

A soldier in camouflage gear is operating a machine gun in a forest. The soldier is wearing a helmet with an Aimpoint Fire Control System (FCS) mounted on it. The FCS has a red dot sight and a blue reticle. The soldier is looking through the sight. The background is a dense forest of tall trees.

AIMPOINT®

FIRE CONTROL SYSTEMS (FCS)

FOR USE ON MULTIPLE WEAPON PLATFORMS

Aimpoint®



WORLDWIDE LEADER AND ORIGINATOR

Aimpoint is the recognized worldwide leader and originator of red dot sighting technology. After 45 years of working closely with military weapon system experts, experienced hunters, and marksmen around the world, Aimpoint sights remain the trusted choice for speed, accuracy, reliability, and durability.

Aimpoint red dot sights are manufactured in a controlled setting. Each sight is built by hand and tested to survive the most severe conditions. Some companies test their products in the most extreme environments – ours are built there. Since 1975, we have manufactured the most rugged optical sighting systems in the world at our facilities in Sweden.

Aimpoint has produced more than 3,000,000 red dot sights since 1974. Over 1,300,000 of these sights are in service with the United States military. In 1997, Aimpoint was awarded the M68CCO (Close Combat Optics) contract and after 23 years, we are still delivering the most trusted optic to the front lines. NATO countries have widely chosen Aimpoint sights as the standard optic for their armed forces.

The Aimpoint® Fire Control Systems (FCS) program started as a study to develop a weapon sight with an integrated laser range finder (LRF) for grenadiers using 40mm low velocity grenades under 5.56 carbines. Prototypes were built and the Aimpoint BR8 was born. The goal was to develop a sight for shoulder fired and crew served weapons. The concept worked perfectly.

In 2012, Aimpoint supplied the first generation – FCS12 – to the Swedish Armed Forces for the 84 mm Carl-Gustaf recoilless rifle. In 2016, the second generation – FCS13RE™ – was introduced. In 2019, it was adopted by the U.S. Army as the integrated fire control system for the M3E1 Carl-Gustaf 84mm man-portable Multi-Role Anti-Armor/Anti-Personnel Weapon System (MAAWS).



FCS13RE™ DESCRIPTION

The Aimpoint® FCS13RE is a Dynamic Universal Reflex Sight (DURS) for use on Multiple Weapon Platforms. The FCS13RE™ sighting system consists of an eye safe 1550 nm Laser Range Finder, a ballistic computer with the capability to store more than 50 different ballistic algorithms, and a parallax free optical channel (DVO, Direct View Optic) with unlimited eye relief making it easy to transition between different targets.

The FCS13RE automatically compensates for the ballistic drop of projectiles at measured distances, factoring in many different variables (e.g. rotational (spin) drift, propellant temperature, terrain angle, speed of the target, atmospheric pressure, etc.) to give you exceptionally high first round hit probability while reducing collateral damage.

The FCS13RE can also add airburst capability to shoulder fired launchers and 40 mm AGL systems.

MOVING TARGET

The FCS13RE allows the gunner to engage moving targets with ease no matter what weapon platform is used. The system features a built-in laser range finder (LRF), inclinometers, gyro, and ballistic computer that establishes the point of aim while calculating for lead and distance of moving or stationary targets.

With 84 mm Carl-Gustaf (all generations) and 40 mm HV grenades, the maximum distance to a moving target is 500 m and target speed is more than 30 km/h. With a .50 cal HMG the maximum target distance and speed is more than the munition.



FCS13RE™ FOR 40 MM HV AIRBURST SYSTEM

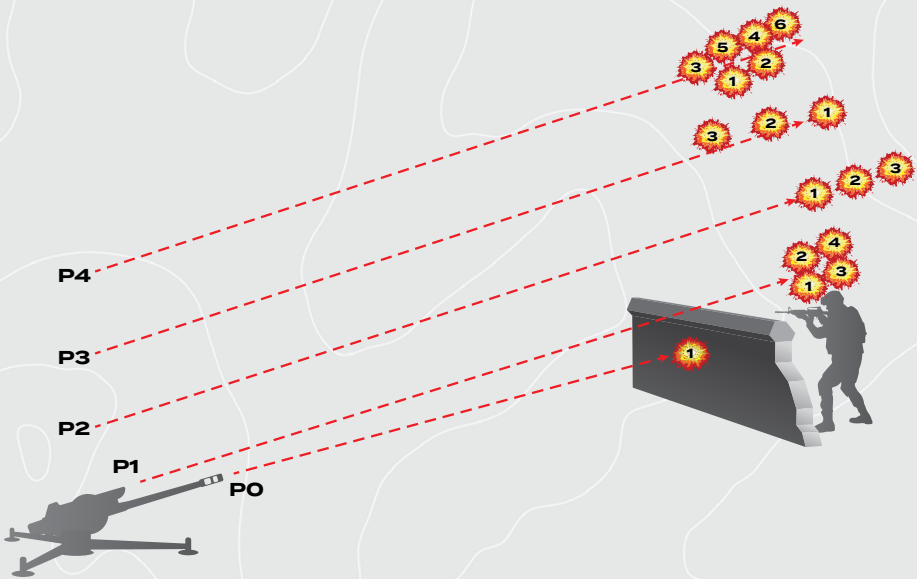
The Aimpoint® FCS13RE drastically increases first round hit probability when compared to standard Iron sights. This is true for land vehicles, sea vessels, or ground-based tripod mounted weapon systems. With the integrated “Extended Range” functionality it also allows you to defeat area targets at the full range of the ballistics (2000+ m).

