

## ACTIVE ELECTRONICALLY SCANNED ARRAY (AESA) FIRE CONTROL RADAR

Vixen 1000E is a high performance AESA radar designed for fighter/interceptor aircraft building on over 60 years of fire control radar experience. Vixen 1000E features an innovative roll-repositionable AESA antenna to provide a full  $\pm 100^\circ$  field of regard allowing maximum situational awareness and platform survivability. This Wide Field of Regard (WFOR) allows the aircraft to turn away after missile launch, whilst still maintaining datalinks to the missile.

The highly reliable AESA transmit-receive module technology incorporated in Vixen 1000E significantly improves system availability leading to reduced lifecycle costs.

Vixen 1000E is part of a family of AESA Radars delivering greater performance and higher reliability than comparable mechanically scanned radars and offers all the advantages of multi-function AESA arrays with significant through life cost savings.

### KEY FEATURES

The Vixen 1000E Radar has been designed from the outset to meet worldwide fire control radar detection and target tracking needs combined into one efficient modular system. The Vixen 1000E builds on common modular units for a scaleable system architecture to meet the needs of fire control and intercept radar operational requirements whilst remaining resistant to radar countermeasures.

The AESA antenna is coupled to fully digital multi-channel exciter/receiver and processor Line Replaceable Units (LRUs). These provide a comprehensive mode suite which includes air-to-air, air-to-surface, interleaved and support functions, which can be readily adapted or extended in software to meet future needs.

# VIXEN 1000E

The radar makes use of AESA alert-confirm techniques to confirm targets on first detection. This combined with optimised AESA waveforms results in increased track initiation ranges, whilst simultaneously maintaining situational awareness. The instantaneous scanning ability of the AESA also provides a comprehensive suite of interleaved air and surface modes, thus providing the pilot with all round situational awareness.

## Reliability

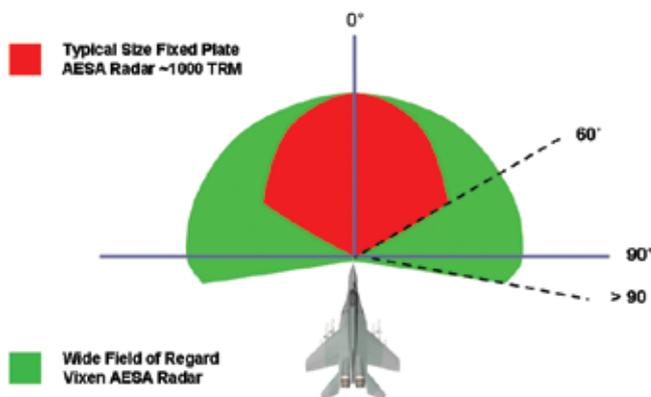
At the core of the AESA radar design is the ability to tolerate individual item failure. Component failures in the array result in graceful performance degradation rather than complete system failure, delivering high operational availability when compared with conventional radar systems. Significant cost benefits over the life of the system are realised due to the high reliability, increased availability and reduced maintenance requirements.

## Modes and capabilities

The mode set allows the system to deliver all of the functional capabilities of a Fire Control Radar within an acceptable platform volume. This is combined with the full capabilities of a detection, tracking and prosecution system to meet the needs of emerging new world threats.

The system utilises all the benefits of an electronically scanned array to deliver:

- Significantly enhanced performance relative to similar sized systems with the same weight, volume and power
- Comparable performance to larger mechanically scanned system whilst offering reduced weight and power.



## TECHNICAL SPECIFICATION

Frequency	X Band
Scan Coverage	+/- 100°
Scan Velocity	Instant beam switching
Cooling	Liquid and Air
Weight	215kg
Key Interfaces	Ethernet, 1553B

### MODES AVAILABLE

Air-to-Air Modes	Search While Track
	Single Target Track
Air Combat	Modes HUD search
	Vertical scan
	Sleuable scan
Air-to-Surface modes	Boresight
	Real beam ground map
	Doppler Beam Sharpening
	Sea Surface Search and Track
	Ground Moving Target Indication and Track
	Spotlight & Stripmap Synthetic Aperture Radar
	Inverse Synthetic Aperture Radar
Interleaved Modes	Imaging
	Air to Surface Ranging
Support Functions	Customer configurable interleaved Air & Surface modes
	Passive Search
Support Functions	While Track
	Missile Datalinks
	Cued Search
	Non-Cooperative Target Recognition
	Comprehensive ECCM suite
	Weather mode

