Microprocessor based Synthesized Signal Generator (1040 MHz)

Synthesized Signal Generator Model 2424 and 2424A

Features:

- 1040 MHz synthesized output without doubling
- Wide output level 0.03 µV to 1V
- AM-FM and optional pulse modulation
- AF synthesizer for all common call tones
- Sweep facilities
- DC coupled AM and FM
- SINAD facility
- Negligible RF leakage
- IEEE 488 programmable
- 50W reverse power protected

Parameters	Model 2424	Model 2424A
Frequency		
Range	10 KHz to 1040 MHz	10 KHz to 600 MHZ
Resolution	10 Hz (< 128 MHz), 100 Hz (>128 MHz)	
Accuracy	+5E-8 ex-factory, 20°C	
Stability	Standard : +1E-6 (0 to 55°C); +2E-7 per month	
	Option 01 : +2E-7(0 to + 40°C); +1E-7per month	
RF Output		
Range	-137dBm to + 13dBm (0.03 µV to 1 V p.d)	
Resolution	0.1 dB	
Units	dBm, dBµV, mV, µV, pd, emf.	
Accuracy	(Carrier level : +1dBm at +13 dBm > -127 dBm)	
	+1.5dB (<500MHz)	
	+2.5 dB (> 500 MHz)	
Source impedance	50 ohms	
VSWR	<1.5:1 (<-3 dBm)	
Reverse power protection	50 W Max. DC-1040MHz(User reset)	
Trip level	200 mW typical	
Spectral Purity		
Harmonics	< - 25 dBc (carrier <+7 dBm) < - 30 dBc (typical)	
Non-Harmonics	< - 60 dBc	
Residual FM	<50 Hz r.m.s. at 1040 MHz (CCITT P53A) improving 6dB/octave to <1.25 Hz r.m.s. at 16 MHz,	
	<6Hz r.m.s. below 16 MHz	
Residual AM	<0.1 % (50 Hz to 15kHz bandwidth)	
SSB noise	Typical characteristics shown for carrier frequencies of 80 & 800 MHz	
Noise Floor	<-130 dBc	
AM on 20kHz FM	0.5% (50Hz to 15 kHz Band width) 1 kHz rate.	
FM on 30% AM	<200 Hz (50 Hz to 15 kHz band width),1 kHz rate	
RF Leakage	<0.5µV (induced in 2 turn 25 mm loop 25 mm away)	

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Parameters	Model 2424	Model 2424A
Amplitude Modulation		
Depth	0 to 99.9%(< 500 MHz <+7 dBm)	
	0 to 50% (>500MHz <+7 dBm)	
Resolution	0.1 %	
Accuracy	+ 5 % of reading (<90 % depth)	
Bandwidth (+ 1 dB)	d.c./10 Hz to 25 KHz	
Distortion	< 2% at 50% depth, 1 KHz rate.	
Frequency Modulation		
Max. Peak Deviation	250 KHz (10 KHz to <16 MHz)	
	62.5 KHz (16 MHz to <32 MHz)	
	125 KHz (32 MHz to <64 MHz)	
	250 KHz (64 MHz to < 128 MHz)	
	500 KHz (128 MHz to <256 MHz)	
	1000 KHz (256 MHz to <512 MHz)	
	1000 MHz (> 512 MHz)	
Resolution	carrier frequency >64MHz	
	10Hz (< 5% Max. peak)	
	100Hz (>5% Max. peak)	
Carrier frequency	<64MHz	
	10Hz (10% Max peak deviation)	
	100Hz (>10% Max peak deviation)	
Accuracy	+5% of reading	
Bandwidth (+ 1 dB)	d.c./50 Hz to 25 KHz	
Distortion (THD)	<1 % < 10 KHz deviation 1 KHz rate	
Phase Modulation		
Deviation	0 to 3 rads.	
Resolution	0.01 rad.	
Accuracy	+ 20% of reading excluding residual PM	
Bandwidth (+ 1 dB)	50 Hz to 10 KHz	
Distortion (THD)	< 2% at 1KHz rate, 300 Hz to 3 KHz band width.	
Internal Modulation Sources		
Synthesizer range	10 Hz to 9.999 KHz	
Resolution	0.1 Hz <1 KHz, 1 Hz > 1 KHz	
Accuracy	+2E-5	
Distortion	<2% <5KHz	
Output (Synthesized)	0 to 1 V r.m.s. (emf, 50 ohms) in 1 mV steps	
Single spot frequency	1 KHz	
Accuracy	+2E-5	
Distortion	<0.2%	
Simultaneous tones	Ratio fixed to variable tone 5 : 1	
Internal 1 KHz output	1 V r.m.s. (emf, 50 Ohms)	
Sequential Tones		
System covered	CCIR, EEA, ZVEI-1, ZVEI-2. EIA, NATEL	
External Modulation		
Impedance	50 Ohms	
Level	1 V r.m.s. for f.s.d. (front panel control adjustment)	
Indication	Analogue meter (scaled 0 to I with CAL marker)	
Simultaneous tones	The external input may be mixed with the internal synthesizese Ratio of external tone to internal tone 5 : 1	