AIRBURST

The FCS13RE™ is compatible with several types of airburst (AB) ammunition. With the ability to program 40 mm AB ammunition, the gunner is now able to engage threats in defilade, by bursting grenades above enemies or around corners. Five different burst modes are available (e.g. “string of pearls”).

AIRBURST MODES

- P0** No airburst programming, only detonation on impact.
- P1** All burst at one distance.
- P2** Ascending mode, first grenade will burst on ranged distance and the following grenades will move farther away from the gunner.
- P3** Descending mode, first grenade will burst on ranged distance and the following grenades will move closer to the gunner.
- P4** Alternating mode, first grenade will burst on ranged distance and the following grenades will alternate between farther away from the gunner and closer to the gunner.
- P5** Counter-Unmanned Aerial system (C-UAS) capability. The weapon system uses the gyro and inclinometers to calculate the lead angle to a drone. The 40 mm HV (e.g. GMG, Mk19, and Mk47) is fired in full auto and the sighting system will calculate a lead angle to the target. The programming function in the FCS13RE in P5 mode will build a volume of fragments around the moving drone.





FCS13RE™ ON 84 MM CARL-GUSTAF SYSTEM

The Aimpoint® FCS13RE can be used on all generations of 84 mm Carl-Gustaf recoilless rifles with pre-installed ballistic tables for all ammunition produced by SAAB. The gunner will simply range the target, select the grenade, and fire the weapon.

The ballistic computer allows for a different ammunition to be selected after the target has been ranged. No need to range a second time. The FCS13RE™ can provide ballistic solutions on moving targets up to 500m away and with a speed of more than 30km/h.

Military testing has shown over a 90% hit probability on both static and moving targets, regardless of the soldier's weapon experience.

The FCS13RE provides the gunner with a ballistic solution out to the weapons max effective range (1300m).

The FCS13RE is currently fielded as the primary sighting system for the M3E1 MAAWS Carl-Gustaf by the U.S. military.



FCS13RE™ ON A MINIGUN

The Aimpoint® FCS13RE mounts directly to the M134 family of Miniguns, increasing the effectiveness and ensuring the first-round bursts are on target. Enhanced hit probability and ease of use reduces both ammunition consumption and training time, while minimizing transition time from target to target.

Before the FCS13RE™, typically 80% of ammo was used for aiming purposes, while the remaining 20% was for engaging targets.

The system's adjusted point of aim allows the gunner to effectively engage threats at greater distances. These revolutionary factors combine to create a more dynamic weapon system, enhancing lethality and gunner survivability.



