



Land-Based Phalanx Weapon System

High Value Site Defense System



Land-Based Phalanx Weapon System provides immediate situational awareness, precision fires, real-time targeting and kill assessment.

Benefits

- Seamless and responsive sensors and weapon system
- Interoperable with other sensors and systems
- Accuracy and timeliness of targeting and destroying threats
- Self-destruct rounds virtually eliminate collateral damage

As the threat of attacks in urban settings increase, civilian authorities discovered a capabilities gap in the defense systems to counter rocket, artillery and mortar attacks and the dangers posed by speeding cars loaded with explosives. Most significant was the danger of an enemy quickly setting up a mortar tube, firing a handful of rounds and seemingly disappearing into the urban environment. Security officials needed a way to not only warn both civilians and security forces on the ground of an incoming attack but also to determine where the attack originated from and most importantly to destroy incoming projectiles before they could inflict injuries and damage. The solution to defeating this threat is Raytheon's Phalanx Block 1B Close-In Weapon System.

In response to the need to protect high value sites and population centers from

artillery, mortar and other threats, Raytheon Company and the U.S. Navy partnered to develop a Land-Based Phalanx Weapon System (LPWS) with the capability of integration with other protection sensors and systems.

The LPWS mission represents a revolutionary approach to countering insurgent activities by intercepting rockets, artillery and mortar rounds in the air prior to impact, thereby reducing or eliminating any damage they might cause. The U.S. Navy uses the same capability of the Phalanx 1B sea-based system as its point-defense weapon to protect the fleet from low-flying cruise missiles and other air and surface threats. The Phalanx was first tested for possible LPWS missions in November 2004 and successfully proved its ability to provide unparalleled land-based protection. Raytheon reconfigured the U.S. Navy system to facilitate its integration into other command, control

and intelligence protection systems.

Phalanx combines a proven 20 mm M61A1 Gatling gun, firing M-246 or M-940 self-destruct rounds at a selectable rate of 3,000 or 4,500 shots per minute, with an advanced search and track Ku-band radar featuring closed-loop spotting technology to provide autonomous target detection and engagement. Phalanx can be interfaced with a multitude of sensors and systems designed to provide an overarching protection umbrella of sites on the ground.

Phalanx utilizes six optimized gun barrels along with an integrated forward-looking infrared (FLIR) sensor suite. More stringent firing schedules are provided for by securing the six barrels at the muzzle, mid-barrel and breech, for more accuracy and a concentrated shot dispersion pattern. The Block 1B FLIR provides the



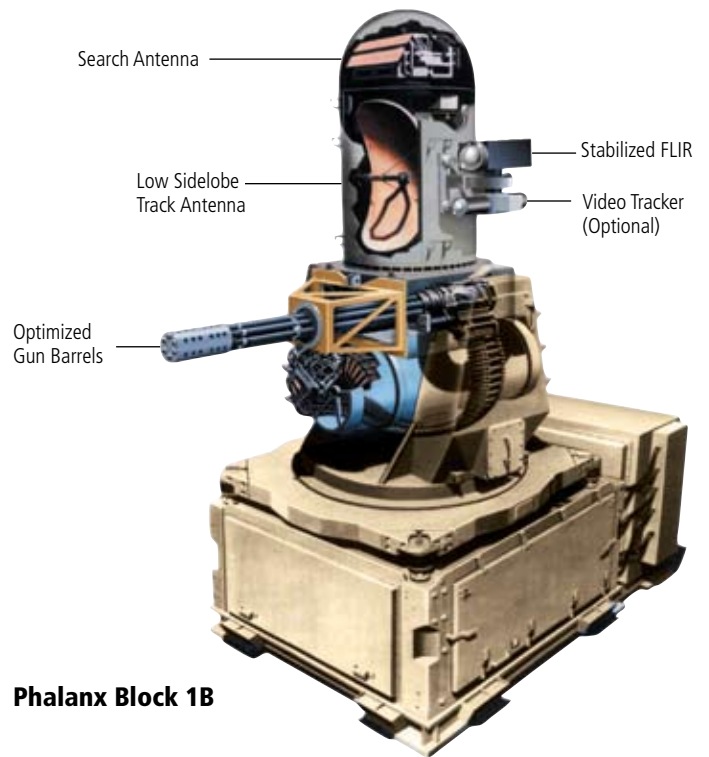
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capability to search, track and engage threats while simultaneously providing a detect, prioritize and kill assessment feature that is effective in both daylight and nighttime environments.

Utilizing a Ku-band radar, Phalanx is proven to detect threats early in their flight and then hand over to the track mode only when those targets are determined to threaten the area protected by the system. To augment its tracking and engagement capability, the Phalanx Block 1B incorporates a thermal imager with automatic acquisition tracking. The system operates in the 8–12 micron wavelength and is mounted on a stabilized pedestal attached to the existing Block 1B track antenna radome. This system provides a reliable day and night passive search and track capability while improving the anti-air warfare performance in multi-path environments.

Phalanx is proven to successfully identify and engage air threats in both high and low quadrant elevation trajectories. In the land-based configuration, a Phalanx Block 1B is mounted on a wheeled platform, which provides both a stable site and mobility to allow for repositioning. The LPWS is powered by a generator and has a water chiller cooling system and an enclosed control station.

Collateral damage is always a concern whenever urban security forces consider a high speed gun system as a solution to the rocket, artillery and mortar threat. In urban terrain or heavily populated areas, outgoing rounds might prove as dangerous — if not more dangerous — than incoming rounds. To minimize collateral damage, LPWS fires self-destruct rounds. Studies show that residue from self-destructed rounds causes virtually no damage. The deployment of the Phalanx Block 1B and its integration into a holistic approach to defeat rocket, artillery and mortar threats is changing the face of security operations in urban settings and will force insurgents to seriously consider their activities when attacking high value sites.



Phalanx Block 1B

Land-Based Phalanx Weapon System Specifications

Gun:	M61A1 20 mm cannon
Gun Drive:	Pneumatic
Magazine:	1,500-round high explosive incendiary tracer self-destruct
Mount Drive:	Electric
Fire Rate:	Dual fire rate – 3,000 or 4,500 shots per minute
Fire Control:	Fully integrated closed-loop with manual override
Weight:	53,000 lb trailer mounted
Search Radar:	Ku-band, digital MTI
Track Radar:	Ku-band, pulse Doppler monopulse
E/O Sensor:	FLIR imaging system with automatic acquisition tracker
Elevation/Train Accel:	8 rad/sec ²
Elevation/Train Vel:	2 rad/sec
Elevation Limits:	–25 degrees to +85 degrees

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