

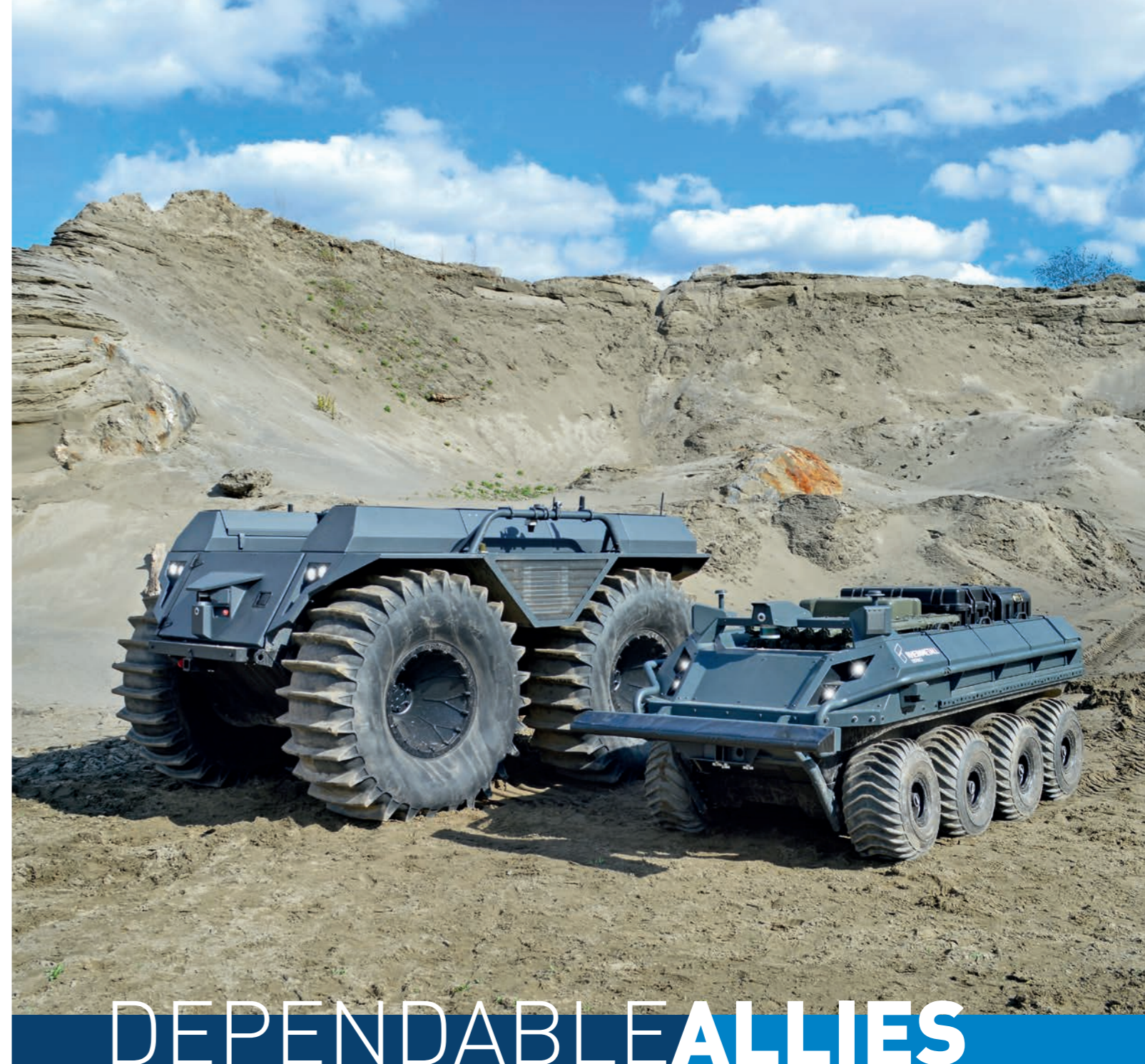
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DEPENDABLE ALLIES

THE RHEINMETALL MISSION MASTER FAMILY
A PIONEERING LINE OF AUTONOMOUS UNMANNED
GROUND VEHICLES

PASSION FOR **TECHNOLOGY.**



The Rheinmetall Mission Master is a unique family of Autonomous Unmanned Ground Vehicles (A-UGVs) designed to support military troops in dangerous missions, difficult terrain, and hostile weather conditions.

