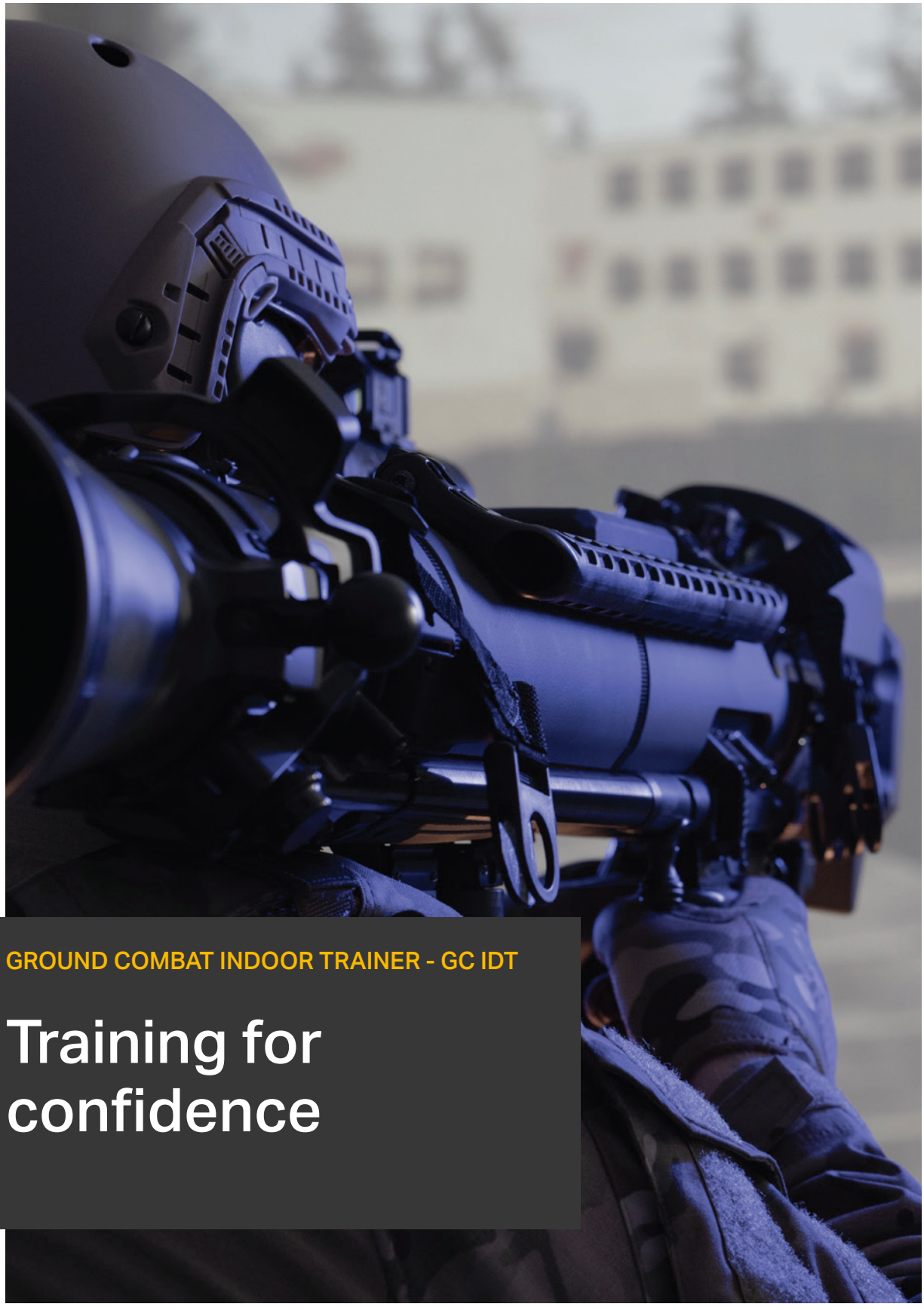


GROUND COMBAT INDOOR TRAINER - GC IDT

Training for confidence

Prepared for reality

Ground Combat Indoor Trainer - real weapon accuracy

Saab's Ground Combat Indoor Trainer (GC IDT) provides an effective, realistic training system for anti-tank, support arms and small arms weapon systems. Its functions cover all phases of modern gunnery and combat training, from basic weapon operation to advanced gunnery, basic training of combat techniques to collaborative training.

The system allows individual shooting and engagement training, against static and moving targets, and tactical training with a focus on decision-making, communication and coordination of fires.

The system realistically simulates the ballistic properties of all simulated weapon and ammunition types, including the influence of weather, atmosphere and, at the same time generates 3D visual cues with different terrains, target models and battlefield effects.

