PLATFORM PROTECTION – THE LAST LINE OF DEFENCE
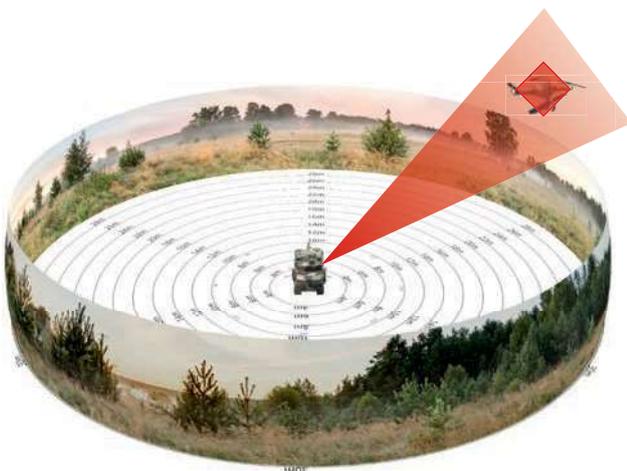
Those who see faster, decide faster, and act faster dominate the battlefield and effectively protect their soldiers and equipment.
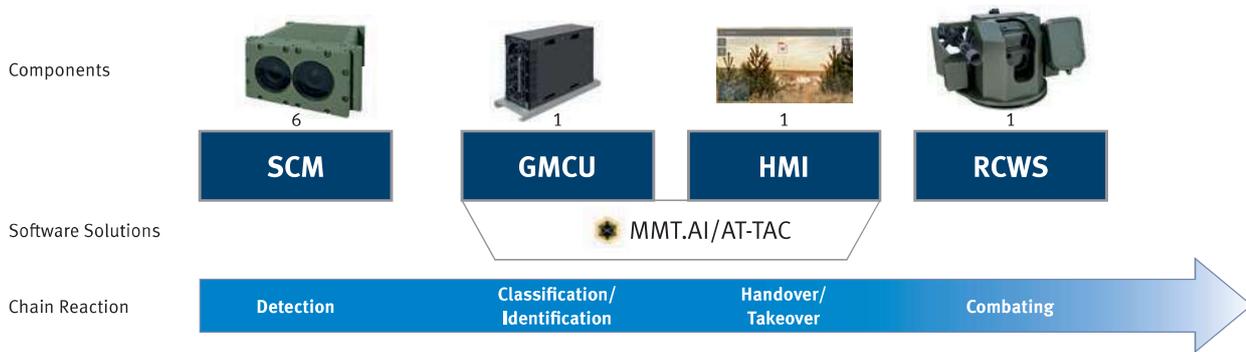
Soldiers and vehicles on the battlefield are constantly exposed to danger from enemy fire and drones. Situational awareness and an efficient sensor-to-shooter chain are crucial for modern combat vehicles to ensure superiority and survival in today's theatre of war. Today's combat is highly dynamic and reaction-critical, characterized by new threats such as drones and loitering munitions. 360-degree situational awareness ensures the crew always has a clear picture of the situation and threats.

A closed, delay-free sensor-to-shooter chain translates this situational awareness directly into action. Highly efficient data fusion combined with AI prevents time losses, information gaps and incorrect decisions. Threats can be detected, classified, and countered in a matter of seconds. This Last Line of Defence enables the initiative to be maintained and the system's survivability to be ensured.

HOW IT WORKS
The Last Line of Defence concept is an integrated self-protection system for military platforms. It combines a powerful SCM 300 surveillance camera module with a Generic Modular Computing Unit (GMCU) that features AI-based analysis functions, as well as a remote-controlled weapon station (RCWS), such as the RCWS 320C-UAV. The system is designed to defend against short-range, highly dynamic threats, particularly small UAVs and kamikaze drones.