The risks of harm and incidents associated with such scenarios are high. The Mission Master A-UGVs are built to improve troop safety, increase operational efficiency, and unburden soldiers in the field.

A MODULAR DESIGN FOR ALL PLATFORMS

EVERY MISSION MASTER A-UGV CAN PERFORM ANY MISSION PROFILES THANKS TO EASY-TO-INSTALL PAYLOADS.



MISSION MASTER SP

Named for its role of **silent partner**, it is a low-profile A-UGV that stealthily follows soldiers anywhere.



MISSION MASTER CXT

Named for its **compact** volume and mobility in **extreme terrain**, this A-UGV featuring a hybrid drivetrain can silently transport heavy payloads in all kinds of environments.



MISSION MASTER XT

Named for its ability to tackle **extreme terrain**, it is a robust A-UGV that carries heavy payloads and thrives in even the most challenging conditions.

● CARGO

● SURVEILLANCE

● ARMED RECONNAISSANCE

● FIRE SUPPORT

● RESCUE

● COMMUNICATION RELAY

● CUSTOMIZED

OPTIMIZED MISSION EXECUTION AND REDUCED ENDANGERMENT

Capable of performing on hazardous, difficult-to-reach terrain, the Mission Master family provides safety and security to mounted and dismounted forces. All platforms are ready to take on dull, dirty, and dangerous tasks, reducing soldier endangerment. Rheinmetall A-UGVs contribute to mission success while minimizing risks of injuries – letting troops master their missions.

HIGHLY MODULAR

Extremely versatile, the Mission Master A-UGVs can serve multiple mission profiles using a wide variety of payloads. All modules are designed to be quickly and easily interchanged; they come preconfigured on a sturdy plate, ready to be bolted and plugged into the base platform within minutes.

MULTIMISSION

The scope of applications that any Mission Master A-UGV can accomplish includes logistic transport, surveillance and reconnaissance, fire support, medical evacuation, CBRN detection, communication relay, etc. Each version of the Mission Master can work with the others and easily exchange data, enhancing the ground forces' effectiveness.

AUTONOMOUS AND INTELLIGENT

Each Mission Master vehicle is driven by the Rheinmetall PATH autonomy kit (A-kit). This industry-leading technology enables AI-powered autonomous driving and navigation in a variety of modes.

ITAR
FREE

BAFA
FREE

RHEINMETALL MISSION MASTER SP



The Mission Master SP is a compact A-UGV engineered to assist dismounted soldiers in a wide range of missions, including high-risk situations, while keeping them away from danger. With its low-signature electric motor, the Mission Master SP is an invaluable asset when silence is a must.

A DISCREET AND MULTI-PURPOSE ALLY

The Mission Master SP excels in any scenario requiring stealth and agility. This A-UGV is built for forward and last-mile resupply missions, silent watch operations, and carriage of light payloads, such as **section sensors and weapon systems**. Compact and highly mobile, the Mission Master SP follows light dismounted troops wherever they go, letting soldiers get closer to the enemy without being seen or heard.



Mission Master SP – Fire Support equipped with Rheinmetall Fieldranger Multi remotely controlled weapon station

OPTIMIZED FOR STEALTH

A **low-signature electric motor**, silent drive mode, and compact profile let the Mission Master SP escape detection under threat. Dependable anywhere, the A-UGV maneuvers easily in demanding environments. Standard dimensions permit the vehicle to **nimbly follow troops as a buddy**, slipping between trees and even entering buildings.



Mission Master SP – Rescue enhances casualty care effectiveness

LIGHTWEIGHT AND RUGGED

Highly transportable, the Mission Master SP can be towed or deployed by parachute to carry out missions in hard-to-reach terrain. This A-UGV can also be fitted with tracks to enhance mobility in deep snow and muddy conditions. A valuable ally in any situation, it comes equipped with a steel wire cable winch to assist in extracting equipment or debris.