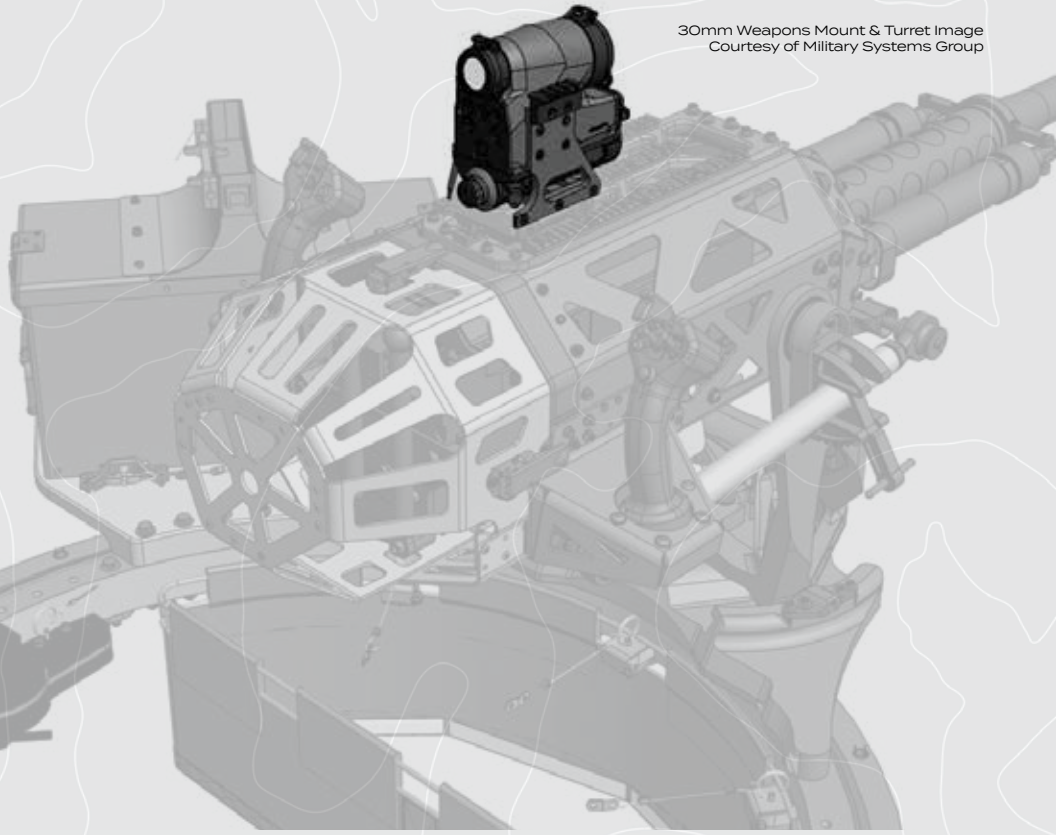
FCS13RE™ ON M2/M2A1 BMG

The Aimpoint® FCS13RE mounted on the M2/M2A1 .50 cal. Machine Gun dramatically increases first hit probability. The built-in laser range finder and ballistic computer ensures the first firing sequence is on target. This reduces the amount of ammunition per target engagement.

Both eyes open allow for full situational awareness, a primary benefit of the Direct View Optic. Target transitions and first-round hit placement becomes quick and easy with the FCS13RE™.

Mounting the FCS13RE takes just a few seconds and no modifications to the weapon is necessary.

When used with the M2/M2A1 Machine Gun, the FCS13RE allows the gunner to engage moving targets (e.g. speed boats and helicopters) at speeds more than 100km/h.



FCS13RE™ ON OTHER WEAPON SYSTEMS

The unique features of the Aimpoint® FCS13RE makes it the ideal sighting solution for many weapon systems. A weapon mounted on a tripod, ring mount, or where the gunner is placed behind the system, allows you to use the FCS13RE™ as a primary sighting solution.

Munitions may include:

- .50 cal
- 20 mm
- 25 mm
- 30 mm

Legacy anti-tank weapons, from 90 mm – 105 mm, suffer from extremely low first round hit probability. The munition may have long range capability, but the sighting systems for these weapons limit their long-range effectiveness. The FCS13RE™ corrects this issue – increasing system accuracy, effective range capability, and allowing for extended service life of both weapon and munition.

The sight is versatile, attaching to various weapon platforms and programmed with ballistic data to most any weapon system.

FCS MOUNTS

Several mounting solutions are available for the Aimpoint® Fire Control Systems. The sight is equipped with accessory rails that allow users to mount a thermal imager (TH60) or a tactical aiming laser.

- 84 mm Carl-Gustaf
- M2 Machine Gun
- M134D Minigun
- H&K GMG
- Mk19
- Mk47

Excluding the Carl-Gustaf mount, the FCS uses the same rail mount interface allowing it to be moved easily between platforms.

84MM CARL-GUSTAF MOUNT

84 mm Carl-Gustaf mount attaches to the original SAAB mounts (in service) on all generations of the Carl-Gustaf recoilless rifles.



RAIL GRABBER

This mount is utilized for all other weapon platforms except the 84 mm Carl-Gustaf and the AT4.



HMG

The HMG bracket requires no modification to the host weapon. The FCS13RE attaches to this bracket via the rail grabber.

MK19

The MK19 bracket kit allows the FCS13RE to be mounted via the rail grabber. Various mounting solutions are available.

MK47

The MK47 bracket fastens to the receiver of the gun with no modifications. The FCS13RE attaches to the bracket via the rail grabber.



TH60

The Aimpoint® TH60 Thermal Clip-On is an inline, afocal attachment designed to be used with the FCS13RE. Aimpoint FCS sights, in combination with the TH60 Thermal Clip-on, incorporate the latest in Long-Wave Infrared (LWIR) sensors, electronics, and optical technologies to deliver world leading performance and reliability. The TH60 generates superior IR imagery, ensuring target recognition at the maximum possible range for increased lethality.

