The PS-05/A was developed for the JAS 39 Gripen program with the Swedish armed forces and has been in service since 1992. Gripen is the first fourth generation multi-role/swing-role aircraft in service in the world and the PS-05/A radar provides the situation awareness needed for weapon/missile delivery during co-operative and multi-role/swing-role combat missions.

**TOTAL SITUATION AWARENESS SYSTEM FOR MULTIPLE AIRBORNE PLATFORMS**

**Multi-role applications**

The sensor systems are designed to send target position data to the onboard weapon and missile system for cueing and interception guidance. The multi-function systems will give the airborne system superior capabilities for:

- Air-to-air combat, long and short-range: Beyond Visual Range (BVR), Within Visual Range (WVR) and Air Combat Manoeuvering (ACM)
- Strike missions over land and sea
- Suppression of Enemy Air Defences (SEAD) missions
- Reconnaissance, mapping, navigation and surveillance
- Weapons and missiles, using data link for launch and mid-course guidance
- Tactical interoperability, for example using Gripen data link or Link-16
- Dense Electronic Warfare (EW)
INTEGRATION AND INSTALLATION FOR MULTIPLE PLATFORMS

The PS-05/A is designed to fit into any airborne platform. Both compact and lightweight, this radar system is modular and ideal for integration with standard avionic technology systems. It can be easily installed on UAVs, UCAVs, MALEs, gunships, carrier/cargo aircraft and in any supersonic combat aircraft. Some of the subsystems are also suitable and cost-effective for integration with combat helicopters and older jet fighters.

MODULAR AND SIMPLE TO MAINTAIN

The PS-05/A radar’s architecture is based on an avionic module concept (BYB-601), where each sub-unit is mechanically and electrically autonomous with simple interfaces to the other sub-units or installations. Each sub-unit also has an automatic Built-in Test (BIT) system. The typical time needed to replace one of the Gripen’s radar sub-units for example, is just several minutes.

SYSTEM UPGRADES AND QUALIFICATIONS

All main radar functionalities are high-level language programmed in a powerful parallel computer system for fast and safe implementation of new functionalities and system optimisation to suit all customer requirements. All PS-05/A hardware and software systems are Airworthiness qualified according to Swedish airworthiness regulations (RML) and quality-assured to RTCA-178, AQAP110, AQAP150 and ISO 9000:2000 standards and to NATO’s worldwide climate requirements. New modes and functions will be added to the software according to specific customer needs, for the Swedish Air Force and export customers, during the next 10-20 years.

AVIONIC MODULE CONCEPT

- PS-05/A Installation in Gripen
- Transmitter and amplifier
- Exciter/Receiver
- Signal Data Processor
- MACS System Computer
TECHNICAL DATA AND SPECIFICATIONS

- General: Pulse Doppler, X band radar, monopulse
- Sub-units: 7 Line Replaceable Units (LRUs)
- Weight: 150 kg
- Antenna (ANT): 60 cm, Identification Friend or Foe (IFF) dipoles
- Power Accelerating Unit (PAU), Transmitter: Travelling-Wave Tube (TWT), liquid cooled, peak power >10 kW
- High Frequency Unit (HFU): pulse compression, state-of-the-art noise figures
- Signal and data processor: Saab airborne Modular Avionic Computer System (MACS) computer system and parallel multi-processor cluster
- Mean Time Between Failure (MTBF): 250 hours in airborne operation

MODES AVAILABLE IN GRIPEN’S PS-05/A RADAR SYSTEM

Air-to-air modes

<table>
<thead>
<tr>
<th>TARGET TRACK MODES</th>
<th>ACM modes – Air Combat Manoeuving</th>
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<tbody>
<tr>
<td>• Track While Search (TWS) and automatic priority and optimised search pattern</td>
<td>• AUTO ACQUISITION MODE</td>
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<tr>
<td>• Priority Target Track (PTT) while TWS</td>
<td>• Bore Sight (BST) mode</td>
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<tr>
<td>• Single Target Track (STT) and raid assessment support</td>
<td>• Head Up Display (HUD) Search – search pattern supporting the HUD</td>
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<td></td>
<td>• Wide acquisition mode – Wide Search</td>
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AIR-TO-GROUND MODES

- Ground Moving Target Indication (GMTI) for land and sea searches
- Ground Moving Target Tracking (GMTT)
- Air-to-Ground Ranging (AGR) for bomb guidance
- Doppler Beam Sharpening (DBS) – Synthetic Aperture Radar (SAR) mapping modes
- Real Beam Ground Map (RBM) and prime detection
- Spotlight (SP) mode

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