

AN/ARN-153(V) Advanced Digital TACAN



Tactical airborne navigation system.

The AN/ARN-153(V) is a full featured TACAN capable of supporting the operational requirements of high performance aircraft in a lightweight compact design. Utilizing the knowledge and experience gained through more than 40 years as a leader in TACAN design and production, Rockwell Collins has designed the ARN-153(V) to support the needs of both new and retrofit applications.

The AN/ARN-153(V) supports four modes of operation: receive mode; transmit-receive mode; air-to-air receive mode; and air-to-air transmit-receive mode. When used in conjunction with the optional 938Y-1 rotating antenna and a control unit, the system also provides bearing to an air-to-air TACAN that is transmitting an unmodulated squitter, and bearing to DME-only ground stations.

A robust interface design supports a variety of digital and analog interfaces simultaneously. Digital interfaces include dual MIL-STD-1553B buses and ARINC 429, 568 or 582 buses providing range, bearing, frequency, velocity, and time-to-station. Analog synchro distance and bearing is supplied utilizing patented circuitry that supports loads in any mix of impedance without the "sticking" or "motoring" problems inherent in other solid-state techniques.

An optimized output power design supports operational requirements of high performance aircraft by providing a minimum 500-watt transmit capability over the full range of environments.

Selecting range ratios of 30:1 or 4:1 is accomplished through the automatic gain control (AGC) enable/disable switch, the 1553 bus, or the RNAV (ARINC) input bus.

Enhanced BIT circuitry retains failure information even after the unit has been powered down.

KEY FEATURES

- › Compatible with all standard jTACAN digital and analog interfaces
- › X and Y mode channels for surface and air-to-air operations
- › 252 channels
- › Echo protection
- › Mutual suppression interface with other equipment
- › High reliability: predicted MTBF is 11,000 hours
- › Growth option: Rho-Rho DME with DO-178B software certificate
- › Design refresh 2010

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SPECIFICATIONS

General

Frequency control	Serial digital MIL-STD-1553B optional
Number of channels	252 (126X and 126Y) provision made for W and Z channels
Frequency range	
Receiver	962 to 1213 MHz
Transmitter	1025 to 1150 MHz
Ground interrogator characteristics	Per FAA Advisory Circular 00-31 and MIL-STD-291
Receiver/decoder characteristics	Per FAA Advisory Circular 00-31 and MIL-STD-291

Performance

Distance range	0 to 390 mi
Distance accuracy	
Digital	±0.1 mi
Analog	±0.2 mi
Distance acquisition time	2 seconds, 2-sigma probability
Distance memory	15 seconds ±2
Bearing Accuracy	
Digital	±0.5 degree
Analog	±1.5 degree
Bearing acquisition time	5 seconds, 2-sigma probability
Bearing memory	3 seconds nominal
Transmitter power	500 W minimum
Receiver sensitivity	-89 dBm (-93 dBm at minimum of bearing modulation)

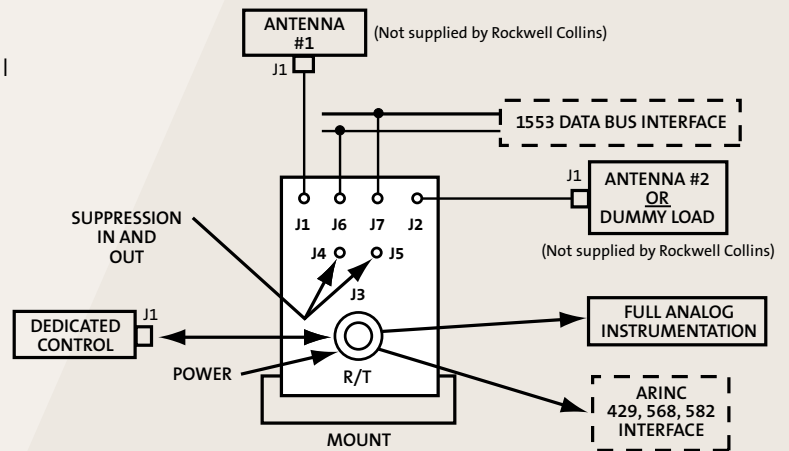
Environmental

Vibration	0.04 g ² /Hz functional; 0.12 g ² /Hz endurance
Service shock	15 g
Crash safety shock	30 g
Altitude	70,000 ft
Operation temperature	-54 to +71 °C
EMI	MIL-STD-461A, Notice 3

Power requirements

Primary power	28 V dc 1.5 A nominal
Power transients	MIL-STD-704C

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



Simplified interconnect diagram

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Rockwell Collins delivers smart communication and aviation electronic solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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