

**UKR
SPEC** _systems



PD-1 Unmanned Aerial System

One stop UAS solution for civil and military applications

UKRSPEC _systems
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Made in Ukraine



PD-1 Unmanned Aerial System



10+ HOURS
ENDURANCE

3000 M
SERVICE CEILING

10 KG
PAYLOAD

80 KM
COMMAND & CONTROL LINK

50 KM
LIVE FULL HD VIDEO

PD-1 is multipurpose modular fixed-wing UAV. It can be easily customized for any mission and operated in different weather conditions. Our drone is packed with high-end technology, featuring reliable flight controller, AES 256 encrypted digital data link, inertial navigation unit and much more. Integrated EO/IR gyro-stabilized gimbal provides superior video quality and detailed view of the target, combined with encrypted Full HD video downlink it allows to broadcast live video in 50 km range.



USG-212 & USG-211 GYRO-STABILIZED GIMBALS

- ▶ Full HD camera with 30x optical zoom
- ▶ High quality IR camera
- ▶ Geo reference
- ▶ Target tracking
- ▶ KLV metadata
- ▶ Weather sealed

GROUND CONTROL STATION

Modular GCS consists of two laptops (for drone and payload operators), data links on masts and network hub to connect everything together. Such design allows to easily configure GCS for any application and comfortably operate it during long-endurance missions.



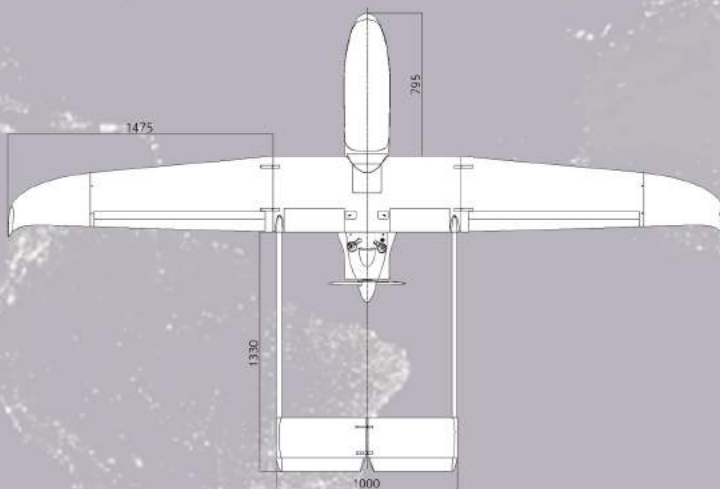
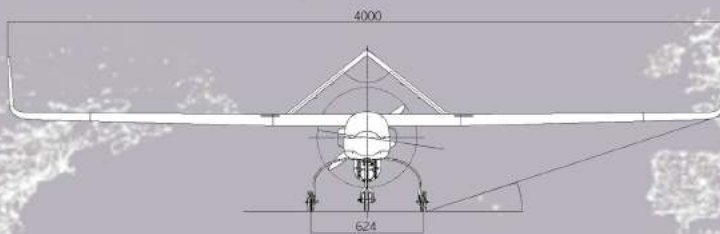
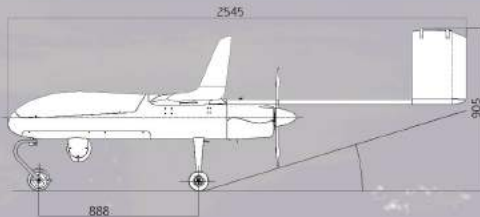
COMBAT PROVEN TECHNOLOGY

PD-1 UAS has proved its capabilities in many government tests and currently being used by Ukrainian Armed Forces. Many hours of military operations in the East of Ukraine proved that PD-1 UAS can effectively complete military tasks in harsh environment with high risk of control and navigation signals jamming and spoofing attempts, and other active enemy counter UAV measures.



PD-1 Unmanned Aerial Vehicle

Designed for different applications and tasks, PD-1 is a multi-purpose, highly customizable fixed-wing unmanned aerial vehicle. It can carry up to 10 kg of payload with full tank of fuel. Maximum takeoff weight is 40 kg. Airframe has modular design and does not require any tools to be assembled and disassembled thanks to quick lock system. Because of its aerodynamics PD-1 can be equipped with nearly any payload without balancing the airframe, modular design allows to quickly customize the drone according to the current task.

