

CRMX Nova™ – Wireless DMX and RDM distribution for Entertainment & Architainment

CRMX Nova represents the future of wireless DMX & RDM distribution. CRMX stands for Cognitive Radio Multiplexer. It is the first automated and adaptive wireless technology specifically developed for the lighting industry. LumenRadio's Nova products offer this innovation in rugged enclosures designed to meet the particular requirements of the entertainment and architainment markets.

Key CRMX Nova innovations and advantages are:

1. **Automated Cognitive Coexistence.** CRMX wireless transmissions never disturb, or are disturbed by, other wireless equipment. This fully automated feature offers unrivaled convenience and peace of mind during operation.
2. **Fidelity.** The DMX frame output is identical to the frame input.
3. **Error correction.** Advanced algorithms recreate corrupt or lost radio packets.
4. **Compliance.** Non-compliant DMX is corrected to meet the DMX512A standard.
5. **Synchronization.** Precision timing mechanism guarantees synchronized frame delivery.
6. **Latency.** Industry best; below 5ms in multi-universe systems.
7. **Free RDM controller*.** Includes what you need to manage and monitor RDM systems.
8. **Ethernet*.** Support for Streaming ACN & Art-Net.
9. **Ease of use.** One button takes care of all setup.
10. **Ease of mounting.** Multiple mounting options facilitate easy rigging or rack mounting.
11. **Security.** 128 bit encryption ensures no hacker interference.
12. **Legacy support.** Nova receivers are compatible with legacy W-DMX™ systems.
13. **Upgradeable.** Software and firmware readily available from our distributors or website.
14. **Support.** 24/7 support from dedicated experts.

* = Available on select models



Automated Cognitive Coexistence explained:

Wireless DMX distribution systems operate on the same license free frequencies as W-LAN, ZigBee, Bluetooth, some wireless intercoms, etc. Interference between such systems has been a growing problem in the industry with no available solution. CRMX is the first system to continuously scan the radio spectrum and dynamically adapt its frequency hopping patterns. This eliminates interference and maximizes performance of all radio systems in the same radio frequency sphere. In short, it's a smart radio that adapts.

Fidelity and Error Correction explained:

DMX/RDM fidelity and error correction ensures that DMX/RDM frames retain the exact same content and properties, including timing parameters, throughout the transmission process. This is important as many systems now employ moving lights, media servers, LEDs; devices that can severely misbehave if they receive DMX frames that in any way are fragmented or corrupt.

Synchronization explained:

Synchronization guarantees that the DMX frames are delivered by all receivers at exactly the same time regardless of their location and the presence of other radio systems. This is for example critical to maintain uniformity during color changes in large area LED installations controlled by multiple receivers.

RDM Controller explained:

RDM, officially known as "ANSI/ESTA E1.20, Entertainment Technology - Remote Device Management over USITT DMX512" is a bi-directional extension of DMX that allows control and monitoring of RDM devices from an RDM Controller. CRMX RDM products ship with LumenRadio's RDM Controller that allows easy setup, management, and monitoring of even the most complex RDM enabled system. LumenRadio's RDM Controller requires a computer provided by the user. The software is free of charge and the latest version is always downloadable from www.lumenradio.com.

	RDM dual transmitter with sACN/Art-Net	RDM receiver	DMX dual transmitter with sACN/Art-Net	DMX transmitter	DMX receiver
Supported protocols					
USITT DMX-512 (1986 & 1990) and 512A	Yes	Yes	Yes	Yes	Yes
Streaming ACN ANSI E1.31	Yes	Yes ¹	Yes	No	Yes ¹
Art-Net I, II	Yes	Yes ¹	Yes	No	Yes ¹
RDM ANSI E1.20	Yes	Yes	No	No	No
RDM enabled controller software	Yes ²	No	No	No	No
Firmware upgrade	XLR	XLR	XLR	XLR	XLR
ESD protected interfaces	Yes	Yes	Yes	Yes	Yes

DMX interface					
Number of universes supported	2	1	2	1	1
Full DMX fidelity and frame integrity	Yes	Yes	Yes	Yes	Yes
Error correction and packet recovery	Yes	Yes	Yes	Yes	Yes
Frame synchronization	Less than 0,01 ms	Less than 0,01 ms	Less than 0,01 ms	Less than 0,01 ms	Less than 0,01 ms
End-to-end DMX latency	Less than 5 ms	Less than 5 ms	Less than 5 ms	Less than 5 ms	Less than 5 ms
Auto sensing of DMX frame rate and frame size	Yes	Yes	Yes	Yes	Yes
Supported DMX frame rates	0,8 – 7352 Hz	1 – 830 Hz ³	0,8 – 7352 Hz	0,8 – 7352 Hz	1 – 830 Hz ³
Number of DMX channels supported	0 – 1024	0 – 512	0 – 1024	0 – 512	0 – 512
Loss of DMX input behavior	Timeout after 1,25s.	DMX driver output will go into high impedance state.	Timeout after 1,25s.	Timeout after 1,25s.	DMX driver output will go into high impedance state.
W-DMX™ Compatibility	No	Yes	No	No	Yes

