

Combat multipliers, Rheinmetall autonomy ensures battlefield overmatch



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Rheinmetall introduces the PATH Autonomy Kit, which turns any vehicle into an autonomous powerhouse.

Current events highlight the importance of Intelligent Robotics and Autonomous Systems (IRAS) and the significant role they play as combat multipliers in modern warfare. This evolving technology allows today's military forces to enhance their capabilities while minimizing risks to personnel.

"The Marine Corps requires unmanned air, surface, and ground systems to fully exploit our inherent expeditionary nature and capabilities. When operating forward, in small groups, under austere conditions, the ability to maximize unmanned systems to create outsized effects for our allies and against our adversaries is a key element of our future success." – General Berger, Former Commandant of the Marine Corps.

Rheinmetall, a global leader in defense technology, is an expert developer of forward-looking innovations that ensure battlefield overmatch in every scenario. Vehicle autonomy has long been an area in which the company has excelled around the globe. [American Rheinmetall](#) is now bringing ground-breaking advancements in autonomous systems to the U.S. defense market at a critical time with Rheinmetall's [PATH Autonomy Kit \(PATH A-Kit\)](#), a solution that turns any vehicle into an autonomous powerhouse.

Rheinmetall's PATH A-Kit: A platform-agnostic, next-generation system that brings autonomous capabilities to any vehicle

The Rheinmetall PATH A-Kit is a navigation system that enables full autonomous movement of vehicles. It can be rapidly integrated onto existing vehicles or integrated on the latest next-generation platforms. It

is a core element of Rheinmetall's exceptional Mission Master family of autonomous vehicles and combines advanced sensors, technology leading algorithms, and real-time data analysis to allow vehicle platforms to operate autonomously in a wide range of operating environments. Fielded and tested on this family of vehicles, but also a wide array of other platforms, the PATH A-Kit is a mature, proven technology that stands out from the competition.

In addition to facilitating full autonomous operations, the PATH A-Kit software includes wireless technology that is loaded onto a Safe Tablet. The tablet is a modular, configurable device that enables remote operation of any vehicle equipped with the PATH A-Kit, as demonstrated on the Mission Master family of vehicles. The Safe Tablet can be used to control different mission module payloads (surveillance, weapons, cargo, etc.), making it the preferred portable control station for the Mission Master family of vehicles and mission modules they carry.

American Rheinmetall is enhancing the PATH A-Kit by leveraging strong partnerships with defense industry and government partners to provide a solution that aligns with the specific operational requirements of U.S. military forces.

Powered by PATH A-Kit: Rheinmetall's Mission Master Family of Autonomous Unmanned Ground Vehicles

Rheinmetall has fully automated the [Mission Master family of vehicles](#) for the U.S. military using the PATH A-Kit. The Mission Master is a unique family of Autonomous Unmanned Ground Vehicles (AUGVs) designed to support military troops in dangerous missions, difficult terrain, and hostile weather conditions. Each Mission Master vehicle is networked with Rheinmetall's Soldier System and Command and



Mission Master XT, CXT, and SP image courtesy of Rheinmetall.

Control Software, which are compatible with any current battle management system. The Mission Master family of vehicles includes three variants that can perform any mission with autonomous maneuver enhanced by the extreme modularity and variety of payloads with remote operation where needed, such as for lethal functions. The Mission Master family of vehicles can be configured to support multiple critical missions including:

- Logistics Support
- Reconnaissance and Surveillance
- Force Protection
- Casualty Evacuation (CASEVAC)
- Communications Relay
- Chemical, Biological, Radiological, and Nuclear (CBRN) Reconnaissance
- Route Clearance and Mine Countermeasures

The Mission Master SP

Utilizing the PATH A-Kit, the Rheinmetall Mission Master SP, named for its role of “silent partner”, is a low-profile, fully autonomous unmanned ground vehicle designed to support military operations in various capacities. The Mission Master SP is an electric drive vehicle that transports 1,322lbs for 8hrs in its base configuration, with an attachable generator and amphibious capability. Compact and highly mobile, the Mission Master SP

utilizes a low-signature electric motor and is designed to be configured to support dismounted infantry in scenarios requiring stealth and agility.

The Mission Master XT

With total autonomous mobility enabled by the PATH A-kit, the Mission Master XT can operate in extreme terrains including challenging amphibious environments. This rugged autonomous platform reliably transports payloads of up to 2,204lbs in the most unforgiving conditions, even in amphibious scenarios. Extremely reliable in the field, the Mission Master XT can travel 466mi without refuelling. Its integrated battery facilitates silent-watch operations for several hours at a time, extending the vehicle’s capabilities even further. Robust enough to handle platoon or company sensors and weapon systems, the Mission Master XT allows units to increase their range and firepower with heavier caliber weapons and larger optics than they would otherwise be able to carry.

The Mission Master CXT

The Rheinmetall Mission Master CXT, the latest addition to the Mission Master family of autonomous vehicles, is a rugged AUGV designed to accompany troops in all kinds of missions, especially those



Mission Master CXT image courtesy of Rheinmetall.

in challenging environments. Like its counterpart vehicles, its exceptional autonomy is powered by PATH A-Kit technology. With its extreme-terrain mobility, hybrid propulsion, and amphibious capabilities, the Mission Master CXT reliably and silently transports heavy payloads in the most unforgiving conditions. In the most difficult of situations, it remains capable of transporting its full payload capacity of 2,204lbs. Robust and highly reliable in the field, the Mission Master CXT combines the power of a diesel engine with a silent electric motor, providing a total range of 279mi without refueling (including 31mi on battery power). Its integrated lithium-ion batteries facilitate silent missions and are built to work in extreme hot or cold conditions. Thanks to its compact footprint, this AUGV can be transported inside a range of aircraft, including the CH-47, CH-53, and C130.

Rheinmetall's Autonomous Vehicle Technology Lays the PATH for Future Force Mobility Success

Autonomous vehicles will have a transformational impact on U.S. military forces as requirements are defined and prioritized for this challenging capability. American Rheinmetall delivers a ready-now solution with the PATH A-Kit; a mature, proven, and advanced capability that ensures future force mobility that is agile, versatile, persistent, reliable, survivable, and lethal. The PATH A-Kit is integrated on Rheinmetall's own exceptional group of AUGVs, the Mission Master family of vehicles, and can be seamlessly integrated on other current and future U.S. military vehicles. American Rheinmetall delivers advancements in autonomous vehicle capabilities today with the PATH A-Kit, even as partnerships are strengthened to advance and improve this critical technology.