UNIQUE FEATURES

Proven uncooled IR sensor technology for superior image quality

Day/Night Engagement

Instant 4X digital zoom button (return to 1X magnification on release)

Quick mounting on MIL-STD-1913 Picatinny Rails

Image storage (snapshots) and export of images to a PC

Live video feed from the display of TH60 to an external screen

Rapid change, cartridge-style tactical power packs for ready power and reduced down-time during operational engagements

Ruggedized military design

FCS ACCESSORIES



REMOTE WIRED 3-BUTTON

- M3E1 Carl-Gustaf
- Toggle between first and last returns from LRF
- Change grenade
- LRF button



REMOTE WIRED 1-BUTTON

- LRF button for use on spade grips



SPARE PARTS LIST

ART	SPARE PART
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200330	Full FCS Kit (NSN 1230-01-674-5202)
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200104	Battery cap with strap FCS Kit
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200114	Strap battery cap
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200115	O-ring 36x1.5
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200097	Battery holder FCS
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200586	Lens cover front, transparent
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200101	Lens cover front, solid
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200102	Lens cover rear, transparent
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200109	Desiccator
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200303	Weapon connector cap
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200306	Flip-up cover LRF
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200434	Cable FCS-CG
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200585	Remote wired 3-button
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200587	Remote wired 1-button
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200541	Screw set for CG mount
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200472	Mount GRG
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200598	Rail mount FCS
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Cage Code for Spare Parts: 3J629

TECHNICAL SPECIFICATIONS

FCS13RE™

SIGHT SYSTEM CAPABILITY

SIGHT UNIT DIMENSIONS

Length	190 mm
Width	91 mm
Height	157 mm
Weight (w/CG bracket & alkaline batteries)	1.82 kg

OPTICAL DATA

Optical Magnification	1X, unlimited eye relief (3X magnifier available)
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Optical Coating	Anti-Reflex coating, all surfaces Multi-Layer coating objective lens Band Pass coating for NVD compatibility
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Max Ballistic Elevation	>235 MRAD (Increments 1.5 MRAD nominally, center to center)
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MECHANICAL DATA

Material housing	High Strength Aluminum
Surface Treatment / Finish	Anodized, Matte
Color Housing	Black

ELECTRONIC DATA

Battery	6 AA batteries; 1.5V Alkaline LR6 or Lithium FR6
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Battery Life	48 days; Each 24hr period has 10 each 10 min periods w/10 ranging operations.
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Intensity Regulator	Manual rotary switch 16 settings: 1 off, 7 NVD and 8 daylight
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SUB-SYSTEM DATA

LRF (Laser Range Finder)	1550 nm, eye safe (Class 1: FDA CDRH and IEC 60825)
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No Optical Signature	Beyond 50 m (intensity adjusted to ambient light)
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Capacity	20 to 4000 m, 1 m resolution
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ENVIRONMENTAL

Operational Temperature	-40° F to 140° F, -40° C to 60° C
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Submersible	1 m
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TH60

PHYSICAL CHARACTERISTICS

Size (L x W x H)	195 mm x 160 mm x 156 mm
Weight	< 1.5 kg
Color	Black

DISPLAY

Color	Yes
Luminance	≥ 800 cd/m ²
Eye relief	≥ 80 mm behind ocular lens of the FCS-sight

OPTICS AND SENSOR

Optical Focus	Fixed. Depth of Field 70 m to infinity
Digital Magnification	4X
Field Of View	>12° (HFOV) >12° (VFOV)
Minimum Resolvable Temperature Difference (MRTD)	< 1.80 K for 1.00 cycles/mrad < 1.70 K for 1.62 cycles/mrad (STANAG 4347)
Optical On Axis Resolution	≥ 1.7 cycles/mrad
Detection	4000 m, vehicle 2.3 x 2.3 m
Recognition	1000 m, vehicle 2.3 x 2.3 m
Identification	600 m, vehicle 2.3 x 2.3 m
Sensor	Uncooled microbolometer thermal sensor array
Wavelength (spectral response)	8-12 μm
Pixel Pitch	17 μm
Sensor Size	768 x 1024
Sensor Refresh Rate	30 Hz
Noise Equivalent Temperature	< 50 mK at f/1

ENVIRONMENTAL CHARACTERISTICS

Operational Temperature	-40 °F to +131 °F (-40 °C to +55 °C)
Storage Temperature	-60 °F to +160 °F (-51 °C to +71 °C)
Submersible	1 m

POWER

Operating Time	> 4 hours
Standby Time	> 8 hours
Power Supply	4 AA batteries
Start-Up (from standby)	< 1 s



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