

Courtesy of <http://BlackRadios.terryo.org>

### DIGITAL HF RECEIVERS

BAE SYSTEMS' general-purpose HF receivers provide surveillance and monitoring of RF communications from 5 kHz to 30 MHz with 1-Hz tuning resolution. By combining analog and Digital Signal Processing (DSP), these receivers achieve high performance at a low cost in a number of different packages.

- 5 kHz to 30 MHz in 1-Hz steps
- High dynamic range: +30 dBm 3rd-order intercept, typical
- Digital filtering provides 66 IFBW's up to 16 kHz with exceptional shape factors
- Standard AM, SAM, FM, CW, USB, LSB & ISB detection modes (FSK optional)
- Fast, flexible scanning with 100 memory channels
- Noise blanking & tunable notch filtering standard
- Internal switchable preamplifier & attenuator
- Internally selectable RS-232 or CSMA remote control (optional multidrop RS-485, RS-422 & IEEE-488)
- Extensive built-in self-test
- Digital In-phase & Quadrature-phase (I&Q) data available from both the VXI bus and front panel (WJ-8721 only)
- Remote control capability
- Selectable roofing filters for improved performance in crowded RF environments
- Optional outputs include digitized IF, post IF, demodulated data and I&Q
- Optional speech enhancements provide DSP-based adaptive filtering to automatically remove multiple heterodynes & reduce white noise



WJ-8710A



WJ-8711A



WJ-8712P



WJ-8721



WJ-8723

Courtesy of <http://BlackRadios.terryo.org>

**VHF/UHF Miniceptor™ RECEIVERS**

WJ-806X Miniceptors™ are small, frequency agile, lightweight V/UHF receivers for applications requiring low power and high performance. Their compact size, fast tuning speed, automatic internal functions and high-level interface make them ideal for various applications including manportable systems and frequency management systems.

- 20 to 3000 MHz tuning range (with frequency extender)
- 5 selectable IF bandwidths from 3.2 kHz to 8 MHz (up to 40 MHz in 8609A)
- 300-μsec tuning speed to within 10 kHz for WJ-8604A and WJ-8607A
- Small size: 1.5x6.5x10.5 inches (45.72x16.51x26.67 cm)
- Tunable baseband output with up to 4 MHz of bandwidth
- Smart sweep and step algorithms allow the Miniceptor™ to report the presence of new signals or the absence of previously acquired signals
- High-speed serial interface supports up to 230.4 kbaud (WJ-8604A & WJ-8607A)
- Low phase noise
- Low power: <21 watts
- Windows™-based control software (WJ-RCS) compatible



- WJ-8604A
- WJ-8607
- WJ-8607A
- WJ-8607B
- WJ-8607C
- WJ-8609A

**NEW!**

See SI-9460 Programmable Digital Signal Processor in New Product section (page 7).

**DIGITAL HF/VHF/UHF RECEIVER**

The WJ-8611 is a half-rack, high-performance, fully synthesized general-purpose surveillance receiver that provides both HF & V/UHF frequency coverage in a single, low-cost package.

- 2 MHz to 1000 MHz tuning range
- 15 selectable IF bandwidth filters from 200-Hz to 200-kHz
- Built-in tracking preselection
- 200-channel memory scan & 200-channel lockout bands
- Front-panel control with large, bright LED displays and individual function keys
- Both RS-232 & IEEE-488 remote control standard
- Digital I&Q output standard
- 10-MHz wideband output
- AM, FM, CW, SSB & ISB detection modes
- Optional digitized IF Pan data utilizing WJ-9168
- Windows™-based control software (WJ-RCS) compatible



WJ-8611

Courtesy of <http://BlackRadios.terryo.org>



WJ-8615P

### VHF/UHF COMPACT RECEIVER

The WJ-8615P is a half-rack, 3.5 inch (8.89 cm)-high, fully synthesized high performance general-purpose receiver that provides contiguous coverage from 2 to 1600 MHz.

- 2 to 1600 MHz tuning range (with frequency extender)
- 5 selectable IFBW's from 3.2 kHz to 8 MHz
- AM, FM, CW, Pulse & optional ISB detection modes
- IEEE-488 bus compatible, talk/listen
- Front panel and remote control
- Simultaneous output of demodulated audio & log data, formatted for 2-channel audio recorder
- Handoff of front-panel setup to other receivers



WJ-8621

### VHF/UHF VXIceptor™

The WJ-8621 is packaged in a single-slot C-size VXI (VMEbus Extension for Instrumentation) module. It features low-phase-noise frequency synthesizers, a preselector-equipped front end, 100-Hz tuning resolution and high dynamic range.

- Frequency coverage: 20 to 2700 MHz
- +10 dBm 3rd-order intercept, typical
- 7 selectable IF-bandwidth filters from 3.2 kHz to 12 MHz
- Tunable-baseband output with up to 4 MHz of bandwidth
- AM, FM, CW, LSB & USB detection modes
- Configurable for multichannel phase-coherent operation for direction finding and beamforming applications
- 12.5-MHz wideband output, centered at 21.4 MHz
- Front panel-mounted RS-232 auxiliary control port

**NEW!**

See **WJ-8633** VHF/UHF Receiver in New Products section (page 2).

