 20 MΩ 0 to 99.99 Ω RTS 100 to 999.9 Ω RTS 1 kΩ to 7 kΩ RTS	 0.01 Ω 0.1 Ω 1.0 Ω	$-$ 0.1% of RTS ± 0.01 Ω 0.2% of RTS ± 0.01 Ω 1.0% of RTS ± 0.01 Ω	
Loss (& frequency) with 600 Ω Zin			0.5 dB, 2 Hz 0.5 dB, 10 Hz 1 dB, 20 Hz	
Wideband loss 135 Ω Zin	-50 to +2 dBm, 20 k to 1200 kHz	.1 dB, 100 Hz	2 dB, 1%	
Noise metallic 600 Ω Zin	0 to 50 dBrnc (-90 to -40 dBm0p)	1 dB	2 dB	
Noise to ground 600 Ω Zin	40 to 100 dBrnc (-50 to 10 dBm0p)	1 dB	2 dB	
ongitudinal balance	0 to 85 dB	1 dB	2 dB	
Tone output ID Precision - 600 Ω Zout Wideband - 135 Ω Zout	200 to 1000 Hz, fixed level 200 to 9999 Hz, -20 to +1 dBm 10 k to 19.99 kHz, -20 to +1 dBm 0 dBm, 20 k to 1200 kHz	1 Hz 1 Hz, 0.1 dB 1 Hz, 0.1 dB 1 kHz	1% 1% Hz, 0.2 dB 2% Hz, 1 dB 1 dB	
Dial mode	DTMF, Pulse	Standard	Standard	
TDR* Ranges	3 ft-300 ft, 20 ft-1,000 ft, 50 ft-3,000 ft, 150 ft10,000 ft, 450 ft-30,000 ft (1-100 m, 5-300 m, 15-1,000 m, 45-3,000 m, 140-10,000 m)	1 ft (1 m)	0.6% range	
Pulse width Velocity input Modes	5 nS, 34 nS, 235 nS, 1600 nS 0.50 to 0.99 (150 to 299 m/µs) Single trace, dual trace, differential, memory, crosstalk	Fixed values 0.01 (1 m/µs) —	Ξ	
ISDN Link test Error test (U.S. & Canada only)	Active/inactive) Near-end & far-end block errors	 1 error	 1 error	
Auto	Same specifications as full tests	See above	See above	

^{*}Not included in 965DSP-B version; available as optional factory upgrade.

Physical Specifications				
Size	10.0"H x 4.0"W x 2.5"D	(25 cm x 10 cm x 6 cm)		
Net weight	3.3 lb. with battery and soft case	(1.5 kg)		
Shipping weight	7 lb.	(3.17 kg)		
Material	High-impact grade ABS			