The Scenario Editor enables creation and editing of scenarios, whilst the function for After Action Review provides a detailed exercise evaluation and database system for storing results, generating reports and monitoring progress.

Training process

At Saab we know that the most realistic training, followed by immediate feedback and detailed evaluation, is the best way to prepare for the real mission and build confidence.

Individual training

Ground combat indoor trainer (GC IDT) marksmanship and gunnery training focuses on the shooting skills and engagement training of the individual. Marksmanship and gunnery training allows training of trigger control, establishing of the correct sight picture, reloading drills and malfunction procedures. Marksmanship and basic gunnery exercises are conducted in a 3D virtual model of a real shooting range with targets configured in accordance with applicable shooting doctrine. The virtual targets can be programmed to represent static, moving, and pop-up targets. Advanced gunnery training is conducted in a virtual terrain that mirrors realistic combat situations but with a focus on the individual training.

Collective training

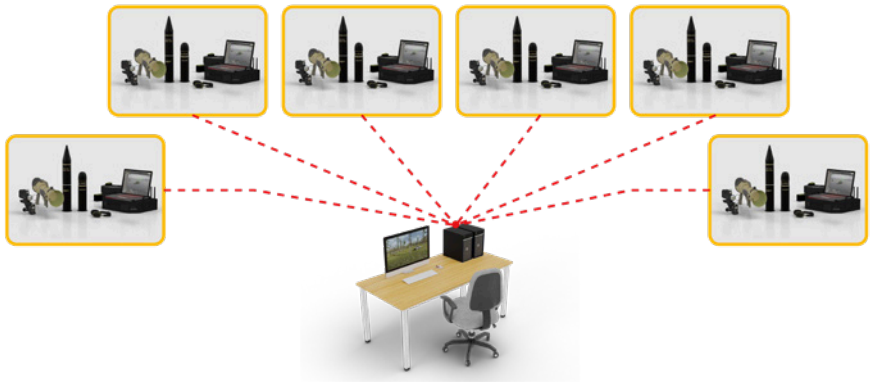
Each trainee can be equipped with a different type of weapon to fulfil his assigned role within the squad/section. GC IDT can simulate combat situations in any type of terrain including open terrain and urban areas.

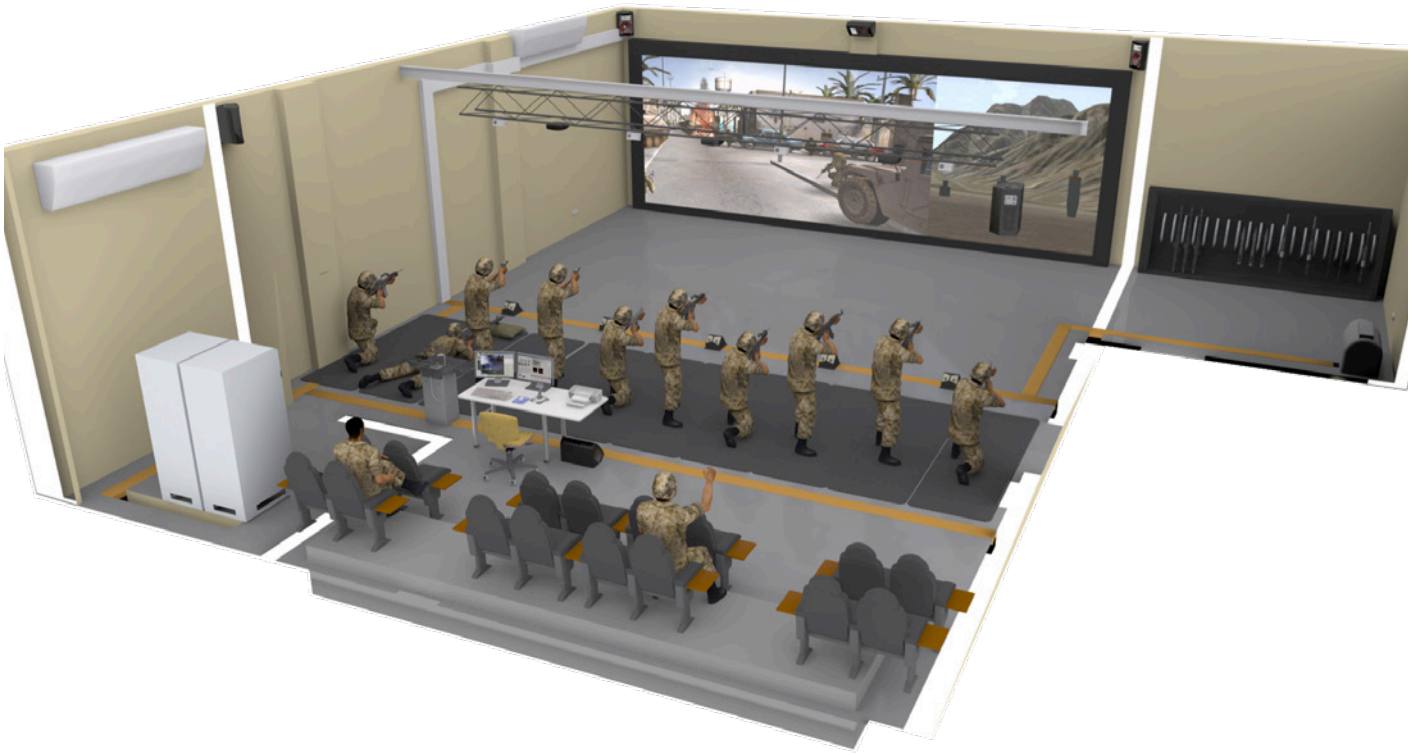
Training scenarios are focused on fire control and coordination, priority of targets, communication and collaborative fire. Tactical scenarios utilise computer generated behaviour of enemy forces.

