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PRIMED FOR  
**SUPREMACY**

PS-05/A MK4 FIGHTER RADAR

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# A HIGHER LEVEL OF AWARENESS

The airspace is becoming increasingly complex and challenging. To counter evolving threats and meet new requirements you need smart solutions that allow your capabilities to grow and evolve accordingly. That's where Saab's new PS-05/A Mk4 fighter radar solution can give you the advantage.

The PS-05/A is one of the world's most competent fighter radars in its class. With a new Exciter/Receiver and a new Processor, the PS-05/A Mk4 radar provides significantly enhanced performance, improved flexibility and functional growth potential to meet future needs. It has everything required for positioning your fighter aircraft to achieve information superiority and mission success.

Based on more than 60 years of innovative radar development you can rely on Saab's thinking edge to develop solutions that provide the ability to see before you are seen, to act first and to maintain a higher level of awareness for decades to come.

## **EMPOWERED FOR TOMORROW'S CHALLENGES**

The new PS-05/A Mk4 is a multi-function radar system developed to provide air force commanders with efficient means of countering evolving threats and executing complex missions types with new fighter aircraft capabilities. The PS-05/A Mk4 offers:

- World-class multifunction radar mode suite
- Excellent ECCM performance
- Customisation of radar modes and missile data links
- Very low life cycle cost
- Significant functional growth potential

## **NEW – BUT PROVEN**

The PS-05/A Mk4 is the most recent development of the renowned PS-05/A radar, originally developed for the Gripen fighter. Through continuous spiral development it has maintained its position as one of the most competent fighter radars in the world. With the new Mk4 upgrade the PS-05/A will continue to improve operational capabilities for customers around the world.

## **SUITABLE FOR MULTIPLE PLATFORMS**

The PS-05/A Mk4 can be adapted to fit into most airborne platforms. Both compact and lightweight, this modular solution is ideal for integration with standard avionics technology systems and allows for installation on any multi-role combat aircraft, UAV, advanced jet trainer or other airborne platform.

# MULTI-MODE FUNCTIONALITY FOR MULTI-MISSION FLEXIBILITY



In any critical situation, information superiority and improved situational awareness will have significant impact on your ability to detect, counter and overcome threats. With the new PS-05/A Mk4 you will be prepared to meet your challenges. And empowered with the advantage of being first to know, you will also be first to act.

The PS-05/A Mk4 is designed to strengthen the overall operational capabilities of the aircraft with advanced modes for Air-to-Air and Air-to-Surface operations. The radar also has additional modes for threat avoidance and navigation aid and includes missile data links for AMRAAM and Meteor. Recording for tactical evaluation and maintenance is available. Fault localisation is further supported by a thorough Built-in-Test.

#### **RADAR AIR-TO-AIR OPERATIONS**

The PS-05/A Mk4 has an automated search mode for best performance in the actual scenario as well as dedicated modes for long-range target acquisition and low probability of intercept. All search modes are designed to automatically detect and track targets and jammers. The radar has three levels of air target tracking, allowing the pilot to prioritise targets for optimum tracking performance. Raid Assessment is performed automatically and NCTR measurements may be selected for prioritised targets. The radar also offers several Air Combat Modes, including Helmet Search.

#### **RADAR AIR-TO-SURFACE OPERATIONS**

The PS-05/A Mk4 has a search mode for ground moving targets and a sea search mode for both stationary and moving targets. The Track While Scan function will automatically track targets or jammers within the search volume. The pilot may prioritise targets or jammers.

The Air-to-Surface ranging mode measures the slant range to the ground and is automatically activated when an unguided Air-to-Surface weapon is armed.

The radar also provides a wide range of mapping modes. Multi-look processing is used for speckle reduction. Target tracking is also possible in some mapping modes.

#### **THREAT AVOIDANCE AND NAVIGATION AID**

The Threat Avoidance and Navigation Aid capability includes weather radar for navigation purposes, autonomous Air-to-Air search mode activated when another sensor is selected as prime sensor, air clearance search for detection of air target threats in close vicinity during Air-to-Surface operation, and a dedicated trail departure mode. Passive operation is used to detect and track jammers without transmitting.

All radar modes incorporate sophisticated ECCM functions to provide optimum protection and performance in dense electronic warfare environments.

# EXTENDED VALUE

The PS-05/A Mk4 is ready for incorporation of a wide range of different functionalities to make it capable of meeting future needs and requirements. The growth potential includes the following:

## EXTENDED AIR-TO-AIR OPERATING RANGE

A new Air-to-Air mode is introduced that takes full advantage of the signal processing capacity and the flexible waveform generation of the PS-05/A Mk4. This mode increases acquisition range by 100% at low altitudes and 40% at high altitudes compared to the previous version of PS-05/A. This radar mode is also useful for detection of targets with very low RCS. The acquisition range in the legacy Air-to-Air modes is improved by 20–50%. The Meteor missile down-link is optimised to maintain radar performance during long-range data linking scenarios.

## ENHANCED AIR-TO-SURFACE CAPABILITIES

Two new SAR modes with 3-metre and sub-metre resolution are offered and SAR images can be processed and presented to the pilot during flight. A new Sea Search mode designed to detect small boats at long ranges is also available. This mode increases acquisition range by >100% compared to previous versions of PS-05/A.

## IMPROVED ECCM CAPABILITIES

Increased processing power, digital waveform generation and reception, virtually instantaneous frequency and a software-driven architecture provide an excellent platform for developing new ECCM functions.

The wideband receivers are used to detect and track any emitter within the radar frequency range, which significantly improves passive operation.

## ENHANCED TACTICAL AND TECHNICAL EVALUATION

Internal and external radar interfaces as well as internal radar parameters from the signal- and data processing can be recorded on solid-state discs in the Processor. Recorded data will further increase the possibility of analysing radar behaviour.



## LEADING-EDGE TECHNOLOGY BACK-END SUPERIORITY

The new back-end in the PS-05/A Mk4 consists of Saab-developed units built on the latest technology and with experience from more than six decades of fighter radar development.

### RADAR PROCESSING UNIT (RPU)

- Very high processing capacity (1 TFLOPS)
- COTS processor boards, with provisions for future upgrades
- Large internal solid-state discs for recording
- Standard build (VPX)
- Low maintenance cost with an MTBF >1000 flight hours

### EXCITER RECEIVER UNIT (EXR)

- Programmable
- Digital waveform generation
- Very low noise figure
- Excellent spectral purity
- Narrowband and wideband receivers
- Low maintenance cost with an MTBF >1000 flight hours

Saab's radar technology and new back-end are 100% Saab property and have no ITAR-restricted components.

### TECHNICAL DATA

Frequency range.....	X-band
Antenna polarisation.....	Vertical
Antenna angle limit.....	+/- 60°
Peak Power of power amplifier output.....	10 kW nominal
Maximum duty factor.....	10 %
Radar MTBF.....	> 350 flight hours
Weight.....	150 kg
Line Replaceable Units.....	Radar Processing Unit Exciter Receiver Unit Transmitter Auxiliary Unit Power Amplifier Unit Antenna Unit

Specification subject to change without notice.

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### Tracking Range Improvements AIR-TO-AIR HIGH ALTITUDE – DISTANCE



### Tracking Range Improvements AIR-TO-AIR HIGH ALTITUDE – SIZE