AC/DC Adapter

Battery Holder

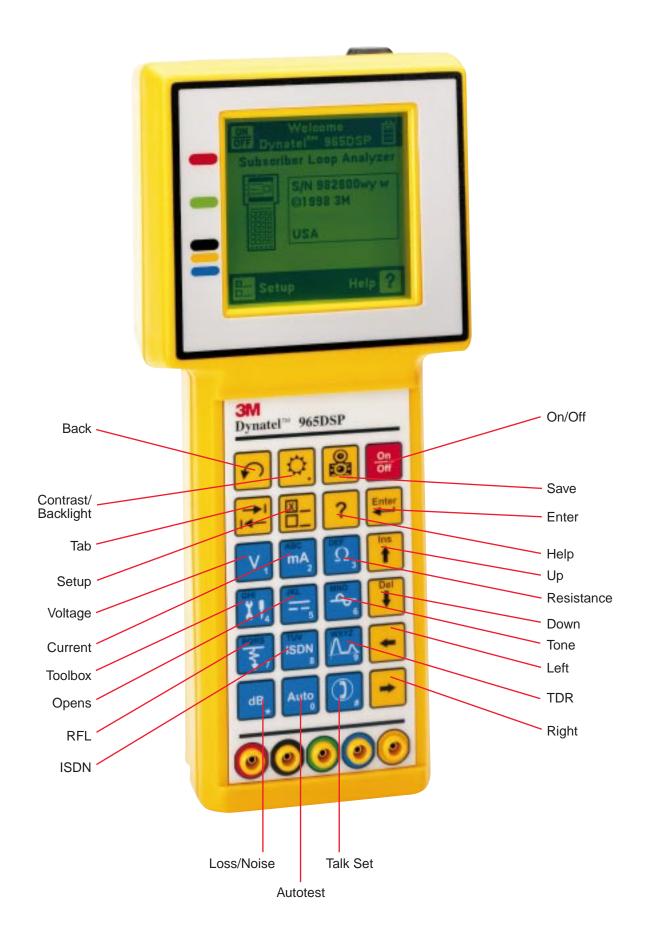
Battery Pack

Far End Device

$3M^{\scriptscriptstyle{\mathsf{TM}}}$ Dynatel $^{\scriptscriptstyle{\mathsf{TM}}}$ 965DSP Subscriber Loop Analyzer

Environmental Specific	ations					
Operating temperature		0° to 140°F	(-18 to 60°C)			
Storage temperature		-40° to 165°F	(-40 to 75°C)			
Humidity	0-95%, non-condensing					
Accessories						
Test leads	U.S. – Five 5 ft (1.5 m) test leads with 2 mm gold-plated banana plugs one end and chrome-plated alligator clips on other end (black/red, blue/yellow, green) European – Five 5 ft (1.5 m) test leads with 2 mm gold-plated banana plugs one end and 4 mm gold-plated banana plugs on other end (black/red, blue/yellow, green)					
RFL strap	U.S. – 1.5 ft (0.5 m) with alligator clips on ends European – 1.5 ft (0.5 m) with banana plugs on ends					
AC/DC adaptor	100-250 Vac (50/60 Hz) input; 12 Vdc (1 A) output. For charging only. Do not operate when using adapter.					
Soft case	Heavy-duty fabric case for unit a	Heavy-duty fabric case for unit and test leads				
Battery holder	Plastic holder for 6 AA (LR6) bat	tteries				
Battery pack	Custom 1.2 amp-hour Nickel me	tal hydride				
Toolbox Functions	Range	Resolution	Accuracy			
Load coil count	0 to 5	1	±1			
Ohms/distance calculator	0-9999 ohms 0-99999 ft (0-30 km)	0.01Ω 1 ft (0.1 m)	_			
Caller ID (U.S. & Canada only) Carrier level	Date, time, number, name -4 to -32 dBm	1 dBm	 2 dBm			
Self-calibrate	Pass/Fail					
Loop resistance	0 to 99.9 Ω 100 to 999.9 Ω 1000 to 7000 Ω	0.01 Ω 0.1 Ω 1 Ω	$0.1\% \pm 0.01~\Omega$ $0.2\% \pm 0.01~\Omega$ $1.0\% \pm 0.01~\Omega$			
Resistance difference	0 to 99.99 Ω	0.01 Ω	1% of loop resistance ± 0.01 s			
Ground resistance	5 to 500 Ω	1 Ω	1% ± 1 Ω			
K-Test Loop resistance Fault ratio Resistance to fault (no noise)	0 to 7K Ω (Fault Res ₂) > twice (Fault Res ₂) 0 to 99 Ω 1K Ω to 3.5K Ω		— 5% 5% 5%			
Stored results (Auto Test and TDR)	100 results of each, minimum					
Ringers	0.0 to 4.0 0 to 2000 nF	0.1 Ω 10 nF				
General Specifications						
Ruggedness	Survives 5 ft (1.5 m) drop in soft case					
Water-resistance	Splash-proof; may be used in light to moderate rain					
Standards	EN55024-2 (electrostatic discha immunity) and IEC1010 (product	rge), EN55024-3 (radiated t safety) for Europe. Built to	d EN55022 (radiated emissions), immunity) EN55024-4 (transient o ISO9001 certification for ogies) TSY000078 manufacturing			
Language	English, Spanish, French, Germa	an, Danish, Italian, Canadi	an French			
Units	Feet or meters, Fahrenheit or Ce	elsius, dBrnC or dBm0p, m/	/uS or Vf			
Battery life	Rechargeable battery pack, 12 hours typical usage (no backlight), 4 hours typical (with backlight); typical usage defined as 30 minutes on, 30 minutes off					
Charging time	2 hours from low to full, typical					
Keypad	24-key membrane keypad with ta	actile feedback				
Display	2.5" x 2.5" (74 x 74 cm), 192 by	192 pixel resolution, backli	aht			

