Product Manager
Crew Served Weapons

XM153 Common Remotely Operated Weapon Station (CROWS)

Specifications

Platforms:
M1114/M1151 UA HMMWV, M1A2, MRAP, BearCat, M93 FOX, M1A2, JERRV, RG-31, RG-33, Buffalo, FCS, JLTV

Ammunition ready round capacity:
MK19–96, M2–400, M240–1000/ M249–1600

Can be integrated with any armored vehicle

Traverse: Continuous 360 degrees

Elevation: -20 degrees to 60 degrees

Fire control: Independent four-axis targeting system utilizing three-axis vector stabilization. Includes auto tracker, auto lead and auto scan

Weight above the roof: 325 pounds (without weapon, ammo, and ballistic protection)

Operating temperature: -50 degrees Fahrenheit to 140 degrees Fahrenheit

Environmental readiness: E3, rain, salt spray, sand, dust, and vibration

Day optics: 1-45 degree continuous field of view

FLIR: Dual field of view (3&11 degrees) and 2X E-Zoom

The Common Remotely Operated Weapon Station (CROWS) provides Soldiers with the ability to acquire and engage targets while inside a vehicle, protected by its armor. CROWS is designed to mount on a variety of vehicle platforms and supports the MK19 Grenade Machine Gun, .50 Caliber M2 Machine Gun, M240B Machine Gun, and M249 Squad Automatic Weapon.

The CROWS is a three-axis stabilized mount that contains a sensor suite and fire control software, allowing on-the-move target acquisition and first-burst target engagement. Capable of target engagement under day and night conditions, the CROWS sensor suite includes a daytime video camera, thermal camera, and laser rangefinder. CROWS also features programmable target reference points for multiple locations, programmable sector surveillance scanning, automatic target ballistic lead, automatic target tracking, and programmable no-fire zones.

Potential enhancements include integration of other weapons and counter-sniper sensors.

"When we first got there during OIF-2, one of our CROWS teams was detached to go into Fallujah. ... It was a capability enhancer because it has the night vision and has thermal. It greatly increases what you're able to do because with these buildings, you think there's a sniper there, well the gunner just flips that sight from regular to thermal, and you can just see the guy there. It vastly increases your capability."

– *CPT Eric S. Archer, 709th MP Battalion*

PM Soldier Weapons
May 2009

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Remote Weapons Station Enhances U.S. Capability, Protects Soldiers

An improvised explosive device (IED) detonates, narrowly missing a convoy of U.S. Army vehicles. The team leader spies a few men assembled roughly 900 meters east. Unable to discern the identity of the men as civilians or combatants, a Soldier, without leaving the safety of his vehicle, zooms in on the men. He can clearly see that they are monitoring the Army convoy with a cell phone, in all probability ready to detonate more IEDs at the first opportune moment. The Soldier reports the men's position, and they are detained. Each one tests positive for explosive residue.

In high-threat areas throughout Iraq, U.S. Army gunners are protected from IEDs and enemy gunfire because one system allows them to target and engage the enemy forces with near-perfect accuracy from safely inside their armored vehicles. That system is the Common Remotely Operated Weapons Station, or CROWS.

"The CROWS is working really well in Iraq," said CPT Darren B. Fowler of the 2-12 Cavalry. "Our tanks are rolling multiple missions daily, and the tanks with CROWS are seeing a lot of action. This system has added more eyes to see the battlefield ... without putting Soldiers' lives in danger."

CROWS gives gunners the ability to identify, engage, and defeat targets out to the maximum effective range of whichever weapon is mounted. CROWS consists of two parts: the mount, which includes the sensor unit and is fixed to the exterior of the vehicle, and the control grip, which is inside the vehicle. CROWS is capable of mounting various small- to medium-caliber crew served weapons and allows the gunner to see almost any threat no matter where it is located in relation to the vehicle.

From inside the vehicle, the gunner can view a color monitor that receives live video from the sensor unit outside the vehicle.

"Without CROWS, soldiers engage targets with crew served weapons from the turret of the vehicle, becoming vulnerable and exposed to enemy fire," said LTC Michael Ascura, Product Manager for Crew Served Weapons, part of Program Executive Office (PEO) Soldier, the U.S. Army organization that is responsible for virtually everything Soldiers wear or carry.

The live video provides the gunner information from a daylight camera and a thermal imaging camera, which provides enhanced capabilities in darkness. The CROWS allows the gunner to zoom-in on targets, lock onto them, and maintain that lock accurately while the vehicle is in motion. The camera can be used to observe suspicious subjects even if the weapon is pointed away—a useful feature in situations where the crew does not want to incite a crowd or person, or scare them away by pointing a weapon.

A joystick allows one-hand, remote operation of the weapon. For a generation of Soldiers who grew up playing video games, the joystick-and-computer-screen operation seems tailor-made. "It's just like a game controller," said CPT Eric Archer, of the 709th MP Battalion, whose unit used the system in Iraq. "It's second nature to them. And they're able to get a 360-degree aspect of what's going on."

Archer particularly praised the enhanced capability of the thermal imaging camera. "You think there's a sniper there, well, the gunner just flips that sight from regular to thermal, and you can just see the guy there."

The system enables fighting crews to operate from inside their armored vehicles while still carrying out patrols, acquiring targets, and firing a variety of weapons with much greater efficiency and accuracy—even with the vehicle in motion and the enemy on the run.

CROWS achieves its accuracy by giving the gunner more ways to see the enemy. A stabilized platform contributes to the system's accuracy, allowing precision targeting at extended ranges. A gunner trying to fire a weapon manually while being jostled by the moving vehicle does not have nearly that precision.

In addition, the CROWS ammunition canister has been designed to be larger than normal. With a larger ammunition supply than that of standard crew-served weapons, the weapon has to be reloaded less frequently, again allowing the crew to remain inside the vehicle.

CROWS has been operating in Iraq since March of 2005. The next generation of CROWS provides improved operational response time; reliability and sustainability; and has been integrated and fielded on multiple platforms in both theaters of operation.

Ascura said, "Nothing is more valuable than saving the life of the Soldier in combat. That is one of the objectives of PEO Soldier and PM Soldier Weapons: to develop capabilities and technologies that enhance a Soldier's survivability and lethality in combat."