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GP-UGV 12,7 – Unmanned Ground Combat System

Technical and Operational Overview for Price Offer

1. System Description

The GP-UGV 12,7 is an unmanned ground vehicle (UGV) integrating the proven tracked robotic platform with a stabilized, remotely-operated 12.7 mm heavy machine-gun turret. The system is designed to provide direct fire support, counter-drone and perimeter defense capabilities while keeping operators at a safe distance from the line of fire.

The compact chassis is a fully electric, stainless-steel tracked platform with rubber crawlers and a modular architecture. It is sealed to IP67 and designed for demanding field conditions, with stair-climbing a nd obstacle-crossing capability, up to 40° slope climbing and side-tilt of 20°. The same base platform is used across several industrial and military variants, which simplifies logistics, training, and maintenance.

The MMG superstructure adds a 360° rotating turret armed with a 12.7 mm DShK-type heavy machine gun, supported by a modern fire-control suite including a day camera, thermal imager, laser rangefinder and ballistic computer. This combination enables accurate engagement of targets at typical heavy machine-gun ranges up to around 2,000 m, depending on ammunition and conditions.

The platform can be tele-operated via encrypted dual-band radio link or through an optical-fiber tether, both providing real-time video, telemetry and fire control while ensuring robust command and control in contested electromagnetic environments.

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2. Key Features and Advantages

Heavy firepower on a compact, low-profile chassis

12.7 mm heavy machine-gun effects (against light armored vehicles, soft-skinned vehicles, field fortifications and low-flying aerial targets) are delivered from a robot with a very low silhouette and minimal frontal area, making it harder to detect and target than manned platforms of similar firepower.

Enhanced operator safety

Remote operation via DUAL radio or fiber- optic link allows crews to control the vehicle from a protected position, significantly reducing exposure to small arms, artillery fragments, mines and loitering munitions.

All-terrain mobility and electric drive

The tracked platform, powered by swappable 48 V battery packs, reaches speeds up to 10 km/h and offers 8–12 hours of runtime in the base configuration, depending on terrain and climate. Electric propulsion, rubber tracks and compact dimensions contribute to low acoustic, thermal and visual signature – important for ambush, perimeter defense and counter-drone roles.

Advanced sensors and fire control

Integrated day/thermal optics, laser rangefinder and ballistic computer support precise engagement in day/night and degraded-visibility conditions and enable effective use of the 12.7 mm heavy machine gun at long ranges.

Modular payload concept

The turret supports integration of alternative or additional effectors (e.g. RPGs or other weapon modules), allowing adaptation to customer doctrine and threat environment.

Autonomy-ready architecture

The platform is already used in fully autonomous roles with manual and autonomous control modes, waypoint-based navigation and AI-supported object recognition. The MMG configuration can leverage the same autonomy stack where required.

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3. Deployment Scenarios

3.1 Offensive operations – direct fire support / attack

In offensive roles, GP-UGV 12,7 acts as a mobile, remotely controlled gun team providing immediate heavy-caliber support to maneuvering infantry:

- **Heavy firepower with reduced risk** – The 12.7 mm heavy machine gun can suppress or neutralize dismounted infantry, machine-gun nests, observation posts, technicals and other soft-skinned or lightly armored vehicles at ranges up to approximately 2 km.
- **Low-profile assault asset** – The robot's low silhouette and electric drive allow it to use micro-terrain, rubble and street furniture for concealment while delivering sustained suppressive fire. This is particularly valuable in trench systems, urban areas and semi-urban terrain typical of current high-intensity conflicts.
- **Suppressive fire without exposing personnel** – Firing positions that would normally require a crewed heavy machine gun can be occupied by GP-UGV 12,7 instead. Crews remain under cover in basements, bunkers or armored vehicles while controlling the system remotely.

Typical offensive tasks include:

- Base-of-fire support during infantry assaults
- Flanking or enfilade fire against trenches and strongpoints
- Remote overwatch for breaching teams
- Supporting armored formations by engaging dismounted anti-tank teams

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3.2 Defensive operations – static and mobile defense

In defensive scenarios, the same characteristics translate into a remotely operated strongpoint:

- **Rapid reinforcement of hotspots** – The tracked chassis allows quick repositioning to reinforce threatened sectors, junctions or buildings, including movement over rubble and soft ground.
- **Remote defensive fire** – Once in position, the GP-UGV 12,7 can deliver sustained fire to cover avenues of approach, choke points, and gaps in defensive lines without exposing personnel.
- **Low-signature, concealed firing positions** – Its compact size allows concealment behind berms, inside buildings or within natural defilade positions.

