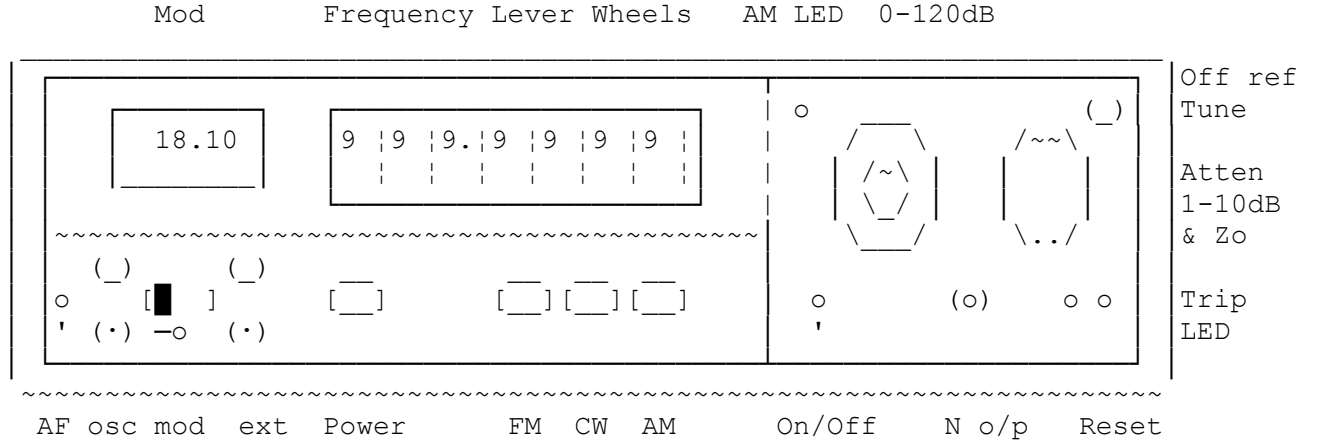
# Systron Donner 1702 Sig Gen

By G8MNY (Updated Jan 16)
(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!




It was made in the USA by Thorn EMI that owned the SYSTRON DONNER Co. in 1983 at around $10000!

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 frequency wheels have very strong home clicker spings. So strong that their internal arc & pinion gears are at risk of stripping. I had to strip one down to repare the gear (heat treatment of the plastic teeth). So I weaken the home spings on all 7 wheels so they would last longer.

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 |

Harmonics & spuri lower than -30dBc, typical -55dBc. 400MHz mix system

Accidental Tx RF trip relay @ >500mW in, 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 5KÛ 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 "Syston 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