TAKING RESPONSIBILITY IN A CHANGING WORLD

RHEINMETALL

Components	SCM	GMCU	HMI	RCWS
	6	1	1	1

Software Solutions

MMT.AI / AT-TAC

Chain Reaction

| Detection | Classification/ Identification | Handover/ Takeover | Combating |

Sensors and data fusion

The SCM 300 all-round vision system from Rheinmetall Electronics provides the vehicle crew with complete graphical situational awareness from the protected interior, offering a 360° view. The combination of daylight and thermal imaging cameras enables the crew to switch seamlessly between day and night vision, ensuring they always have a comprehensive picture of the situation. The GMCU performs sensor fusion of infrared and daylight data, generating a consistent, high-resolution picture of the situation. This is displayed on external screens as a borderless 360° panorama, providing the crew with complete graphical situational awareness. The display is scalable and supports both single camera images and fused views.

Fusing infrared and daylight data significantly improves target detection and reduces the cognitive load on the operator. The intuitive user interface enables rapid decision-making, even in highly dynamic threat scenarios.

Sensor-to-Effector-Chain

Threat detection is performed exclusively by passive sensors in the sensor-to-effector chain. This data is transmitted in real time to the GMCU for further processing. The integrated multimode tracker (MMT.AI) operates according to the proven DRI (detection, recognition, identification) criteria and automatically transmits the precise target position to the effector. This automated chain enables the weapon station to be quickly swivelled into position, with the operator providing final approval (human-in-the-loop) or the process operating completely

autonomously (human-out-of-the-loop). This closes the entire chain of action within a few seconds, safely and efficiently. The entire chain of effects is designed for minimal latency, allowing for a response time in the range of seconds.

System architecture and integration

The system is vehicle-independent and fully NGVA-compliant. This allows integration into different platforms, as well as into an existing command and control architecture. The open, modular architecture also allows integration into a higher-level sensor-effector network.

Additional sensors can be integrated, such as the Rheinmetall Acoustic Platform for Vehicles (APV), which is used for acoustic detection and direction finding. These enhancements increase redundancy, improve detection probability and optimise the overall effectiveness of the chain of effects.

Environmental and operational capability

All system components are military grade, environmentally resistant and designed for use in extreme climatic and mechanical conditions. The passive mode of operation reduces the electromagnetic signature and increases the survivability of the platform.
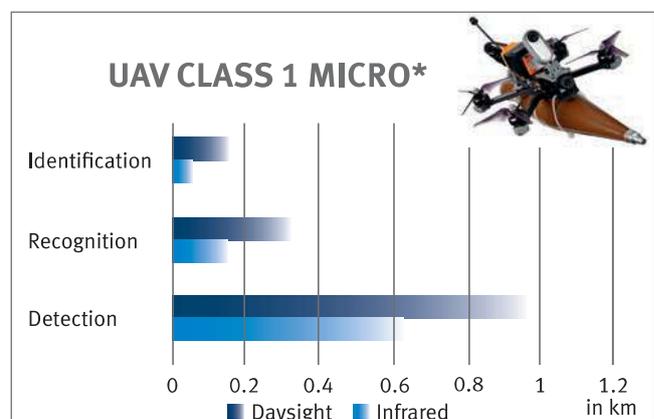
Future-proof

The modular design and software-centric system architecture offer high potential for future expansion. New sensors, effectors and advanced AI algorithms can be integrated without the need for fundamental changes to the system.

PERFORMANCE METRICS SCM 300
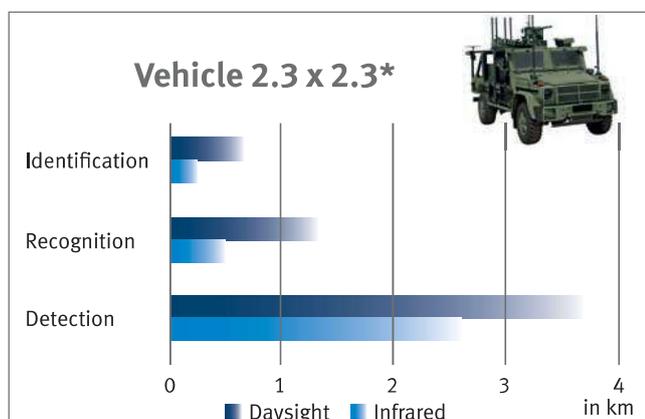
Typical range performance acc. TRM 4 and TRP model for target vehicle (2.3 x 2.3 m)

Typical range performance acc. TRM 4 and TRP model for target vehicle (0.55 x 0.55 m)

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