SPECIFICATION

Unless otherwise stated, this specification is given for operation at +25°C ±5°C.

Frequency

RANGE
0.01Hz to 1MHz continuously variable in eight decade ranges with calibrated fine control. A 10% range overlap at each end of the decade scale ensures continuity between ranges and effectively extends the frequency coverage from 0.009Hz to 1.1MHz, approximately.

SCALE ACCURACY
A maximum error of ±2% of nominal full scale on all decades. Also, for all ranges except the highest and lowest the frequency is within ±5% of setting.

STABILITY
Under constant line voltage, output load, and temperature conditions, after half-hour initial warm up at 10kHz.

Short term: ±0.05% over 10 minutes
Long term: ±0.1% over 6 hours (typically)

Variation with temperature (typically)
+25°C to +50°C: ±0.5%
-15°C to +25°C: ±1.0%

Variation with line voltage
±10% line voltage variation: less than ±0.1%

Variation with load on main output
At full output from no load to 500Ω load: 0.4%

JITTER
Typically less than 0.01% at 10kHz.

Waveforms

SINE, SQUARE or TRIANGLE are available by selection through the output amplifier and simultaneously at three monitor outputs:-

SINE - Total harmonic distortion < 2% 0.01Hz to 20kHz.

SQUARE - Rise time < 60ns via output amplifier
< 30ns via monitor socket into a resistive load. *

TRIANGLE - Linearity better than 1%.

Time symmetry of all the above waveforms within 1% except on 0.01 to 0.1Hz range where it is better than 5%.

FAST SQUARE WAVE - 0 to +5V ±0.4V peak unloaded from 50Ω source impedance. Rise time 10% to 90%, less than 15ns. Total aberrations less than 3%. BNC socket output. *

TRIGGER OUTPUT - Alternate +ve and -ve going pulses 2V peak nominal into 50Ω. Time constant of exponential decay 200ns Rise time 10% to 90%, less than 20ns.

* See Note on measuring technique at end of Section.

Output facilities

MAIN OUTPUT (X1)
The main output amplifier is connected by rotary switch to any one of three waveforms - sine, square or triangle.

Level: Continuously variable from 0-20 volts peak-to-peak from source impedance of about 25Ω.

Maximum output: 20mA.
Useful dynamic range at least 35dB.
Amplifier is protected against an accidental short-circuit between output and common.

LOW LEVEL OUTPUT (X0.1)
Nominally 20dB below main output when unloaded. Source resistance 500Ω. Useful dynamic range at least 35dB, giving an overall dynamic range of at least 55dB for the instrument.

OUTPUT TERMINALS
The main output, low level output, and common terminal are all on 4mm screw-head binding posts arranged to accept standard 3/4in pitch dual plug leads (e.g General Radio Type 274-MB).

MONITOR OUTPUTS
All three generated waveforms are available simultaneously on 4mm sockets at 2 ±5% volts peak-to-peak from 1kΩ source (1 volt peak-to-peak into 1kΩ).

OUTPUT STABILITY
At the main or low level outputs at full amplitude and constant load.

Variation with frequency
±0.1dB, up to 100kHz
±0.5dB, 100kHz to 1MHz

Variation with time, typically
less than ±0.05dB over 2 hours at 10kHz

Variation with line voltage
±0.1dB for ±10% change at 10kHz

Variation with temperature, typically less than ±0.1dB from -15°C to +50°C at 10kHz, triangle or square; less than ±0.25dB from 20°C to 30°C, sine.

DC OFFSET
Mean level of any waveform at the main output may be offset by at least ±2V (±200mV at X0.1 output)

FLOATING OUTPUT
Isolated trigger pulse circuit permits ±50V flotation of entire instrument relative to ground without affecting trigger conditions.