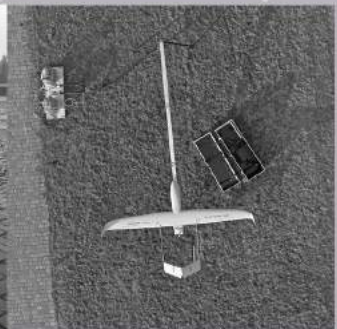


Specifications

MTOW	40 kg
Max payload	10 kg with full fuel tank
Wingspan	3.2 m or 4 m
Length	2546 mm
Power plant	4-stroke
Takeoff method	Runway/catapult/car top launch
Endurance	10+ hours
Service ceiling	3000 m
Cruise speed	25 m/s
Stall speed	16 m/s
Takeoff run	80 meters (fully loaded)

Catapult launcher and parachute recovery

Optionally PD-1 UAV can be equipped with pneumatic catapult launcher and parachute recovery system. This upgrade simplifies takeoff and landing procedures.



PD-1 EO/IR PAYLOADS

Advanced Aerial Surveillance System

Our surveillance system consists of EO/IR gimbal, encrypted long-range Full HD video downlink and ground control station. In addition, it allows to stream Full HD video from PD-1 UAV to multiple portable video receiver in range of 50 km.



- ▶ Full HD day-view camera with 30x optical zoom
- ▶ High performance thermal camera
- ▶ Real-time video processing
- ▶ 50 KM Full HD encrypted video downlink
- ▶ Geo reference

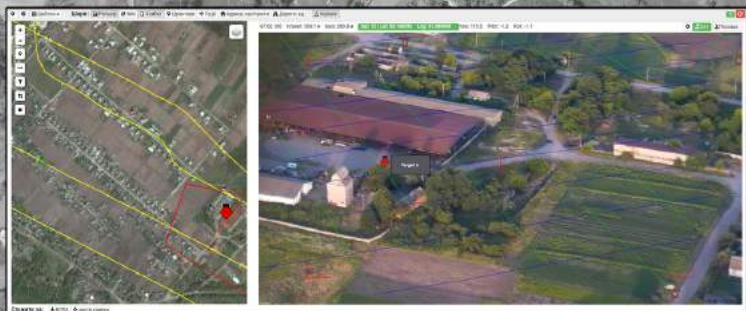
Full HD day-view camera with 30x optical zoom and high performance thermal camera allows to detect and track targets on long distances.



Video processing package with digital video stabilization, target tracking and scene lock.



Data acquisition package with augmented reality, coordinates detection, NATO standard target marks and much more other great features. It is a perfect solution for search and rescue, military and border control applications.

