AIR TRAFFIC CONTROL (ATC) RADAR

SCANTER 4002 X-BAND PSR/M-SSR

Future-Proof Your Airport with a new compact ATC Radar Solution

The SCANTER 4002 PSR/MSSR solution is specifically designed for airport terminal area (TMA) surveillance, where high traffic density, complex environments, and elevated security requirements demand uncompromised performance.

Combining the high-performance of the SCANTER 4002 with the MSSR-2000 secondary surveillance on a single, co-mounted platform, ensures a proven, cost-effective, continuous and reliable situational awareness and effective monitoring of all air traffic in the TMA.

The X-Band PSR component is optimized for the detection of small and low radar cross-section targets that do not carry or do not properly use transponders. This includes light aircraft, helicopters, and emerging threats such as drones.

The co-mounted MSSR enhances airspace security by providing accurate identification and altitude information for cooperative targets using Mode A/C and Mode S Monopulse technology and ensures high angular accuracy while minimizing false plots and interference.

Enhanced Detectability with X-Band

Operating in X-band, the PSR provides superior detectability of small and low radar cross-section targets relative to conventional S- or L-band systems. The shorter frequency wavelength improves sensitivity to small aircraft, helicopters, and unmanned aerial systems, making it particularly well suited for terminal area and airport vicinity surveillance.

This enhanced resolution supports reliable target separation in dense airspace and improves performance in complex environments dominated by buildings, terrain, and airport infrastructure, while maintaining robust all-weather operation independent of transponder availability.

Resilience to Wind Turbine Radar Interference

Wind farms are essential for our sustainable future, but they pose acute challenges to traditional radar systems. As we embrace this age of renewable energy, the SCANTER 4002 stands out with its ability to discern and track small targets even within and behind wind farms, without increasing false alarm rates.

High resolution and advanced signal processing techniques are employed to mitigate wind turbine radar interference, ensuring reliable detection and tracking in the presence of nearby wind farms without compromising operational availability.

Less Over-Interrogation, More Safety

Traditional airport SSR systems by design, typically transmit with interrogation patterns that extend well beyond the airport Terminal Maneuvering Area (TMA). This may cause the system to interrogate aircraft transponders far outside the airport's area of responsibility – often operating under control of other facilities – leading to over-interrogation and interference.

COMPACT AND COST-EFFICIENT

SMALLER MAST, MINIMAL CIVIL WORKS, LOWER POWER USE.

The SCANTER 4002 PSR/MSSR solution uses a smaller antenna and typically transmits with less power, compared to the traditional SSR systems with LVA antennas, to provide a better fit with the TMA. This reduces the risk of overlapping coverage, radio frequency congestion and excessive interrogation significantly.

PSR/MSSR- Compact Design and Lower Costs

Traditional radar installations require large masts, heavy civil works and significant power infrastructure. The SCANTER 4002 PSR/MSSR solution has been engineered to reduce this complexity.

With a compact mast and reduced site requirements, the system is easier to install and faster to bring online. PSR and SSR remain on a single shared site, which simplifies protection, access and maintenance in space-constrained airport environments.

Consequently, the Terma Co-Mounted solution occupies far less physical space, uses considerably less energy, and lowers both installation and lifetime costs. And despite its smaller footprint, the system maintains the performance levels modern airports depend on.

Proven Accuracy in Complex Airspace

The co-mounted system may be smaller, but its performance is impressive.

It provides clear detection of small targets, stable tracking in busy or complex airspace, and remarkable and proven clarity in areas influenced by wind farms. Even when clutter levels rise or conditions become challenging, the system maintains reliable visibility of all relevant targets in all weathers

Both the SCANTER 4002 and the MSSR 2000 represent systems that are already operating in airports across the globe. Both systems are mature, field-proven products, now brought together in a single solution, which gives airports the benefits of a modern, future-proof radar system without the risk of untested technology.

A Modern Answer to a Changing Market

Many airports are preparing for replacement programs, and the demand for modern, cost-effective and reliable solutions is increasing. This shift represents an opportunity to move away from oversized legacy systems and adopt technology that aligns with today's operational – and financial – needs.

Terma's SCANTER 4002 PSR/MSSR co-mounted solution provides a clean upgrade path for airport operators and authorities with the accuracy, security, and flexibility required to ensure safe and efficient operations in modern, space-constrained airport environments.

PSR	
Frequency band	9000-9200 MHz
Frequency management	Time/frequency diversity (6 frequencies)
Transmitter (8 modules)	6 kW, fault tolerant solid state (GaN)
Instrumented range	Up to 60 NM
Minimal detection range	0.15 NM
Antenna	18-foot, Cosec2 elev. Pattern, circular polarization
Rotation rate	12-20 RPM (default 15 RPM)
Accuracy range	< 25 m bias (< 60 m sigma)
Accuracy azimuth	< 0.1° bias (< 0.15° sigma)
Resolution range	< 36 m (measured at 10 dB SNR)
SSR (Co-mounted)	
Frequency band	1030 MHz / 1090 MHz
Transmitter	500W / 1500 W solid state (GaN)
Instrumented range	Up to 100 NM
Modes	A, C, S, ADS-B (Mode S ext. squitter) passive reception
Data Interfaces	
Network	Ethernet UDP/TCP IP
Protocols	ASTERIX (Cat. 007, 010, 021, 034, 048, 240)

Operating in the aerospace, defense, and security sector, Terma supports customers and partners all over the world. Our dedicated and talented global workforce develops and manufactures mission-critical products and solutions that meet rigorous customer requirements.

At Terma, we believe in the premise that creating customer value is not just about strong engineering and manufacturing skills. It is also about being able to apply these skills in the context of our customers' specific needs. Only through close collaboration and dialog can we deliver a level of partnership and integration unmatched in the industry.

Our business activities, products, and systems include: command and control systems; radar systems; self-protection systems for ships and aircraft; space technology; and advanced aerostructures for the aircraft industry.

Terma has decades of hands-on know-how in supporting and maintaining mission-critical systems in some of the world's most hostile areas. Terma Support & Services offers through-life support of all our products to maximize operational availability, enhance platform lifetime, and ensure the best possible cost of ownership.

Headquartered in Aarhus, Denmark, Terma has subsidiaries and operations across Europe, in the Middle East, in Asia Pacific as well as a wholly-owned U.S. subsidiary, Terma Inc., with offices in Washington D.C., Georgia, and Texas.

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