

**NDIA:
International Infantry & Joint Services Small Arms Systems
Annual Symposium, Exhibition, and Firing Demonstration**

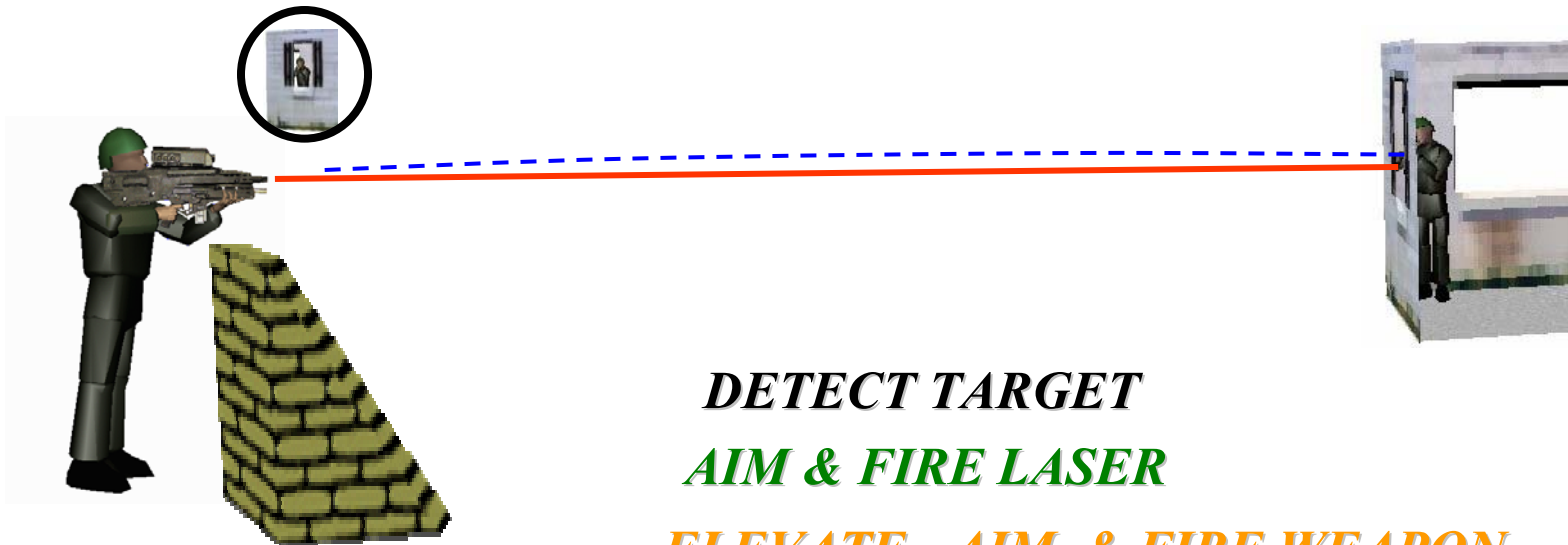
Small Arms Fire Control Systems for the Individual Soldier

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Fire Control Definition

The art of arranging a weapon's effect and a target to meet in the same space at the same time.



DETECT TARGET

AIM & FIRE LASER

ELEVATE - AIM & FIRE WEAPON



Supporting the WARRIOR

Fire Control

The Problem

Most soldiers did not have fire control and were forced to rely upon their eyes, their cognitive skills and their manual dexterity.



