



FlexRadio CL-9300™

HIGH-POWER NARROWBAND HF SOFTWARE DEFINED RADIO (SDR)

FlexRadio's CL-9300 Software Defined Radio provides a high-performance, 100W COTS platform for state and local government, emergency management, public safety, maritime and MARS/SHARES HF applications. Designed for flexibility and rapid deployment, the CL-9300 supports up to 20kHz transmit bandwidth and up to 1.2MHz receiver bandwidth, with independent, simultaneously operating receivers—enabling robust coverage and advanced spectrum monitoring capabilities. The CL-9300 delivers modern signal processing capabilities, low-SWaP (Size, Weight, and Power) design, and advanced IP networking in a highly flexible and cost-effective platform.

While optimized for commercial and civilian interoperability, the CL-9300 supports native IP-based Ethernet communications, allowing for operation through an included Windows control application or via custom control software using an open, well-documented API. Developers can leverage the SmartSDR™ open API to build custom applications and waveform processing tools using simple command structures and industry-standard VITA-49 streaming formats for RF/IF and FFT data.

The CL-9300 also features an auxiliary +10 dBm exciter output, which can be paired with FlexRadio's modular high-power RF amplifier systems—such as the FPA-1K—

to support high-output field and fixed-site deployments. For customers seeking a turnkey solution, the CL-9301 variant integrates a full 1 kW HF amplifier into the same system architecture, delivering robust performance for the same range of public safety, emergency response, and remote communications applications.

KEY FEATURES

- 1.7 to 30 MHz, 100W Continuous Transmit/Receive
- Up to 20 kHz Transmit / 1.2 MHz Receiver Bandwidth
- Four Independent Narrowband (20 kHz) Receivers
- Four 14 MHz Real-Time Spectrum Displays
- Full-Featured Open Control API
- Ethernet Communication for Remote and Networked Operation
- Ultra-Low Phase Noise RX/TX
- Diversity Reception
- Simplex and Full Duplex Receive Capable
- Integrated GPSDO for Precision Time/Location
- Two Low-Power +10 dBm Exciter Outputs

CL-9300 SPECIFICATIONS

RECEIVER	
Independent Band/Mode Receivers	4
ADC Spectral Capture Channels	2
Simultaneous Receive Antenna Inputs	2
Diversity Reception	Standard
Full Duplex Receive	Standard
Frequency Coverage	100kHz – 55MHz
Noise Figure (Max Gain)	6dB
Streaming Channels	4 Audio @24 ksps / 4 Digital IQ 0.024–1.536 Msps
Receiver Phase Noise	<-145 dBc/Hz @ 20 kHz
Ultimate IF Filter Rejection	115 dB
Line Audio Output	-10 dBV Unbalanced
SPECTRUM / WATERFALL DISPLAY	
Spectrum/Waterfall Displays	4
Spectrum/Waterfall Bandwidth	1.2 kHz – 14 MHz
Spectrum Sensitivity (Max Gain)	> -152 dBm
Spectrum Resolution Bandwidth	1.5 Hz
TRANSMITTER	
High Power Output (2 ports)	1–100 PEP / CW (50Ω)
Integrated Antenna Tuner Range	3:1 VSWR (100 Watts)
Exciter Power Output (2 ports)	0 – +10dBm (50Ω)
Frequency Coverage	1.7 – 29.999999 MHz, 30 – 54MHz (reduced specs)
Maximum Transmit Bandwidth	20 kHz (Max, for waveforms supplied at line-level audio)
Balanced Audio Input	600Ω
Mic Level Audio Input	600Ω Psuedo Balanced with Bias Option
3rd Order IMD Products (100 Watt PEP)	-36 dBc Below Equal Tones
3rd Order IMD Products (+10 dBm PEP)	-40 dBc Below Equal Tones
Duty Cycle	100% (+10dBm), ICAS (100W PEP)
GENERAL	
Tuning Resolution	1 Hz
Frequency Stability (Standard)	0.5 ppm (0-50C) without GPSDO active
Integrated GPSDO Frequency Stability	5×10^{-12} Over 24 hours
External 10 MHz Reference Input	Standard
External Up/Down Converter IF Control Display Range	0 – 999 GHz
Certifications	FCC Part 87, FCC Part 90, CE
Native Modes	USB, LSB, CW, Digital, AM, FM, SAM, Free DV, AME
Integrated Remote Operation / Multi-User Operation	Standard
User Client Interface Options	Windows® 10 or Above
Power Supply Requirements	25A, 13.8VDC Nominal, +/- 15% @ 100W Output
Dimensions	6.74"H (171.1 cm) x 14"W (35.6cm) x 13.25" D (33.7cm)
Control	1000BASE-T (IEEE 802.3ab) RJ45 1Gb ENET with Open API