

# The New RCCR-NXR Digital Clean Cab Radio



The RCCR-NXR includes new user functionality and capabilities made possible by the railroad community's growing application of NXDN™ digital technology. Enhancements to radio firmware and radio-display information make the NXR the ideal digital voice-radio for your locomotive fleet.

The NXR maintains the proven high-performance, railroad-optimized analog and digital capable RF platform, 12VDC to 72VDC PS3 power supply and robust mechanical design and AREMA footprint used in previous RCCR radio models.

- FCC Narrow Band Compliant, IC Approved. Tri-Mode capable. Wideband @25kHz Analog (Outside the US Only), Narrowband Analog @12.5kHz and Super Narrowband NXDN Digital @6.25kHz.
- One-piece (RCCR-151-NXR) and Two-piece (RCCR-152-NXR) models available.
- Splash Resistance, Shock and Vibration per AAR S-5702, Revision 2/1/03, Sections 3.2.4.1 and 3.2.4.2 (Swept sinusoidal vibration, 4 hours per axis, 3 axis. Random vibration, 4 hours per axis, 3 axis.)
- All-metal, rugged enclosure for maximum durability. Side-mount locking tab and swivel rear locking pin.
- Large, easy-to-read LED display with wide viewing angle and polarized, protective anti-glare lens for long viewing distance and ruggedness.
- **New!** Channel information display – Active channel (TX/RX) and RAN Code displayed at all times to the user. An "INVALID" display message indicates an incorrect channel entry.
- **New!** "\*" and CHAN Button combination controls display brightness. Automatic or field-settable dimming of display in low light environments.
- Front panel push buttons are large and flush mounted to ensure correct entry and backlit for low light operation.
- **New!** RAN Code Button allows individual entry of up to 64 RAN codes on a per channel basis. Default RAN setting = 01 TX, 00 RX.
- **New!** Dual color LED indicators for improved radio awareness. RX Green=Valid Transmission, same channel and RAN code; RX Yellow=Co-channel/Busy, same channel different RAN code, or analog signal. TX Red=Transmit indicator
- **New!** NXDN Unit ID and Group ID of a transmitting radio appears on the RCCR display - Provides the locomotive engineer with identifying information about the calling radio.

- Use of CHAN or HOME Button allows individual entry of all AAR narrowband or NXDN digital channels and up to 500 "custom" programmed alpha-numeric Home Channels.
- Large speaker provides loud, crisp, easy-to-understand audio.
- Oversized easy-to-grasp carrying handle allows for hassle-free radio transport.
- **New!** Optional Ethernet Connection.
- **New!** Supports optional DVR Hardware Mod – allows the output and capture of both transmit and receive radio audio with an externally connected, railroad provided, communication recording device. See companion Option below.
- **New!** Optional Event-Tagging Firmware Upgrade\*\* – Provides RS-232 output of specific tagged radio events. The recording of tagged radio events requires an externally connected, railroad provided, time-stamping storage device. Tagged events include: received and transmitted radio audio, PTT button activation, channel change buttons and measured RSSI with the event – well suited for safety conformance audit purposes. Contact factory for details. Optional DVR Mod required for the capture of recorded audio.
- Dual front-end design; narrow front-end with dual surface acoustic wave (SAW) filters for AAR channels and wider front-end for Non-AAR VHF operation on frequencies in 150-174MHz band.
- Appropriate front-end is automatically selected for channel/frequency chosen.
- Supports 170 MHz Mexican frequencies via wide front-end.
- Tight RF specifications for urban environments. Frequency stability supports FCC 6.25kHz super-narrowband requirements.
- Internal flash memory and program code make the radio externally upgradeable
- High VSWR Alert: While transmitting, radio automatically shows [ANTENNA] on the display if it detects an antenna VSWR greater than 3:1. Provides quick visibility of a problem due to a faulty antenna connection at the radio, the cable or the antenna itself. Reduces down time and increases safety by ensuring maximum radio performance.
- Special emphasis on easy access and serviceability of all internal PCBs and related electronics. Assembly/disassembly straightforward by service personnel.
- **New!** NXR Upgrade Kit. Permits certain legacy RCCR radios to be upgraded to NXR functionality. Contact factory for details.
- Manufacturer 2 year limited warranty.
- Designed, manufactured, and supported by Ritron's factory in Carmel, IN USA.