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Parameters	Model 2424	Model 2424A
Pulse Modulation (Option 02)		
Frequency range	25 MHz to 1040 MHz (2424)	25 MHz to 600 MHz (2424A)
Carrier on/off ratio	60 dB at 70 MHz	
	45 dB at 500 MHz	
	40 dB at 800 MHz	
Pulse rise time	2 µs	
Pulse fall time	1 µs	
Minimum Pulse width	4 µs	
Modulator insertion loss	<4.5 dB	
TTL Logic Drive	TTL high = (Carrier ON) Max. 5 V peak	
	(Max 5 V pk) TTL low = (Carrier OFF)	
Carrier Leakage	<0.5µ V (induced in 2 turn 25 mm loop 25 mm away carrier level < - 3 dBm) Sinad	
Input Frequency	1 KHz	
Input Level	30 mV to 3 V r.m.s.	
Indication	analogue meter, scaled range 30 dB to 6 dB	
Impedance	> 7/5 K ohms	
Bandwidth (+ 3dB)	60 Hz to 6 KHz	
Sweep		
Functions	Carrier frequency, Carrier level, Modulation frequency, Modulation level.	
Range (Start, Stop)	Any within setting range	
Total sweep time	2 seconds to 200 seconds.	
General		
Programmability	GPIB (IEEE 488)	
Memory	100 complete front panel set-ups, Last	
	(Non-Volatile) front panel set-up, IEEE 488 address	
Internal crystal reference	TCXO, 10MHz.	
Internal reference output	3 V pk. - pk. (emf 50 ohms)	
External reference freq.	10MHz	
External reference level	1 V r.m.s.	
Voltage Input	220/240 V + 10% AC	
Frequency	45 Hz - 440 Hz	
Ext. DC Input	11.5 to 15 V	
Power Consumption	30 VA max.	
Operating Temperature	0 to 55°C	
Humidity	95% RH at 40°C non condensing	
Dimensions (approx.)	Height (Incl. feet) 145 mm	
	Width 330 mm	
	Depth 405mm	
Weight (approx.)	8.6 kg	
Accessories Standard	N to BNC adaptor	
	BNC to BNC cable	
	Mains lead	
	Instruction/Service Manual	
	DC Power Cord	
	PCB Extractor	

CROMTECH INDIA
1st Floor Begum Niwas, Opp Mercantile, Bank Society Colony, 5th Natwar Nagar Road, Jogeshwari (East), Mumbai 400 060.
Maharashtra - India.
Mobile: +91 98693 82134 / 81088 13320
Telefax: +91 22 2838 6028
Email: cromamumbai@mail.com/ cromtechindia@mail.com/ info@cromtechindia.com/ sales@cromtechindia.com
Website: www.cromtechindia.com