

INVAP

DEFENSE, SECURITY
AND ENVIRONMENT

ASR-60 Integrated Air Surveillance System





Headquarters, San Carlos de Bariloche, Argentina

INVAP is a high-tech company specialized in custom designed complex projects.

Our business areas cover the fields of Space, Nuclear, Defense, Security, Environment and Medical Systems.



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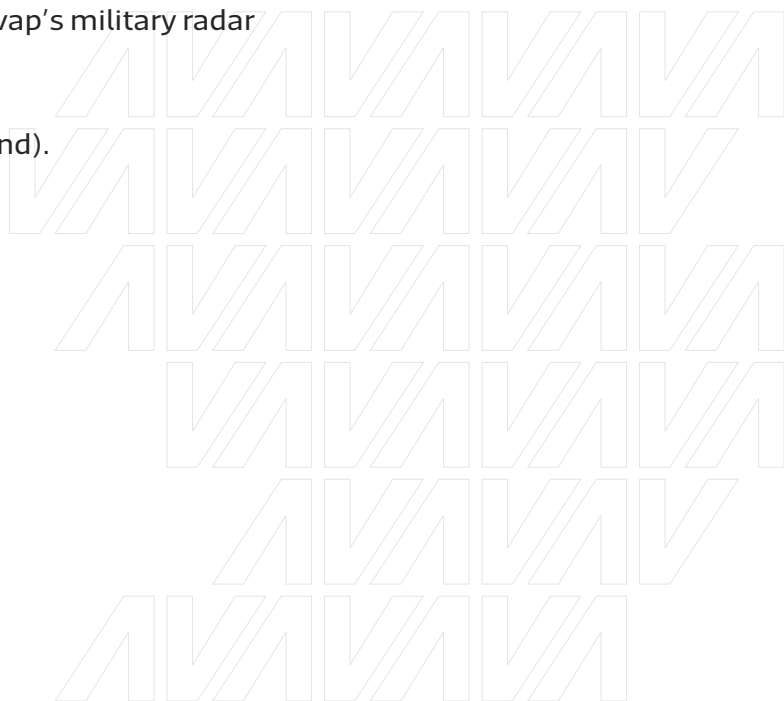
ASR-60 is INVAP's digital system for airport surveillance and approach control system, designed to comply with ICAO and Eurocontrol requirements and recommendations.

Its modular, scalable architecture includes an S-Band Air Surveillance Radar, an ADS-B receiver, and a MSSR Mode S.

The system's digital processing provides latest-generation advanced moving target detection (A-MTD) and an independent weather channel (US-NWS Level 6).

MAIN FEATURES

- Primary 2D S-band radar for surveillance of airport terminal control area.
- Co-located fully redundant RSMA-S (Mode-S SSR) and ADS-B receiver.
- Designed to meet the requirements and recommendations of the ICAO and Eurocontrol standards.
- 100% solid state design.
- High performance, state-of-the-art, fail-soft GaN transmitter, N+1 Redundancy.
- High reliability, with fully redundant receiver chain and processor.
- Fully digital waveform generation and processing.
- Advanced MTD adaptive algorithms for improved clutter rejection.
- Advanced weather processor (6 levels US-NWS).
- Redundant Local / Remote Control and Monitoring.
- COTS based VPX 3U processor & synchronizer (Invap's military radar family heritage).
- High MTBF, low MTTR.
- Standard Asterix output or customized (on demand).
- Low cost of ownership.
- Short term delivery.
- 4G interferences remediation solution.
- In option, altimetry assessment.



PSR system specifications

Operating frequency	2.7 GHz to 2.9 GHz
Instrumented range	0.5 to 120 NM
Coverage: elevation	0.3° - 40°
Detection range	60 NM
(@ Pd=80%, RCS=2m², SW1, PFA=10 ⁻⁶ , Linear pol.)	
Accuracy (azimuth, range)	< 0.2°, 100m
Resolution (azimuth, range)	< 2,5°, < 230m
Frequency diversity	Up to 75 MHz bandwidth, CHIRP frequency modulation interleaved pulses
Clutter improvement factor	> 55dB
Power supply	Three-phase 380 VAC 50/60 Hz
Availability	99,999%
MTBF	> 45,000 hours
MTTR	20 minutes

PSR solid state power amplifier

Peak power	22kW (Modular amplifier with graceful degradation)
Pulse width	1µs (short) - 100 µs (long)
Gain	> 75dB
Gain stability	+0.25 dB / 24 h max. @ constant drive and temperature

PSR reflector type antenna

Beams	1 transmitting, 2 receiving beams
Gain	34 dB (low beam) and 32.5 dB (high beam)
Azimuth beamwidth	1.45° ± 0.05°
Elevation beamwidth	>4.6° cosecant-squared pattern
Rotation speed	8 to 15 RPM, configurable
Polarization	Linear (horizontal) Circular (clockwise)

Processing

Receiving channels	Low beam, High beam and Meteo Digital beam switching & combining
Waveform generation	Advanced software defined WF generation
Signal Procesing	AMTD (Adaptive filter bank and thresholding)
High resolution static & dynamic maps	Low Doppler maps Rain/chaff map Angel map Beam selection map STC map Weight selection map Clutter map Anomalous propagation
Weather channel	US-NWS 6 level detection
Capacity	up to 4000 plots/tracks per scan

PSR coverage diagram

