

M-TPS

MODERNIZED TPS-43

Invap Radar Modernization Process



The MTPS-43 is the result of the Invap Radar Modernization Process (IRMP) over the old Westinghouse TPS-43 Tactical Air Defence 3D Radar. This equipment upgrade has proven to be successful in meeting the proposed objectives:

- a. Extend the system life for at least 15 years, through the replacement of its obsolete components with redesigned modern functional equivalent parts.
- b. Improve the overall availability of the system, minimizing service interruptions due to component failures.
- c. Reduce the costs of preventive and corrective maintenance.
- d. Improve the original capabilities of the radar, optimizing its performance and incorporating new functionalities.
- e. Allow remote operation.
- f. Integration of radar information to a modern Command and Control system.

The basic IRMP includes the upgrade of all electronic equipment contained in the operations shelter. The antenna, shelter structure and auxiliary equipment can also be restored upon request.

The scope of IRMP upgrade for the TPS-43 may be broken down into four main groups.

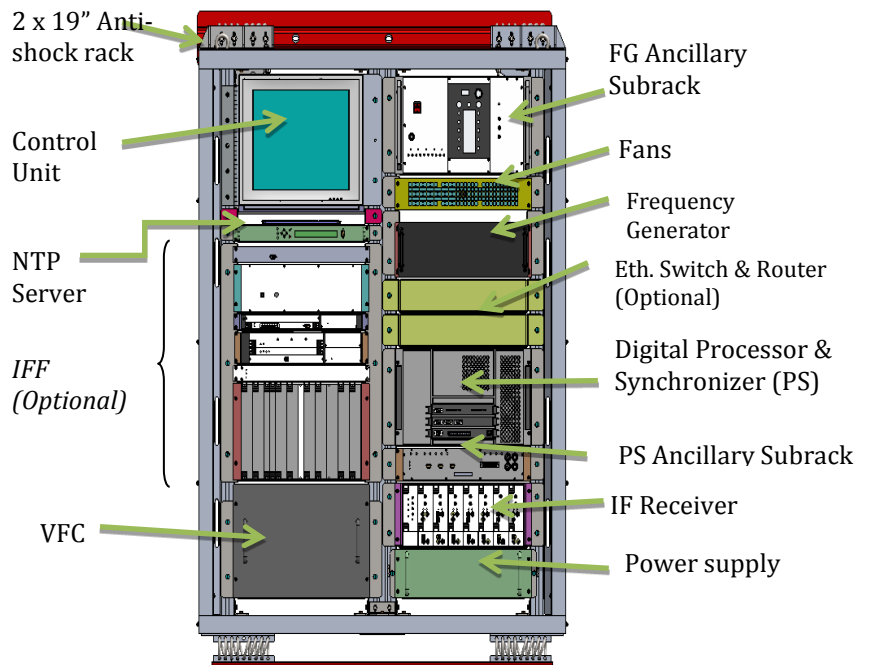
1. **Transmitter:** The original Twistron or Klystron tube (still in production) is reused, while the pulse modulator, which is the most frequent cause of failure, is replaced by a modern solid state unit.
2. **Primary radar electronics:** IF reception, frequency generation, synchronization, ECCM, self-diagnosis and radar signal processing modules are completely removed. They are replaced by state-of-the-art INVAP design digital equipment. Some new functional elements are added such as the Monoradar Processor, which delivers merged primary and IFF tracks, or the

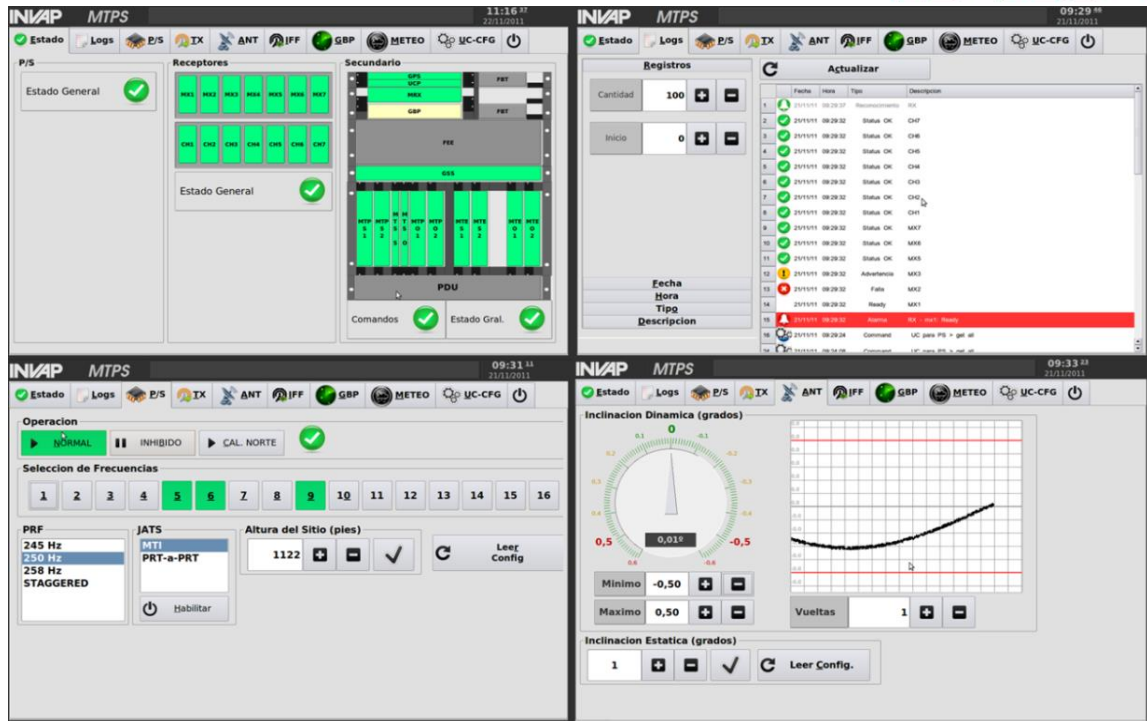
Control Unit, which allows radar configuration, control and status display through a tactile interface.

3. **Display consoles (PPI):** Original PPIs are completely removed, being replaced by digital terminals based on ruggedized COTS, running INVAP Command and Control "SCODA" software. Integration of

3rd party C2 software is also possible upon request.

4. **IFF:** The original IFF equipment and its whole cabinet are removed. INVAP offer multiple options for this replacement, including an in-house manufactured system and other third party alternatives.





Radar configuration, control, diagnosis and operation are performed through simple and intuitive graphical interfaces. This drastically accelerates the personnel learning curve, minimizing the time and costs of new units deployment and commissioning.

Flexible interfaces, including Asterix standard data output, provide seamless integration to multi-sensor command and control systems.

INVAP guarantees logistical support and after-sales service with a low cost and a minimum response time. In addition, INVAP also offers real training and technology transfer proven by more than 40 years of development of complex projects.



SCODA C2 software

- Designed for Surveillance, Identification and Control activities
- Detection analysis tools
- Static and dynamic measurements
- Interception assistance.
- Data exchange with other terminals in the system
- Support for digital maps, points of interest, air routes and user defined work areas
- Multi-radar support
- Integrated communications tools
- Radar data recording and playback.



INVAP's headquarters are located in San Carlos de Bariloche at the foot of the Patagonian Andes. The company has offices in several cities throughout Argentina and operates in various countries.

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