Photo by Capt. Peter Forsythe

“Iron Sights”

Time consuming manual adjustments

Range “guesstimation”

No input for dynamic environmental conditions

Do not provide reliable “first burst hits”

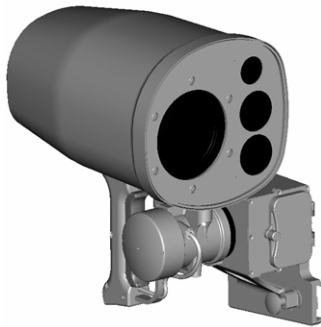
Fire Control The Solution XM116



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The Small Arms Fire Control System II that can be adapted to many types of weapons and weapon stations, including, but not limited to:

- **MK 19 40mm Grenade Machine Gun**
- **M2 50cal Machine Gun**
- **H&K Grenade Machine Gun**
- **Remotely Operated Weapon Stations**





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XM116

How it Works

The XM116 provides:

- Night Vision (using uncooled thermal imaging, *not* Image Intensification)
- “Dawn to Dusk” high resolution day TV
- Eyesafe (1.54 μ) Laser Ranging to 5 km
- Ballistic Solution (displayed as a corrected aim point) for up to 10 weapons/ammo types
- Pressure/Temperature/Cant Sensing
- Integrated Digital Compass

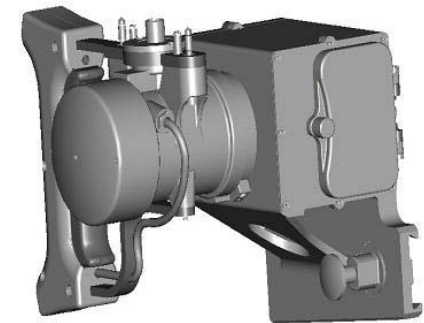
and consists of three modules:



