

High-performance Tactical Air Traffic Control System

Outstanding performance from a single compact sensor

Transports via single C-130 with setup in less than 90 minutes

Operates in high wind and other adverse weather conditions

Changes runways to any one of six preset touchdown points in under one minute

Latest architecture and technology for high availability and low life cycle costs

Uses only air cooling for high reliability and low maintenance

In operational use with the U.S. Air Force and in production for international customers

Tactical Area Surveillance and Precision Approach Landing System

AN/MPN-25

ITT Industries
for

AN/MPN-25

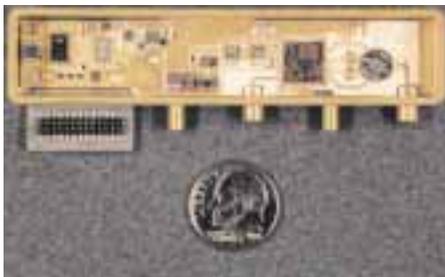
The AN/MPN-25, a highly mobile, compact Airport Surveillance Radar (ASR) / Secondary Surveillance Radar (SSR) / Precision Approach Radar (PAR) System, provides highly accurate detection of the airspace around an airport or air base. Simultaneous ASR/SSR and PAR operations from the single sensor develop accurate radar data of both types. Versatile, multimode digital color displays and full communications in a tactical Operations Shelter support all controller mission requirements. The ASR covers 30 nautical miles (nmi) and altitudes up to 8,000 feet. The SSR range is 100 nmi. The PAR range is 20 nmi with an azimuth coverage of 30 degrees and elevation coverage of 8 degrees.

Superior Operational and Technical Performance

The AN/MPN-25 rolls on and off a C-130 transport for quick emplacement; it is fast and easy to install with automatic set-up; and its human-machine interface is full color and arranged to reduce fatigue in the high-stress controller environment. The AN/MPN-25 achieves runway changes in less than a minute - much faster than any competing system. The AN/MPN-25 achieves excellent target detection and tracking even in severe environments such as heavy rain. High stability and advanced digital processing featuring Moving Target Detection (MTD) and extensive mapping ensure adaptation to the changing environment.

Versatile High-Resolution Multimode Displays

The AN/MPN-25 Operations Shelter includes three universal color displays that controllers individually assign ASR or PAR mode based on traffic needs. The FAA-certified ASR display format covers the air situation. The PAR display provides 3-D landing information in a state-of-the-art, digital Az-El format. This patented display adds an innovative "bullseye" to give the controller a pilot's view of the approach.



Focused Advanced Technology

The AN/MPN-25 achieves its outstanding capabilities through integration of advanced technology into a cohesive user-friendly system. GaAs Transmit/Receive Modules populate two active apertures for the azimuth and elevation antennas, thereby eliminating the single point transmitter failure. Commercial off-the-shelf (COTS) processors and power supplies ensure low-cost and high reliability.

Non-Stop Operation and Low Support Costs

The AN/MPN-25 modular, open architecture; solid-state design; and air cooling achieve availability and reliability superior to any other radar-based landing system. Incorporated redundancies increase fail-safe protection.

Very low support costs are inherent in the AN/MPN-25 through highly reliable solid-state technology, minimized unique Line Replaceable Units (LRUs), and extensive built-in test. Reduced deployed maintenance costs are a direct result of designed-in fail-safe/fail-soft operation requiring only scheduled periodic maintenance. Maintenance is further enhanced through remotely monitoring all system functions via telephone lines.

AN/MPN-25 Performance Characteristics Overview

Target and Detection Definition:	
Radar Cross Section	1 m ² to 1000 m ²
Fluctuation Model	Swerling I
Velocity	PAR: ± 40 to ± 250 knots ASR: ± 40 to ± 400 knots
Instrumented Coverage Volume	
PAR Coverage	Azimuth 30 degrees; Elevation -1 to +7 degrees
Altitude Min.	100 feet above Ground Intercept Point
Range	20 nmi in Clear Mode; 15 nmi in Rain Mode
Update Rate	1 per second
ASR Coverage	Azimuth 360°; Elevation 0° to 20°; Altitude 0 to 8,000 ft.
Range	30 nmi in Clear Mode; 19 nmi in Rain Mode
Update Rate	Each 5 seconds (antenna rotation 60 rpm)
SSR Coverage	360°
Range	60-250 nmi depending on interrogator selected
Update Rate	Each 4.8 seconds (antenna rotation 12.5 rpm)
Aircraft Target Processing	
PAR Targets	50 plots/scan in azimuth; 22 plots/scan in elevation
ASR & SSR Targets	250 plots/scan
Reliability	MTBCF 2212 hrs
Maintainability	MTTR 0.25 hrs
	Scheduled Maintenance Once per Quarter, 2 hrs.
Weather Processing	Entire Radar Coverage Area, 3 Levels

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