



MODEL **DSR-2**

COMMUNICATIONS RECEIVER



CONTINUOUS COVERAGE

10 kHz TO 30 MHz

Digital Synthesizer Frequency Control

Frequency Displayed to 100 Hz

All Solid State

AM, SSB, CW, RTTY, ISB

Series Balanced Gate Noise Blanker

Front End Protection

Optional Features Available on Special Order



DESCRIPTION

The R. L. Drake Model DSR-2 Receiver is a high grade communications receiver employing the most up-to-date solid state devices and circuitry. It provides continuous coverage from 10 kHz to 30 MHz. The received frequency is displayed on six NIXIE tubes to the nearest 100 Hz. Frequency injections of the DSR-2 are controlled by a phase-locked digital synthesizer which allows incremental frequency selection in 10, 1, and 0.1 MHz steps. The remaining 0 to 0.1 MHz is continuously adjustable by a highly stable variable oscillator controlled from the fine tuning knob on the front panel. Modular construction on easily accessible printed circuit boards is used throughout the DSR-2. Extensive use of dual gate MOS-FET transistors in the DSR-2 circuitry contributes to its superior intermodulation, AVC, wide dynamic range and overload performance. The front panel controls allow the operator to select frequency (with fine tune control), AM or SSB product detector, IF bandwidth, AF gain, BFO pitch, fast or slow AVC, manual RF gain, standby position, and the highly effective Drake series gate noise blanker. ISB (Independent Sideband) is a built-in feature of the DSR-2. Separate IF crystal filter, IF amplifier, and audio output circuits allow two simultaneous communication channels to be employed on one frequency assignment, doubling the information receiving

capacity. Front-end protection includes special circuitry built in to provide protection against transmitters in close proximity. It will withstand a 30 Volt emf from a 50 Ohm source, with the receiver on or off.

The normal AVC system has appropriate attack and decay times to provide proper clean reception of SSB and CW signals. This AVC system operates on both the RF and IF circuitry to provide reception free of 'popping'. The RF AVC provides an additional control under very strong signal conditions to increase the dynamic range. Front panel controls are available to decrease the decay time of the AVC circuitry, to disconnect the AVC circuitry and to provide manual control.

For further information contact your dealer or write directly to:

R. L. Drake Company
540 Richard Street
Miamisburg, Ohio 45342 U.S.A.
ATTN: Sales Dept.

Telephone: 513-866-3621
Telex: 288-017

SPECIFICATIONS

Frequency Range:	10 kHz to 30 MHz continuous coverage.
Modes of Operation:	USB, LSB, CW, RTTY, AM, ISB.
Frequency Readout:	Complete to 100 Hz on six Nixie tubes.
Frequency Selection:	10 MHz, 1 MHz, 0.1 MHz steps switch selected. 0 to 0.1 MHz continuously variable.
Frequency Stability:	Frequency drift does not exceed 200 Hz in any 8 hour period at constant ambient temperature between 0° and 40°C and $\pm 10\%$ variation from nominal line voltage after 1/2 hour warmup.
Sensitivity:	0.01–0.5 MHz: Less than 4 microvolts for 10 dB SINAD at 2.4 kHz SSB mode. Less than 25 microvolts for 10 dB SINAD at 6 kHz AM mode with 30% modulation. 0.5–30 MHz: Less than 0.3 microvolts for 10 dB SINAD at 2.4 kHz SSB mode. Less than 2 microvolts for 10 dB SINAD at 6 kHz AM mode with 30% modulation.
Image Rejection:	Greater than 60 dB relative to 1 microvolt below 10 MHz. Greater than 50 dB relative to 1 microvolt above 10 MHz.
IF Rejection:	Greater than 60 dB relative to 1 microvolt except in range of 4.5 to 5.5 MHz.

