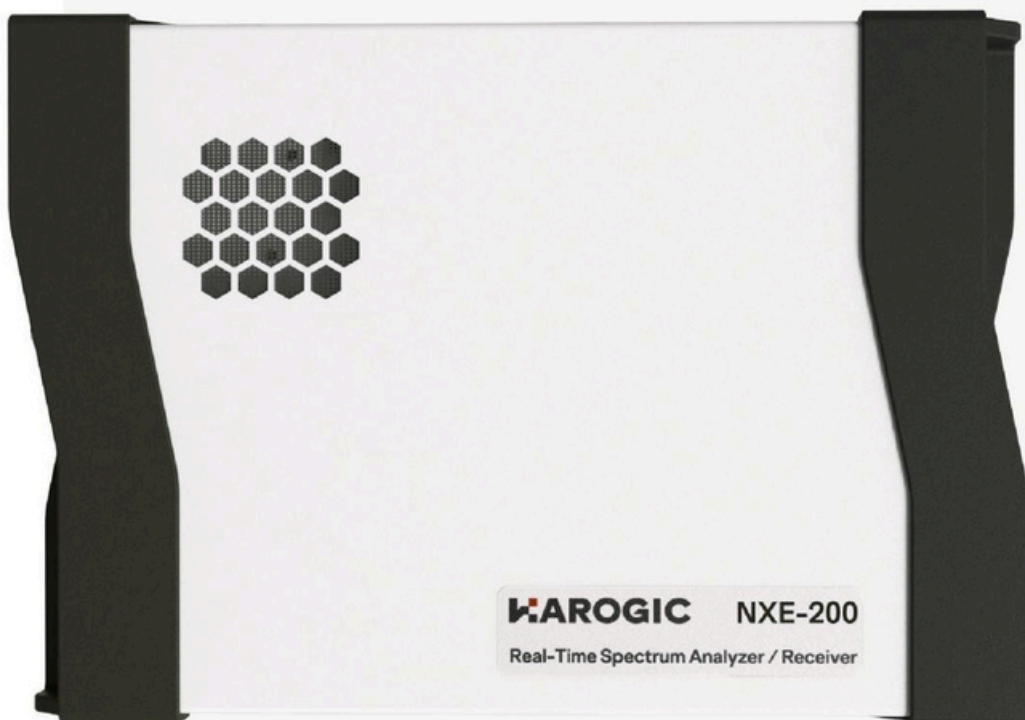


PRODUCT
DATASHEET



NETWORKED
REAL-TIME SPECTRUM
ANALYZER

NXE SERIES
9.5/20 GHz

Key facts

Frequency range: 9 kHz - 9.5/20 GHz

1 GHz DANL: -166 dBm/Hz

1 GHz phase noise: -99.7 dBc/Hz@10 kHz

Analysis bandwidth: up to 100 MHz

1000M/100M Ethernet interface

Highly compatible API interface

Windows 11/10/8/7 (x86, x64, AArch64) are supported

Debian 12/11/10 (x64, AArch64) are supported

Ubuntu 24.04/22.04/20.04/18.04 (x64, AArch64) are supported

Applications

Standard spectrum sweep



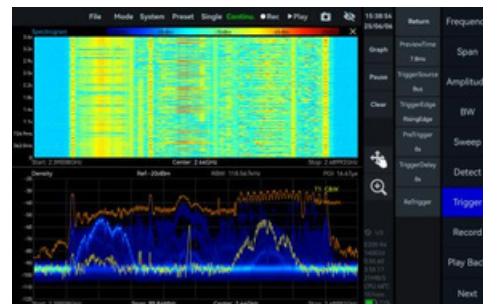
IQ streaming and analysis



Power vs time analysis



Real-time analysis



Specifications*

FREQUENCY

Frequency range	NXE-90	NXE-200
	9 kHz - 9.5 GHz	9 kHz - 20 GHz
Reference clock	Internal or external	
Frequency accuracy	TCXO (std.)	<1 ppm, manual correction is available
	OCXO (opt01)	<1 ppm, manual correction is available
	Int. GNSS disciplined OCXO (opt06)	<0.05 ppm, when locked to GNSS
Aging and temperature stability	TCXO (std.)	<1 ppm/year, <1 ppm
	OCXO (opt01)	<1 ppm/year, <0.15 ppm
	Int. GNSS disciplined OCXO (opt06)	<1 ppm/year, <0.05 ppm

