

Israel unveils gunshot detector for dismounted infantry

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A new gunshot or transient-event detector for dismounted infantry patrols was displayed at the WBR Soldier Technology 2009 exhibition staged in London between 1-2 July.

The developmental Israel Aerospace Industries (IAI) Elta Systems EL/L-8293 'soldier alert and response system' comprises a detection unit (DU), processor unit (PU), weapon unit (WU) and separate display. These collectively weigh some 2 kg including battery power supply sufficient for eight hours of operation, according to the company.

The DU, mounted on the user's helmet, incorporates a short-wave infrared (SWIR) muzzle-flash detector array, a CCD camera and an inertial reference unit. In the system's demonstration form, the DU is cable-connected to the PU which serves both as an image processor and system controller and fits in an M16 magazine pouch. The WU, mounted on a Picatinny Rail, provides a wireless link between the user's weapon and the PU, relaying target information and picture via a cable to a sight display unit mounted alongside (or on top of) the primary optical weapon sight.

According to Gil Tidhar of Optigo Systems (a subsidiary of IAI Elta), who spoke at the Soldier Technology 2009 conference, the EL/L-8293 began its development some five years ago, since when it has been extensively trialled in conjunction with the Israel Defence Force. The object was to develop a shot-detection system cheap enough to deploy at squad level, and one which provided situational awareness (in other words could plot multiple threats, not simply those aimed directly at the wearer).

The muzzle-flash detector generates an instantaneous digital voice-cued directional alert (for example '2 o'clock') relative to the wearer's line of sight, enabling him rapidly to take cover and/or assume a firing position while aligning his weapon in the general direction of the target. Concurrently the DU's camera records the position of the muzzle flash, which is presented in the user's sight display together with arrow symbols to help accurate weapon alignment. The picture, which can also be recorded for after-action review, gives him an added level of confidence in being able correctly to establish the source of fire and positively identify it as a target before returning fire. For trained operators, the 'flash-to-bang' response time for retaliatory fire generally falls between 2-5 seconds (no more than 5 seconds even for recruits, according to Tidhar).

The DU typically has a 60-degree field of regard (variable according to customer specification), each patrol member generally having responsibility for a separate arc. The directional accuracy of the detector system is put at 0.3 degrees (equating to 1.5 m at 300 m), while its range varies according to the characteristics of the weapon detected. The latter could include anything from a handgun to an anti-aircraft cannon. The system can be made to discriminate against friendly fire and secondary reflections.

The EL/L-8293 is a modular system, and IAI Elta has proposed that it be used in a number of different roles. One option is to integrate all the elements in a unified gun-detection module which could be carried in a pouch and set up on a tripod when in a static location. A cluster of modules could be installed on a helicopter as a hostile fire indicator, or on a vehicle-mounted remote weapon station to provide automatic target cueing. It also lends itself to association with an acoustic weapon location system, to minimise the latter's false-alarm rate.

The IAI Elta EL/L-8293 patrol-level gunshot detection system on show at Soldier Technology 2009. Visible is the helmet-mounted detector unit, the processor unit in a magazine hip-pouch, and the weapon unit mounted on a dummy M16A2 rifle. The display is in this case mounted alongside the weapon sight. (IHS Jane's) 1347340