SPECIFICATIONS — continued

RF Blocking:	Greater than 100 dB relative to 1 microvolt. *Desired signal at 60 dB above 1 microvolt with a blocking signal removed 20 kHz and its amplitude adjusted to reduce desired signal 3 dB.		
Crossmodulation:	70 dB relative to 1 microvolt. *Desired signal at 60 dB above 1 microvolt with undesired signal removed 20 kHz and its amplitude adjusted for crossmodulation products 30 dB lower than desired signal.		
Intermodulation:	70 dB relative to 1 microvolt. *Level of two undesired signals, removed at least 30 kHz from the desired frequency, required to produce the equivalent audio output as a desired signal 30 dB greater than 1 microvolt.		
Opposite Sideband Suppression:	Greater than 60 dB at 500 Hz into the opposite sideband.		
IF Bandwidth (in kHz):	Selectivity	-6 dB	-60 dB
	6	6	11.5
	2.4	2.4	4.3
	1.2	1.2	2.4
	0.3	0.3	0.6
	Optional filters available for other bandwidths.		
Automatic Volume Control:	Audio output increases less than 3 dB for an RF input change of 100 dB.		
	Attack Time	1 millisecond	
	Release Time:		
	(normal AVC)	1 second	
	(fast AVC)	100 milliseconds	
Antenna Input Impedance:	10 kHz to 500 kHz	1000 ohms	
	500 kHz to 30 MHz	50 ohms	
Antenna Input Protection:	The receiver has built-in protection to prevent damage from a 30 Volt signal applied to the antenna for a 15 minute period.		
Audio Output:	Communications channel: 2 Watts at 5% maximum distortion into 4 ohm load (4 ohms unbalanced). 1 milliwatt into 600 ohm load (600 ohms balanced and center tapped). ISB channel: 1 milliwatt into 600 ohm load (600 ohms balanced and center tapped).		
Audio Hum and Noise:	Greater than 60 dB below rated output.		
BFO:	Derived from 5 MHz standard oscillator, or variable over a $\pm$ 3 kHz range from front panel control.		
Power Requirements:	120/240 Volts $\pm$ 10% single phase 50 to 420 Hz, 35 Watts.		
Dimensions:	5.5 in. High x 13.375 in. Wide x 15 in. Deep. 14 cm High x 34 cm Wide x 38 cm Deep.		
Weight:	17 lbs. (7.7 kg).		

*Measurement Procedure



DRAKE AMATEUR PRODUCTS

- R-4C** Receiver covers the 160 meter through 10 meter amateur bands and up to fifteen additional 500 kHz ranges. It has 8-pole crystal filter selectivity with passband tuning and transceives with the T-4XC with excellent sensitivity.
- T-4XC** Transmitter covers the 160 through 10 meter amateur bands and most other frequencies between 1.5 and 30 MHz. It has 8-pole crystal filters for sideband selection. It may be used to transceive with the R-4C.
- TR-4C** Transceiver, 300 Watt high frequency single-sideband unit covers the 80 meter through 10 meter amateur bands. Includes AM and CW modes, a linear, permeability-tuned VFO and two 8-pole crystal lattice filters.
- L-4B** Linear Amplifier is built for continuous duty at full capacity. 2000 Watts PEP on SSB. 1000 Watts on AM, CW and RTTY. Covers the 80 meter through 10 meter bands.
- C-4** Station Console—matches Drake's T-4XC, R-4C and TR-4C.
- MN-4** Antenna Matching Network matches 50 Ohm transmitter output to coax antenna feedline with VSWR up to 5:1. An integral Wattmeter reads forward power in Watts and VSWR directly. 200 Watts continuous duty output.
- MN-2000** Antenna Matching Network. Same as MN-4 except: 1000 Watts continuous duty output (2000 Watts PEP) and 3 antenna connectors switch-selectable from the front panel.
- W-4** Wattmeter reads forward and reflected power directly in Watts (VSWR from nomograph). Range: 200 and 2000 Watts full scale, 1.8 to 54 MHz.
- WV-4** Wattmeter reads forward and reflected power directly in Watts (VSWR from nomograph). Range: 100 and 1000 Watts full scale, 20 to 200 MHz.
- TR-22C** Transceiver, 2 meter VHF-FM, portable. Twelve channels, self-contained batteries and attached microphone.
- TR-72** Transceiver, 2 meter FM, for mobile or fixed station use. Twenty-three channels, operates on 12 Volt car battery. Output power 1 or 10 Watts.

For information on any of our products, please feel free to write our Sales Department, 540 Richard Street, Miamisburg, Ohio 45342 or call direct, 513-866-2421.