Mission Master SP – Cargo navigating through water

FIELDIED AND IN SERVICE

The Mission Master SP has been deployed during multiple live military exercises by land forces, including the German, US, Royal Dutch, and Polish armies. Various NATO partners, such as the UK, Australia, and a customer from the MENA region have already acquired this A-UGV.



Mission Master SP – Armed Reconnaissance enhances situational awareness and frontline fire support

RHEINMETALL MISSION MASTER CXT



The Mission Master CXT is a robust and rugged autonomous UGV (A-UGV) designed to accompany troops in all kinds of missions, especially in challenging environments. With its extreme-terrain mobility, hybrid propulsion, and advanced amphibious capabilities, the Mission Master CXT reliably and silently transports heavy payloads in even the most unforgiving conditions.

TOTAL MOBILITY AND AMPHIBIOUS AT FULL PAYLOAD CAPACITY

The Mission Master CXT never turns back. Ice, snow, sand, rocky or mountainous terrain, stretches of water – nothing can stop this A-UGV from carrying out its missions. In the most difficult of situations, it remains capable of transporting its **full payload capacity of 1000 kg**. A continuous tire inflation system (CTIS) adjusts the A-UGV tires pressure while in motion, allowing the Mission Master CXT **complete mobility in extreme terrain**.



This A-UGV can operate in the most challenging terrains including water while maintaining its full payload capacity

HIGH SURVIVABILITY FOR BETTER OUTCOMES

Boasting incredible endurance, the Mission Master CXT **keeps moving on even with one-inch holes in the tires**. The built-in emergency seat lets operators maintain control of the vehicle in case of fundamental necessity. There is an integrated ballistic protection for internal key components inside the vehicle. For extra reinforcement, optional Level 1 or 2 ballistic protection is available to further safeguard both the A-UGV and the equipment it carries.



Mission Master CXT is designed with a removable emergency seat enabling the optionally-manned configuration when needed

HYBRID DRIVETRAIN AND LONG-RANGE AUTONOMY

A reliable ally in the field, the Mission Master CXT **combines the power of a diesel engine with an electric motor**, providing a **total range of 450 km without refueling** (including 50 km on batteries). Its integrated lithium-ion batteries facilitate **silent missions** and are built to work in extreme hot or cold conditions.

A VERSATILE ALLY

The Mission Master CXT is robust enough to **handle platoon or company sensors and weapon systems**. With such a strong A-UGV at their side, units increase their range and firepower with heavier-calibre weapons and larger optics than they would otherwise be able to carry. The Mission Master CXT dependably carries out silent, long-range, amphibious, and heavy resupply missions over rough ground. The unique Mission Master CXT architecture also allows a single operator to control multiple autonomous vehicles at the same time.

HIGH TRANSPORTABILITY CAPABILITY

The dimensions of this autonomous vehicle allows it to be transported by sling load or even **internal load in a wide range of helicopters, such as CH-47, CH-53, C-130, as well as inside commercial aircraft**. It can also be towed using a NATO A-frame, deployed by parachute or transported by sea or rail.



RHEINMETALL MISSION MASTER XT



The Mission Master XT is a robust and rugged A-UGV designed to accompany troops in all kinds of missions, especially in challenging environments. With its extreme-terrain mobility and advanced amphibious capabilities, the Mission Master XT reliably transports heavy payloads in even the most unforgiving conditions.

TOTAL MOBILITY AND AMPHIBIOUS AT FULL PAYLOAD CAPACITY

The Mission Master XT never turns back. Ice, snow, sand, rocky or mountainous terrain, stretches of water – nothing can stop this A-UGV from carrying out its missions. In the most difficult of situations, it remains capable of transporting its **full payload capacity of 1000 kg**. A continuous tire inflation system (CTIS) adjusts the A-UGV tires pressure while in motion, allowing the Mission Master XT **complete mobility in extreme terrain**.