Defensive use cases include:

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- Protection of forward observation posts or combat outposts
- Reinforcement of urban strongpoints
- Guarding logistic hubs, depots or critical infrastructure

All offensive advantages carry over directly into the defensive role.

3.3 Counter-drone "wall" / mobile drone-defense layer

Modern conflicts see mass deployment of small UAVs and loitering munitions. GP-UGV 12,7 can serve as a **mobile hard-kill drone-defense element**:

- **Drone engagement capability** – The 12.7 mm gun, combined with day/thermal optics and ballistic computation, can engage larger quadcopters, fixed-wing drones and select loitering munitions.
- **Mobility for dynamic coverage** – Being UGV-mounted, the system can be repositioned along threatened sectors or around critical infrastructure to form a dynamic drone-defense perimeter.
- **Low signature** – Electric drive reduces noise and thermal emissions, making the system less visible to enemy ISR assets.

In a layered C-UAS setup, the UGV can operate autonomously within a defined sector or be cued by external radar and EO sensors.

3.4 Additional deployment scenarios

Urban warfare and trench-line support

- Remote engagement of firing points across streets
- Suppression of trench lines and fortified positions
- Operation from covered structures for unexpected angles of fire

Route and convoy security

- Lead or trail escort for convoys in ambush-prone areas
- Remote inspection of suspicious road segments

Border and infrastructure protection

- Persistent, low-manpower protection of strategic sites
- Patrolling defined routes and taking up firing positions as needed

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Peacekeeping and deterrence

- Visible but unmanned heavy-weapon presence at checkpoints
- Rapid reinforcement of sensitive sectors without deploying additional infantry

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4. Modes of Operation and Control

The GP-UGV 12,7 supports multiple control modes:

Radio control

Encrypted dual-band radio link with real-time video, telemetry and fire-control data. Suitable for most tactical missions.

Optical-fiber tether

A jam-resistant tethered link providing low-latency, high-bandwidth control, ideal for heavy EW environments or emission-restricted operations.

Manual or semi-autonomous behavior

- Manual mode for direct teleoperation
- Semi-autonomous movement to waypoints or patrol routes
- Automated surveillance or static guard modes while the operator focuses on weapon control

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5. Autonomy and Command & Control (MegoSoft Integration)

The GP-UGV 12,7 is compatible with **MegoSoft**, the command-and-control and mission-management platform developed by MRAZ Robotics.

MegoSoft provides:

- **Point-to-point and waypoint navigation**
- **Control and monitoring of multiple UGVs from a single workstation**
- **Real-time transmission of video, sensor data and mission events**
- **Cloud-enabled mission supervision for higher-level command nodes**

With MegoSoft, operators can:

- Coordinate several GP-UGV 12,7 units into a robotic firing line

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- Combine MMG robots with reconnaissance or engineering variants
- Dynamically re-task assets based on real-time battlefield changes

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6. Indicative Technical Parameters

(Values representative based on GP-UGV 12,7 *base platform and the MMG configuration.)*

Parameter	**Value / Description**
Chassis	Tracked electric; stainless-steel, rubber crawlers
Max speed	Up to ~10 km/h
Payload capacity	Up to 320 kg
Obstacle capability	Obstacles ~250 mm; stair-climbing
Gradeability	Up to ~40° climb; ~20° side tilt
Protection	IP67 sealed; over-pressured hull
Power	48 V battery, 77 Ah; quick-change pack
Runtime (base)	8–12 h depending on terrain
Runtime (MMG)	4–6 h depending on load
Main armament	12.7 mm DShK-type HMG
Optional armament	Additional effectors (e.g. RPG modules)
Turret rotation	360° continuous
Fire-control	Day camera, thermal camera, laser rangefinder, ballistic computer
Control	DUAL band Encrypted radio link; optional fiber-optic tether
Operating temp	Approx. –10 °C to +50 °C
Cameras	Front + rear 1080p cameras; optional extras
Navigation	GPS, IMU, autonomy-ready controllers