Features

- Connects to the subscriber line just like a telephone
- Auto-answers a call, disconnects on busy tone
- Reconnects customer equipment after measurement
- No programming, no plug-pack, no batteries
- 600 Ω and TN12
- Remote noise measurements via telephone

In conjunction with the Level Meter LM41

- Transmit loss, receive loss
- Slope at 13 frequencies
- Psophometric and bandpass noise
- Return loss at 14 frequencies
- Impulse noise
- Dropout
- Level recorder

Transmission Testing

H HEUER INSTRUMENTS

RESPONDER R41

RESPONDER R41
200 Hz to 4 kHz

The R41 is a line powered responder in a small package designed to allow remote testing of communication lines. Just connect it to the line like a telephone and it is ready for measurements, no programming, no plug-packs, no batteries. Customer equipment is automatically reconnected to the line after completion of remote measurements. When used in conjunction with the Level Meter LM41 it provides automatic performance analysis of a telephone line. The R41 can be remotely controlled by DTMF tones. Audio feedback is provided so that the user can confidently operate the R41 by using a telephone. The R41 will automatically answer and terminate a call.
Different operating modes allow testing for excessive noise levels, perform loss and slope measurements, impulse noise measurements, return loss and dropout measurements.

Auto Answer (AA) Mode

In this mode of operation, the R41 can be connected to a subscriber line where it will respond to ringing by seizing the line. At the completion of a test sequence, the R41 will release the line in response to signalling from the remote end.

The R41 can be left at a remote site for testing from the exchange or it can be located in an exchange where it can be used as a centralized responder for testing customer lines. It can be connected to any other line where out and back testing can be done via the exchange or PABX.

On Line Mode

In this mode of operation, the R41 is in the On Line state and draws it's power from the line. When connected to a telephone line, the R41 will hold the loop. The R41 cannot automatically disconnect from the line when in this mode.

Customer Equipment (CE) Mode

When operating in CE mode, the R41 is connected between the line and customer equipment such as a telephone or fax machine. In this mode, the R41 can be left at a customer or remote site without interfering with the normal operation of the line. Service personnel can dial into the customer line at any time, even after hours, and switch over to the R41 for performance testing of the line from the exchange or any other line.

Technical Specifications (R41)

Interfaces

Line	Modular 6P6C socket (4 conductor cable) in parallel with 3-pin balanced, floating 4 mm socket
Customer Equipment	Modular 6P6C socket (4 conductors)

Impedance	600 Ω, TN12 (820 Ω//120 nF+220 Ω)
Return Loss	≥ 30 dB (200 Hz to 4 kHz)
Signal Balance	≥ 50 dB (200 Hz to 4 kHz)
Output Noise	≤ -85 dBmp
Trigger Level	-20.0 dBm ± 0.1 dB (200 Hz to 4 kHz)
Send Level	-10.0 dBm ± 0.1 dB (200 Hz to 4 kHz)
Distortion	< - 46 dB

Noise Detectors

Thresholds	-60.0 dBm ± 0.5 dB -70.0 dBm ± 0.5 dB
Psophometric Response	In accordance with ITU-T Rec O.41
Bandpass Response	Lower 3 dB between 70-100 Hz Upper 3 dB between 3400-4400 Hz

DC Power

Powered by line	
Loop Hold Current	20 mA ± 5 mA all modes
Off Line Current	
AA Mode	<50 µA
CE Mode	approx. 1 mA

Status Indicators

Loop LED	on: loop current flowing
Send LED	on: R41 is sending

On/Off Line Control

Automatic Answer
- Release on Busy/Congestion Tone
- Release on DTMF tone
- Release 70 s after last DTMF command
- Manual, using AUTO ANSWER/ON LINE switch
- Automatic Release (AA, CE modes only)

Remote Control
- Level Triggering at –20 dBm
- DTMF signalling

R41 DTMF Control codes

Quiet hold, -20 dBm Trigger mode, -60 dBm Psophometric Noise checking, -70 dBm Psophometric Noise checking, -60 dBm Bandpass Noise checking, -70 dBm Bandpass Noise checking, FSTARS, -20 dBm Trigger mode (slow), Quiet hold extended (16 min), Tone hold (1 min), R41 Id

Line Control (via DTMF):

Release Line (AA, CE modes only)
In CE mode, isolate Customer Equipment and connect Line to R41

Operating Temperature 0 °C to 50 °C

Dimensions	178 mm x 45 mm x 55 mm
Weight	0.4 kg

H HEUER INSTRUMENTS PTY LTD

766 Pennant Hills Road, Carlingford NSW 2118
Sydney, Australia *Web: www.heuer.com.au*
Tel: +61 2 9871 8207 Fax: +61 2 9872 5985