

Systron Donner 1702 Sig Gen

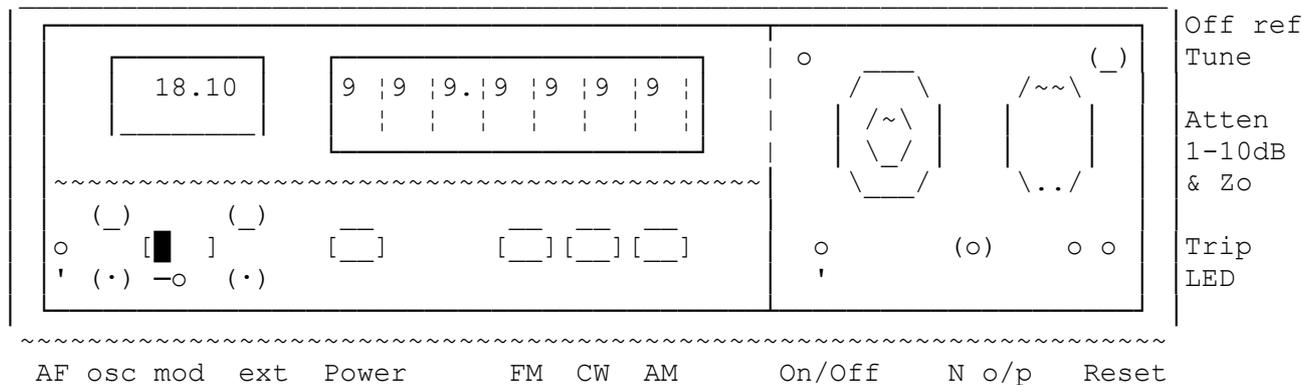
By G8MNY

(Updated Nov 17)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

In 1998 I bought this large digital signal generators in & not regretted it. It is a deep 19" 3U rack unit with side handles, & weighs 25kg!

Mod Frequency Lever Wheels AM LED 0-120dB



It was made in the USA by Thorn EMI that owned the SYSTRON DONNER Co. in 1983 at around \$10,000!

It uses several PLL oscillators & mixers, all locked to an internal/external reference. It has a calibrated 4 digit display of peak AM & FM modulation from the built in locked 400Hz & 1kHz sine wave sources as well as external modulation.

It was not all working (e.g. no 144MHz), & later a main smoothing cap O/C. But I have managed to repair all the faults, without a diagram! Which was very time consuming working out how it all worked, (internal silvered brass sectioned RF unit & 16 gold plated PCBs).

The lever gear operated frequency wheels have very strong home clicker spings. So strong that their internal arc & pinion gears are at risk of stripping. I had to take one apart to repara the gear (heat treatment of the plastic teeth). So I weakened all 7 wheels home spings, so they would last longer. But the partly striped gear arc did not last & I eventually replaced it with a glued on toothed wheel (from VHS deck) to make it a conventional thumb wheel.

I have done several mods to it now, eg. FM deviation increased to ±100kHz, improved modulation bandwidth > 30kHz, off reference fine tune, & external 625 line TV timebase lock (obsolete now with digital TV!)

MY SPECIFICATION

- AC Mains input 240V 40-100Hz @ 50W on rear IEC connector
- Mains voltage links on plug inside.. 250, 220, 125 110V
- RF Output N socket 50Ω. 0.1uV to 1V RMS Max.
- Attenuator 120dB 20dB/step & 10dB 1dB/Step attenuator (& Term)
- Frequency Range 100Hz to 999.9999MHz in 100Hz steps, using 7 large lever operated wheels
- Accuracy 1/10^7 internal temperature compensated Xtal reference
- Off Calibration Fine Tuning ±70 PPM
- Frequency accuracy compromised on FM by ±5Hz jitter!
- Rear 1 MHz BNC O/P Reference TTL level
- Rear 1 MHz BNC External input Reference TTL level/TV

Harmonics & spuri > -30dBc, typical -55dBc. 400MHz up/down mix system.

Accidental Tx RF trip relay @ >500mW in, but the 10dB atten is unprotected!

PLL lock indicator & Level correct indicator (AGC OK eg. not in AM)

Modulation            FM Indicated 19.99 or 100.0kHz, AM 0.0-100.0% (clips @ 95%)  
                         Internal Locked 400Hz & 1kHz (FM offset @1kHz!) BNC O/P  
                         External BNC I/P into 5K $\Omega$  10Hz-30kHz

#### USES

As well a very low carrier freq for FM & AM scope demos on Ham training courses I use it for setting up RF Rx. And with an external "off air ref", it can generate any frequency to very high accuracy.

See my tech Buls on "Systron Donner 115 Pulse Gen", "198kHz Off Air Standard", "Comparing Off Air Freq Standards", "Off Air Lock for Ref Osc". "Scope RF Trick" & "Marconi 2019A Sig Gen".

Why don't U send an interesting bul?

73 de John, G8MNY @ GB7CIP