

# Frequency Response Analysers

DA 1310

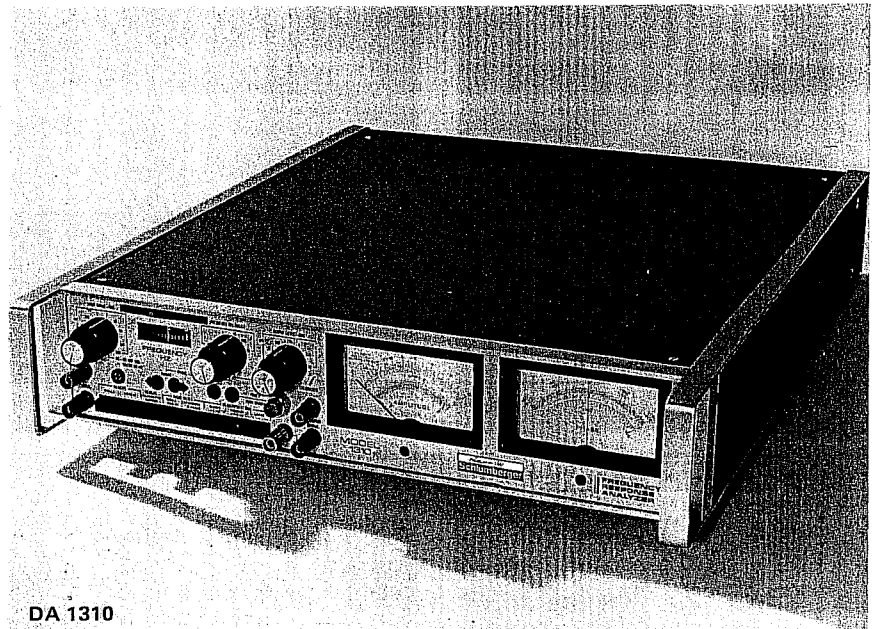
1975/76 Cat.

Price £1750 in 1975/76

Discontinued by 1979/80

In 1972, price £1935

- Frequency range: 0.02Hz to 20kHz
- Simultaneous readout of amplitude and phase
- Accuracy:  $\pm 1\%$  amplitude,  $\pm 1^\circ$  phase
- Better than 40dB harmonic and noise rejection
- Synchronisation to external signal
- AC carrier operation



DA 1310

## Specification

Frequency Response Analyser Model 1310 is an economic, accurate and easy to use instrument for the direct measurement of the amplitude and phase response of any physical system – even in the presence of noise and harmonic distortion.

The system under test is excited either by the sinusoidal output of 1310's own Function Generator or by an external source to which it can be synchronised. A correlation technique is used to measure the resulting amplitude and phase output of the system. The measured results are displayed on two front-panel mounted analogue meters.

The 1310 has ready application to dynamic measurement in education, physics, medical research, material analysis and many other areas of technology.

### GENERATOR

**Frequency Range:** 0.02Hz to 20kHz in six decade ranges, continuously variable.

**Frequency Accuracy:**  $\pm 1\%$

**Output Voltage:** 10mV to 10V RMS in seven ranges with uncalibrated vernier.

**Output Impedance:** 100 $\Omega$  with short circuit protection and high tolerance to capacitive loading.

**Harmonics of output waveform:** no component greater than 1%.

**Phase Locking:** 1Hz to 20kHz external signal with automatic indication of lock.

**AC Carrier Modulation:** AC coupled sine wave: 50Hz to 20kHz, 10V to 200V peak; 5V peak square-wave or rectangular pulse.

### CORRELATOR

**Input Sensitivity:** 10mV to 300V RMS full scale in ten ranges calibrated in volts and db (0db = F.S. on meter)

#### Input Impedance:

- (a) DC coupled 1M $\Omega$  floating and fully isolated from generator and chassis ground.
- (b) AC coupled – as above, no effect on amplitude and phase accuracy above 20Hz.

**Overload Indicator:** Warning light on input overload.

**Noise and Harmonic Rejection:** >40db

**Amplitude Measurement:** Precision 3½" mirror scale taut-band meter calibrated 0 to 10, 0 to 3 and 0 to –20db from 10mV to 300V RMS full scale in ten ranges.

**Phase Measurement:** Precision 3½" mirror scale taut-band meter calibrated:

- (a)  $-180^\circ$  to 0 to  $+180^\circ$
- (b)  $-90^\circ$  to 0 to  $+90^\circ$
- (c) 0 to  $\pm 180^\circ$

#### Measurement Accuracy:

**Amplitude:**  $\pm 1\%$

**Phase:**  $\pm 1^\circ$  at F.S. amplitude,  $\pm 2^\circ$  at –10 db amplitude.

**Meter Error:**  $< \pm 1\%$

**Integration Time:** Short, medium and long selectable, depending upon frequency and noise rejection required.

#### AC Carrier Demodulation:

(Characteristics same as for AC Carrier Modulation).

## PHYSICAL CHARACTERISTICS

### Power Requirements:

115 or 230V RMS, 50–60Hz, 100VA.

### Dimensions and Weight: (mm/in kg/lb)

Height	Width	Depth	Weight
89	425	404	11.3
3.5	16.75	19.8	25