GC IDT configurations

Complete training centre. With a modular approach the growth potential is built-in.

The GC IDT is modular enabling a system to be a fixed installation or a portable solution. The studio configuration supports anything from 5 to 15 firing positions. The Gunnery Unit can either be used as stand-alone or be a networked configuration including up to 6 Gunnery Units and one Instructor Operation Station.





GC IDT portable configuration

Change any place into a training facility

The typical footprint of a training setup for a five lane Studio is 10 x 5 meters, including space for an instructor position and CO2 filling station (when applicable).

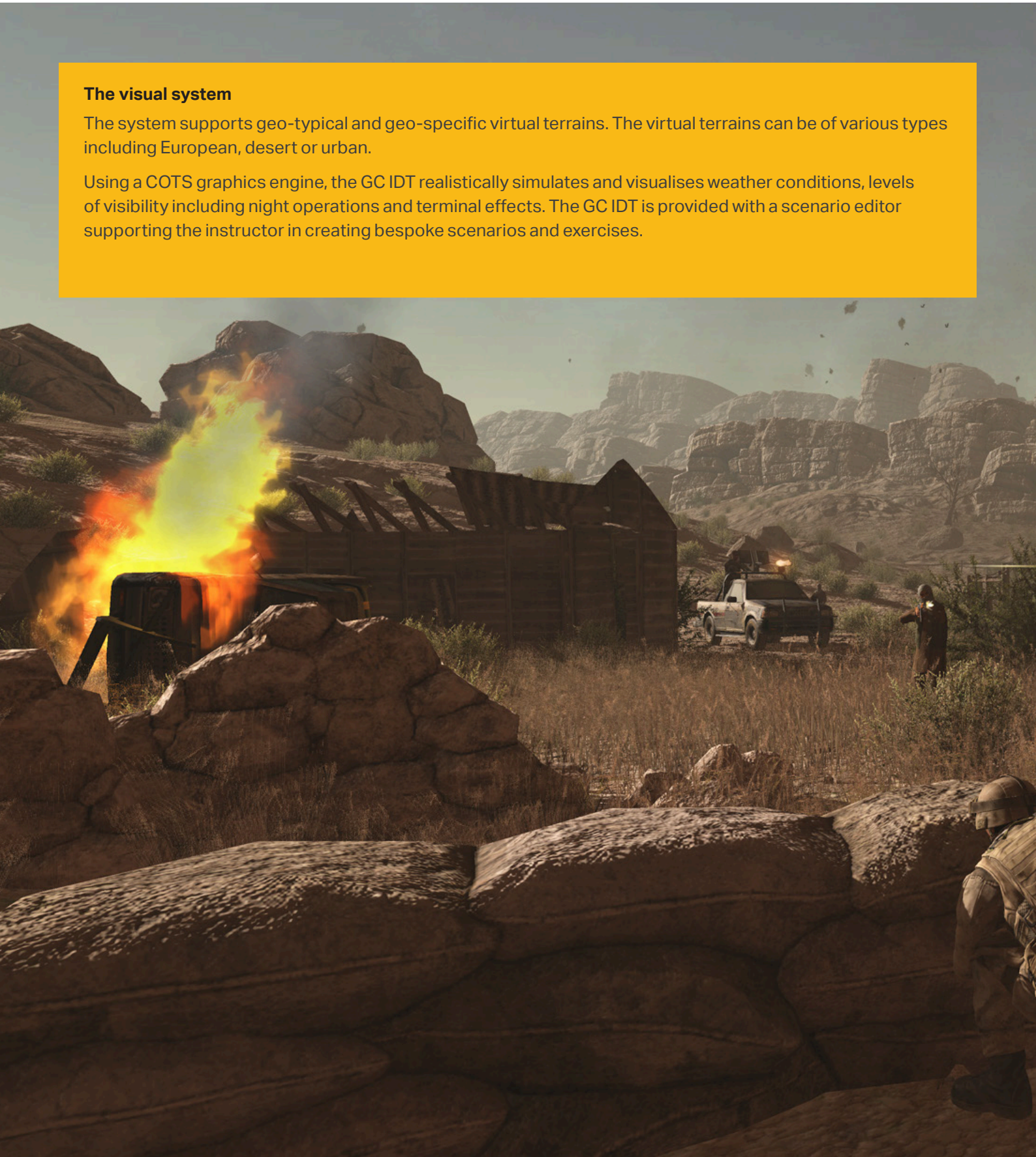
The portable Gunnery Unit configuration consists of a gunnery computer and the tetherless weapon replica, creating a very small footprint.