SPECTRUM PURITY

SSB phase noise (dBc/Hz)

Carrier frequency	NXE-90		NXE-200	
	1 GHz	9.5 GHz	1 GHz	20 GHz
1 kHz	-95.2	-91.5	-91.2	-80.6
10 kHz	-101.6	-98.5	-99.7	-90.6
100 kHz	-100.6	-99.7	-101.1	-96.2
1 MHz	-120.9	-116.2	-121.6	-111.5

Residual response (dBm)

Spur reject = bypass

RBW =1 kHz

PosPeak detector

Reference level (R.L.)	NXE-90		NXE-200	
	0 dBm	-50 dBm	0 dBm	-50 dBm
9 kHz - 1 GHz	-83	-120	-90	-120
1 GHz - 3 GHz	-83	-120	-80	-120
3 GHz - 9.5/20 GHz	-90	-130	-90	-120



Image rejection	NXE-90	NXE-200
9 kHz - 3 GHz	>90 dBc (typ.)	>90 dBc (typ.)
3 GHz - 9.5 GHz	>90 dBc(typ.), spur reject = enhanced >60 dBc (typ.), spur reject = bypass	>90 dBc (typ.)
9.5 GHz - 20 GHz	-	>90 dBc(typ.), spur reject = enhanced; >60 dBc (typ.), spur reject = bypass

IF rejection >90 dBc (typ.), spur reject = enhanced;
>80 dBc (typ.), spur reject = bypass

Local oscillator related spurious <-65 dBc
Center frequency \pm (N/M) * 125 MHz, N, M = 1,2, 3, 4, 5...

IIP3 / IIP2 (dBm)

Carrier frequency	NXE-90		NXE-200	
	1 GHz	9.5 GHz	1 GHz	20 GHz
R.L. = 20 dBm	46.1/83.2	40.5/92.8	45.5/82.6	35.3/93.6
R.L. = 0 dBm	26.7/85.0	19.2/90.3	25.5/81.1	21.0/89.0
R.L. = -20 dBm	10.5/82.2	2.0/49.3	7.9/81.5	-4.5/55.3

AMPLITUDE

Max. input power (CW)	23 dBm	50 MHz - 9.5/20 GHz and the preamplifier is off
	10 dBm	9 kHz - 50 MHz or preamplifier is on
Max. DC voltage	\pm 10 VDC	
Display range	DANL - 23 dBm (typ.)	
Amplitude accuracy	9 kHz - 9.5 GHz	\pm 2.0 dB
	9.5 GHz - 20 GHz	\pm 3.0 dB
IF in-band flatness	\pm 2.0 dB	
Reference level (R.L.)	-50 dBm - 23 dBm (typ.)	
RF preamplifiers	Automatically turn on or forcibly turn off	
VSWR 90 MHz to Max.Freq.	<2.0:1	



**Display average noise level
(DANL) (dBm/Hz)
RBW=1 kHz**

	NXE-90		NXE-200	
Reference level	-20 dBm	-50 dBm	-20 dBm	-50 dBm
9 kHz - 1MHz	-143.0	-152.4	-143.6	-152.6
1 MHz - 90 MHz	-152.0	-159.2	-151.8	-160.0
90 MHz - 3.0 GHz	-146.0	-167.5	-149.7	-166.3
3.0 GHz - 9.5 GHz	-153.6	-167.0	-151.4	-157.5
9.5 GHz - 20 GHz	-	-	-156.1	-160.6

**STANDARD SPECTRUM
ANALYSIS**

Detector	PosPeak, NegPeak, Sample, Average, RMS, MaxPower
RBW	0.1 Hz - 10 MHz
VBW	0.1 Hz - 10 MHz
Data chart	SASudio4 software provides spectrum, spectrogram, and historical trace
Measurements	Channel power, OBW, XdB bandwidth, Adjacent channel power ratio, IM3

Sweep speed	NXE-90	NXE-200
RBW ≥ 1 MHz FPGA Spur Reject = Bypass	about 637.4 GHz/s	about 648.8 GHz/s
RBW = 250 kHz FPGA Spur Reject = Standard	about 324.6 GHz/s	about 328.5 GHz/s
RBW = 50 kHz FPGA Spur Reject = Bypass	about 161.6 GHz/s	about 163.8 GHz/s
RBW = 1 kHz CPU Spur Reject = Bypass	about 3.4 GHz/s	about 3.3 GHz/s

