

Eclipse RF™ Products

RXR6322



The **RXR6322** is a dual-channel 3U VPX wideband tuner and digital receiver packaged in a rugged, conduction-cooled module. It is ideal for applications requiring the optimal mix of performance and functionality in size, weight and power constrained environments.

The receiver is a member of BAE Systems' Eclipse RF™ Products sixth generation of systems. Eclipse has been delivering high performance, open standards based products to the embedded market for more than 25 years.

Key features and benefits

- 32 narrowband I&Q data streams per channel identify weak signals in the presence of strong in-band and out-of-band interference
- RF delay memory supports a wide variety of operational modes and enables phase coherent and independent operation in harsh electromagnetic environments
- Two RF receiver channels per 3U VPX module are tunable from 100kHz to 6 GHz
- Selectable wideband instantaneous bandwidths up to 80 MHz cover signals of interest
- Excellent tune speed with low phase noise and high spur-free dynamic range
- N-channel coherent operation enables spatial direction finding and beam-forming applications
- Modular open-architecture complies with VITA-46, -48, -49, and -67 standards to protect integrator and customer investment
- Small form factor meets low SWaP requirements of deployed environments

RXR6322 specifications

Radio frequency (RF)

Tuning frequency range	100 kHz to 6 GHz
RF tuning resolution	1 MHz via first LO
RF tune speed	Consult factory
Analog IF bandwidth	Selectable 80/10 MHz (80/40, 60/10, 60/40 MHz optionally available)
Input impedance	50 ohms
VSWR	Less than 2.5:1
Preselection 20 MHz to 90 MHz	Pre-selector bypass, 0.1-20 MHz, 20-30 MHz and 30-90 MHz
90MHz to 6 GHz	Suboctave preselectors
Max input level	+ 24 dBm
Image rejection	> 80 dB
IF rejection	> 80 dB
LO re-radiation	< -90 dBm
Noise figure	14dB typical, 16 dB maximum from 2MHz to 6 GHz
Third order intercept In-band of final IF (IIP3)	+3 dBm typical
Second order intercept	+50 dBm typical
Single tone SFDR	> 77 dB with tone at -1 dBFS
Internal spurious	< -100 dBm
Coherency	Distribution of first and second LOs for N-channel operation

External reference

(Recommended minimum performance specifications)

Frequency	10 MHz +/- 5 PPM or better
Amplitude	0 dBm +/- 3 dBm
Harmonics	-20 dBc maximum
Non-harmonic spurious	-80 dBc maximum
Source VSWR	1.5:1 (reference to 50 ohms)

Digital specifications

Wideband data	16-bit real or 32-bit complex at selected sample rate
Filtered narrowband	16-bit IQ serial at sample rate determined by selected bandwidth
Output sample rate	Set by selected re-sampler (100, 80, 40 and 12.8 cMSPS)
Narrowband DDCs	32 NB DDCs each accessible by either RF channel (bandwidths >1.2 MHz may reduce this number)
Gain control	AGC and MGC modes Fast attack Slow decay Freeze Dump-attack freeze Manual setting (MGC) Attenuation range 45 dB in 1 dB steps
Demodulation	AM, FM, USB, LSB, CW OOK, uLaw or aLaw TDM output
Delay memory	250 MB per input channel
Sync I/O	Daisy chained distribution optional
Timing coherency	A/D sample coherency provided by LO daisy chaining

Mechanical/environmental specifications

Size	3U-160 VPX 1 inch pitch
Weight	27.2 ounces
Power maximum	45 watts minimum, 72 watts Power dissipation most highly determined by FPGA utilization
Cooling	Conduction cooled to siderails
Operating temperature	System integrator must ensure rail temperatures remain between -20 and +70 degrees Celsius

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