

# SI-8614 NANOCEPTOR™



## SI-8614 SUBMINIATURE VHF/UHF NANOCEPTOR™ RECEIVER

The SI-8614 *Nanoceptor*™ is a high-performance, subminiature, general-purpose, surveillance receiver that tunes from 20 to 3000 MHz. The extremely small size and low power consumption make the unit ideal for portable, narrowband, surveillance applications where weight and power reduction are crucial.

Frequency tuning covers the range from less than 2 MHz to 3000 MHz in 100 Hz steps. Performance is optimized with RF preselection for the range of 20 to 3000 MHz. Tuning can be commanded from any frequency to any other frequency in the range in less than 11 milliseconds maximum (8 ms typical). Tuning between frequencies separated by less than 1 MHz typically requires less than 3 ms. This speed is typical of sweep mode operation.

IF bandpass filtering can support bandwidths as narrow as 10 kHz to as wide as 40 MHz. The *Nanoceptor* can provide up to nine IF filters, depending on the IF bandwidth set selected.

Signal demodulation includes AM, FM, LOG and Pulse. The demodulation mode can be freely selected for any bandwidth.

The *Nanoceptor* receiver supports the high-level interface and automatic scanning functions of its predecessor, the WJ-8654 *Microceptor*™. It offers three interactive operating modes that alert the host computer of signal activity:

- MANUAL – fixed frequency operation directly or via memory recall
- SWEEP – contiguous coverage of up to ten F1-F2 frequency sectors with lockouts
- STEP – pre-programmed discrete frequencies



Power consumption, already remarkably low at 2.75 watts, can be reduced still further by turning off unused portions of the receiver under software control. A “sleep” mode can be remotely activated to reduce current to less than 1 milliamp.

The SI-8614-1 *Nanoceptor* VHF/UHF Receiver is nearly identical to the SI-8614 *Nanoceptor*.

Differences relate to improvements in the third order intercept point and noise figure specifications, the switched IF output level, and an increase in the power consumption specification.

# SI-8614 SUBMINIATURE VHF/UHF NANOCEPTOR™ RECEIVER

## HIGHLIGHTS

- 20 to 3000 MHz Frequency Range with 100 Hz Tuning Resolution
- Extremely Compact Size, 1.13 H x 3.0 W x 5.0 D inches (2.87 x 7.6 x 12.7 cm)
- Low Power: Less than 2.75 watts
- Supports Up to Nine Bandwidths Ranging from 10 kHz to 40 MHz
- AM, FM, LOG and Pulse Detection Modes
- RS-232 or USB Remote Control

## SPECIFICATIONS

Frequency Range	20 to 3000 MHz (tunes 2 to 3000 MHz)
Tuning Resolution	100 Hz
Gain Control	Manual or AGC 80-dB range minimum
AFC	Automatic frequency control, corrects to within $\pm 20\%$ of the selected IF bandwidth
Detection Mode	AM, LOG, pulse, FM (demodulation may be disabled for reduced power applications)
Receiver Tuning Speed	15 ms maximum, 8 ms typical to within 1 kHz of final frequency after receipt of the last byte of a frequency command
Sweep Tuning Speed	25 kHz increment, 3 ms typical 1 MHz increment, 3 ms typical

## ENVIRONMENTAL (AT RECEIVER CASE)

Operating Temperature Range	-20 to +60°C
Full Specification	25 $\pm$ 5°C
Non-operating Temperature Range	-40 to +70°C
Altitude	0 to 12,000 ft (0 to 3657 m)
Humidity	10 to 90% non-condensing
Vibration (Operating)	MIL-STD-810E, method 514.4, category 10, Figure 514.4 16, minimum integrity test, 1 hour per each axis

## KEY FEATURES

- A "Sleep" Mode can be Remotely Activated to Reduce Current to Less than 1 milliamp
- Designed for Rugged Operation
- Highly Resistant to Shock and Vibration
- Extended Temperature Range
- Outputs Wideband IF, Switched IF, Video, Audio, Reference and RS-232 and USB Status

## SWAP

Size	1.13 H X 3.0 W X 5.0 D inches (2.87 x 7.6 x 12.7 cm)
Weight	15.6 oz. (0.44 kg)
Power Consumption	
SI-8614	8-16 Vdc, 2.75 watts maximum (fixed frequency)*
SI-8614-1	8-16 Vdc, 3.50 watts maximum (fixed-frequency)*

\* Several low power modes available

## ORDERING INFORMATION

SI-8614	Standard <i>Nanoceptor</i>
SI-8614-1	<i>Nanoceptor</i> with enhanced third-order intercept point
8614/PS	SI-8614 power supply accepts 100 to 240 Vac, 47 to 63 Hz input and outputs +12 Vdc @ 1.5A maximum output sufficient for SI-8614 power supply input

## OPTIONAL IF BANDWIDTH SETS

Bandwidth Set 1 (8614/BW1):	30 kHz, 500 kHz, 1.5 MHz, 2.5 MHz, 6 MHz, 10 MHz, 25 MHz, & 40 MHz
Bandwidth Set 2 (8614/BW2):	30 kHz, 500 kHz, 1.5 MHz, 3 MHz, 6 MHz, 12 MHz, 25 MHz, & 40 MHz
Bandwidth Set 3 (8614/BW3):	10 kHz, 30 kHz, 100 kHz, 500 kHz, 1.5 MHz, 6 MHz, 10 MHz, 25 MHz, & 40 MHz

\*Other bandwidths sets available - contact DRS Signal Solutions, Inc.

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