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WG Ground & Marine Medium Range Radar

The WG Ground & Marine Medium Range Radar is an affordable solid-state radar system offering high reliability and low cost of ownership. It delivers detection performance previously only available from much more expensive military systems.

Initially developed for use in marine and naval platforms, the proven pulse sequence and advanced Doppler processing radar system is now available for use in land environments.

Applications

- Airports
- Borders
- Expeditionary Rapid Deployment
- Government facilities
- Military facilities
- Seaports



It delivers an improvement in sub-clutter visibility by approximately 30dB against other radar technologies; this means targets with small radar cross sections (RCS) such as soldiers can be detected even in the presence of heavy land clutter.

It provides superior situational awareness through increased probability of detection of small targets and by detecting these targets at greater ranges than other competitor's radars.



The coherent radar utilises the unique technology, proving low cost, low power consumption, lightweight design, ultra-high reliability, and superior performance.

Key features include jamming resistance, counter surveillance, covert mode and interchangeable dome covers to suit project requirements.

Doppler processing enables detection of extremely small and slow moving targets in poor weather conditions, day or night.

The high performance X-band ground surveillance radar is designed for easy installation on multiple platforms, including vehicles with fixed or telescopic masts, and is display agnostic.



The system provides the user with a discreet means to build the surveillance picture, thereby contributing to overall situational awareness. With 360 degrees of coverage, the radar is one of the most powerful sensors available in its class.

Display Options	Comms Options	Platform Options
Ruggedised Laptop with Tracker	Integration with Legacy Comms	Man Portable
Compact Display System with Tracker	Track Output (where available)	Vehicle
Integration with Legacy Display	Transmission to C&C Dedicated Network	Trailer
Integration with Cots Display		Shelter

It is a lightweight, low power, environmentally sealed X-band surveillance and tracking system designed to be deployed on a variety of platforms.

The greatly reduced weight and smaller physical footprint of the technology, enables the system to overcome the inherent performance limitations of other radar solutions.

It presents operators with a high quality radar picture via multiple display options in the most demanding tactical environments.

It can be easily integrated with other systems, including electro-optical packages, and command and control systems.

Westminster is able to provide a flexible range of system configurations enabling the design of a tailored and cost-effective solution for the user.

Features & Benefits
Resilience: Resistant to Jamming
Resilience: Resistant to Interference
Clutter Suppression: Doppler Processing
Clutter Suppression: FR Frequency Variation
Rapid Deployment: Integrated Transceiver
Rapid Deployment: Integrated GPS
Rapid Deployment: Fast Radar Power Up 25 seconds - 5 seconds from standby
Rapid Deployment: Simple Mounting options
Ultra-High Reliability Solid State Electronics
Graceful Degradation
Concurrent Long & Short Range Detection
Gigabit Ethernet Radar Output
Automatic Acquisition of Air & Surface Targets
360 Degree & Sector Scanning

Specification
Peak Power: Up to 80 Watts
Waveforms: Pulsed, Coherent
Waveforms: Automatic Power Optimisation
Signal Processing: Pulse Compression
Signal Processing: Pulse Doppler
Signal Processing: Adaptive Clutter Suppression
Asterix CAT 240 Protocol Radar Video Data Output Over Lan
Dimensions / Space Requirement: Ø585 mm x 262 mm
Antenna: 522 mm Rotating Array
Power Supply: +19 – 32V DC Optional 100-250V AC Converter
Power Consumption: 150 Watts
Weight: 20 kg
Instrumented Range: 44 km
Azimuth Beam Width: $4.0^\circ @ -3dB$
Elevation Beam Width: 25°

Performance
Detection Range: Walking Man & Ribb 5 km, Car or 5 metre boat 15 km.
Range Discrimination: 45m
Range Accuracy 5 m RMS
Azimuth Accuracy 0.8° RMS
Number of Tracks: Dependant on Display
Probability of False Alarm: 10^{-4} Pfa
Moving Target Detection: Up to 128 Filters
Constant False Alarm Rate: Yes
Environmental: IP67
Operating Temperature: -25°C to $+55^\circ\text{C}$
Reliability: Up to 30,000 Hours MTBF
Frequency Band: 9.2 to 9.5 GHz
Frequency Selection: 14 User Selection

Intuitive Control & Command

This control and display software, integrates multiple sensors, such as radars and cameras, into a single, easy to use display package.

