



DRAKE MODEL **MSR-1** MARINE 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
- Optional features available on special order

www.radiopharos.it

R. L. DRAKE COMPANY



DRAKE

®

*Equipment
for Radio
Communications*

General

The R. L. Drake model MSR-1 receiver is a commercial grade communications receiver employing the most up to date solid state devices and circuitry offering continuous coverage from 10 kHz to 30 MHz. The received frequency is indicated by six NIXIE tubes to 100 Hz. All frequency injections of the MSR-1 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 from the fine tuning knob on the front panel. Modular construction on easily accessible printed circuit boards is used throughout the MSR-1. The large use of dual gate MOS-FET transistors in the MSR-1 circuitry contributes to its superior intermodulation, AVC, wide dynamic range and overload performance. The front panel controls allow the operator to select frequency, AM or SSB product detector, I. F. bandwidth, AF gain, BFO pitch, fast or slow AVC, manual RF gain and the highly effective Drake series gate noise blanker. ISB (Independent Sideband) is a built-in feature of the MSR-1. Separate I.F. crystal filter, I.F. amplifier, and audio output circuits allow two simultaneous communication channels to be employed on one frequency assignment, doubling the information receiving capacity.

Consideration in the design of the MSR-1 has been given to special requirements. Space is available in the MSR-1 for additional circuit boards to provide customized performance on special order. The Drake MSR-1 is the best commercial grade digital synthesized receiver available in its price range — upholding the R. L. Drake Company's philosophy, "More Performance and Lower Cost Through Engineering."

Specifications

Frequency Range:	10 kHz to 30 MHz.
Modes of Operation:	USB, LSB, CW, RTTY, AM, ISB.
Frequency Readout:	Complete to 100 Hz on six Nixie tubes.
Frequency Selection:	10 MHz, 1MHz, and 0.1 MHz steps are switch selected. 0 to 0.1 MHz is continuously variable.
Frequency Stability:	(after ½ hour warm-up) <i>Long term:</i> Frequency drift does not exceed 100 Hz in any 8 hour period at constant temperature between 0° and 40° C with a ± 10% change in mains. <i>Short term:</i> Temperature drift does not exceed 40 Hz in any 15 minute period with a temperature variation of 7° C per hour over the range of 0° and 40° C with a ± 10% change in mains.
Sensitivity:	<i>0.01-0.5 MHz:</i> Less than 6 microvolts for 10 dB SINAD at 2.4 kHz SSB mode. Less than 35 microvolts for 10 dB SINAD at 6 kHz AM mode with 30% modulation. <i>0.5-30 MHz:</i> Less than .5 microvolts for 10 dB SINAD at 2.4 kHz SSB mode. Less than 3 microvolts for 10 dB SINAD at 6 kHz AM mode with 30% modulation.

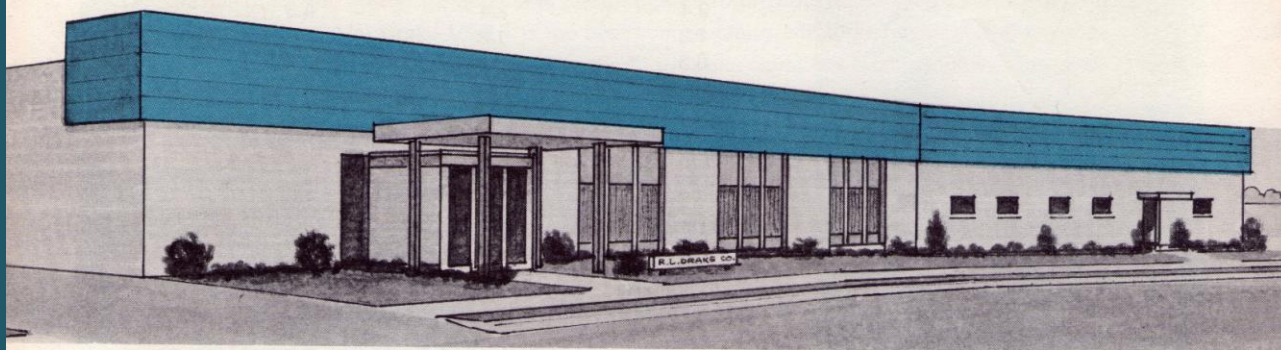
www.radiopharos.it

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.		
R. F. 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:	90 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:	To produce an output equivalent to that resulting from a 30 microvolt wanted signal, each of two equal-level input test signals (each signal separated by at least 30 kHz from the wanted signal) must be at least 10 millivolts.		
Opposite Sideband Suppression:	Greater than 60 dB at 500 Hz into the opposite sideband.		
I. F. Bandwidth (in kHz):	Selectivity	-6 dB	-60 dB
	6	6	11.5
	2.4	2.4	4.3
	1.3	1.2	2.4
	0.3	0.3	0.6
	Optional filters available for other bandwidths.		
Automatic Volume Control:	Audio output rises less than 3 dB for RF input change of 3 microvolt to 300 millivolt (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:	Phase-locked to 5 MHz standard oscillator, or variable over a ± 3 kHz range from front panel control.		
Power Requirements:	115/230 volts $\pm 10\%$ single phase 50 to 420 Hz, 35 watts.		
Dimensions:	5.25 in. High x 19 in. Wide x 15 in. Deep. (13.3 cm. High x 48 cm. Wide x 38 cm. Deep).		
Weight:	23 lbs. (11 kg).		

*Measurement Procedure

www.radiopharos.it

*Any remaining questions concerning the MSR-1 or any other Drake product
will be gratefully answered. Please write to the R. L. Drake Company.*



R. L. DRAKE COMPANY
540 RICHARD ST., MIAMISBURG, OHIO 45342



TELE - SIGNAL 

Postboks 1244
8001 Drammen

www.radiopharos.it

11-1-72