

New protection system for armoured vehicles

Shannon O'Donnell | Features Reporter

The latest variant of Land Electronic Defence Systems (LEDS) from Saab Avtronics, a division of Saab Grintek Defence, is to be marketed as the LEDS-150 Active Protection system.

The system is the result of a cooperative effort between a group of South African defence industry suppliers, which includes Denel Dynamics and several small, medium-sized and microenterprise (SMME) companies.

The SMME companies involved in the development of the system include Bellingan Engineering Development (BED), Kreon Technology and Kuehl Tech CC.

The LEDS-150 Active Protection system protects armoured vehicles by using a combination of counter measures.

Multispectral smoke grenades

are used to obscure the line of sight of attacking systems or operators.

Multispectral screening is effective at night as well as during the day and is deployed between the vehicle and the attacker in less than one second after threat detection.

Coverage depends upon the number of grenades fired and deploys at a range of about 40 m to 50 m from the vehicle.

The system uses a counter missile called Mongoose-1, developed by Denel Dynamics, to defeat rocket-propelled grenades and antitank guided missiles.

The incoming threat ammunition is typically destroyed by the Mongoose-1 at ranges of between 6 m and 25 m from the vehicle.

Counter measures are carried on and deployed by a high speed

directed launcher (HSDL).

The mechanical design of the HSDL, developed by BED, has a very fast reaction time and special gearing mechanisms all packaged in a small volume with low weight.

The launcher moves through 90° in one-tenth of a second and has a pointing accuracy of a fraction of a degree.

The HSDL is stabilised during execution of an actual defensive cycle in order to allow system efficiency across rugged terrain.

The system is completely automated, making it efficient to use, while not adding to the soldier's workload.

Owing to the automation of the system, soldiers can focus on tactics to avoid attack while the system protects the vehicle.

The use of a combination of sensors and intelligence within the software allows the system to automatically determine the most effective countermeasure option during an attack.

The LEDS system offers the user's vehicle a complete hemisphere of protection.

The enemy's attack efficiency is typically reduced to 15%.

The traditional approach to armoured-vehicle protection was based on the acceptance that the vehicle will be hit.

Armour consisting of steel or composite packages was used to try to prevent penetration of the vehicle.

With LEDS, the concept is to avoid the hit by destroying the approaching ammunition before impact and to only carry enough armour to absorb the impact of debris after the destruction event.

The system advises the armoured vehicle crew on the best course of action to avoid a hit. The LEDS will



HSDL-206

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indicate to the user when a threat is detected.

The threat direction and type are given to the crew and this information can also be sent to other vehicles in a networked force.

The threat parameters are sent to the HSDL controller that Kreon Technology developed.

The electronic system then positions the HSDL according to those coordinates.

The central control computer developed by Saab then authorises the final fire command after ensuring that all system safety parameters have been met.

The active signature management subsystem defeats infrared and radar-based sensors and also offers effective protection against petrol-bomb attacks on the vehicle.

This subsystem uses a polymer-based material and was developed locally by Kuehltec CC.

In LEDS-150, the material is manually dispensed to extinguish petrol bombs that are thrown onto the vehicle.

The system was developed with safety in mind and safety critical software was used throughout.

The system has no-go zones and no-fire zones in order to make safety a priority when the LEDS system is integrated into a force.

The LEDS system allows the best possible survivability during conflict and offers the best available technology to the soldier.

If you go on whether you win or lose, then you have something more than success or failure. You keep your own soul.

— Alan Paton

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