SPIDER™
NETWORKED MUNITION SYSTEM

ATK®

REDEFINING THE BATTLEFIELD WITH A MAN-IN-THE-LOOP FORCE PROTECTION SYSTEM

Working with the U.S. Army Combat Engineers and the Project Manager for Close Combat Systems, Textron Systems and ATK have joined forces to develop a new weapon system for force protection consistent with 21st-century warfare.

Spider's innovative design is both safe and effective, making it a suitable humanitarian alternative force protection system against dismounted attack.

TEXTRON Systems

Spider is a man-in-the-loop (MITL) system consisting of sensors, communications and munitions. Spider provides the commander a new capability to shape the battlefield, protect the force and respond to changing battlefield environments in a graduated manner, while minimizing risk to friendly troops and non-combatants. Spider warns of dismounted enemy approach, disrupts infiltrations, enhances effects of existing weapons and permits selective engagement.

HOW IT WORKS

With the Spider Munition Control Unit (MCU), a military unit can detect and provide an MITL operator at a remote location with situational awareness to enhance visual observation and aid in the discrimination between combatants and non-combatants. The system's MITL design allows safe and rapid deployment, reinforcement and prior-to-detonation recovery, as well as safe passage of friendly forces. Spider is designed for storage, transport, rough handling and use in worldwide military environments.

MUNITION CONTROL UNIT

The MCU has a pedestal base with a built-in communications module and connectors for lethal or non-lethal devices. In the baseline Spider system, the MCU is fitted with six lethal miniature grenades. It may be used with either hand-emplaced trip wires or operator-commanded, autonomously deployed trip wires. Each trip wire corresponds to one of the six launch azimuths of the grenades. To interdict intruders, grenades may be launched from MCUs individually, as a group of six from a single MCU, or as groups of MCUs. Alternatively, an MCU may be fitted with six Munition Adaptor Modules, or MAMs, that enable the on-command operation of other devices — both lethal (such as the M18A1 Claymore) and non-lethal (such as the Modular Crowd Control Munition, or MCCM).

The replaceable battery provides the MCU a field life of up to 30 days, during which it can communicate with an operator directly or through a field repeater. Prior to detonation, the MCU may be safely and rapidly recovered and subsequently re-emplaced.

REMOTE CONTROL STATION

The Remote Control Station, or RCS, consists of the Remote Control Unit (RCU) and the Remote Control Unit Transceiver (RCUT). The RCU is a standard, common hardware, Army-ruggedized laptop computer equipped with a touch screen that provides control of all the MCUs in the field. The RCUT enables the operator to command the launch of a single grenade or collection of grenades, or other connected lethal or non-lethal devices. It also allows the operator to self-destruct all emplaced MCUs.

REPEATER UNITS

Communications repeater modules may be placed between the RCUs and MCUs to extend the effective communications range of the system to meet a government-specified threshold range of 1,500 meters. The repeater maintains communications with multiple networks of MCUs in the field, as well as the RCU used by the operator.

Rapid and Safe Deployment, Recovery and Redeployment

MCUs are hand emplaced and properly oriented. Tactics, techniques and procedures, or TTP, provide appropriate densities and patterns to accomplish various protective and tactical objectives. When all of the MCU locations have been loaded into the RCU, the operator is able to "fight the field" from a remote, protected site.

When hostile activity is imminent, the operator remotely commands the deployment of the six automatic trip wires. When a trip wire is pulled, a signal is sent from the sensing MCU to the RCU. Based on that signal, the operator's own observation of the field, other situational awareness and from rules of engagement, the operator may direct the launch of the grenade(s) associated with the trip wire detections. The operator can choose to allow a number of intruders to penetrate further into the field to execute a delayed ambush of multiple MCU grenades, or position a Claymore to cover a wider area.

Following the engagement, expended MCUs may be recovered and reused if undamaged. The soldier inspects the unit for damage and, if undamaged, unexpended MCUs may be safely recovered. The soldier quickly removes and replaces the battery, the expended trip wire module and expended miniature grenade launchers, then replaces the battery — allowing the MCU to be rapidly re-employed.

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