

Sefram

SEFRAM 4422

20MHz Function Generator
DDS (Direct Digital Synthesis)
and Arbitrary

**High Performances, Accuracy, Ergonomy,
Easy-to-use**

Performances

- DDS technology
- 20MHz max frequency
- Variable amplitude, offset and symetry
- Lin / Log sweep mode
- AM, FM modulation
- Gate, triggered, burst modes
- Arbitrary mode with 1000 points and 50Ms/s
- Graphic LCD with backlight
- RS-232 interface

Direct Digital Synthesis

The new SEFRAM 4422, using DDS technology, provides very high quality waveforms with frequency stability and low spurious level.

Ease of use

A menu driven front panel with an easy-to-read graphix LCD display makes the SEFRAM 4422 easy to operate. Parameters changes and data entry can be made using the rotary knob. The numerical keypad allows very fast entry of complex parameters. The waveform is displayed on the LCD.

Modulation and sweep mode

The SEFRAM 4422 provides a very convenient sweep mode (linear or log.) where rate, start and stop frequencies are programmable. Signal can be AM or FM modulated, with variable level (0 to 100%). Modulation can be internal or external.

Selection guide for SEFRAM Generators

	BK4017B	SEFRAM 4415	SEFRAM 4422	BK4070A	SEFRAM 4463	SEFRAM 4466	SEFRAM 4468	SEFRAM 4468-2
Function Generator	yes, DDS	yes, DDS	yes, DDS	yes, DDS	yes, DDS	yes, DDS	yes, DDS	yes, DDS
Arbitray Generator	-	-	✓	✓	✓	✓	✓	✓ - 2 channels
Max sampling Freq.	-	-	50Ms./s	40Ms./s	50Ms./s	80Ms./s	125Ms./s	125Ms./s
Arbitrary Memory	-	-	1k points	32k points	500k points	1M points	4M points	4M points
Sine, square & triangle	✓	✓	✓	✓	✓	✓	✓	✓
Max. frequency sinus	10MHz	15MHz	20MHz	21,5MHz	31MHz	40MHz	80MHz	80MHz
Sweep	lin, log	lin, log	lin, log	lin, log	lin, log	lin, log	lin, log	lin, log
Modulation	-	✓	✓	✓	✓	✓	✓	✓
Interface	RS-232	-	RS-232	RS-232	RS-232 and GPIB	RS-232 and GPIB	RS-232 and GPIB	RS-232 and GPIB



SEFRAM 4422

Arbitray mode

The SEFRAM 4422 integrates an arbitrary mode with 1000 points memory 50MHz (20ns) sampling rate and 12 bit vertical resolution.

The SEFRAM 4422 is compatible with WaveX software.

Simplified maintenance

The SEFRAM 4422 integrates a "closed case" automatic calibration feature, which makes the maintenance easy and reduces periodic maintenance operation.

SPECIFICATIONS
SEFRAM 4422

Frequency characteristics	
Sinus	0,01Hz to 20MHz
Square	0,01Hz to 20MHz
Triangle	0,01Hz to 2MHz
Accuracy (frequency)	±0,005% typical
Resolution	6 digits, or 10mHzRésolution
Output characteristics	
Amplitude	20mVpp to 10 Vc-c under 50 Ohms 40mV to 20Vc-c open circuit
Resolution	3 digits (1000 points)
Accuracy	±2% ±20mV under 50 ohms
Platitude	0.5dB to 1MHz, 1dB to 20MHz
Offset	±4,5V under 50 Ohms
Resolution	10mV steps, with 3 digits display
Accuracy	±2% ±10mV under 50 ohms, whith amplitude from 1V to 10V
Output impedance	50 Ohms ± 3%
Protection	against short circuits and any voltage practically available in electronic laboratories
Waveform characteristics	
Harmonic distorsion	-50dBc from 0 to 20kHz -45dBc from 20kHz to 100kHz -35dBc from 100kHz to 1MHz -30dBc from 1MHz to 20MHz
Spurious	< -60dBc DC to 1MHz
Rise time (square)	< 20ns (10% to 90%) under 50 ohms
Symetry error	< 1%
Variable duty cycle	squer, from 20% to 80% up to 2MHz, with 1% steps triangle, from 10% to 90%, with 1% steps
Operating modes	
Continuous	output continuous at programmed parameters
Triggered	output quiescent until triggered by an internal or external or manual trigger
Gate	waveform is executed for the duration of the gated signal. The last waveform started is completed
Burst	same as triggered, for programmed numbr of waveforms
Trigger source	external, manual
Modulation	
AM Modulation (amplitude)	
Internal	0,1Hz to 20kHz, sinus, square or triangle

Modulation depth	variable from 0% to 100%, with 1% steps
External	5V p-p for 100% modulation 10kohms impedance

FM Modulation (frequency)	
Internal	0,1Hz to 20kHz, sinus, square or triangle
External	5V c-c for 100% de deviation 10kohms impedance

Sweep mode	
Type	linear or log
Sweep time	20ms to 100s
Sweep trigger	internal, external, continuous or burst

Internal trigger	
Répétition	0,1Hz to 1MHz
Resolution	4 digits
Accuracy	±0,005% typical

Arbitrary mode	
Memory	1000 dots
Vertical resolution	12 bits (-2007 to +2047)
Sampling	20ns to 50s
Sampling resolution	4 digits, or 10ps
Sampling accuracy	±0,005% typical

Inputs / Outputs (BNC connectors)	
TRIG input	TTL compatible, with 50ns min. width max. frequency 10MHz 1k ohms impedance
SYNC output	TTL, under 50 ohms
Entrée MOD IN (modulation)	5V p-p for 100% modulation 10k ohms impedance bandwidth from 0 to 20kHz

GENERAL SPECIFICATIONS	
Display	LCD, graphic with backlight
Interface	RS-232C
Memory	20 setup
Supply	90-264V AC, 47Hz to 63Hz, 30VA
Operating temperature range	0°C to 50°C
Storage temperature range	-20°C to 70°C
Safety	CEI 1010 cat I
Dimensions	88 x 210 x 213 mm
Weight	2,5 Kg

Supplied with: User's manual
Main cord
WaveX software (free of charge, please ask when ordering)

Specifications subject to change without notice- FT4422A00



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For assistance and ordering

