



MODULATION MODES ..... Internal and external modulation can be simultaneously enabled to allow combined amplitude and frequency (or phase) modulation.

Pulse modulation can be used in combination with the other forms of modulation from an external pulse source.

#### FREQUENCY MODULATION

Resolution .....	1 Hz	
Deviation .....	CW Range (MHz)	Max Deviation (kHz)
	600 – 1200	6400
	300 – 600	3200
	150 – 300	1600
	75 – 150	800
	37.5 – 75	400
	18.75 – 37.5	200
	0.009 – 18.75	100
Accuracy@1kHz.....	±4%	
Bandwidth (1 db).....	DC to 275 kHz (DC coupled)	
	10 Hz to 275 kHz (AC coupled)	
	20 Hz to 275 kHz (AC coupled with ALC)	
Group Delay.....	< 5µS to 100 kHz	
Carrier Frequency Offset (DC coupled).....	< 1% of the set frequency deviation	
Distortion.....	< 1%@1kHz rate for deviation up to 20% of max available deviation	
	Typically 0.1% for deviations of 2% of max available deviation	
	< 3% at max available deviation	

FSK (FREQUENCY SHIFT KEYING) ..... 2 Level and 4 Level FSK  
 External data connected to TRIGGER connector (2 Level) or TRIGGER and PULSE connectors (4 Level)  
 NOTE: Rear panel PULSE input is labeled FSK2

Frequency shift.....	±100kHz
Accuracy.....	As FM deviation accuracy
Timing jitter.....	±3.2µS
Filter.....	8th Order Bessel -3db@3.9kHz

#### PHASE MODULATION

Deviation .....	0 to 10 radians, 0.01 Resolution
Accuracy@1kHz.....	±4% excluding residual phase modulation
3db Bandwidth.....	100 Hz to 10 kHz
Distortion.....	<3%@10 radians@1kHz modulation rate
	Typically <0.5% for deviations up to 1 radian@1kHz
Modulation source .....	Internal LF generator; External Rear panel BNC

#### AMPLITUDE MODULATION

Range.....	0 to 99.9%, 0.01%Resolution
Accuracy@1kHz.....	±5% of set depth
1db Bandwidth.....	DC to 30 kHz (DC coupled)
	10 Hz to 30 kHz (AC coupled)
	20 Hz to 30 kHz (AC coupled with ALC)
Distortion.....	<3.5%@1kHz modulation rate (depths up to 80%)
	<1.5%@1kHz modulation rate (depths up to 30%)
Modulation source .....	Internal LF generator; External Rear panel BNC

#### PULSE MODULATION

Frequency range .....	9 kHz to 1.2 GHz
RF Output range .....	-140 dBm to +10 dBm; Useable to +13dbm when Pulse enabled
RF Level accuracy.....	additional ±0.1 dB/°C temperature coefficient when pulse enabled.
On/Off ratio .....	>80 db below 1.2 GHz
Rise and fall times .....	< 20nS (typically 10nS)
Pulse Input Control.....	±10V maximum input
	Rear panel BNC
	Logic 0 (OFF) (0 V to 0.8 V)
	Logic 1 (ON) (2.0 V to 5 V)
Maximum Repetition Frequency.....	10 MHz

## INTERNAL LF GENERATOR

Frequency range .....	0.01 Hz to 20 kHz
Resolution .....	5 digits
Frequency accuracy .....	See FREQUENCY STANDARD
Distortion .....	<0.1% THD@1kHz
Waveforms .....	Sine wave@20kHz Triangular wave@3kHz Square wave@3kHz
Square wave jitter.....	<6.4µS on any edge
Audio output .....	Rear panel BNC 2 Vrms EMF with Source Impedance 600Ω

## EXTERNAL MODULATION

Input.....	Rear panel BNC; 1 Vrms sine wave
Input Impedance .....	100 kΩ nominal

## MODULATION ALC

Peak leveling.....	0.5 Vrms to 1.25 Vrms sine wave
High and low indicators.....	display input outside leveling range

## SWEEP MODE

Control parameters .....	Start and stop values of carrier frequency
Linear sweep.....	Frequency step size 1 Hz minimum
Logarithmic.....	0.01% to 50% in 0.01% steps
Step time .....	50 mS to 10 S per step
Trigger .....	Rear panel BNC
Trigger modes.....	Single; Continuous; Start/Stop

## FREQUENCY STANDARD

TCXO .....	10 MHz
Operating Temperature.....	0 to 55°C
Temperature Stability.....	Better than ±7 in 10 <sup>7</sup>
Ageing rate.....	±1 in 10 <sup>6</sup> per year
External Input.....	Rear panel BNC 1 MHz@200mVrms to 1.8Vrms into 1kΩ 10 MHz@200mVrms to 1.8Vrms into 1kΩ
Output.....	Rear panel BNC; 10 MHz@2Vpk-pk into 50Ω

## GENERAL

GPIB Communications.....	All functions except the supply switch are remotely programmable Designed in accordance with IEEE 488.2 Complies with the following subsets in IEEE 488.1 SH1, AH1, T6, TEØ, L4, LEØ SR1, RL1, PPO, DC1, DT1, C0, E2
RS-232 Communications .....	9 way male D-type connector Baud Rate 300 to 9600 bps Hardware handshake: DTR, RTS, CTS, DSR Software handshake: XON and XOFF Electrical Interface to EIA-232-D
AC Input.....	200 VA max 90V to 132 V at 45 to 440 Hz 188V to 264V at 45 to 66 Hz
Calibration Interval .....	2 years
Dimensions (HxWxD).....	10.7x41.9x44.0 cm (4.21x16.49x17.32 in)
Weight.....	<8 kg (17.6 lb)

## RANGE OF USE

Temperature .....	0 to 55° C
Humidity.....	Up to 93%@40° C
Altitude.....	Up to 3050 m (10,000 ft)