



NXDN™ Digital

- FCC Narrow Band Compliant
- Dual-Mode* Model
- Tri-Mode NXDN™ Digital Model

*Dual-Mode model is upgradeable directly to digital NXDN with optional add-on pcb.



RITRON CLEAN CAB RADIO FEATURES

Ritron's locomotive radio is a ground-up, "purpose-built" radio transceiver. The product does not use an embedded mobile radio as the RF platform. The RCCR transceiver is specifically designed for the railroad environment, providing optimized RF performance, user functionality and enhanced serviceability.

- FCC Narrow Band Compliant. Dual-Mode capable. Wideband (25 kHz) or Narrowband (12.5kHz) Tri-Mode capable. Factory installed or "Field-Upgradeable" directly to digital Tri-Mode operation, supports NXDN™ FDMA digital@6.25 kHz operation with optional plug-in PCB.
- One-piece and two-piece models available.
- All-metal, rugged enclosure for maximum durability.
- Large, easy-to-read LED display with wide viewing angle, long viewing distance and ruggedness.
- Automatic dimming in low light environments.
- Front panel push buttons are large and flush mounted to ensure correct entry and backlit for low light operation.
- Large speaker provides loud, crisp, easy-to-understand audio.
- Oversized easy-to-grasp carrying handle allows for hassle-free radio transport.
- Manufacturer 2 year limited warranty.
- Special emphasis on easy access and serviceability of all internal PCBs and related electronics. Assembly/disassembly straightforward by service personnel.
- Supports data operation with optional modem plug-in PCB.
- Dual front-end design; narrow front-end with dual surface acoustic wave (SAW) filters for AAR channels and wider front-end for general VHF operation.
- 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 6.25 kHz requirements.
- Internal flash memory and program code 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 downtime and increases safety by ensuring maximum radio performance.
- Designed, manufactured, and supported by Ritron's factory in Carmel, Indiana USA.

All-metal heavy gauge 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 modem/data connectors and side tab

RCCR-152
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 155–174 MHz
Synthesizer Step Size:	2.5 kHz
Channel Step Size:	15kHz(Wide) 7.5(Narrow) 7.5kHz (Very Narrow)
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 * CTCSS * Digital Coded Squelch * Single-Tone Encode * DTMF Encode
Tone/Code Signaling:	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.
Environmental:	
Antenna Fitting:	
Dimensions:	
Weight:	
Enclosure Construction:	

TRANSMITTER

	ANALOG WIDE	ANALOG NARROW	NXDN™ DIGITAL VERY NARROW
FM Hum and Noise:	50 dB	45 dB	n/a
Audio Distortion:	< 3%	< 3%	<3%
RF Power Output @ +13.6 VDC (adj.):	10-50 Watts	10-50 Watts	10-50 Watts
Spurious & Harmonics:	< - 25 dBc	< -25 dBc	<-25dBc
Audio Response:	Meets FCC and EIA requirements		
Time-out Timer:	60 seconds, programmable		

RECEIVER

	ANALOG WIDE	ANALOG NARROW	NXDN™ DIGITAL VERY NARROW
Sensitivity (12 dB SINAD): (3% BER)	0.25 μ V (- 119 dBm) typical		0.22 μ V(-120dBm)
L.O. Injection:	High side (RX frequency + 43.65 MHz)		
Adjacent Channel:	80 dB	70 dB	55 dB
Spurious Rejection (AAR Channels):	90 dB	90 dB	90 dB
Image Rejection:	80 dB	80 dB	80 dB
Intermodulation:	80 dB	80 dB	80 dB
CTCSS/DCS Decode Deviation:	500–850 Hz	350–500 Hz	n/a
FM Hum and Noise:	50 dB	45 dB	n/a
Noise Squelch Sensitivity:	Programmable, factory set for 0.3-0.35 μ V		
Frequency Response:	300–3000 Hz, deemphasized		
Audio Output	12 Watts into 4 ohms, with < 3 % THD		
Receiving System:	Dual conversion superheterodyne		
IF Frequencies:	1st 43.65 MHz 2nd 450 kHz		

POWER REQUIREMENTS

	+ 72 VDC IN	+13.6 VDC IN
Minimum Supply Voltage:	+ 58 VDC	+10.9 VDC
Maximum Supply Voltage:	+ 85 VDC	+15.5 VDC
Standby Current:	230 mA	1 A
Receive Current (1/2 volume):	340 mA	1.6 A
Transmit Current:	2.1 A @ 50 Watts	10 A @ 50 Watts



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