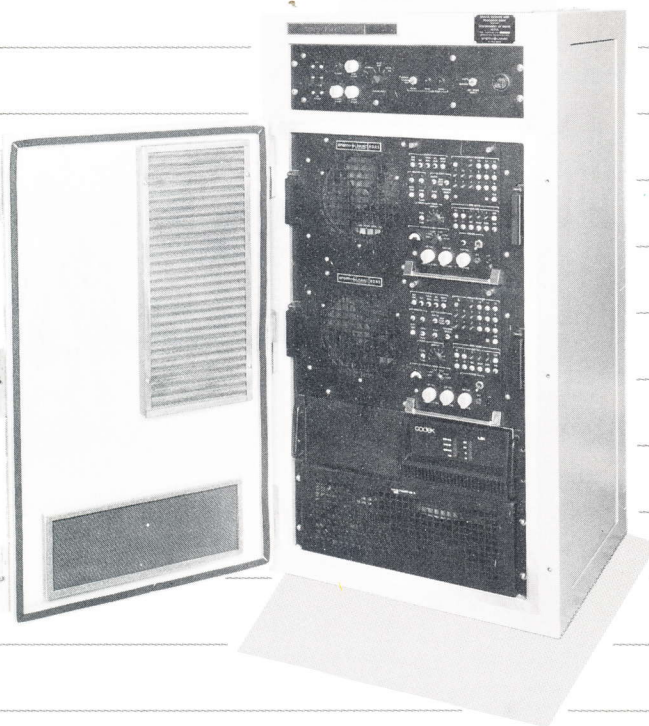


# Sensor Receiver And Processor (ISRAP) Digital Target Detection System

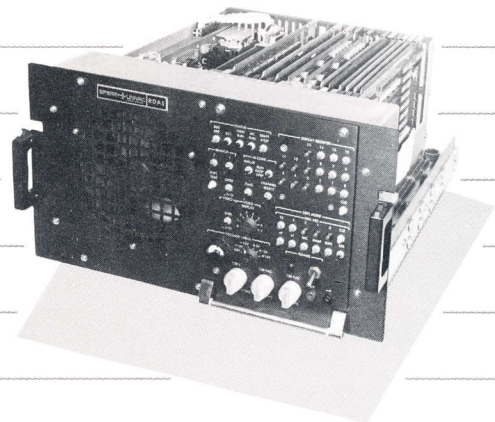


- Interfaces with long range or short range primary to secondary radars
- Generates primary radar, secondary radar, and correlated target reports
- Excellent sensitivity and false alarm control
- Provides two level weather map data
- Self contained diagnostics isolates fault to a single card
- Micro-programmed firmware stored in PROM Memory

- Compact size
- Various configurations available
- Separate modules—Radar Data Acquisition Subsystem (RDAS) and Beacon Data Acquisition Subsystem (BDAS)
- BDAS accommodates interrogator modes 1, 2, 3/A, 5/C
- BDAS designed to control interrogator mode selection.



ISRAP



RDAS

# Features

## Performance

### RDAS Target Detection/Reporting

Probability of Detection:  
90% for targets 9 dB above RMS noise value  
50% for targets 6 dB above RMS noise value

False Alarm Regulation: dependent on extent of MTI clutter residue; observed rates of 30 to 100 clutter reports per scan

Range Accuracy: dependent on radar pulse width; typically 150 to 400 feet average RMS error

Azimuth Accuracy: 0.15 degrees average RMS error

Range Resolution: 99% resolution for targets separated by 1.5 pulse widths

Azimuth Resolution: dependent on target strengths; 95% resolution for 21 dB targets separated by twice the one-way 3 dB beamwidth

Target Capacity: 250 reports per second

Target Splitting: Less than 1%

### BDAS Target Detection/Reporting

Probability of Detection:  
100% for targets with run length equal to 1/3 or more of the interrogator's one-way 3 dB beamwidth

False Alarm Regulation: less than one false report per second when operating in environment with up to 10,000 fruit replies per second

Range Accuracy: 150 feet average RMS error

Azimuth Accuracy: .15 degrees average RMS error

Range Resolution: 99% resolution for targets separated by 250 feet.

Azimuth Resolution: 99% resolution for targets separated by 1.3 target run lengths

Target Capacity: 250 reports per second

Target Splitting: Less than 1%

## Options

Accommodations for synchro azimuth signals or ACP/ARP signals

Serial output data via installed modems

Parallel output data via direct computer interface

Target tracking capability available with additional chassis

Digital video radar interface (10 bits normal and 10 bits MTI)

Analog video radar interface

BDAS digital defruiter card

Maintenance display driver card to provide analog target symbols at radar site display

Configurations:  
RDAS or BDAS only (1 module)  
Combined RDAS and BDAS (2 modules)  
Dual RDAS/BDAS (4 modules)  
With or without modems

## Future Enhancements

Surface radar processing for sea surveillance

Shipboard target detection system

## Physical Characteristics

Cabinet dimensions (one RDAS, one BDAS, one or two modems)  
Height: 45 inches  
Width: 24 inches  
Depth: 21 inches

Module Dimensions (RDAS or BDAS)  
Height: 10.5 inches  
Width: 17 inches (19 inch front panel)  
Depth: 18.5 inches

System weight  
287 pounds (cabinet, RDAS BDAS, one modem)

## Input Power Requirements

Single phase  
120 volts ac  $\pm$  10%  
60 Hz or 400 Hz  $\pm$  5%  
1300 watts

## Reliability (Calculated MTBF)

BDAS - 5427 hours  
RDAS - 5381 hours  
Modem - 2000 hours  
System - 1149 hours

## Maintainability (MTTR)

20 Minutes

## Environmental

Temperature 0° - 50° C  
Humidity\* 0% - 95% (without condensation)  
Vibration 1.5G, 5-500 Hz  
Shock 15G, 11 ms

\*With conformal coated components.

## Applications

Terminal or Enroute Air Traffic Control  
Long Range or Short Range Air Defense  
Radar Approach Control (RAPCON)  
Coastal Surface Surveillance  
Tactical Air Surveillance