Courtesy of <http://BlackRadios.terryo.org>

### DIGITAL VXI VHF/UHF VXIceptor™

The WJ-8629 is packaged in a single-slot C-size VXI package that provides exceptional RF performance coupled with a high-powered digital backend.

The WJ-8629 is ideal for applications requiring both digital signal data and broad-frequency coverage in a highly integrated package. Combining receiver control and digital signal data directly on a standard instrumentation and computing bus adds significant system capabilities, while reducing the complexity of system integration.

- Frequency coverage: 20 to 2700 MHz
- +10dBm 3rd-order intercept, typical
- 15 selectable IF-bandwidth filters from 200 Hz to 200 kHz
- Digital audio, video, direct analog-to-digital samples or I&Q data available over the VXI interface
- Digital data and I&Q outputs with compatible I/O for TI C40 compport & Motorola 56000 processor—digital output interface uses programmable gate array to provide both serial & parallel outputs for a wide variety of processors (consult factory for details)
- Configurable for multichannel phase-coherent operation for direction finding and beamforming operations
- 12.5-MHz wideband output centered at 21.4 MHz
- Front panel-mounted RS-232 auxiliary control port



WJ-8629

Courtesy of <http://BlackRadios.terryo.org>



WJ-8629A

**SOFTWARE-DEFINABLE DIGITAL VXI VHF/UHF VXIceptor™**

The WJ-8629A is a high-performance Software Definable VXI VHF/UHF receiver, packaged in a single-slot C-size VXI module, utilizing Sunrise™ technology developed by BAE SYSTEMS. The WJ-8629A combines an extremely high-performance BAE SYSTEMS RF front-end with a very powerful general-purpose Digital Signal Processor (Texas Instruments DSP TMS32C6701, running at 1 GFLOPS) into a single receiver platform.

The WJ-8629A is capable of processing bandwidths up to 1.23 MHz and capable of accepting downloadable DSP software algorithms from the user. The WJ-8629A is factory pre-loaded with DSP algorithms to provide standard surveillance receiver operations and functionality. New DSP algorithms can be created using BAE SYSTEMS' Sunrise DSP Software Developer's Kit (WJ-SDK) and downloaded into the receiver. Contact the factory for more details.

**NEW!**  
See WJ-SDK Sunrise DSP Software Developer's Kit in New Products section (page 8).

**WHAT IS SUNRISE?**  
see page 8 **?**

- Frequency coverage from 20 to 2700 MHz with 10-Hz resolution
- Receiver filtering – 22 filter slots (200 Hz to 1.23 MHz) and 5 reserved slots for user-downloadable custom filters
- +10 dBm 3rd-order intercept point, typical
- 12 dB noise figure, typical
- Sub-octave preselection
- Switchable RF pre-amp
- DSP for:
  1. fine tuning to 10 Hz
  2. Demodulation – AM, FM, CW, LSB, USB, ISB, FSK and 4 user-downloadable custom demodulation algorithms
  3. Analysis – Video filtering and 4 user-downloadable algorithms
  4. Decoder – FSK symbol recovery and 4 user-downloadable algorithms
- Digital data (Audio, Video, I&Q, Magnitude & Phase) or direct A/D sample available on VXI interface
- Flexible digital data output available on front panel connector
- VXI message-based and front panel RS-232 control
- Windows™-based control software (WJ-RCS) compatible

Courtesy of <http://BlackRadios.terryo.org>

**VXI HF/VHF/UHF RECEIVER**

The WJ-8634 is a general-purpose VXI surveillance receiver with a frequency coverage from 20 to 1000 MHz with both an HF and V/UHF frequency extension available.

- Frequency range:
  - HF extended: 0.5 to 1000 MHz
  - UHF extended: 20 to 2400 MHz
- 4 selectable IF bandwidths available from 3.2 kHz to 12 MHz
- Tunable baseband output with up to 100-kHz bandwidth
- AM, FM, SSB, CW & IFT detection modes
- Smart step & scan algorithms for reporting new signals or the absence of previously acquired signals
- Windows™-based control software (WJ-RCS) compatible



**WJ-8634**

**HF/VHF/UHF Microceptor™ RECEIVER**

The WJ-8654 is an extremely small [39.5 cubic inches (648 cubic cm)] surveillance receiver that provides frequency coverage from 0.5 to 2400 MHz. Its small size and low power consumption make it ideal for surveillance applications where weight and power consumption are critical.

- Frequency range:
  - Standard: 20 to 1000 MHz
  - HF extended: 0.5 to 1000 MHz
  - HF & UHF extended: 0.5 to 2400 MHz
- 4 selectable IF bandwidths available from 3.2 kHz to 12 MHz
- Tunable baseband output with up to 100-kHz bandwidth
- AM, FM, SSB, CW & IFT detection modes
- Smart step & scan algorithms for reporting new signals or the absence of previously acquired signals
- Low-power sleep mode of operation
- Lightweight: <2.1 pounds (.095 kg)



**WJ-8654**

**NEW!**

See **SI-8614** Subminiature VHF/UHF Receiver (Nanoceptor™) and **WJ-8655A** Miniature VHF/UHF Receiver in New Products section (pages 1 & 3).