

# LW25 Integration On SAAB Trackfire RWS



**Battelle**  
*The Business of Innovation*



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# The Project

## **Mission:**

- Joint Munitions & Lethality Life Cycle Management Command (JM&L LCMC) awarded contracts to select companies in support of the Army's effort to get high-tech weapon prototypes in the hands of soldiers in the field as soon as possible. The effort, known as the Rapid Prototyping and Technology Initiative (RPTI), is run by the Army's Armament Research, Development and Engineering Center (ARDEC).

## **Background:**

- The Weapon Systems & Technology Directorate within ARDEC was seeking the remote weapon system integration of the Lightweight 25mm Chain Gun System which is applicable to both ground vehicles and aircraft applications.

## **Objective:**

- To demonstrate the integration of Lightweight 25mm cannon into a remote weapon station for potential application on helicopters, Forward Operating Base (FOB) protection, and ground vehicles.



# The Team

## **ATK Armament Systems (ATK)**

An industry leader in ammunition, precision and strike weapons, missile warning solutions, and tactical rocket motors across air-, sea-, and land-based systems.

## **SAAB Security and Defense Solutions (SAAB)**

Saab serves the global market with world-leading products, services and solutions from military defence to civil security. With operations on every continent, Saab continuously develops, adapts and improves new technology to meet customers' changing needs.

## **Army Research Development & Engineering Center (ARDEC)**

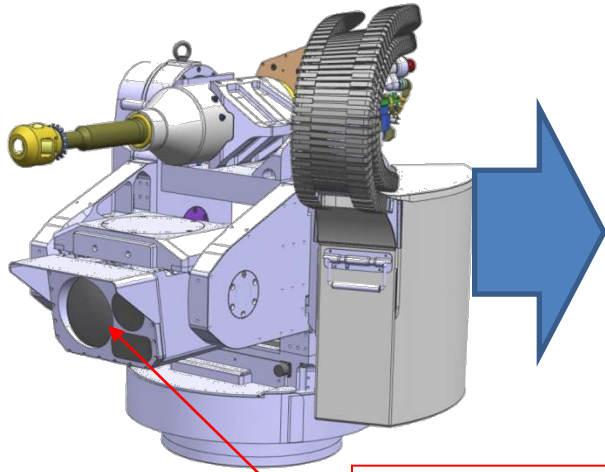
An internationally acknowledged hub for the advancement of armaments technology and engineering innovation in direct support of RDECOM's mission to get the right technology to the right place, at the right time for the Warfighter. ARDEC strives to support the Army's efforts to ensure soldier survivability, as well as enhance platform and area protection by providing engineering, design and development support for rapid fielding of critical technologies.

## **Battelle Memorial Institute (Battelle)**

The world's largest, independent research and development organization, working to advance scientific discovery and application.

# LW25 INTEGRATION

From CAD Model

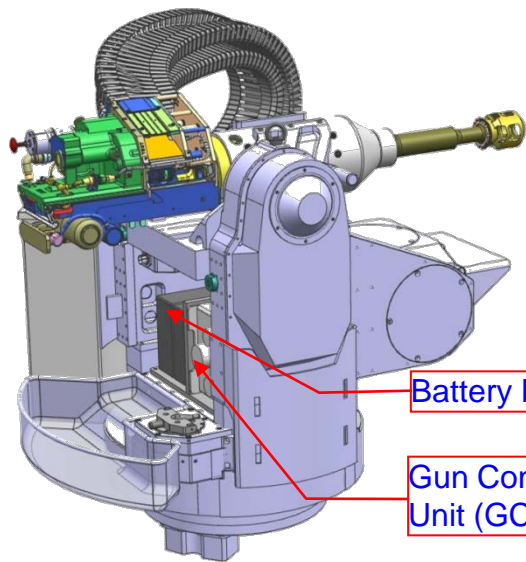


Sensor Module  
(FLIR)

To Mock Up

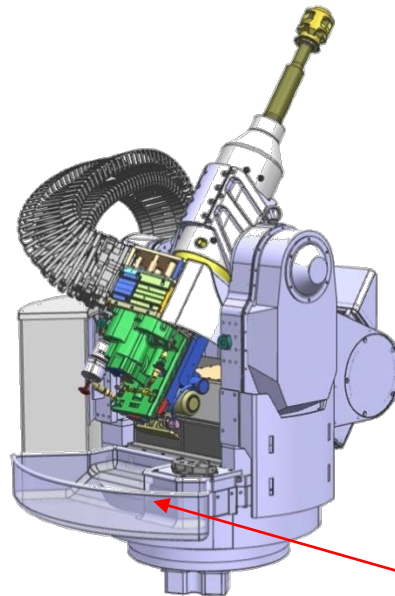


To Prototype in 3 months



Battery Pack

Gun Control  
Unit (GCU)