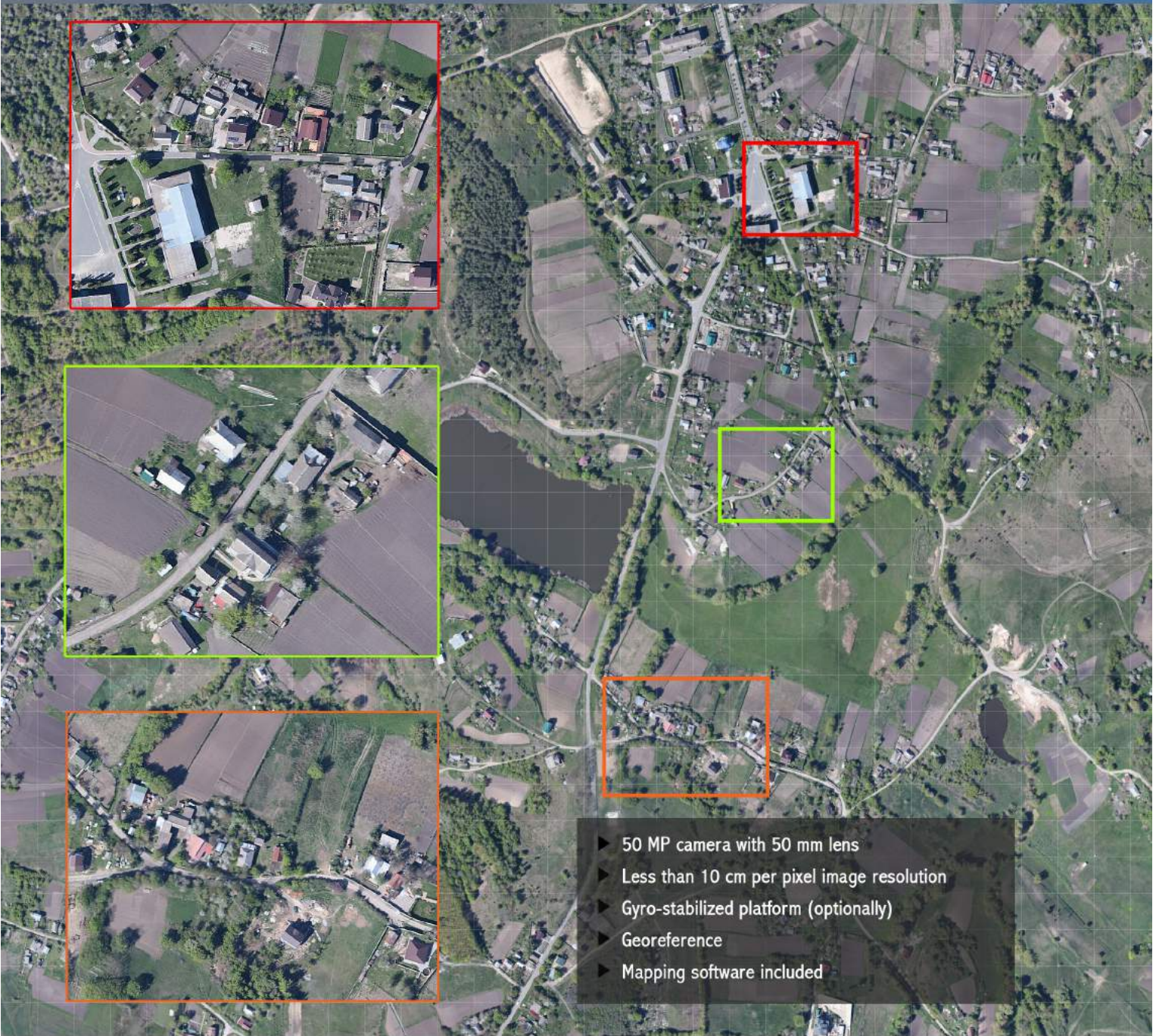


PD-1 UAS

Applications

Aerial Photo Mapping

High resolution 50-megapixel on-board camera allows to take detailed images of the Earth surface with georeference. From the altitude of 1000 meters PD-1 UAV offers 10 cm per pixel resolution.



- ▶ 50 MP camera with 50 mm lens
- ▶ Less than 10 cm per pixel image resolution
- ▶ Gyro-stabilized platform (optionally)
- ▶ Georeference
- ▶ Mapping software included



PD-1 UAS Features



Fully autonomous flight

Preprogrammed flight route, payload control, automatic return to start point and much more features available for autonomous operations.



Automatic takeoff and landing

PD-1 can automatically takeoff and land on the runway using numerous on-board sensors. Catapult launch and parachute recovery are also done in fully automatic modes.



Fully composite airframe

PD-1 airframe is fully made out of composite materials using latest technologies. It is lightweight and durable.



Low radar detection

Because of PD-1 fully composite airframe and absence of large metal parts it is hard to detect and track the UAV with radars and anti-aircraft systems.



Low noise signature

With 4-stroke engine and mufflers PD-1 UAV is acoustically unnoticeable on altitudes 400 m and above.



Operate UAV via multiple Ground Control Stations

PD-1 UAV has an ability to be controlled by any authorized Ground Control Station in its operational range. In addition, video and other intelligence information can be streamed to multiple GCS or portable terminals at the same time. This allows to extend operation range and allow multiple groups of UAV/payload operators to receive real-time data from the aerial vehicle.



Modular design



Modular design of the system allows to add, remove or replace any on-board equipment. This allows to customize the system to fulfill any requirements and complete wide range of tasks.



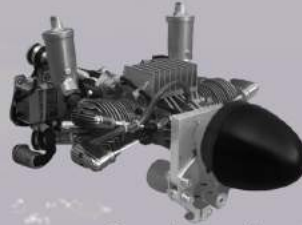
PD-1 UAS

Options and features list



Engine

Reliable 4-stroke engine for 10+ hours endurance.
Electronic Fuel Injection upgrade is available for maximum endurance (up to 30% fuel economy).



