IPI
InterProInvest

CONTENTS

InterProInvest (IPI) Limited Liability Company was founded in 1998 and specializes in the development of military and non-military products.

The IPI design team carries out the most complex projects for the development of military products, the end result of which allows the military and law enforcement agencies to apply modern weapons in practice.

The main scope of activities:

• implementation of research and development work in the field of small arms and special military equipment, their development and serial production;

• development and implementation of IT technologies for the military industry and the civilian market;

• design and manufacture of combat modules, software and hardware for the system of stabilization and control of armaments, that can be integrated into light armored vehicles, stationary ground platforms, naval vehicles;

• production of active and passive anti-drone and drone control systems;

• development of means for humanitarian demining;

• production of digital control and administration systems and more.

VULKAN «MALYUK» assault rifle

Convection cooling system

The assault rifle Vulkan «Malyuk» successfully undergone state trials, was accepted for service by the Ministry of Defense of Ukraine and is practically used in hostilities.

- special forces
- close distances
- transport
- bullpup system
- quick magazine ejection
- the possibility of using USSR's ammunition
- convection cooling system
- integrated silencer (suppressor)

Comparative table	VULKAN «MALYUK» (Ukraine)			TAVOR (TAR-21 Israel)	AUG A2 (Austria)
Weight without magazine	3.5 kg			3.27 kg	3.8 kg
General length	720 mm			720 mm	805 mm
Barrel length	415 mm			460 mm	508 mm
Caliber	5.45x39 mm	7.62x39 mm	5.56x45 mm	5.56x45 mm	5.56x45 mm
Firing mode	single / automatic			single / automatic	single / automatic
Firing rate	700 shots/min			750 shots/min	680 shots/min
Initial bullet velocity	715 m/s	900 m/s	940 m/s	850/900 m/s	970 m/s
Effective range	400 - 500 m			500 m	300 m
Magazine capacity	10 pcs	30 pcs	45 pcs	30 pcs	30/42 pcs
Standard sight	Red-dot 2 MOA			Red-dot	1.5 power optical
Mount type of the sight	Picatinny (length. 315)			-	-

The rifle consists of a barrel with a receiver, inside of which are located: a breechblock frame with a breechblock, a gas engine, a reverse mechanism, a trigger mechanism, a gas and tube guide, a buttstock and a sighting device.

Accessories

Pouch-case

Three-point belt

Unloading and belt system

	MALYUK K-01 (Ukraine)	MALYUK K-02 (Ukraine)
Caliber	7,62×39	5,56×45
Magazine capacity	10 pcs	10 pcs
Aiming range	300 m	300 m
Weight of the rifle (without bullets), without a case with a belt, no more than	4,0 kg	4,0 kg
Barrel length without muzzle, no less than	415 mm	415 mm
Rifle length	720-803 mm	720-803 mm
Rifle width, no more than	85 mm	85 mm
The heights of the rifle without an optical sight and magazine, not more than	200 mm	200 mm
The heights of the rifle with an optical sight and magazine, not more than	270 mm	270 mm
Trigger pull	from 2,0 to 5,0 kg	from 2,0 to 5,0 kg

PRINCIPLE OF OPERATION AND COMPOSITION

The rifle consists of a barrel with a barrel receiver, in the middle of which are the breechblock frame with the breechblock, gas engine, reverse mechanism, trigger mechanism, gas and guiding tube, buttstock and a sighting device.

The trigger mechanism of the trigger type provides the possibility of no more than one shot with a single press of the trigger.

The safety lock in the "safe" position blocks the trigger mechanism and ensures the impossibility of firing when the trigger is pressed.

SHEPIT silent rifle

«Shepit» is a silent rifle for special forces, designed for silent and flameless firing, invisible (hidden) damage to enemy manpower at ranges up to 250 m.

The design includes an integrated silent firing device, as well as a polymer stock for mounting various accessories (mounting standard MIL STD 1913).

- the ability to use optical sights day and night;
- portability and lightness;
- possibility of disassembly to the main knots, for the hidden transportation, and fast assembly after that

	SHEPIT (Ukraine)
Weight without magazine and sights	4 kg
General length of the rifle	850 mm
Barrel length	415 mm
Number of the barrel notches	6 pcs
Cartridge	7,62x39 / 5,45x39
Twist (caliber 7,62 and 5,56)	1/9,5 and 1/7
Firing mode	single / automatic
Firing rate	650 shots/min
Effective range	250 m

HARPY grenade launcher

DESCRIPTION

Grenade launcher "Harpy" is a compact, reliable and easy to use portable complex to provide fire support to infantry in close and medium combat, as well as for police operations and special forces operations. Designed to destroy manpower in urban areas, basements and fortifications; to defeat lightly armored vehicles; create smoke screens and hearths / fires.

