VX Series FM Transmitter

VX150-VX2

The Nautel VX Series of transmitters is a range of compact, solid state FM transmitters focused on maintainability, power density, and affordability.

MODELS

- VX150: 150 W
- VX300: 300 W
- VX600: 600 W
- VX1: 1 kW
- VX1.5: 1.5 kW
- VX2: 2 kW

GENERAL

- Analog FM transmitter
- High power density
- Compact size: 2 RU height, 20”/50.8 cm depth
- AC to RF efficiency up to 77%
- Single-phase AC
- Orban Inside audio processor (option)

USABILITY

- Front Panel User Interface
  - Full color, 3.5” TFT display
  - Rotary/push button navigation
  - Dedicated RF and Remote ON/OFF buttons
  - USB port (2.0 Type A)
- Fast software updates
- Variable speed fans for improved acoustics and efficiency

SERVICEABILITY

- Solderless power amplifier replacement
- Hot-swappable PA power supply
- Removable, washable air filter
- Front-supported chassis for rail-free rack installation
- Maintainable with common tools

REDUNDANCY

- Automatic audio input failover to a backup source
- Support for main/standby and N+1 configurations

SOFTWARE

- HTML5 remote control and monitoring (AUI)
- Encrypted network communications
- SNMP v2c
- RDS Encoder with scrollable 64-character PS
- Analog SFN support
- NTP support

AUI (ADVANCED USER INTERFACE)

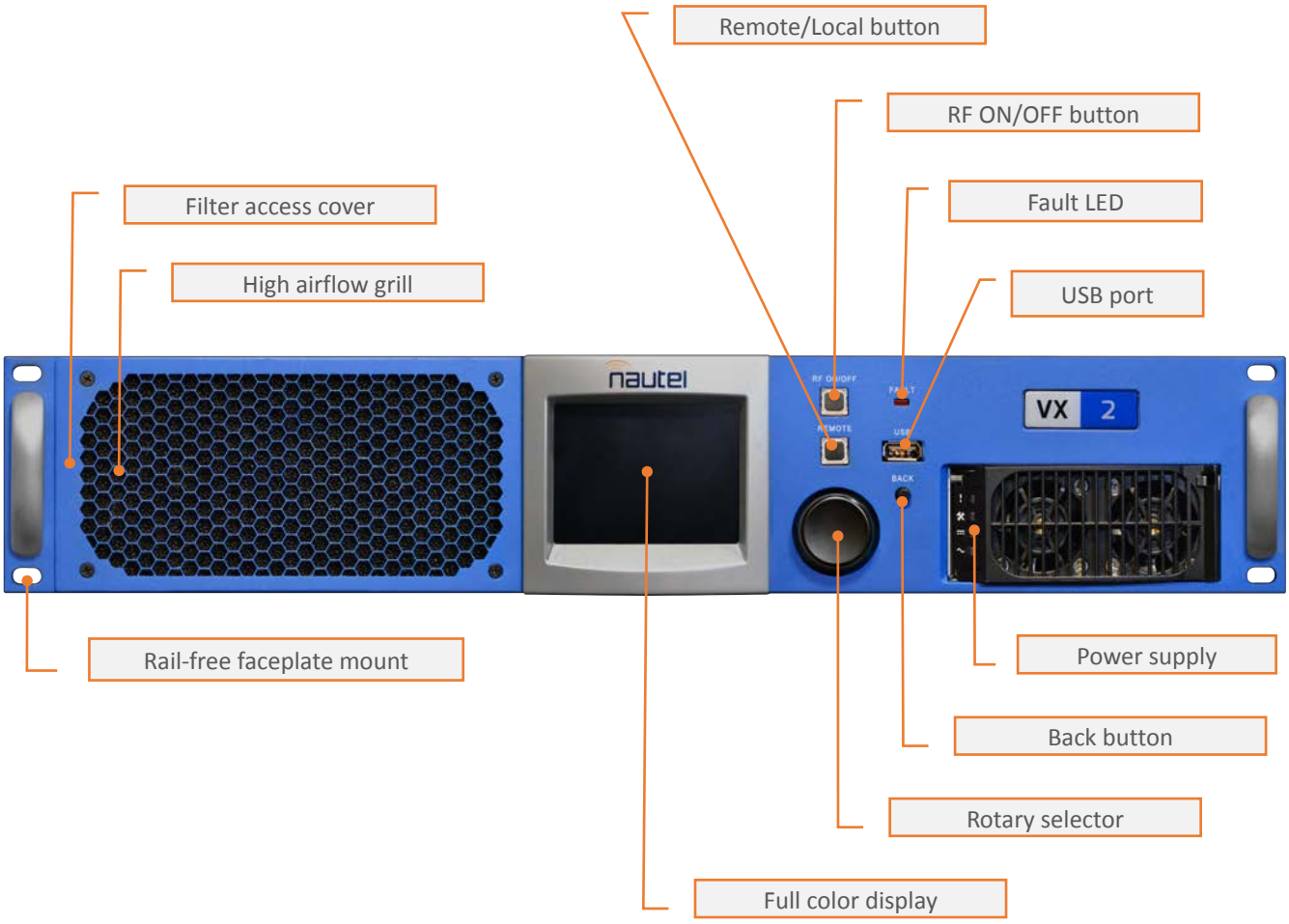
- HTML5 responsive design (desktop, tablet, & smartphone)
- Comprehensive dashboard featuring meters, alarms, audio, and modulation data
- Instrumentation