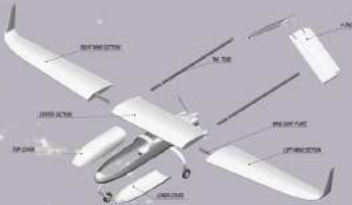
On-board starter/generator

Remote engine start, automatic engine restart in flight, 80W on-board generator. All in one compact package.



Fuel tank

12 litres fuel tank. Maximum fuel reserve for maximum autonomy.



Modular design

Flight preparation in less than 10 minutes.
3.2 or 4 meters wing-span options.
Quick chassis remove for catapult launch.
Quick payload bay access.



Catapult/car top launch/trolley start

Allows to launch UAV from nearly any unprepared location. Car top launch option is also available.



Parachute recovery

Landing never been so easy. All landing procedures are done in automatic mode. Parachute/runway landing is fully controlled by flight controller.



Sensors (fuel level, temperature, RPM, etc.)

Internal temperature, outside temperature, engine temperature, fuel level sensors and much more. Get detailed and accurate data from UAV.



ADS-B transponder, navigation lights, radars

More and more drone regulations comes in place, defining how and where drones can be used. Safety first. Add those features to make sure your drone is visually visible and can be detected by other aircrafts.



REACH TO "MILITARY-GRADE"

We offer wide variety of military-grade options for Law Enforcement and Armed Forces. Including Mil-Std data links, active anti-jam antennas and much more. Please contact us for more information and case studies.



PD-1 UAS

Payload options



USG-212 EO/IR gimbal

Perfect for day and night surveillance and reconnaissance. Includes target tracking, electronic video stabilization, target acquisition features.



USG-211 Full HD gimbal

Full HD EO sensor gimbal. Suitable for application specific missions where only one sensor is needed.



Aerial photo mapping package

High resolution photo camera installed on gyro-stabilized gimbal to ensure clear and stable pictures. Includes photo mapping software.



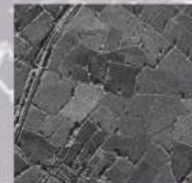
Full HD video link

50 KM Full HD encrypted video link. Features video broadcast option that allows to stream video to multiple ground terminal in real-time.



Multispectral NDVI cameras

Perfect solution for agriculture applications.



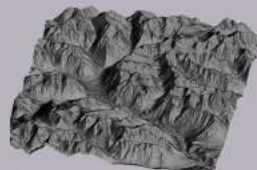
Synthetic Aperture Radar (SAR)

Allows to take high-resolution images (using radio waves) in any weather conditions.



Radiation measurement

Remote radiation measurements.



LIDAR

Allows to take high-resolution images (using laser technology).



Radio repeater

You can install military radio, IP data modem or any other type of repeater to extend range of operations of radio equipment.



PD-1 UAS

Technical specifications

PD-1 UAV Specifications

Maximum takeoff weight	40 kg
Empty weight (with undrainable fuel)	22 kg
Payload weight	10 kg
Flight time with 2-stroke engine	10+ hours
Flight time with EFI upgrade	Up to 15 hours
Practical ceiling	3000 m
Speed range	70-140 km/h
Cruise speed	95 km/h
Stall speed	50 km/h
Fuel A-95	Fuel A-95 gasoline mixed with oil
Deployment time	15 min
Launch	Runway, catapult, car top launch
Recovery	Runway, parachute

Dimensions

Full length	2540 mm
Height	990 mm
Chassis track	670 mm
Cassis wheelbase	880 mm
Main wheel size	150x31 mm
Nose wheel size	127x31 mm
Wing area	1/17 m ²
Wingspan	3190 or 4000 mm
Mean wing chord	392 mm

Tip wing chord	300 mm
Root wing chord	420 mm
Aileron area	2x0.06 m ²
Flaps area	2x0.055 m ²
Fuselage max width	266 mm
Fuselage max height	284 mm
Full projection area of V-tail on horizontal plane	0.278 m ²
Full projection area of V-tail on vertical plane	0,123 m ²

Communications

Telemetry radio link

Range	80 km
Encryption	Yes

Video downlink

Range	50 km
Format	Full HD 1080p
Encryption	Yes

Navigation	GNSS, inertial navigation unit
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