

Payload Modules and Hand Terminal





Payload Modules and Hand Terminal General Features

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- The system is designed within the scope of an unmanned land vehicle project carried out by the Presidency of Defence Industries.
- Reconnaissance Surveillance Module, Extended Reconnaissance Surveillance Module, Handmade Explosive Module, Relay Module and Hand Terminal designs and system consolidations are completed within the project.
- The role of KZ Mekatronik in this project is design and production of an advanced hand terminal that can remotely control unmanned vehicles and payload modules mounted on unmanned vehicles.
- Communication between the hand terminal and robot platform & the payload modules has successfully completed LOS and NLOS tests.





Payload Modules and Hand Terminal

Hand Terminal

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- Panasonic FZ-M1 model is optimized for the Hand Terminal. By using it, payload modules, handmade explosive modules and unmanned land vehicles can be controlled remotely. Electronic design of the terminal has a flexible structure to meet different needs. Its ergonomics is designed in accordance with the operational requirements and then finalized by considering the opinions of various end users.



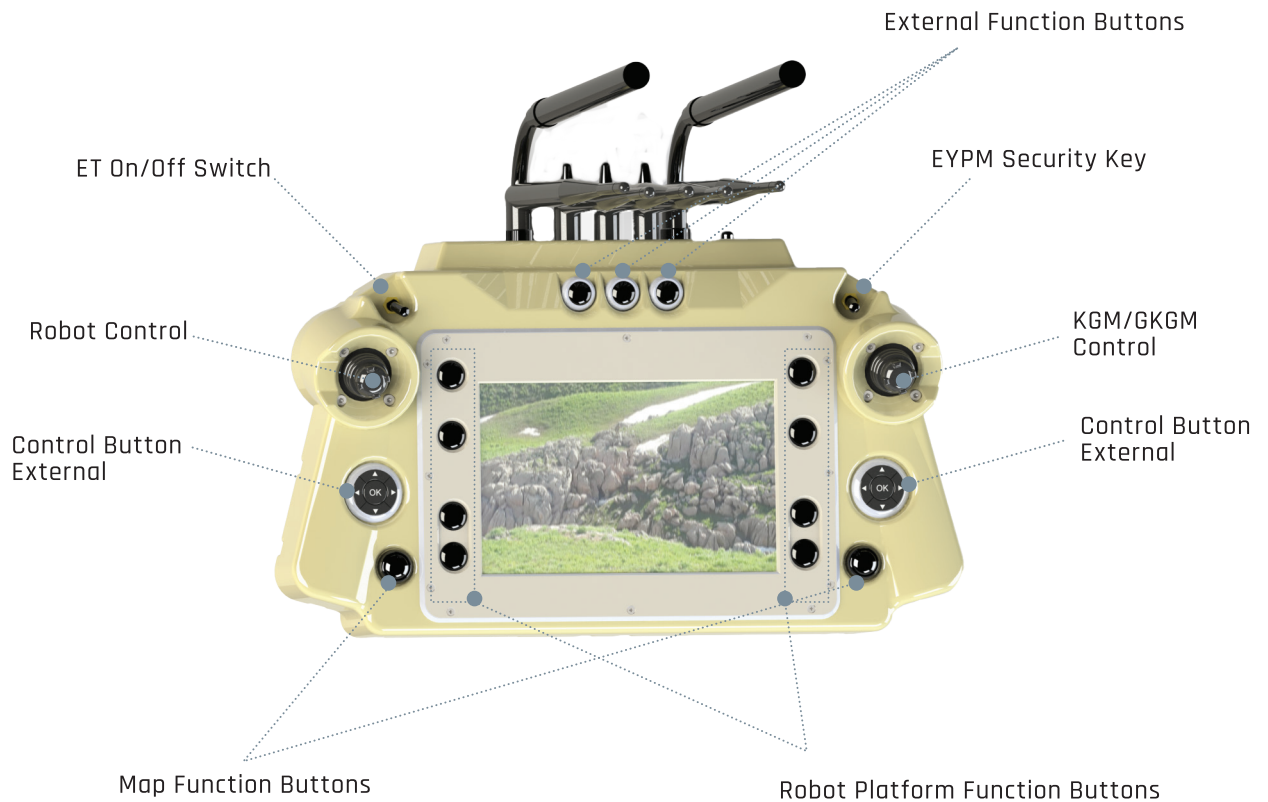
- 3 hours of operation time without changing batteries
- Increased operation time with the hot swap feature
- Drop resistance up to 1.5 meters
- IP65 water and dust resistance
- 700 nits adjustable screen brightness
- LTE 4G + GPS
- Embedded communication module for LOS and NLOS distances



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Reconnaissance Surveillance Module

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- 10X optical zoom
- Adjustable resolution (max: 1920 X 1080)
- Gimbal vibration sensitivity: ± 0.02
- Ability to save data on it