To remove manpower without lethal outcome, special ammunition is used: tearing gas, light and noise, and so on. In order to destroy manpower and for other purposes, fragmentation munitions VOG-25 and VOG-25P are used.

Charging is carried out from the muzzle of the barrel, discharge - by pressing the ejector. Its design is equipped with a new complex mechanical sight, which takes into account the derivation of the grenade, and this, in return, allows faster aiming, which significantly increases the rate of fire. Plastic and aluminum are used to make parts and assemblies, so the device is lightweight.

Grenade launcher «Harpy» (Ukraine)	
Weight	2.6 kg
Length	415 mm (with a folded buttstock) 575 mm (with a put out buttstock)
Ammunition	40 mm grenades (VOG-25, VOG-25P)
Caliber	40 mm
Firing mode	single shot
Firing rate	10-12 shots/min
Initial bullet velocity	76 m/s
Maximum range	400 m

VALKYRIE machine gun

The 7.62 mm «Valkyrie» machine gun is a powerful automatic weapon designed to destroy enemy manpower and firepower, as well as to defeat air targets. For firing machine gun the cartridges with conventional, tracer and armor-piercing bullets are used as well as the bullets of high penetration.

The «Valkyrie» machine gun uses automatic exhaust with a long-stroke gas piston located under the barrel. In addition, the barrel of the machine gun is quick-change and has a handle for transportation, which can also be used to replace the hot barrel. The exhaust unit is equipped with a manual gas regulator. The barrel is locked by turning the buttstock. The capacity of the belts is 100 rounds (in the manual version).

Standard controls in the infantry version include a pistol grip, a trigger, a hand safety and a frame buttstock. The machine gun is equipped with a folding bipod.

	Machine gun «Valkyrie» (Ukraine)	
Caliber	7.62 R	7.62 NATO
Cartridge	7.62x54	7.62x51
Firing speed	up to 250 shots/min	up to 250 shots/min
Rifling grooves number	4	4
Rifling grooves path	240 mm	240 mm
Firing rate	650-700 shots/min	650-700 shots/min
Initial velocity of the bullet	825 m/s	825 m/s
Aiming range	1500 m	1700 m
General / barrel length	1173 / 600 mm	1173 / 600 mm
General / barrel weight	7.5 / 2.4 kg	9 / 2.6 kg
Cartridge tape box capacity	100 pcs	100 pcs

RIFF-M

RIFF anti-drone system

RIFF anti-drone systems are designed to combat rotor-type unmanned aerial vehicles (multicopters, helicopters, quadcopters, hexacopters, etc.), as well as flying or stationary wing drones.

RIFF-P (Ukraine)	
Range	up to 1.5 km
RF Power Output	100 W (4 zones) 200 W (6 zones
Battery life	60 min
Antenna	direction (opening angle 20º)
Weight	6 kg

RIFF-M (Ukraine)	
The threat indication is accompanied by sound and light signals	
Range	up to 3 km
Detection	up to 5 km
RF Power Output	1 kW (8 zones)
Offline time	24 h
Antenna	omnidirectional (360º)

RIFF-S

RIFF-S (Ukraine)	
Range	up to 3 km
Detection	up to 5 km
RF Power Output	1 kW (8 zones)
Offline time	24 h
Antenna	omnidirectional (360º)

Additional options:
• module for radio monitoring of all adjacent channels
• database for recording cases of intervention
• creation of maps with drawing zones of detection and counteraction to drones

APPLICATION

• protection of critical infrastructure facilities, military bases, checkpoints

• prevention of cases of illegal crossing of the state border

• protection of public events

OPERATING FREQUENCY RANGE

• remote radio control and video transmission: 2400-2800 MHz

• GPS L2: 1227 MHz

• remote radio control: 860 - 950 MHz (optional)