Electro-Optic Module



Helmet Mounted Display

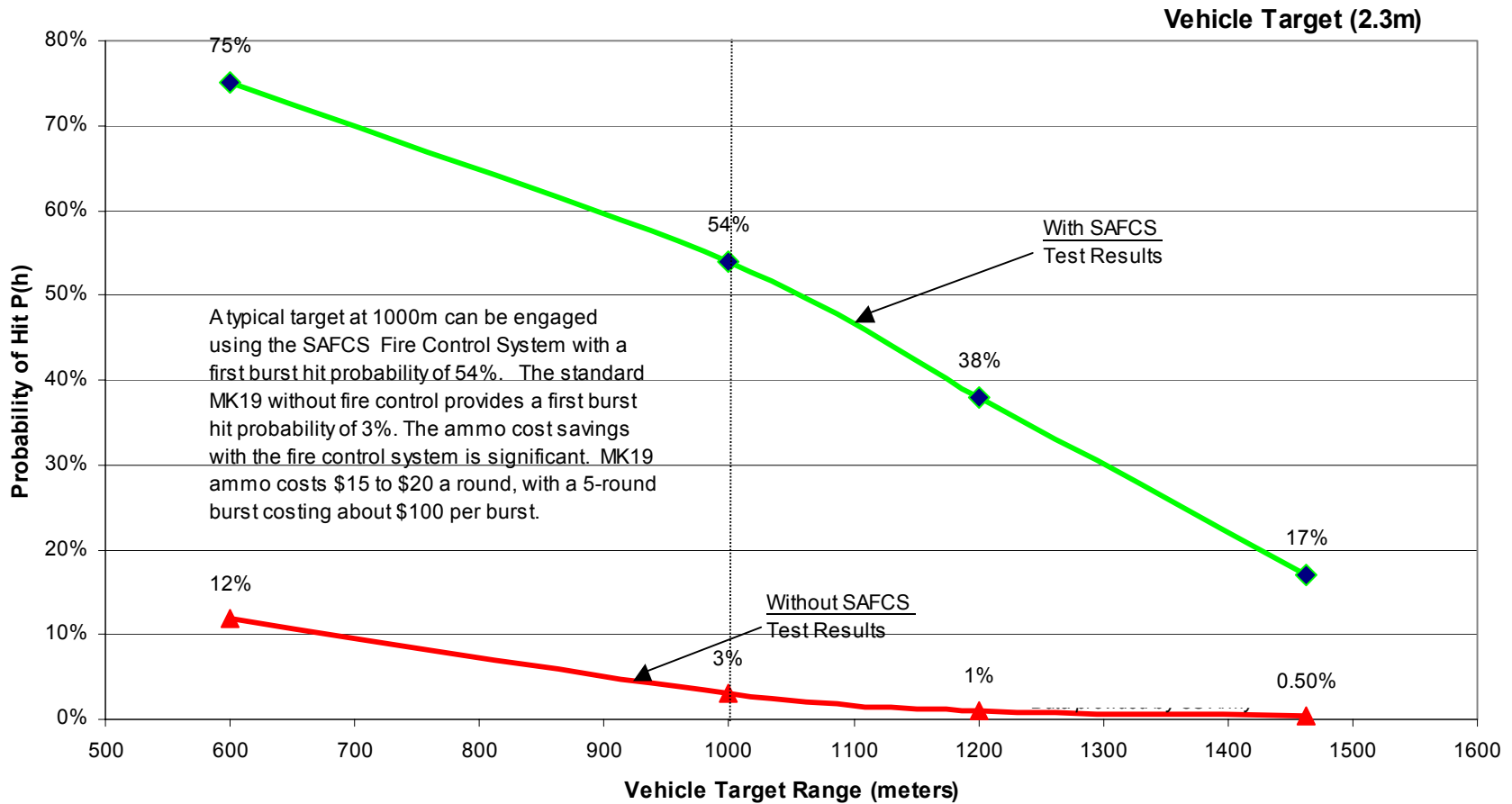


Positioner Module



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MK 19 First Burst Hit Probability With SAFCS II and Without SAFCS II



XM 104

Individual Weapon Fire Control



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XM 104 mounted on XM 25

System Design

- Developed for the XM 29 (formerly OICW)
- SOA uncooled thermal capability, but maximized for 500 meters, allowing a design with smaller optics.
- Direct View Optics with high-brightness red overlay
- Pressure, temperature, incline, cant, and azimuth sensing
- Full ballistic solution and adjusted aimpoint display
- Fuze setting for airbursting munitions
- Extensive power management for long battery life
- Total Fire Control weight < 2.5 lbs.

System Status

- Initial Five units delivered to PEO Soldier
- Presently undergoing Milestone B Testing
- Currently employed in Future Force Warrior development efforts





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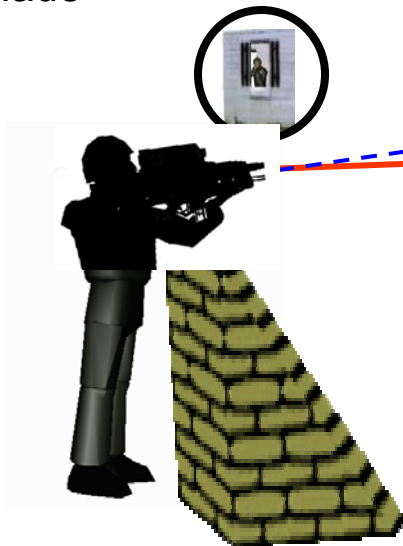
Concept of Operation

Soldier detects target – typically visual. Views with DVO or thermal imager magnified sight

Aligns reticle on target - activates built-in eye-safe laser rangefinder – accurately determines target range, heading, and elevation

Ballistic solution automatically computed. Adjusted aimpoint presented. Soldier places adjusted aimpoint on target and pulls trigger

Fire Control programs range data into round. Round flies downrange, detonating above target at precise range required to incapacitate an enemy in defilade



DETECT TARGET

AIM LASER

FIRE LASER

ELEVATE & AIM WEAPON

FIRE WEAPON!



Supporting the WARRIOR

XM25 – HEAB Testing Video Clip





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Summary

- **Fire Control Benefits**

- Day & Night Target ID
- Controlled Fire reduces the possibility of friendly/noncombatant casualties
- Less ammo used – not walking the rounds onto the target
- Provides remote control capability
- Provides Airburst for the individual soldier

**Fire Control Significantly Increases the War fighters
Lethality and Survivability**