



RT-1990A(C)/ARC-210 – GENERATION 5 SOFTWARE DEFINED RECEIVER-TRANSMITTER

BATTLESPACE-PROVEN SDR PERFORMANCE

Versatile capabilities for evolving military/civil communication needs

In the field or in a crisis, reliable communication is a key to your success. The Collins RT-1990A(C)/ARC-210 – Generation 5 software defined receiver-transmitter is an advanced offering within our proven ARC-210 communication system family.

Collins Aerospace has delivered over 50,000 ARC-210 radios worldwide on over 180 platforms, making them the accepted choice for multiband, multimode communications. Specifically, the RT-1990A(C) has been designed to better meet your needs and conform to software-defined radio (SDR) tenets and architectures.

Versatility is key in today's battlespace. The RT-1990A(C) adapts by providing superior performance in the transfer of networked or point-to-point data, voice and imagery.

In response to the world's constantly evolving transmission and communication security needs and to comply with the National Security Agency's Cryptographic Modernization Initiative, the RT-1990A(C) is one of the first military airborne transceivers to provide an embedded, fully programmable INFOSEC capability.

In the air and on land, military forces stay connected and civil agencies supporting homeland security and disaster relief stay linked with the RT-1990A(C).



KEY FEATURES AND BENEFITS

- Software reprogrammable in the field via Memory Loader/Verifier Software (MLVS)
- Replacement for RT-1794(C)/RT-1824(C)/RT-1851(C)/RT-1851A(C)/RT-1990(C) and supports all ARC-210 legacy waveform/functions
- Support structure including logistics, training, test sets, PC-based loader and controller
- Control via 1553 or RS-422/RS-485
- Embedded software programmable cryptography
- Multiwaveform software architecture



ENGINEERED TO ADVANCE MISSIONS

The RT-1990A(C) is a “two-connector” rear panel configuration versus the three-connector version offered by the RT-1939A(C) radio. The RT-1990A(C) supplies full form, fit, function and integration replacement for existing COMSEC ARC-210 RTs. In addition, warfighters and communicators will benefit from the following new or planned capabilities:

- Frequency extension to cover 30-941 MHz
- MIL-STD-188-220D and MIL-STD-2045-47001D networking and data transfer (future)
- Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN)
- Joint Precision Approach Landing System (JPALS) (future)

- External Ethernet data connectivity
- MELP vocoder, integrated waveform for UHF SATCOM
- Growth for evolving capabilities, including APCO 25, Intelligence Broadcast System (IBS), Automated Identification Systems (AIS)

ADDITIONAL KEY FEATURES AND BENEFITS

- Extensible module interconnect for future scalability and growth
- Interoperable with a variety of high-power amplifiers, low noise amplifiers, tunable filters and interference cancellation systems
- Compatible with ICAO Annex 10 and ED-23B, including FM immunity – 8.33 kHz operation

TECHNICAL SPECIFICATIONS

Frequency range	Coverage: 30-941 MHz VHF 30-88 MHz close air support VHF 108-118 MHz navigation VHF 118-137 MHz air traffic control VHF 137-156 MHz land mobile VHF 156-174 MHz maritime UHF 225-512 MHz military/ homeland defense UHF 806-824, 851-869, 869-902, 935-941 MHz (public safety bands)
Channel bandwidths	5, 8.33, 12.5, 25 kHz and software definable
Tuning	1.25 kHz increments
Transmit output power	AM: 10 W-15 W (30-400 MHz) FM: 15 W-23 W (30-400 MHz) FM: 5 W \pm 1 dB (400-512, 806-824, 851-869, 896-902, 935-941 MHz)
Carrier modulation	AM, ASK, FM, MSK, GMSK, FSK, CPM, D8PSK, BPSK, QPSK, SQPSK, DEQPSK, BEAM (future)
Frequency stability	1 PPM
Receive sensitivity (10 dB SINAD)	AM: -103 dBm (30-400 MHz) FM: -108 dBm (30-400 MHz) FM: -106 dBm (400-941 MHz, 12 dB SINAD)
Embedded COMSEC functionality	Embedded TRANSEC KGV-10 KY-58 KYV-5 (ANDVT) KY-100 KG-84A/C KGV-11 Thornton Smart Fill Fascinator (FED-STD-1023) MEDLEY Tactical Secure Voice (TSV) Advanced Encryption Standard (AES) Programmable Cryptographic Sub-System (CSS)
Data ports	MIL-STD-1553B MIL-STD-188-114A RS-232 Ethernet data port MIL-STD-188C (wideband data port)
Audio ports	150/600 ohm High impedance
GPS	GPS time interface
Control	MIL-STD-1553B RS-422/RS-485
Input power	28 VDC per MIL-STD-704D/E



SUPPORTED WAVEFORMS

SATCOM	MIL-STD-188-181B (dedicated) MIL-STD-188-182A (5 kHz) MIL-STD-188-183 (25 kHz)
Line of sight	Link 11 (with external audio interface) SINGARS HAVE QUICK HAVE QUICK II Link 4A SATURN MIL-STD-188-220 B/C (tactical internet specification) Scan (four channels) LOS: AM voice/data, FM voice/data ATC (8.33 kHz and 25 kHz channels) with embedded FM immunity CASS/DICASS Auxiliary receiver provides standard 121.5 MHz and 243 MHz guard channels MIL-STD-188-220D Notice 1 – Combat Net Relay (CNR) BEAM Line of Sight Technology (BLT)

PHYSICAL PARAMETERS

Size	5.6 in. H x 5.00 in. W x 9.85 in. D
Weight	12.2 lbs. (maximum)

UPGRADE SUPPORT

- SDR waveforms
- Auxiliary 30-400 MHz receiver with programmable guard
- SINGARS ESIP (Enhanced SINGARS Improvement Program)
- JPALS
- Soldier Radio Waveform

RELIABILITY

NLT 3400 hrs. AIC; NLT 1050 hrs. AUF

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating	-40° C to 71° C (intermittent to 86° C)
Storage	-54° C to 95° C

MIL-STD-810F
Altitude up to 70,000 ft.

EMI SPECIFICATIONS

MIL-STD-461E

TEMPEST COMPLIANCE

Per National Security Agency requirements

GENERAL ATTRIBUTES

- Initiated built-in-test (over 100 discrete tests)
- >95% fault detection and isolation
- Continuous built-in test (real-time monitoring of critical functions)
- Black single point fill (DS-101) of up to 10 radios from one fill port
- Red single point fill (DS-101) of up to 10 radios from one fill port
- Black fill data
 - HAVE QUICK and SATURN WOD/MWODS
 - SINGARS Hopsets, TRANSECs and Lockouts
 - Presets
 - 25 single channel
 - 25 ECCM
 - 10 DAMA SATCOM
 - Five half-duplex
- Red fill data
 - COMSEC and DAMA order wire keys

ANCILLARY EQUIPMENT

The RT-1990A(C) will operate with the currently fielded ARC-210 equipment.

- Full size remote control: C-12561A
- Half-size remote control: C-12719
- PC based 1553 controller
- Link 11 mount: 994M-4/994M-4A
- Field reprogramming kit
- Isolated and low-profile mounts: MT-4935 and MT-6567
- High-power UHF amplifier: AM-7526 and AM-7526A
- High-power VHF amplifier: AM-7189A
- LNA/diplexer: MX-11641
- LNA/diplexer with HI/LO relay: MX-11745
- VDL-2000

FUTURE

- AM-7642
- MX-12366
- C-12561B
- C-12719A

Specifications subject to change without notice.



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