• remote radio control: 400 - 470 MHz

• GPS L1 + Glonass: 1 575 MHz

• remote radio control and video signal transmission: 5.8 GHz

• video signal transmission: 1200 - 1300 MHz
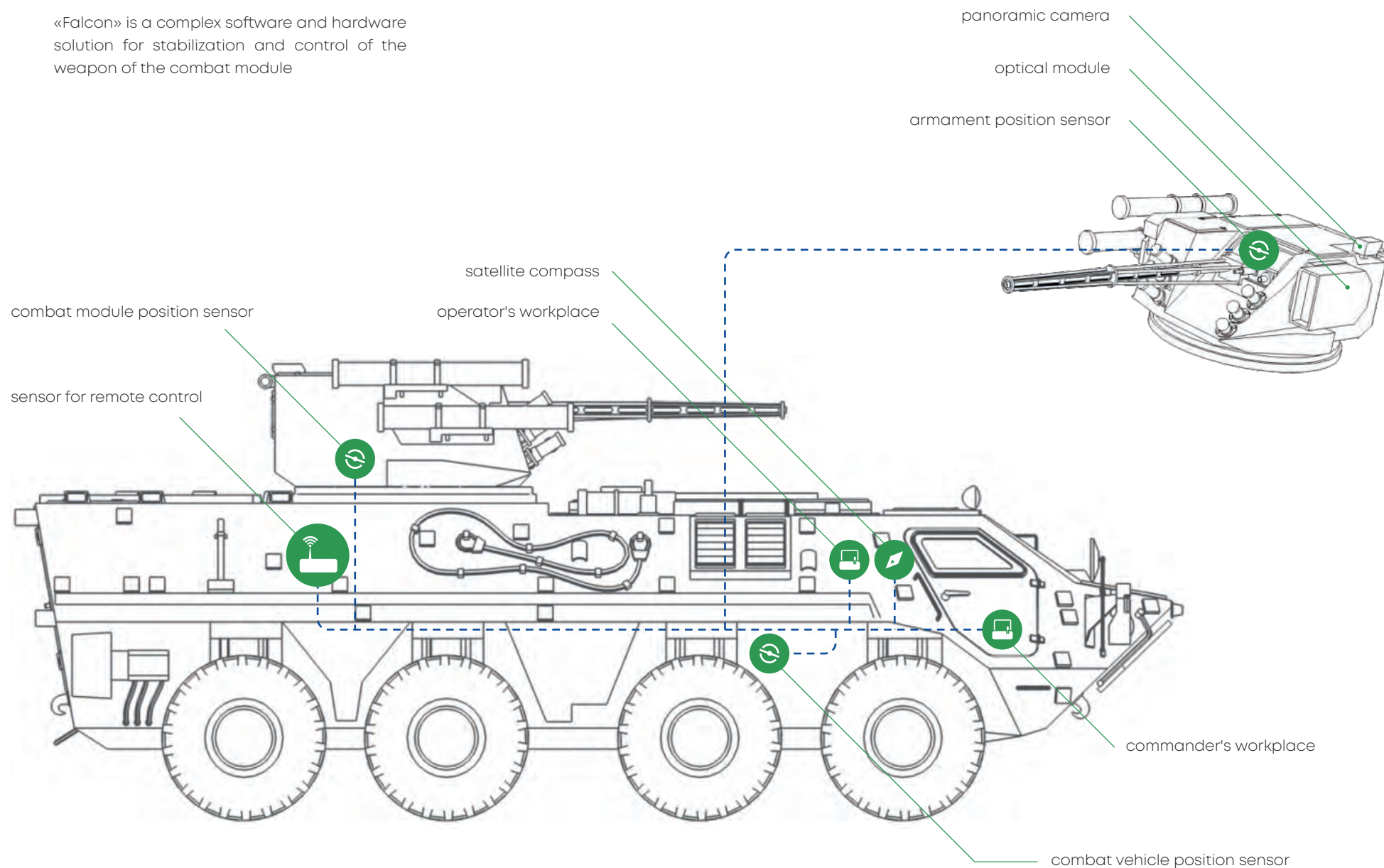
• remote radio control: 1800 - 2000 MHz

FALCON fire control system

«Falcon» is a complex software and hardware solution for stabilization and control of the weapon of the combat module

panoramic camera

optical module

armament position sensor

satellite compass

operator's workplace

combat module position sensor

sensor for remote control

commander's workplace

combat vehicle position sensor

Specifications

Stabilization of arms	in two planes
Horizon aiming speed (max-min)	60°/s - 0,01°/s
Vertical aiming speed (max-min)	35°/s - 0,01°/s
Range of aiming angles: - horizontally - vertically	360° -5° to +45° (with the option to expand the range)
Range measured by laser rangefinder	160 - 10000 m
Range measurement error	not more than 5 m
Automatic target tracking	up to 8
Continuous operation time	during hostilities - unlimited
The median error of the stabilizer	not more 3.6 angular minutes
Operating temperature range	-40° to +60°

Panoramic viewing area 360°

Daylight camera	30x zoom and auto focus
Thermal imaging camera	• uncooled • 640x512 pixels • spectral operating range from 8 to 14 µm • NETD 45 µu
Digital zoom	2x, 4x
Horizontal aiming speed	0° - 100 deg/s
Vertical aiming speed	0° - 60 deg/s
Rotation	from 0° - 360° (constant)