- Platform independent reconnaissance feature
- Up to 4 hours of operation capability
- Pitch: $\pm 90^\circ$, Roll: $\pm 45^\circ$, Yaw: $\pm 300^\circ$





735 meters
human detection distance

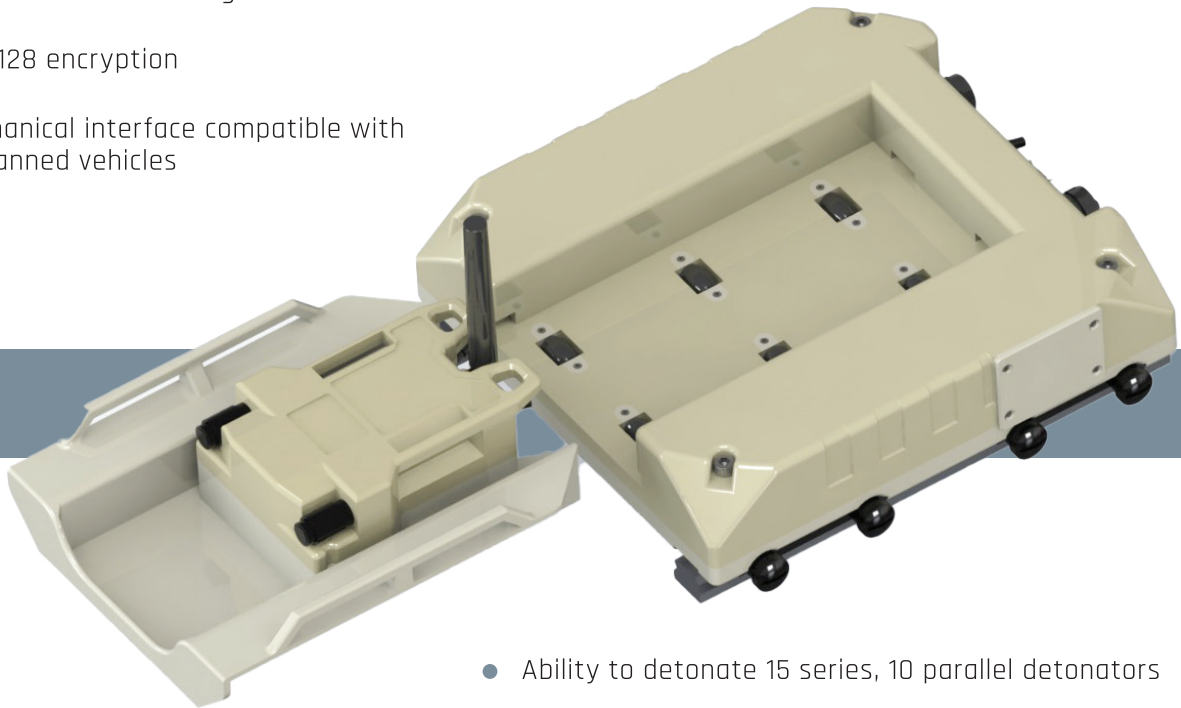


2255 meters
vehicle detection distance

- Gimbal vibration sensitivity: ± 0.01
- Pitch: $\pm 90^\circ$, Roll: $\pm 85^\circ$, Yaw: $\pm 360^\circ$
- Ability to save data on it
- Platform independent reconnaissance feature
- Up to 3 hours of operation capability
- Color Camera
- 10-X optical zoom
- 12-X digital zoom
- Adjustable resolution (max: 1920 X 1080)
- Thermal camera:
 - 3X digital zoom
 - Resolution: 640 x 480
 - Working mode: 8um - 14um
 - Human detection at a distance of 735 meters
 - Vehicle detection from a distance of 2255 meters



- Ability to destroy from a distance of 15 km
- IP67 impermeability standard
- MIL-STD 810G environmental stress standard
- MIL-STD 461 electromagnetic interference standard
- AES 128 encryption
- Mechanical interface compatible with unmanned vehicles



- Ability to detonate 15 series, 10 parallel detonators
- Mission cancellation feature
- Standby for 120 hours in standby mode
- Extended measures taken to enable maximum user safety
- Ability to control with hand terminal or externally



Payload Modules and Hand Terminal Relay Module

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LOS



NLOS

Intermediate module designed to increase the wireless data transmission distance in LOS & NLOS conditions, and not to compromise the communication quality in long distance and difficult circumstances.



A communication system compatible with the difficult conditions of unmanned land vehicles is developed for data transfer between payload modules and the hand terminal.



- LOS (ground-air): 20 km
- LOS (ground-ground): 3 km
- Residential area: 200 m (behind 3 walls)
- Relay mesh structure
- AES 128/256
- RF power: 2W
- Setup time: 8 seconds
- Data transfer capacity: 70 mbps
- Delay time: < 100ms



Production Facilities

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