Simulation technology

The visual system

The system supports geo-typical and geo-specific virtual terrains. The virtual terrains can be of various types including European, desert or urban.

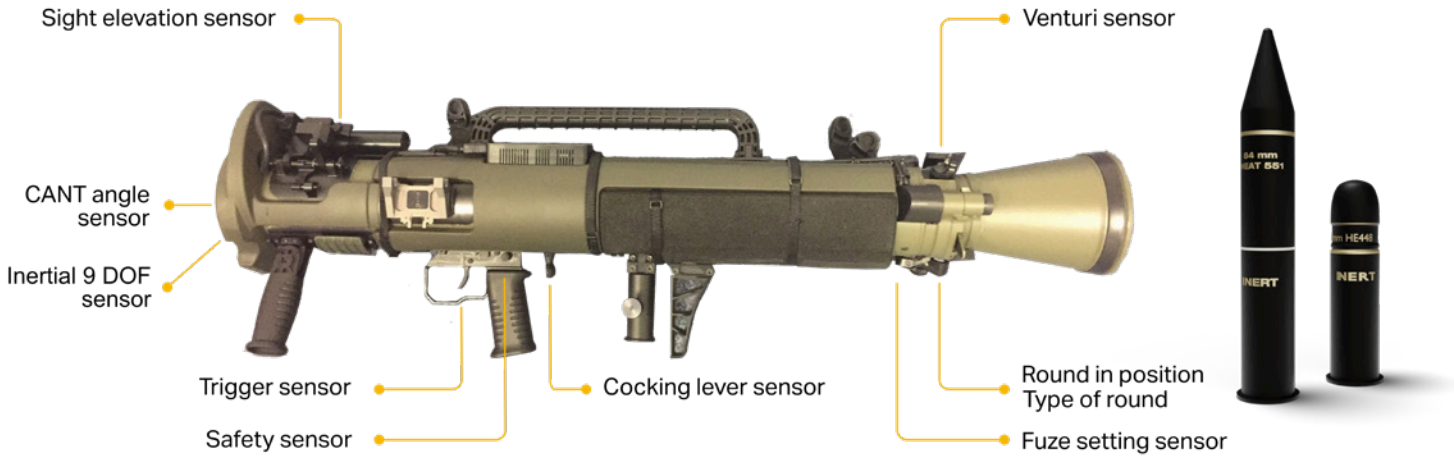
Using a COTS graphics engine, the GC IDT realistically simulates and visualises weather conditions, levels of visibility including night operations and terminal effects. The GC IDT is provided with a scenario editor supporting the instructor in creating bespoke scenarios and exercises.



Audio system

The GC IDT generates realistic sound effects and effectively provides audio cues simulating direction and time delay as a function of distance.

High fidelity weapon replicas



Complete selection of weapons

The GC IDT supports all types of small arms, support weapons and anti-tank weapons, including missiles. The system offers high-fidelity weapon replicas with a variety of sensors for monitoring the weapon status and evaluation of correct weapon handling.

Weapon malfunctions are simulated and an evaluation of their clearance procedures can be made in real time.

Training weapons

The training weapons are high fidelity replicas mirroring the characteristics and handling of the actual field weapon. The studio supports use of both simulated sights and field sights while gunnery units utilizes simuated sights.

The replica weapons are completely safe and cannot be loaded or used for firing with live or training ammunition. The simulated weapons are completely tetherless using wireless communication.