U 00003  
NXDN Unit ID

G 00000  
NXDN Group ID

\*\* Requires License Agreement

# Heavy Gauge Metal Enclosure for Maximum Durability



**Side/Rear View-1**  
Easy-to-grasp carry handle.



**Side/Rear View-2**  
All side and rear connectors are recessed to protect against damage.



**Rear View**  
Screw Latch, Handset, Programming and Accessory Connector.  
Optional Ethernet Connection.

## RCCR-152-NXR 2-Piece Version (Cable not included)



## SPECIFICATIONS

### GENERAL

FCC ID: AIERIT28-150  
 FCC Rule Parts: 90  
 Industry Canada ID: 1084A-RIT28150  
 Industry Canada Specifications: RSS-119, Issue 9  
 Frequency Range: Narrow (AAR) Front End.....159–162 MHz  
 Broad Front-End.....150–174 MHz  
 2.5 kHz  
 Synthesizer Step Size: 15kHz (Wide) 7.5 (Narrow) 7.5kHz (Very Narrow)  
 Channel Step Size:  
 Frequency Stability: +/- 1 PPM (-30° to +60°C) TX/RX  
 RF Channels: \* AAR Wideband Channel 05 – 97  
 \* AAR Narrowband Channels 005–097  
 \* AAR Narrowband Channels 104–197  
 \* AAR Digital Channels 302–488  
 \* Custom Programmed Home Channels 1-500  
 \* 64 NXDN RAN Codes. Front panel selectable.  
 Default 01 TX, 00 RX.  
 \* CTCSS  
 \* Digital Coded Squelch  
 \* Single-Tone Encode (Home channels only)  
 \* DTMF Encode

### Tone/Code Signaling:

### Environmental:

### Antenna Fitting:

### Dimensions:

### Weight:

### Enclosure Construction:

Splash resistant, shock & vibration as per AAR S-5702, section 3.2.4  
 50 ohms, SO-239 connector  
 4.4"H x 10.6"W x 9.6"D  
 16.7 lbs.  
 Modular case assembly made from precision machined aluminum plate. The case is assembled using corrosion resistant, high strength, stainless steel fasteners.

### TRANSMITTER

#### FM Hum and Noise:

#### Audio Distortion:

#### RF Power Output @ +13.6 VDC (adj.):

#### Spurious & Harmonics:

#### Audio Response:

#### Time-out Timer:

### ANALOG WIDE

50 dB

< 3%

10-50 Watts

< - 25 dBc

.....Meets FCC and EIA requirements....

.....60 seconds, programmable.....

### ANALOG NARROW

45 dB

< 3%

10-50 Watts

< - 25 dBc

### NXDN™ DIGITAL VERY NARROW

n/a

< 3%

10-50 Watts

< - 25 dBc

### RECEIVER

#### Sensitivity (12 dB SINAD): (3% BER)

#### L.O. Injection:

#### Adjacent Channel:

#### Spurious Rejection (AAR Channels):

#### Image Rejection:

#### Intermodulation:

#### CTCSS/DCS Decode

#### Deviation:

#### FM Hum and Noise:

#### Noise Squelch Sensitivity:

#### Frequency Response:

#### Audio Output:

#### Receiving System:

#### IF Frequencies:

### ANALOG WIDE

0.25 µV (- 119 dBm) typical

High side (RX frequency + 43.65 MHz)

80 dB

90 dB

80 dB

80 dB

80 dB

500–850 Hz

50 dB

300–3000 Hz, deemphasized.....

.....12 Watts into 4 ohms, with < 3 % THD.....

.....Dual conversion superheterodyne.....

.....1st 43.65 MHz.....

.....2nd 450 kHz.....

### ANALOG NARROW

70 dB

90 dB

80 dB

80 dB

80 dB

350–500 Hz

45 dB

Programmable, factory set for 0.3-0.35 µV

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### NXDN™ DIGITAL VERY NARROW

0.22µV (-120dBm)

55 dB

90 dB

80 dB

80 dB

80 dB

n/a

n/a

n/a

### POWER REQUIREMENTS

#### Minimum Supply Voltage:

#### Maximum Supply Voltage:

#### Standby Current:

#### Receive Current (1/2 volume):

#### Transmit Current:

+ 72 VDC IN

+ 58 VDC

+ 85 VDC

230 mA

340 mA

2.1 A @ 50 Watts

+13.6 VDC IN

+10.9 VDC

+15.5 VDC

1 A

1.6 A

10 A @ 50 Watts



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