

AN/UPX-39(V)1 MSSR Interrogator

The AN/UPX-39(V)1 MSSR Interrogator provides ATCRBS, Mode 4 and Mode S Level 2 aircraft data to the ATC center or weapon system operator.



The AN/UPX-39(V)1 Monopulse Secondary Surveillance Radar (MSSR) is a completely new interrogator designed for the most demanding Air Traffic Control System requirements and to replace aging IFF interrogators that can no longer be maintained.

The AN/UPX-39(V)1 replaces outdated analog equipment with modern, digital Commercial Off-The-Shelf (COTS) equipment. The AN/UPX-39(V)1 meets current military, Federal Aviation Administration (FAA) and international standards for Identification and Air Traffic Control system requirements as well as adding Remote Control, Monitor and Fault Isolation capability. The reliability, maintainability and supportability of the AN/UPX-39(V)1 significantly lowers maintenance costs.

The AN/UPX-39(V)1, also known as the beacon subsystem, is a long-range interrogator with 2,000 watts of output power, ISLS operation, three receiver channels, RSLs, GTC/STC, Target Extractor, and Target Tracker.

The AN/UPX-39 outputs Digital Target Reports in ASTERIX, CD2 or a host of other common

formats over Ethernet, RS-232 or other standard bus to the primary radar or Air Traffic Control (ATC) station. The AN/UPX-39(V)1 MSSR interrogator provides ATCRBS, Mode 4 and Mode S Level 2 aircraft data to the ATC center or weapon systems operator.

Long-Range System Performance

- Amplitude Monopulse reply processing
- Modes 1, 2, 3/A, B, C, D, 4
- Mode S Level 2
- Growth to Mode S Level 4
- Growth to Mode 5
- Software Programmable COTS Architecture
- Mode 4 Target Evaluator
- Adjustable transmit power
- Beacon Performance Monitoring and Measurement Reporting
- Reflection Target Suppression
- Automatic System Calibration with PARROT
- ASTERIX Data Category 34/48 interface

AN/UPX-39(V)1 MSSR Interrogator



Northrop Grumman's AN/UPX-39(V)1 MSSR Interrogator provides civil and military Air Traffic Controllers with the latest in Identification and ATC system performance including:

- Modes 1, 2, 3/A, B, C, D, 4
- User selectable four-mode Interlace and Supermode sequence
- Mode S Level 2 including Ground Initiated Comm B
- Monopulse Reply Processing for 0.087 degree RMS azimuth accuracy (with PARROT)
- Transmit power electronically adjustable from 23 to 33 dBW
- Built-in MSSR Target Extractor and Tracker
- Digital Target Reports containing selectable Plot or Track Data
- LDMOS Linear Transmitter Amplifiers
- Four 466 MHz PowerPC processors
- Three-Channel Digital Software Radio Receiver
- All-digital, software-programmable system
- Remote monitoring and control
- Measured and reported system performance parameters including Transmitted Power, Pulse Width and Pulse Spacing, Antenna VSWR, Receiver Sensitivity, Target Extractor/Tracker, GTC and RSLs performance
- ASTERIX, CD2 and Ethernet interfaces
- Four PPI Video Output Ports
- 10.5 in. (26.7 cm) high, 19 in. (48.3 cm) rack mount drawer

- Automatic detection and location of reflecting objects
- Automatic System Phase Calibration and Monopulse Target Table Re-building utilizing PARROT

The AN/UPX-39(V)1 employs modern VME-64 Open Architecture technology to provide state-of-the-art performance and versatility today, while addressing evolving requirements and allowing insertion of new technology tomorrow. The AN/UPX-39(V)1 meets stringent military and civil IFF/MSSR system performance requirements using COTS hardware and software while offering an array of system options.

System Growth Options

- Mode S Level 4
- Phase Monopulse
- I²SLS
- Mode 5 up to Level 4
- GPS Time-of-Year clock
- Bus Interfaces: HDLC, NTDS, 1553B, 1397, TCP/IP/UDP
- Record/playback drives
- Primary Radar Tracker
- PSR/SSR Correlator

Critical Function	Performance
--------------------------	--------------------

Target Capacity	1,200 per scan
Probability of Detection	>98%
False Targets	<0.1%
Validated Code Accuracy	>99.9%
MTBF	9,400 hours
Azimuth Accuracy	0.087 degrees
Transmit Power	2,000 watts peak

For more information, please contact:

Northrop Grumman Corporation
 Navigation Systems
 21240 Burbank Boulevard
 Woodland Hills, California 91367 USA
 1-866-NGNAVSYS (646-2879)
 www.nsd.es.northropgrumman.com