Mission Master XT is designed with a built-in seat enabling the optionally-manned configuration when needed

LONG-RANGE AUTONOMY

A reliable ally in the field, the Mission Master XT is capable of travelling **750 km without refuelling**. An integrated battery facilitates **silent watch operations** for several hours at a time, extending the A-UGV's capabilities even further.

HIGH SURVIVABILITY FOR BETTER OUTCOMES

Boasting incredible endurance, the Mission Master XT **keeps moving on even with one-inch holes in the tires**. The built-in emergency seat lets operators maintain control of the vehicle in case of fundamental necessity. There is an integrated ballistic protection for internal key components inside the vehicle. For extra reinforcement, optional Level 1 or 2 ballistic protection is available to further safeguard both the A-UGV and the equipment it carries.



This A-UGV can float and swim while maintaining its full payload capacity

A POWERFUL ALLY

The Mission Master XT is robust enough to **handle platoon or company sensors and weapon systems**. With such a strong A-UGV at their side, units increase their range and firepower with heavier-calibre weapons and larger optics than they would otherwise be able to carry. The Mission Master XT dependably carries out long-range, amphibious, and heavy resupply missions over rough ground.



No matter what terrain or weather soldiers find themselves in, the Mission Master XT thrives

RHEINMETALL MISSION MASTER

MISSION MASTER BASE PLATFORM – TECHNICAL SPECIFICATIONS*

TECHNICAL DATA	MISSION MASTER SP	MISSION MASTER CXT	MISSION MASTER XT
Size and weight			
Length	2.95 m	3.16 m	3.72 m
Width	1.55 m	2.25 m	2.57 m
Height	1.33 m	1.53 m	1.90 m
Ground clearance	24 cm	50 cm	50 cm
Weight	1100 kg	–	2217 kg
Speed and performance			
Maximum payload	600 kg	1000 kg	1000 kg
Maximum speed	30 km/h	40 km/h	40 km/h
Endurance	8 hours in base configuration up to one week in silent watch	450 km	750 km
Max. climb grade	40°	35°	35°
Turning cycle	Zero-radius turning	Zero-radius turning	Zero-radius turning
Amphibious capabilities			
Maximum payload	300 kg	1000 kg	1000 kg
Maximum speed	5 km/h	4 km/h	5 km/h
Power			
Propulsion system	Electric motor drive	Hybrid diesel/electric	Diesel and hydrostatic transmission
Battery type	Lithium-ion batteries	Lithium-ion batteries	Lithium-ion batteries for silent watch
Options			
Propulsion	Hybrid diesel/electric		Hybrid diesel
	External generators		
Ballistic protection	STANAG 4596 Level 1	STANAG 4596 Level 1 or 2	STANAG 4596 Level 1 or 2
Transportability			
Deployment modes on the battlefield			
Slung-loaded	✓	✓	✓
Transported as internal load by a	CH53, C130, or Chinook	CH53, C130, or Chinook	CH53 (external load), C130, Chinook (external load)
Deployed by parachute	✓	✓	✓
Towed by an armoured vehicle at	up to 60 km/h	up to 40 km/h	up to 5 km/h
Shipped in an ISO container with preparation	✓	✓	✓
Following another vehicle using convoy mode or dynamic route	✓	✓	✓
Compliance of the A-UGVs with NATO standards			
STANAG 2433 Military intelligence data exchange			
STANAG 3377 EXREP intelligence reports			
STANAG 4545 Still image			
STANAG 4559 CSD, ISR products database			
STANAG 4586 Unmanned control system interoperability and CBRN sensors control and monitoring			
STANAG 4607 Radar, ground moving target indicator			
STANAG 4609 Video			
STANAG 5525 JC3IEDM C2			
Compliance of the A-UGVs with U.S. MIL standards			
MIL-STD-6017 Variable message format (VMF) and Joint variable message format (JVVF)			

* May vary according to final configuration



Mission Master SP



Mission Master CXT



Mission Master XT

THE MISSION MASTER FAMILY IS DRIVEN BY RHEINMETALL PATH

PROVEN. AGNOSTIC. TRUSTED. HIGHLY AUTONOMOUS.