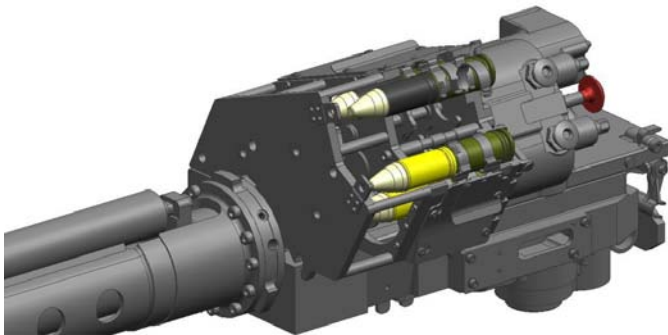
Spent round  
collector



# LW25 System Features and Benefits

## Cannon

- Dual feed
  - Provides scalable threat response
- Remote next round select
  - Ability to switch feeds with the push of a button
- Externally powered
  - High reliability, Ideal for remote operation
- Compact size and weight
  - Only 46 inches long and 68 lbs.



## Ammunition

- Full complement of tactical rounds
  - TP
  - HEI
  - HEDP
  - ABM



- Demonstrated and ready for qualification



# Trackfire LW25 System Components

## Director Unit:

- Traverse and Elevation drives
- Sensor Module
- Weapon Interface
- Ready Rounds Bin
- Rate Gyro



*Lightweight, small footprint and low intrusion enables flexible positioning*

----- Roof -----



## Control Unit:

- Ballistic Computer
- Graphics Generator
- Servo drives



## Video Tracker Module



## Operators HMI:

- Gunners Display
- Control Handle
- Fire Control Panel
- Optional Dual Command



*Free positioning of the operator HMI and the system electronics*



# Technology Building Blocks

- ▶ The Trackfire RWS is comprised of building blocks from a wide range of proven/operational Saab products, including:
  - ▶ Gunners & Commanders Sights
  - ▶ Fire Control Computer (FCC)
  - ▶ Control Unit (CU)
  - ▶ Gunners Display (GD)
  - ▶ Sensor Module/s (SM)
  - ▶ Laser Range Finder (LRF)
  - ▶ Video Tracker Module (VTM)
  - ▶ Integrated Gunnery Trainer (IGT)
  - ▶ Coaxial weapon mounting
  - ▶ Azimuth/elevation servo drives
  - ▶ Gyro's



# Universal Tank & Anti-Aircraft Sight (UTAAS)

## ▶ Combat-proven Fire Control System & Gunner Sight for the CV90 Combat Vehicles:

- In service: Sweden, Norway, Finland, Switzerland, Denmark & Netherlands, under evaluation at APG for Close Combat Vehicle (CCV)

## ▶ High performance, modular Fire Control System reused for Trackfire RWS

## ▶ Full integration with Saab's in-service Video Tracker Module (VTM)

- Greatly reduced Sensor-to-Shooter cycle



Video Tracker Module (VTM)



Control Unit (CU)



# Human Machine Interface (HMI)

## LW25 Primary Functionality Hosted on HMI

**LW25 Fire Mode:**  
Single, Burst &  
Continuous

**LW25 Air Burst  
Munitions (ABM):**  
Growth Path

**LW25 GCU BIT:**  
messages review /  
clearing

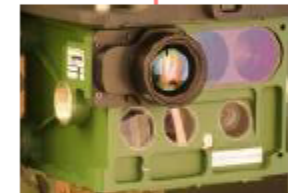


**LW25 Fire Rate:**  
GCU LOW or FULL  
modes

**Ammo Type:**  
TP, HEDP, HEI & ABM

**LW25 Feed Select:**  
UPPER / LOWER

# Sensor Module (SM)



- ▶ Long Range Suite (cooled/uncooled 8-12 $\mu$ m or cooled 3-5 $\mu$ m TI, CCD Color Zoom TV & LRF)
  - ▶ Alternatively, a wide range of sensors/imaging solutions can be integrated
- ▶ Open & scalable architecture provides inherent scope for role configuration and Through Life Growth (TLG)



# Video Tracker Module (VTM)

- ▶ Significantly reduces the Sensor-to-Shooter cycle
- ▶ Automatic Target Detection, Acquisition & Tracking
- ▶ Automatic centering on target & manual adjustment of hit point
- ▶ Roll stabilisation of sensor image