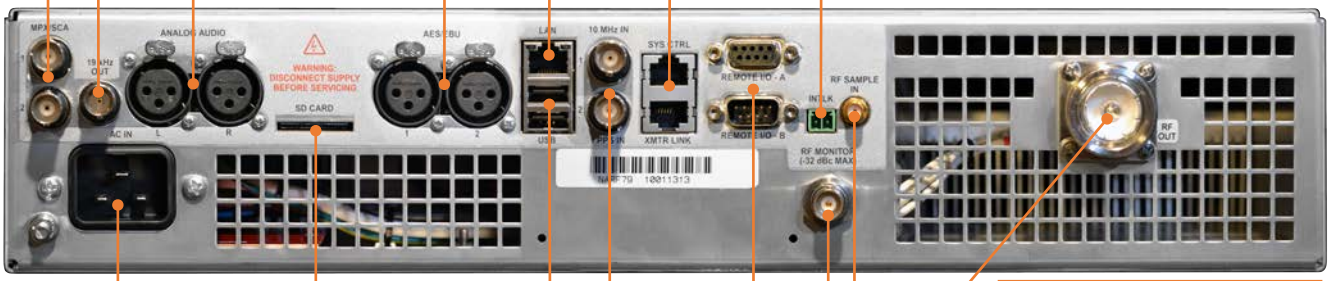
SUPPORT

- 4-Year Warranty
- Phone, online, and email support

REGULATORY

- FCC / ISED / CE compliance
- LPFM certification (VX150 & VX300)


Remote/Local button
RF ON/OFF button
Filter access cover
Fault LED
High airflow grill
USB port
nautel
VX 2
Rail-free faceplate mount
Power supply
Back button
Rotary selector
Full color display


Wideband 1 & 2 (BNC)
Pilot Carrier output (BNC)
Analog Audio L/R (XLR)
AES1, AES2 (XLR)
10/100 Ethernet (RJ45)
System Controller I/O (RJ45)
Interlock (2-Pos. TB)
RF output (model-specific)
SD Card
RF Sample input (SMA)
AC Input (NEMA C20)
RF Monitor (BNC)
2 x Remote I/O (DB9)
10 MHz & 1 PPS input (BNC)
2 x USB 2.0 (Type A)

GENERAL	VX150	VX300	VX600	VX1	VX1.5	VX2
Rated Output Power	150 W	300 W	600 W	1000 W	1500 W	2000 W
Output Power Range	15-165 W	30-330 W	60-660 W	100-1100 W	150-1650 W	200-2100 W
Power Amplifier	1	1	1	1	2	2
PA power supply	1					
Pre-Amplifier	1					
Pre-Amplifier power supply	1					
Exciter/Controller	Integrated					
RF Output Connector	Type “N”, female			7/16 DIN, female		
RF Terminating Impedance	50 ohms unbalanced					
RF Load VSWR	100% Rated Power into 1.5:1 VSWR					
	110% Rated Power into 1.2:1 VSWR					105% into 1:2:1
	Automatic power reduction into higher VSWR					
	Protected from open and short circuits at all phase angles					
RF Frequency Range	87.5 MHz to 108 MHz in 10 kHz steps					
	No tuning required					
Spurious and Harmonic	ISED specification BETS6 Issue 2					
	FCC CFR title 47 part 2, part 73, and part 74		FCC CFR title 47 part 2 and part 73			
	CE Radio Equipment Directive 2014/53/EU					
EXCITER/CONTROLLER						
Exciter/Controller	Integrated analog FM exciter using direct-to-channel digital modulation					
	Built-in RDS encoder, SCA encoder, and stereo generator					
Audio Sources	2 x AES (incl. MPX over AES)					
	Analog L/R					
	2 x Wideband (suitable for composite, RDS, or SCA)					
Audio Backup	Automatic changeover to backup audio source in the event that main audio source fails					
FM Signal-to-Noise Ratio: Digital or Analog Stereo Input	80 dB below 100% modulation (reference 400 Hz, measured in 22 Hz to 22 kHz bandwidth with 75 µs de-emphasis and DIN 'A' weighting)					
FM Signal-to-Noise Ratio: Monaural Digital/Analog or Wideband Composite Operation	90 dB below 100% modulation (reference 400 Hz, measured in 22 Hz to 80 kHz bandwidth with 75 µs de-emphasis and DIN 'A' weighting)					

