

Technical data

Frequency range	:10 kHz to 29999,99 kHz.
Frequency resolution	:10 Hz increments. Keyboard entry or single knob flywheel at 500 Hz or 5 kHz per revolution.
Frequency tuning	: 10 Hz, 100 Hz selectable.
Frequency synthesizer	: Triple PLL, lowest reference frequency 10 kHz.
Frequency change-over time	: Within frequency decades: < 20 ms. Between frequency decades: ≤ 100 ms.
Frequency stability Internal frequency standard TXCO – 10 Mhz	: $5 \cdot 10^{-7}$ per day. : $1 \cdot 10^{-6}$ per year.
Additional external standard 1 MHz or 10 MHz (BFO II)	: Input level: 0 dBm ± 3 dB / 50 Ω.
BFO	: ± 5 kHz in 10 Hz steps, synthesized.
Channel memory	: 99 channels capable of being loaded with receiver parameters: mode, frequency, bandwidth, RF gain, preselector and antenna attenuator.
SCAN functions	: SCAN by time. : SCAN channel per channel.
SCAN stop	: Stop time programmable 0.1 – 0.9 s. : Dwell time 1 – 9 s and ∞. : AGC threshold 5 – 95 dBμV.
Modes of operation	: DSB: A2A, H2A, A3E, H3E. USB: J3E, R3E, H3E. LSB: J3E, R3E, H3E. CW: A1A. FSK: F1B, F1C, F3C.
Antenna impedance	: 50 Ω SWR < 2 : 1 and antenna attenuation = 0 dB.
Max. antenna input voltage	: 30 V _{EMF} for 10 kHz to 1.5 MHz – 10 minutes. 100 V _{EMF} for 1.5 MHz to 30MHz – 10 minutes. 50 V _{EMF} for 30 MHz to 400 MHz – 10 minutes.
Input attenuator	: 0 dB, 20 dB selectable; manual or automatic.
Spurious emission at antenna input	: ≤ $1 \cdot 10^{-9}$ W.
Spurious radiations at antenna input	: ≤ -97dBm.

Image and IF rejection	: > 100 dB.
Intermediate frequencies	: 1 st IF 63.078 MHz. : 2 nd IF 4.9985 MHz.
IF Output 1	: 30 kHz, 600 Ω, 0 dBm.
IF Output 2	: 4.9985 MHz, 50 Ω, -10 dBm.
AGC characteristics	: Output is within 6 dB for input level variation of 120 dB between 0.5 μV and 500 mV. (90 dB for frequency range 10 kHz to 80 kHz)

AGC time constants (SSB 30 dB steps)	: Attack	Hold	Decay
Long	: ≤ 10 ms	1.5 – 3.5 s	0.55 (± 25%)
Short	: ≤ 10 ms	-----	0.25 (± 25%)

Sensitivity without HF preselection	A3E	B = 6 kHz, m = 0.5
10 dB SINAD with CCITT filter	20...40 kHz	≤ 7 μV _{EMF}
	40...200 kHz	≤ 4 μV _{EMF}
	0.2...30 kHz	≤ 3 μV _{EMF}
	A1A	B = 300 Hz
	10...40 kHz	≤ 1 μV _{EMF}
	40...200 kHz	≤ 0.5 μV _{EMF}
	0.2...30 kHz	≤ 0.5 μV _{EMF}
	J3E	B = 0.3 ...2.7 kHz
	10...40 kHz	≤ 3 μV _{EMF}
	0.04...1.6 MHz	≤ 1 μV _{EMF}
	1.6...30 MHz	≤ 1 μV _{EMF}

IF Bandwidth

Filter bandwidth (kHz)	: Min. bandwidth (kHz)		Max. bandwidth (kHz)
	6 dB		
0.1	0.1		0.75
0.15	0.15		0.80
0.3	0.3		0.90
0.6	0.6		1.70
1.5	1.5		4.00
2.4*	2.4		3.80
3.0**	3.0		4.60
6.0	6.0		15.60

* Special SSB design: USB 0.3 to 2.7, LSB -0.3 to -2.7

** Group delay ≤ 800 μsec at f₀ ± 1.2 kHz (for SSB audio 600 to 800 Hz)

Intercept point : 26 dBm (1 – 30 MHz).