The system has been designed to meet the operational requirements of a variety of users. Providing radar tracks, geo-referenced on a selection of mapping tools, the system can also fuse tracks from multiple radar heads into one user-friendly display.

Perimeter surveillance can be achieved instantaneously, with reporting of threats achieved automatically or through user-determined parameters.

Radar tracks in different domains, displayed in an easy to understand format, will assist the user to evaluate and coordinate a response through a 'detect, recognise, identify and then classify' methodology. The system is capable of the seamless and automatic integration of a range of complementary sensors.



Most commonly, Day / Night Cameras can be paired with the radar using a slew to cue functionality.

Information from any additional fitted sensors can be processed to give the operator real-time imagery and data to assist in picture compilation and threat assessment.

Passing of radar tracks and additional data can be achieved through a range of communications options determined by individual operational requirements.



Multiple iterations of the software can be integrated to build up a wider surveillance network, with data and communications passed automatically to ensure a real time response capability.

The system simplifies the task of the surveillance operator; the system has been developed to be perfectly suited to the operational task in hand.

Operators can perform complex tasks with minimal interaction with the display, making the systems suitable for use in even the most challenging environments.

Whether in the field, a vehicle or a deployable platform, the user will have a display which will perform the task of picture compilation and threat assessment without the need for extensive training.

Detection, tracking, track fusion, identification and threat assessment is seamlessly performed and presented in a user friendly manner on hardware appropriate to the user's needs.

Radar	Camera Control
Large Radar Display Area, Overlaid on Map or Aerial Imagery up to Four Radar Inputs Thresholding Selectable Radar Video Visibility Pan & Zoom Enabled Radar Display Programmable Colour for All Channels Programmable Persistence	Slew to Cue Selectable Targets Joysticks and on Screen Control of Camera Customisable Acquisition Zoom Levels based on Distance and speed of Target Tilt and Roll Compensation

Video	Threat Evaluation
Integration of Multiple Video Cameras Picture in Picture Display from Dual Head Cameras Cameras Displayed and Selectable on Map Display Acquisition & Display of Target Snapshots Network Distribution of Target Snapshots	Target Tote of Top Ten Threats Customisable Threat Evaluation Parameter Including: <ul style="list-style-type: none"> - Target Speed; - Target Distance; - Target Classification; - Target Type; - Target Position i.e In Alarm Area. Target Parameter Weighting User Interface

Tracking	Map Display
Multi Hypothesis Track Extraction from Radar Video Track Fusion from Multiple Local & Remote Track Sources User Durable Trail Lengths	Zoomable Map Displays Multiple High Quality Street Map & Aerial Imagery Integrated Bing Maps Supports Raster Maps Targets Overlaid on Reference Map Map Range Scale Graticule Graphical Alarm / Blanking Area Selection Tool
Target Information	
Editable Target Data, Including: Name, Type, Classification Latest Target Snapshot Attached to Target Data Intuitive Target Type Icons Target Classification Colour Code	

Interfaces	Hardware Compatibility
Radar Input via Lan Radar Control via Lan Track Distribution over Lan Accepts Input from Multiple Track Extractors Easy Integration of other Sensors via TTM Messages Outputs to Video Tracker via TTM Messages Supports Pelco-D Extended Camera Interface Supports Proprietary Camera Interfaces Camera Control Over Lan or RS232 / 422 / 485 Compatible with all Directshow Enabled Camera Interfaces	Compatible with Standard PC Hardware Touch screen enabled Designed for High Definition Displays from 800 x 600 Pixels (Auto scaling) Min. Recommended Hardware Requirements <ul style="list-style-type: none"> - Intel 15 Processor - 2GB Ram - Nvidia Geforce GT240 Graphics - Windows 7 or Windows 8, 32 or 64Bit