Rheinmetall PATH is a proven autonomy kit (A-kit) that gives military vehicles the capability to operate unmanned, freeing up soldiers and keeping them away from danger. The PATH A-kit is at the Mission Master family's core, ensuring the A-UGV's ability to operate on demand under all kinds of hostile conditions.

The Mission Master family and PATH A-kit raise the bar and take military operations forward.



PROVEN

Offers a wide range of control modes already fielded to execute all types of mission



AGNOSTIC

Works on any drive-by-wire platform and is adaptable to any payload or equipment



TRUSTED

Performs all tasks safely and reliably, regardless of the weather or the environment



HIGHLY AUTONOMOUS

Accomplishes autonomous driving and navigation with artificial intelligence technologies

STANDARDIZED OPEN ARCHITECTURE

Rheinmetall PATH's architecture is open and flexible, allowing it to be continually upgraded and improved. The A-kit can rapidly integrate new innovations and sustain future growth as customer requirements evolve.

ARTIFICIAL INTELLIGENCE CAPABILITIES OF THE MISSION MASTER FAMILY

- Image recognition/classification
- Sensor fusion and data association
- Simultaneous localization and mapping (SLAM)
- Obstacle detection and avoidance
- Target classification and tracking
- Environment mapping and terrain analysis
- Trajectory generation and route execution
- Mission planning and task assignment
- Hierarchical multi-operator control



Connected to a set of advanced sensors such as LiDAR, radar, and cameras, the PATH technology is designed to convert any drive-by-wire platform into an autonomous vehicle

MASTERING THE ART OF SYSTEMS INTEGRATION

With its longstanding experience supporting forces around the world, Rheinmetall has acquired an incomparable skill set in network-enabled operations and system integration.

This depth of technical knowledge ensures a smooth integration of Rheinmetall PATH with many types of applications, such as soldier systems and C2 applications. Through PATH A-kit, the Mission Master family is currently networked to both the Rheinmetall soldier system and Rheinmetall Command and Control Software, installable in any user's battle management system.

VAST RANGE OF TELEOPERATION OPTIONS FOR MULTI-LEVEL CONTROL

PATH provides a variety of control modes to meet the operational objectives of multiple scenarios.



SAFE OPERATION

Rheinmetall PATH is engineered to deliver safe operation of the Mission Master family at all times in compliance with MIL-STD-882 and DEF-STAN 00-56 standards. Each control mode incorporates multiple layers of protection to ensure an always-safe vehicle operation. On top of this, Rheinmetall is committed to keeping a man in the loop for all weaponized operations and critical, life-affecting decisions, enabling only human decision-makers to act in these situations.



A few Mission Master SP forming a convoy

COLLABORATIVE WORK

Collaborative behaviours allow Mission Master A-UGVs to team up and communicate, cooperate, and work together in a distributed manner. Multiple types of operational missions such as zone surveillance, target position transfer, and slew-to-cue can thereby be accomplished.