Note: Routine calibration is not recommended or required.



3M™ Dynatel™ 965DSP Subscriber Loop Analyzer

Test	Inac Pa w/o Basic	ir	Inactive Pair w/FED Basic	Inactive Pair w/FED Full	Active Pair w/o FED	Wideband w/FED Basic	Wideband w/FED Full
Volts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ohms	Yes	Yes	Yes	Yes	No	Yes	Yes
Opens	Yes	Yes	Yes	Yes	No	Yes	Yes
Longitudinal balance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweep loss	No	No	No	Yes	No	No	Yes
Single tone loss	No	No	Yes	Yes	Yes	Yes	Yes
Loop resistance	No	No	No	Yes	No	Yes	Yes
Resistance balance	No	No	No	No	No	No	Yes
Load coils	No	Yes	No	Yes	No	Yes	Yes
Loop current	No	No	No	No	Yes	No	No
Noise	No	No	No	No	Yes	No	No
Power influence	No	No	No	No	Yes	No	No
Capacitive balance	No	No	No	No	No	Yes	Yes
Slope	No	No	No	Yes	No	No	No

Ordering Information

To order, specify the appropriate 965DSP Subscriber Loop Analyzer which includes: analyzer, AC adaptor, AC power cord, test leads, alkaline battery holder, conductor strap and operating manual. For further information, please contact your local 3M sales representative.

Stock Number	Product Description	UPC	
80-6108-6390-6	965DSP-Subscriber Loop Analyzer	051138-57603	
80-6109-9074-1	965DSP-B Subscriber Loop Analyzer	051138-58643	
80-6109-9319-0	965DSP-European Model	051138-70088	
80-6109-9203-6	965DSP-B TDR Upgrade Kit	051138-58770	
Optional accessories			
80-6108-6435-9	Black/red test lead, alligator, bed of nails	051138-57648	
80-6108-6395-5	Black/red test lead, 4 mm banana, 1.5 m	051138-57608	
80-6108-6436-7	Blue/yellow test lead, alligator, bed of nails	051138-57649	
80-6108-6397-1	Blue/yellow test lead, 4 mm banana, 1.5 m	051138-57610	
80-6108-6437-5	Green test lead, alligator, bed of nails	051138-57650	
80-6108-6399-7	Green test lead, 4 mm banana, 1.5 m	051138-57612	
80-6108-6472-2	Alkaline battery holder	051138-57685	
80-6109-9059-2	110/220 Vac adapter	051138-57606	
80-6108-6392-2	Soft case	051138-57605	
80-6108-6473-0	Nickel metal hydride, battery pack	051138-57686	
80-6109-3281-8	Cigarette lighter adaptor	051138-57744	
80-6109-3830-2	Ground strap, alligator	051138-58529	
80-6109-3833-6	Ground strap, 4 mm banana	051138-58532	
80-6109-9197-0	IR Adapter Cable	051138-58764	
80-6109-9320-8	1162 KM Box (K-test Adaptor)	051138-70089	
80-6110-2035-7	Far end device	051138-89322	
80-6110-2044-9	Printer IR Adapter	051138-89331	
80-6110-2045-6	Seiko DPU-414 Printer Kit	051138-89332	

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