Power					
High voltage input	85-264VAC / 47-70Hz / 5W	85-264VAC / 47-70Hz / 3W	85-264VAC / 47-70Hz / 5W	85-264VAC / 47-70Hz / 3W	85-264VAC / 47-70Hz / 3W
Low voltage input	12VDC ±20% / 5W	12VDC ±20% / 3W	12VDC ±20% / 5W	12VDC ±20% / 3W	12VDC ±20% / 3W
Power over Ethernet	Yes	No	Yes	No	No
Overvoltage and ESD protected power inputs	Yes	Yes	Yes	Yes	Yes

RF characteristics					
Automated Cognitive Coexistence	Yes	Yes	Yes	Yes	Yes
Dynamic adaptive frequency hopping	Yes	Yes	Yes	Yes	Yes
Operational frequency range	2402-2480MHz	2402-2480MHz	2402-2480MHz	2402-2480MHz	2402-2480MHz
RF output in high power mode	300mW (25dBm) ⁴	300mW (25dBm) ⁴	300mW (25dBm) ⁴	300mW (25dBm) ⁴	300mW (25dBm) ⁴
RF output in normal power mode	100mW (20dBm)	100mW (20dBm)	100mW (20dBm)	100mW (20dBm)	100mW (20dBm)
RF output in low power mode	50mW (17dBm) or 10mW (10dBm)	50mW (17dBm) or 10mW (10dBm)	50mW (17dBm) or 10mW (10dBm)	50mW (17dBm) or 10mW (10dBm)	50mW (17dBm) or 10mW (10dBm)
RF modulation	GFSK	GFSK	GFSK	GFSK	GFSK
Sensitivity at 0.1% Packet Error Rate	-96dBm	-96dBm	-96dBm	-96dBm	-96dBm
Tested link range (Normal power EU mode using standard antennas in urban area)	500m	500m	500m	500m	500m
Recovery time upon loss of signal	Less than 1s	Less than 1s	Less than 1s	Less than 1s	Less than 1s

Approvals					
FCC: 15.247&68 Class B; Canada ICES 003	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵	Yes ⁵
CE; EN 301 489-1; EN 301 489-17; EN 300-328-1; EN 300-328-2; EN 609 50	Yes	Yes	Yes	Yes	Yes

Environment					
Operating temperature range (ambient)	-20°C to +50°C -4°F to 122°F	-20°C to +50°C -4°F to 122°F	-20°C to +50°C -4°F to 122°F	-20°C to +50°C -4°F to 122°F	-20°C to +50°C -4°F to 122°F
Humidity	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing

Physical					
Enclosure	Anodized extruded aluminum	Anodized extruded aluminum	Anodized extruded aluminum	Anodized extruded aluminum	Anodized extruded aluminum
Dimensions (W x H x D) not including antennas	220 x 44 x 125 mm 8,6" x 1,7" x 4,9"	110 x 44 x 160 mm 4,3" x 1,7" x 6,3"	220 x 44 x 125 mm 8,6" x 1,7" x 4,9"	110 x 44 x 160 mm 4,3" x 1,7" x 6,3"	110 x 44 x 160 mm 4,3" x 1,7" x 6,3"
Weight	900g, 30oz	700g, 24oz	900g, 30oz	700g, 24oz	700g, 24oz

Connectors					
Antenna connector	RP-TNC male	RP-TNC male	RP-TNC male	RP-TNC male	RP-TNC male
DMX connectors	2 XLR 5-pin gold plated male	1 XLR 5-pin gold plated female	2 XLR 5-pin gold plated male	1 XLR 5-pin gold plated male	1 XLR 5-pin gold plated female
Ethernet connectors	1 Neutrik® Ethercon™ RJ45	---	1 Neutrik® Ethercon™ RJ45	---	---
USB connector	Type B	---	Type B	---	---
DC input	Pluggable terminal strip, Phonix® MSTB 2,5	Pluggable terminal strip, Phonix® MSTB 2,5	Pluggable terminal strip, Phonix® MSTB 2,5	Pluggable terminal strip, Phonix® MSTB 2,5	Pluggable terminal strip, Phonix® MSTB 2,5
AC input	IEC 320-C14 Male	IEC 320-C14 Male	IEC 320-C14 Male	IEC 320-C14 Male	IEC 320-C14 Male
Supplied accessories	AC power cord, DC power connector, 2dBi RP-TNC antennas, Mounting brackets, User guide	AC power cord, DC power connector, 2dBi RP-TNC antenna, Mounting brackets, User guide	AC power cord, DC power connector, 2dBi RP-TNC antennas, Mounting brackets, User guide	AC power cord, DC power connector, 2dBi RP-TNC antenna, Mounting brackets, User guide	AC power cord, DC power connector, 2dBi RP-TNC antenna, Mounting brackets, User guide

¹ Converted to DMX

² Downloadable at www.lumenradio.com

³ Limited by the DMX512-A standard

⁴ Allowed in North America only

⁵ Pending