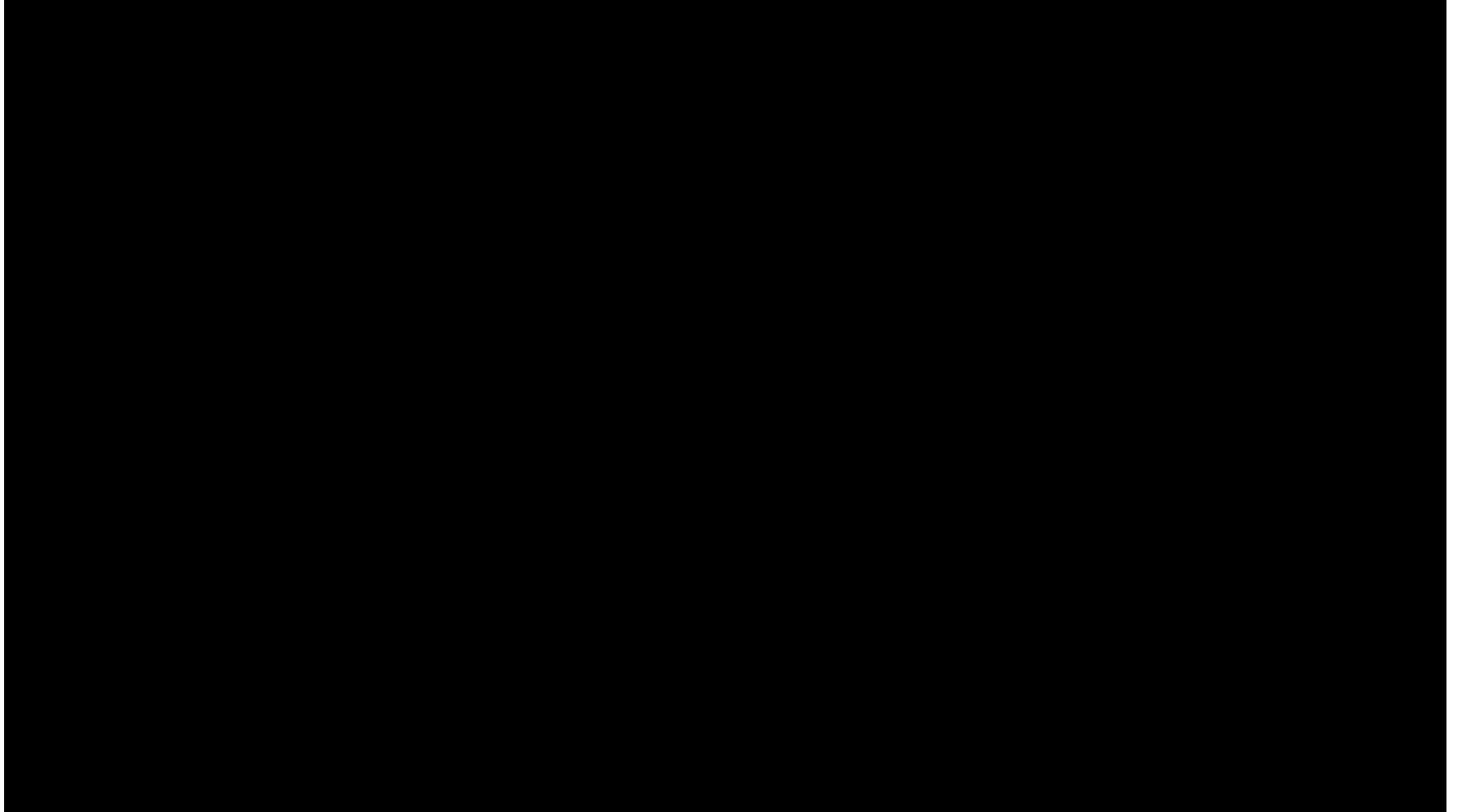
# Gunner's Display

## LW25 GCU Integration



# LW25/TTF Modes Of Operation

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# Live Fire Demonstration





# Project Status

- Conducted design, fabrication, and testing to facilitate system level integration of LW25 on RWS
- Completed Function and casualty/metal parts security testing on Target Practice (TP) and High Explosive Incendiary (HEI)
- Completed ballistic testing of a minimum of 13 TP, HE and High Explosive Dual Purpose (HEDP) cartridges each to a range of 1500 meters.
- Conducted dynamic armor penetration/perforation testing of HEDP cartridges at a range of approximately 500 meters on a 1.5" thick piece of RHA at zero +/-5 degrees obliquity.
- On schedule to deliver one demonstration system to include:
  - Remote controlled trainable test fixture
  - All associated hardware to mount and fire 25X59mm weapon
  - Fire control device to help facilitate aiming and firing of the 25X59mm weapon
  - Fully integrated video tracker module
  - Customer demonstration in Sweden week of 23 May



# Q&A

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- **Questions?**

# Contact Information

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