# DATA COMMUNICATIONS TEST EQUIPMENT

# **Network Circuit Access Test Set, Transmission Impairment Measuring Set** Models 4938A/4937A

HP 4935S Data Transmission	\$4,900
Test Set	
Option 001: Adds rechargeable	\$375
Battery Pack to HP 4935A	
Option 002: Adds P/AR	\$150
measurement in place of Noise-to-	
Ground in HP 4935A	
Option 003: Adds both battery	\$450
Pack and P/AR to HP 4935A,	
deletes Noise-to-Ground	
Option 101: Adds RS-232C/V.24	\$410
Interface to HP 4925B	
Option 102: Adds V.35 Interface	\$600
and HP 18184A Power Module	
(115V) to HP 4925B	
Option 104: Adds V.35 Interface	\$640
and HP 18194A Power Module	
(220V) to HP 4925B	
Option 910: Adds extra HP	\$65
4935A and HP 4925B Operating	
and Service Manuals	



### **A Transmission Test Set With** Signaling

The HP 4937S Network Access Transmission Test Set provides transmission tests, supervisory signaling simulation, and network access capabilities for installation and maintenance of networks and PBXs. It is a fieldservice, portable test set designed for craftlevel use. All the transmission measurements are compatible with current Bell standards.

#### One Instrument for Installation/ Maintenance of PBXs and Networks.

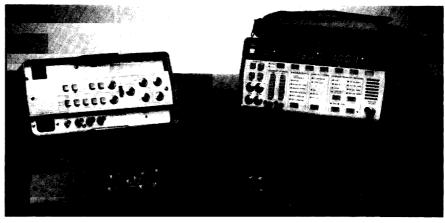
The HP 4937A contains a set of voiceband transmission tests — level/frequency measurement, noise, and 2- and 4-wire return loss measurements. It also has the ability to seize and hold three types of E/M lines. In addition, the HP 4937A simulates signaling both from the central office and from the PBX at the network interface.

The HP 4938A provides additional network access and margin testing capabilities. It includes access to 4-wire simplexed leads, generating ringing signal, and providing access for loop current and ringing voltage measurement.

#### **HP 4937A Specifications** Level/Frequency **Transmitter**

Level: -40 dBm to +13 dBmFrequency: 20 Hz to 9999 Hz Receiver

Level: -60 dBm to +13 dBm Frequency: 20 Hz to 9999 Hz



#### **Noise Measurements**

Noise: 0 to 99 dBrn

Noise-with-Tone: 10 dBrn to 99 dBrn Signal-to-Noise Ratio: 10 to 45 dB Noise-to-Ground: 50 to 99 dBrn Filters: C-Message, 3 kHz flat, 1010 Hz notch

#### **Return Loss**

Impedances: 600 and 900 ohms

Signal Spectra: Echo return loss, singing return loss high, singing return loss low.

Return Loss, 2-Wire

Transmitter Level: -26 dBm to -2 dBm Receiver Range: 0 to 40 dB Return Loss, 4-Wire

Transmitter Level: -26 dBm to -2 dBm Receiver Range: 0 to 50 dB

Transhybrid Loss Compensation: -29.9 to +29.9 dB

## **Supervisory Signaling**

E/M Signaling: Types I, II, III Loop Signaling: Loop start, Ground start,

Loop Reverse Battery

Battery: -48 Vdc current limited to 29 mA Hold Circuit: 2 each drawing 20 mA at a minimum voltage of 8.5 Vdc

Wink: Idle state, 100 ms; off-hook state, 200

#### General

Battery Supply (Optional): Typically 5 hours of continuous operation at +25°C. Complete recharging in 14 hours with unit in STBY

Dimensions: 127 H x 279 W x 380 mmD (5.0" x 11.0" x 15.0")

Weight: 5.3 kg (12 lb), 7.6 kg (17 lb) with batteries

#### **HP 4938A Specifications Ringing Voltage Generator**

Output Level: 86 Vrms into a REN-3 load Frequencies: 20 Hz and 30 Hz

Ring Trip Treshold: 17 mA typical Ringing Termination: REN-3 load, ring trip closure (330 ohms)

Loop Signaling Network: loop start, 430 ohms; ground start, 550 ohms from ring to ground

4-Wire Network Access: 2 dual centertapped simplex transformers

Battery Simulator: 48 Vdc maximum current 100 mA

#### General

Dimensions: 91 H x 261 L x 126 mm W (3.6 x 10.3 x 4.9 in.) Weight: 1.5 kg (3.2 lb)

# **Ordering Information**

HP 4937S Network Access	\$5,700
Transmission Test Set	
Option 001: Rechargeable	\$270
batteries for HP 4937A	
Option 002: Replace 900 ohms	N.C.
with 150 ohms on HP 4937A	
Option 910: Adds extra HP	\$55
4937A and HP 4938A Operating	
and Service Manuals.	
HP 4937A Transmission	\$4,700
Impairment Measuring Set	
Option 001: Rechargeable	\$270
batteries	
Option 002: Replace 900 ohms	N.C.
with 150 ohms	
HP 4938A Network Circuit	\$1,150
Access Test Set	

#### A -----

Accessories	
HP 18132A: 19 in. rack mount for	\$165
HP 4935A and HP 4937A	
HP 18134A: Soft Vinyl Carrying	\$140
Case for HP 4935A or HP 4935S	
HP 15512A: 1 m audio cable with	\$80
two 3-pin connectors (Siemens	
type) (for the HP 4936A)	
HP 15513A: 1 m audio cable with	\$60
two WECO 310 jack plugs (for	
the HP 4935A and HP 4937A)	
HP 18182A: 1.5 m audio cable,	\$65
WECO 310 plug to alligator clips	
HP 18064A: Noise-to-ground	\$135
adapter for the HP 4935A. Allows	
P/AR instruments (options 002	
and 003) to measure noise-to-	
ground	
HP 18161A: Ladder bracket for	\$30
HP 4935A and HP 4937A	

See also HP 4925B

