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# Frequency Synthesiser H213



## FEATURES

- ▶ **6 digit setting resolution, 99999.9  $\mu$ sec basic.**
- ▶ **Phase-locked loop allows the basic period to be divided by 10 or 100, giving 10nsec and 1nsec resolution respectively.**
- ▶ **Output jitter less than 3nsec average over 1/2sec. period.**
- ▶ **Period stability of 3ppm over eight hours.**
- ▶ **Monitor socket and internal adjuster allows precise fine trim of period for absolute calibration.**
- ▶ **Phase-lock-loop "out-of-lock" indicator lamp.**

## H213 - FREQUENCY SYNTHESISER

The H213 Synthesiser is designed to provide a convenient and accurate means of simulating frequency domain transducers, such as vibrating cylinder densitometers.

The instrument uses a high quality crystal oscillator to generate an output signal the period of which is set on the front panel 6-decade thumbwheel switches. Using a phase-locked loop synthesiser three ranges are provided, allowing resolutions of 100ns, 10ns or 1nsec.

Several output arrangements are provided covering TTL 12V differential line driver and a 5V, 1Kilohm source to represent the typical signals of intrinsically safe transducers.

The instrument is portable and the built-in nickel cadmium battery can support continuous operation for two hours. When connected to the 100V/230V mains the internal battery is trickle charged.

A 20MHz crystal oscillator is used to drive a 6-decade Modulo N divider whose modulus is set on the period thumbwheels. The output frequency is divided by two giving an output whose period is equal to the switch setting. In "Direct" mode the minimum allowable setting is 00000.2  $\mu$ sec and the maximum is 9999.9  $\mu$ sec.

In "PLL Mode" the output period from the Modulo N system is divided by 10 or 100 giving a resolution of 10nsec and 1nsec respectively. Because of the limited frequency range of the PLL it is necessary to restrict the dialled-in Modulus to figures which place the output approximately in the range 2msec to 200  $\mu$ sec. An "out-of-lock" lamp is illuminated when the PLL has failed to acquire the correct output frequency. These restrictions cover the working range of all known density transducers and at the same time allow a period resolution of 1nsec to be achieved.

## H213 SPECIFICATION

Internal batteries give two hour operation. Trickle charged from mains. 110V/230V 50/60Hz operation, approximately 8VA.

**Weight:** 2.5Kg

**Dimensions:** 270mm x 310mm x 64mm overall

**Front panel BNC outputs:**

2 TTL  
1 differential 12V  
1 5V, 1 Kiloohm, 5µsec rise time

**Rear panel outputs:**

3 pairs of 4mm terminals, giving current limited differential 12V pulses.

**Sales Code:** H213

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STM/96/004/29.08.96



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