Crossmodulation	: For a wanted signal $60 \text{ dB}\mu\text{V}_{\text{EMF}}$, the interference produced by an unwanted signal 20 kHz off-tune and $90 \text{ dB}\mu\text{V}_{\text{EMF}}$ will be more than 30 dB below standard output.
Intermodulation	: Out of band: 3^{rd} order -60dB or better, for two equal signals of $100 \text{ dB}\mu\text{V}_{\text{EMF}}$ each at $f_o + 50 \text{ kHz}$ and $f_o + 100 \text{ kHz}$ ($f_o > 200 \text{ kHz}$). In band: Unwanted signals -45dB for two equal signals of $100 \text{ dB}\mu\text{V}_{\text{EMF}}$ each at $f_o + 800 \text{ Hz}$ and $f_o + 1200 \text{ Hz}$ ($f_o > 200 \text{ kHz}$).
Blocking	: For a wanted signal $60 \text{ dB}\mu\text{V}_{\text{EMF}}$, an unwanted carrier 20 kHz off-tune must exceed $110 \text{ dB}\mu\text{V}_{\text{EMF}}$ to effect the output by 3 dB or $\text{SINAD} < 14 \text{ dB}$.
Level indication RF LED-band AF LED-band	: 0 to $110 \text{ dB}\mu\text{V}$, 10 dB steps. : -15 to $+6 \text{ dBm}$.
Audio outputs Built-in speaker External speaker Headphones Line	: 1.5 W. : 3W into 4Ω . : 10 mW into 600Ω . : $0 \text{ dBm} \pm 10 \text{ dB}$ adjustable, 600Ω balanced.
Audio distortion for 1 kHz at standard output power	: $< 5\%$ for SSB. : $< 5\%$ for DSB at 80% modulation.
AF1 output	: -7 dBm 600Ω line output for remote control.
AF2 output	: -7 dBm 600Ω line output for remote control.
IF output	: 30 kHz 600Ω , typically 0 dBm.
BCD frequency output	: TTL level.
AGC output	: 2 – 3.2 V.
Antenna diversity	: 2 – 3.2 V.
Power supplies AC operation	: 110 – 120 V $\pm 10\%$ - 45 to 400 Hz. : 220 – 240V $\pm 10\%$ - 45 to 400 Hz. Power consumption 65 VA $\pm 20\%$.
DC operation	: 21 to 32V floating Power consumption 50 VA $\pm 20\%$.

Environmental conditions

Temperature		
Operating	: -15 to +55 °C.	
Storage	: -40 to +85 °C.	
Humidity	: 95% up to 40°C.	
Vibration without shockmounts	: 0 to 12.5 Hz	3.2 mm amplitude.
	12.5 to 25 Hz	0.7 mm amplitude.
	25 to 50 Hz	0.4 mm amplitude.
Additional	: 0 – 50 Hz 0.3 mm peak to peak.	
	50 – 500 Hz 2g acceleration.	
Shock	: 30g, 11 ms all sides.	
MILspec	: above tests according to respective section of VG95332	
Weight	: approx. 15 kg.	
Dimensions	: 19" standard.	
Height	: 132.5 mm (3RU).	
Depth	: 450 mm (with handles).	
Width	: 483 mm.	

Option V (Preselector module)

Frequency range	: Lowpass filter < 1.6 MHz. 1.6 to 30 MHz; 3-stage bandpassfilter, motor - driven, microprocessor – controlled.
Input protection	: Max. 100 V _{eff} . U _{HF} ≤ 100 V _{eff} and I ≤ 2 A.
Selectivity	: typ. 6 dB , max. 10 dB in bandpass. Bandpass min. 10 kHz at 3 dB, min. 40 dB at 10% frequency range.