Wolf Pack

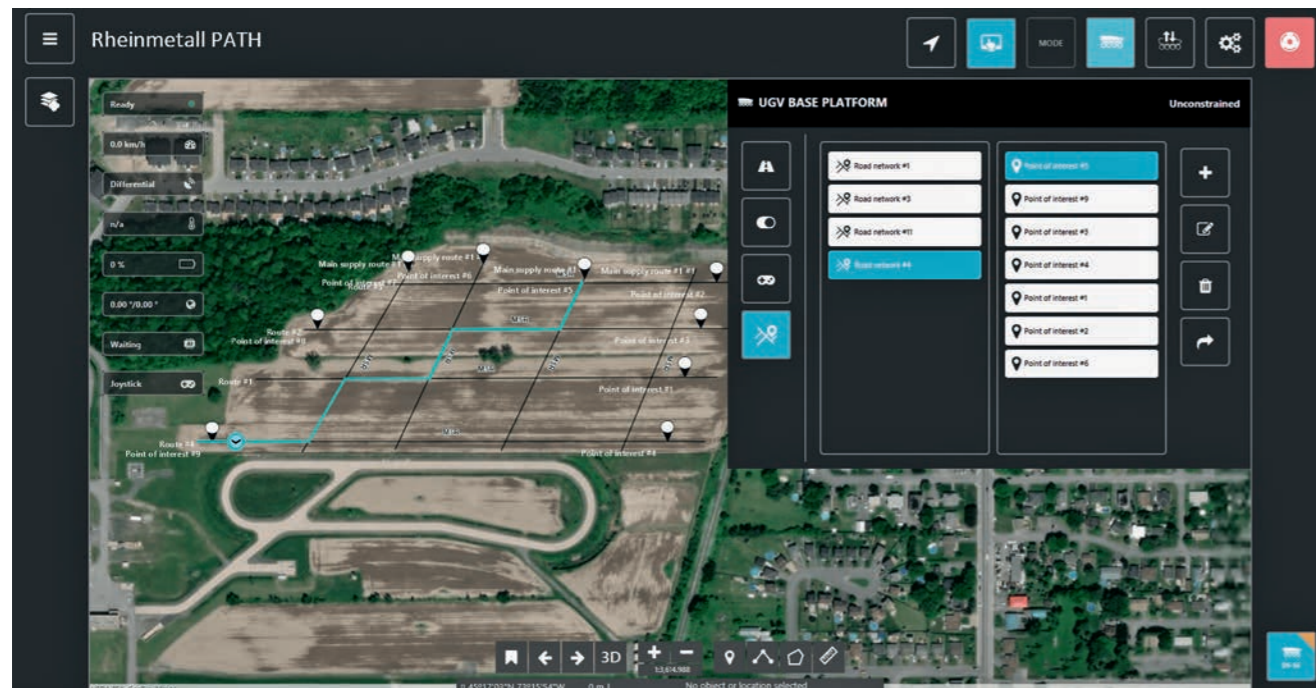
The "wolf pack" concept enables operators to better focus on the global mission while PATH manages the low-level tasks of each A-UGV. This Rheinmetall PATH capability allows a single operator to manage multiple vehicles working as a wolf pack, controlling them from anywhere using LTE networks, SATCOM, or the military cloud.

Manned-Unmanned Teaming

By adding Mission Master A-UGV's eyes and ears to their battlefield picture, operators of manned platforms can expand their situational awareness and significantly improve soldier safety. The ability to control these "wingmen" from manned vehicles is a significant force multiplier.

SIMPLE AND INTUITIVE DEVICE MENU

Rheinmetall PATH offers an easy-to-use control interface on which all critical data is available at a glance. The centralized menu provides information on several statuses of each Mission Master vehicle and allows operators to exploit each payload in real-time.



Rheinmetall PATH control interface displaying the “Road network” mode

NO ORDINARY NAVIGATION MODES

Dynamic route

By selecting a tactical entity on the map, the operator points out the element that the Mission Master A-UGV needs to follow (another A-UGV, a vehicle, a soldier) at a customized distance.

Go-to

The operator can select any position on the map and the A-UGV will reach this exact location using the standard mode of navigation.

Send route

Precise mission routes can be drawn, saved, and selected on the user interface, and then sent to the Mission Master A-UGV to be executed on command.

Road network

In this mode, the vehicle is commanded to reach a specific position by taking the shortest route within the road network previously mapped out by the operator.

Record/playback

While the Mission Master A-UGV is travelling any route, the operator can activate recording and later command the vehicle to follow the recorded path again.

Mission mode: enhanced navigation

This mode allows the automation of repetitive tasks: the operator can pre-program various navigation mode sequences in a defined order. This unique mode frees up operators to focus on more vital assignments.

YOUR PARTNER FOR SECURITY AND DEFENCE SOLUTIONS



We are proud to create solutions for the global security and defence market that are both technologically advanced and fully adapted to each client's needs. Thanks to our engineering agility and strength, our field experience and our passion, we successfully challenge the status quo and overcome limitations to benefit our clients.

Together, let's expand the boundaries of technology and create the future with confidence.

To learn more about Rheinmetall's family of Mission Master A-UGVs and the PATH A-kit capabilities, contact us at robotics@rheinmetall.ca.