AC INPUT	VX150	VX300	VX600	VX1	VX1.5	VX2
Voltage	90-265 VAC, 1PH, 47-66 Hz				185-265 VAC, 1PH, 47-66 Hz	
Power Consumption at Rated Output Power	286 W (295 VA) Typical	465 W (470 VA) Typical	811 W (819 VA) Typical	1322 W (1349 VA) Typical	2046 W (2067 VA) Typical	2650 W (2677 VA) Typical
Typical Efficiency	51%	65%	74%	75%	73%	75%
Power Factor	Unity Power Factor Corrected (0.97 typical at 120 VAC)	Unity Power Factor Corrected (0.99 typical at 120 VAC)	Unity Power Factor Corrected (0.99 typical at 120 VAC)	Unity Power Factor Corrected (0.98 typical at 208 VAC)	Unity Power Factor Corrected (0.99 typical at 208 VAC)	Unity Power Factor Corrected (0.99 typical at 208 VAC)
Power Line Harmonics	IEEE 519-2014					
	EN 61000-3-2					
IP CONNECTIVITY						
SNMP	Allows VX Series to be set up as part of a network and monitored remotely via a single control point					
	SNMP v2c					
Remote AUI	Remotely connect to a VX transmitter via Nautel's HTML5 Advanced User Interface (AUI). Remote connectivity allows for setting of operating parameters and viewing the transmitter status from any web enabled device.					
Email Notification	Automatically receive email notifications when an alarm has been activated.					
AUDIO PERFORMANCE						
Asynchronous AM S/N Ratio	Better than 60 dB below reference carrier with 100% amplitude modulation using 75 µs de-emphasis (no FM modulation present)					
Synchronous AM S/N Ratio	Better than 50 dB below reference carrier with 100% amplitude modulation using 75 µs de-emphasis					
Audio Low Pass Filter	0 - 15 kHz 0.005 dB, 90 dB attenuation at 19 kHz					
Stereo Pilot Tone	19 kHz ±2 PPM					
38 kHz Suppression	>80 dB below ±75 kHz deviation reference					
Stereo Separation	>60 dB, 30 Hz to 15 kHz					
Stereo THD	0.025% or less, 30 Hz to 15 kHz, BW = 22 Hz to 22 kHz, 75 µS de-emphasis					
CONTROLLING AND MONITORING						
Local Interface (Front panel LCD)	Presets					
	Logs					
	Status (meters and active alarms)					
Status	Fault LED for status summary					
Remote Interface (AUI)	HTML5, responsive design supports desktop, tablet, and smartphone					
	Software upgrades					
	Presets					
	Remote I/O Setup					
	Status (meters and active alarms)					
	Audio Levels					
	Audio Spectrum Analyzer					

AUDIO PLAYER			
FILE FORMAT	**SUPPORTED SAMPLE RATES**	**SUPPORTED CHANNELS**	**OTHER SPECIFICATIONS**
.MP3	24 kHz 32 kHz 44.1 kHz 48 kHz	Mono Stereo	32 kbps minimum bitrate 320 kbps maximum bitrate
.WAV	32 kHz 44.1 kHz 48 kHz	Mono Stereo	16/24/32 bit PCM Encoding
.FLAC	32 kHz 44.1 kHz 48 kHz	Mono Stereo	16/24 bit per sample
.AAC	32 kHz 44.1 kHz 48 kHz	Mono Stereo	AAC-LC and HE-AAC supported AAC, .M4A and .MP4 (audio only) extensions also supported

AoIP STREAMING			
STREAM FORMAT	**SUPPORTED CODEC**	**SUPPORTED BITRATES**	**OTHER SPECIFICATIONS**
Icecast	MP3 FLAC AAC OGG/VORBIS	96 - 320 kbps	Supports .M3U Playlist URLs
Shoutcast	MP3 AAC	96 - 320 kbps	Supports .M3U Playlist URLs
HLS	MP3 AAC	96 - 320 kbps	Supports .M3U8 Playlist URLs

COMPLIANCE	VX150	VX300	VX600	VX1	VX1.5	VX2
Complies with:	ISED specification BETS6 issue 2					
	FCC CFR title 47 part 2 and part 73B					
	FCC Low Power FM Certified - CFR title 47 part 73G					
	FCC Translator/Booster Certified - CFR title 47 part 73L					
	Conforms with all essential requirements of Radio Equipment Directive 2014/53/EU					
ENVIRONMENTAL						
Temperature Range	32°F to 122°F/0°C to +50°C					
	Derate 2°C per 1000 ft/3°C per 500 m above sea level					
Humidity Range	0% to 95% non-condensing					
Altitude	15,000 ft/4572 m					
Cooling Air Requirements	Typical: 40 CFM/68 m^3/hr Max: 130 CFM/221 m^3/hr			Typical: 75 CFM/127 m^3/hr Max: 140 CFM/ 238 m^3/hr	Typical: 95 CFM/161 m^3/hr Max: 140 CFM/238 m^3/hr	
PHYSICAL						
Dimensions	W = 19"/48.3 cm Standard 19“ EIA rack with min opening of 17.5“/44.5 cm					
	H = 2 RU/3.5"/8.9 cm					
	D = 19.8”/50.3 cm (including output connector)			D = 20”/50.8 cm (including output connector)		
Weight	23 lb/10.4 kg				25 lb/11.5 kg	