IQ RECORDING

Burst recording bandwidth	Maximum:100 MHz The built-in memory depth is 128 Mbytes
Continuous recording bandwidth	Maximum:6.25 MHz Limited by the bandwidth of USB interface and hard disk The storage depth is limited by the hard disk capacity



IQ sample rate	Maximum: 125 MSPS decimate factor: 1, 2, 4, 8, 32, 64, 128, 256, 512, 1024, 2048, 4096
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External trigger response	Maximum response frequency 500 times/s
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**DETECTION
ANALYSIS**

Lowest time resolution	8 ns
Max. analysis bandwidth	100 MHz
Detector	PosPeak, NegPeak, Sample,Average, RMS, MaxPower

**REAL TIME SPECTRUM
ANALYSIS**

FFT analysis	<p>FFT engine is implemented in FPGA Frame compression and trace detection are supported No missing samples between FFT frames</p> <p>FFT frame update rate=10^9 ns/(N * D * 8 ns); POI = N * D * 8 ns N for FFT points (2048, 1024, 512, 256, 128, 64, 32) D for decimate factor (1, 2, 4, 8...)</p>		
	Typical settings	FFT refresh rate	POI
	N = 2048, D = 1	61,035 times/s	16.384 us
	N = 32, D = 1	3,906,250 times/s	0.256 us
Max. analysis bandwidth	100 MHz		
Window function	B-Nuttall, Flat-top, LowSideLobe		
RBW	14.73 MHz - 3.59kHz (Flat-top) 7.81 MHz - 1.90kHz (B-Nuttall) 13 grades for each window type		
Amplitude resolution	0.75dB		

GENERAL

Input and output		
Power	Type-C, power supply dedicated port Please provide 12V2A peakpower supply capacity Allowable voltage range 9 -12V, ripple less than 200mVpp	
Data	RJ45 1000 Mbps*1, 100 Mbps * 1	
	NXE-90	NXE-200
RF input	SMA (F), Input impedance 50 Ω	2.92 mm (F), Input impedance 50 Ω
External reference clock input	MMCX (F), amplitude ≥ 1.5 Vpp, input impedance is about 330 Ω	
Reference clock output	Integrated in MUXIO, 3.3 V CMOS, programmable on/off	



External trigger input	MMCX (F), 3.3V CMOS, input: high impedance
Trigger output	MMCX (F), 3.3 V CMOS
Analog IF output	MMCX (F), maximum output power: -25 dBm, output impedance 50 Ω supported, 307.2 MHz ± 50 MHz
GNSS antenna	MMCX (F)
General USB2.0	Type-C
Power consumption	13-16 W

	NXE-90	NXE-200
Size (D * W * H)	167 * 117 * 30 mm	167 * 117 * 30 mm
Weight GNSS	680 g	658 g
synchronization	Internal GNSS	±100 ns
	Internal GNSS (opt05)	±75 ns
	Internal GNSS (opt06)	±50 ns
System requirements	Windows 11/10/8/7	x86, x64, AArch64
	Debian 12/11/10	x64, AArch64
	Ubuntu 24.04/22.04/20.04/18.04	x64, AArch64
Operating temperature (ambient)	T0 class (std.)	0 - 50 °C
	T1 class (opt40)	-20 - 65 °C
Storage temperature (ambient)	T0 class (std.)	-20 - 70 °C
	T1 class (opt40)	-40 - 85 °C
Operating Relative Humidity	0 -40 °C	5 – 75%
	>40 °C	5 – 45%
Packaging and accessories	Flash disk * 1, USB cable * 1, Power adapter * 1	

*Specification applies under the following conditions:

- (1) Start up and warm up for 10 minutes
- (2) Ambient temperature 25 oC (core temperature 50 oC)
- (3) Standard spectrum analysis mode-spurious rejection enhance on
- (4) Necessary heat dissipation is provided to ensure the ambient and core temperature within the rated range at the same time
- (5) Sweep speed and display average noise level test conditions: MCU:0.55.57,FPGA:0.55.22,API:0.55.61



OPTIONS

Code		
01	Built-in OCXO reference clock	built-in hardware
05	Internal high precision GNSS	built-in hardware
06	Build-in GNSS disciplined OCXO reference clock	built-in hardware
34	External omnidirectional antenna, 400-8000MHz, Gain<2dBi	accessory
40	T1 temperature class	built-in hardware
71	Basic digital demodulation	software
72	Pulse detection	software