The weapon replicas simulate realistic recoil and utilizes a compressed gas recoil system, ensuring realistic shooting and aiming effects.

Ballistic simulation

The GC IDT simulates the high-precision ballistic trajectory of a projectile including the effects of wind speed and direction, air pressure, temperature, bullet drift and dispersion.

Target damage effects are evaluated based on the target geometric vulnerability model, type of ammunition and terminal effect.

High accuracy aiming

The high accuracy of aim-point position detection as well as the recording of aiming trajectory are amongst the most important parameters of a shooting simulator, influencing the training value of the entire system.

The GC IDT utilizes both a laser and an embedded motion tracking system for aim point detection. Both systems are used in the studio environent whilst the motion tracker is used in the gunnery unit configuration. The laser tracking system consists of an eye-safe laser transmitter integrated into the weapon replica with an accurate laser beam profile and a projection screen sensing camera with a high resolution and a frame rate of at least 300 frames per second (fps). The high resolution of the GC IDT camera enables the outstanding accuracy of aim point position detection.

Simulated weapons

Maximising training value

Saab manufactures high quality weapon replicas for use in the GC IDT ranging from pistols and assault weapons to machine guns and anti-tank weapons. All weapons are equipped with sensors for accurate feed back to the trainees.

Anti-tank and anti-structure weapons

Powerful members of the GC IDT family are the Anti-Tank and Anti-Structure Weapon replica, both shoulder launched and ground launched, unguided and guided.

Saab manufactures realistic replicas for Carl-Gustaf® in different version as well as AT4, NLAW and others for use in the Ground Combat Indoor Trainer.

Sights

The GC IDT can be provided with a simulated sight with an integrated full HD display enabling real sight reticule and correct level of magnification.

The new generation Carl-Gustaf® M4 anti-tank weapon and simulated ammunition.

Training evaluation

Immediate feedback for optimal learning

The feed-back in the GC IDT is adapted to each weapon type in order to get the most efficient training.

Levels of feedback

The system provides different types of feedback for during- and after action review. The data is divided into weapon data, performance data, ballistic data and results.

Feedback information is presented in several formats including graphics and can easily be exported.

Weapon data

The replicas are equipped with multiple several sensors to monitor the weapon status. Examples of sensor data include:

- Loaded/unloaded
- Safty catch on or off
- Type of ammunition, and if applicable, fuse setting
- Sight range setting for simulated sights
- Misfire status

Performance

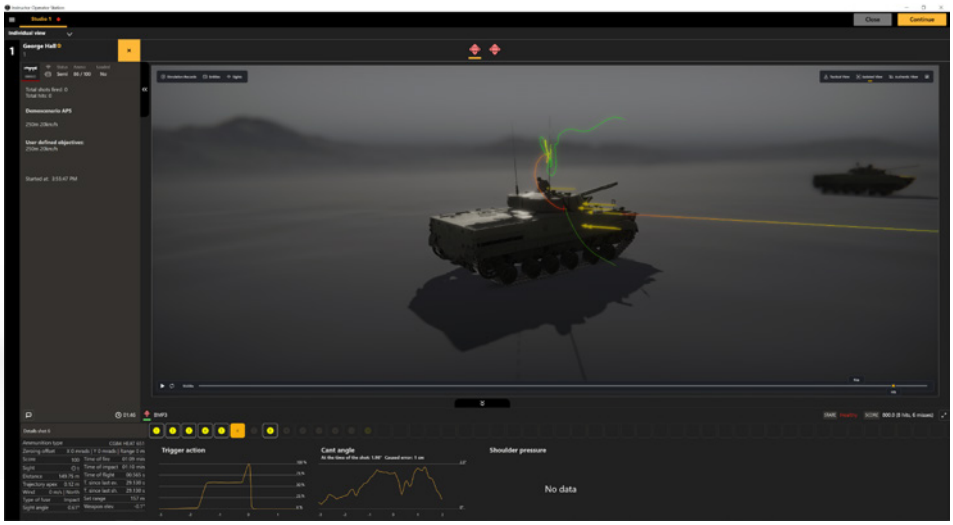
Performance gives a view of the gunners weapon handling before and during the firing. Parameters recorded include:

- Aiming curve aimpoint when firing
- Trigger travel
- Cant angle
- Time to reload
- Engagement time

Result

The result is where the gunner receives the quality of hit from the exercise. The result is based on:

- Damage state and effects
- Hit position 2D/3D
- Shaped charge direction in 3D view (where applicable)
- Kill rate
- Overall score for the current exercise



Saab is a technological leader, delivering effective training solutions that are relied upon by customers around the world

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