Optoelectronic module

TV camera	• narrow field of view: 2°14'x1°37' • wide field of view: 8°40'x6°30' • video signal processing PAL/NTSC
Detection / recognition of tank-type targets	up to 10 km / up to 4.5 km
Range-finder	working wavelength of emission from 1,060 to 1,079 microns
Measured range	• max: 10000 m • min: 160 m
The standard deviation of the range measurement	not more than 5 m
Thermal imaging camera	uncooled, 640x512 pixels
Target detection range	2.3 m x 2.3 m > 6 km
Target recognition range	2.3 m x 2.3 m > 4.5 km
Spectral operating range	from 8 to 14 µm

- a set of optoelectronic devices provides day and night surveillance of the surrounding area and individual objects (targets)

- effective for defeating armored targets, firing positions, enemy manpower, air threats (hovering helicopter)

- can be integrated on lightly armored platforms such as armored personnel carriers or infantry fighting vehicles, as well as work as part of stationary combat modules
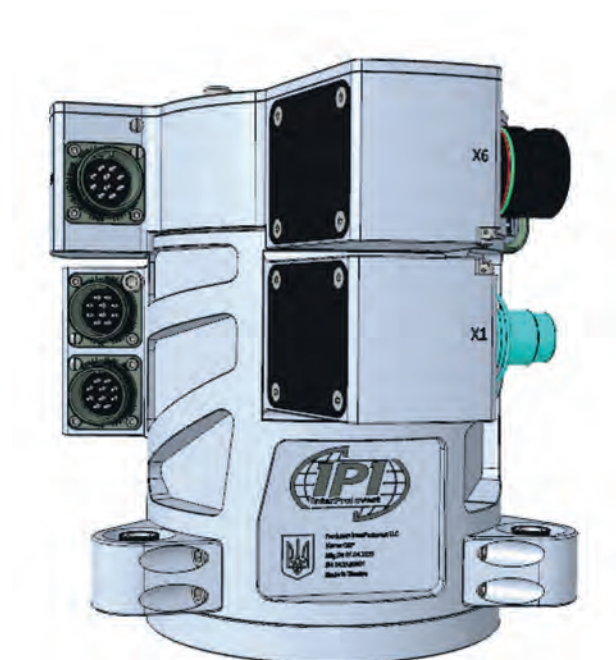
- does not require special personnel skills for operation

- can be performed by remote control

The system provides the display of the following commands to the commander and operator's screen:

• choice of type of weapon and mode of firing;

• control of anti-tank missiles, cannon, machine gun, grenade launcher, smoke screen installation system;

• control of ammunition availability;

• control the position of the combat module in relation to the chassis.

OKP-I rotating contact device

Rotating contact device is designed for uninterrupted transmission of constant, alternating and pulsed electrical signals in a wide range of frequencies and powers between the source and receiver, that are located in the rotating parts of the object, in different climatic zones (IPI-67)

CONSISTS OF:

• fixed housing with internal contact devices and external connectors;

• movable housing with internal contact devices and external connectors;

• connecting rotating device;

• sealing seals;

• maintenance and repair documentation.

Boundary operating conditions

Ambient temperature	from -40ºC to +50ºC
Relative humidity	up to 98% at the temperature +25ºC
Acoustic noise	with a frequency range from 50 Hz to 10000 Hz and a sound pressure level of 135 dB
Sea salt fog	+
Rainfall	rain with an intensity of 180 mm / h for 5 minutes, including condensate: dew, hoarfrost
Lowering atmospheric pressure	operating — 450 mm m.c. boundary, during transportation OKP-I in a non-working condition— 90 mm m.c.
Elevation	up to 3000 m
Static and dynamic dust	dust particle sizes from 150 to 850 µm by pollination density (MIL STD 810 method 510.5, procedure 1 dust blowing, procedure 2 sand blowing)
The amount of information transmitted	1 GB with an option of increasing
Current	360 A, 10 A, 15 A, 30 A

MKZ small cumulative charges

	MKZ-1 (Ukraine)	MKZ-2 (Ukraine)	MKZ-3 (Ukraine)
Weight assembled	157±10 g	142±10 g	162±10 g
Weight of the device	64±10 g	55±10 g	66±10 g
Diameter	32±5 mm	32±5 mm	32±5 mm
Heights	95±5 mm	85±5 mm	95±5 mm
Quantity in the box	90 pcs	90 pcs	90 pcs

Combat specifications

	MKZ-1	MKZ-2	MKZ-3
Depth of breaching of a 100 mm thick metal plate from a distance of 40 mm	40 mm	40 mm	40 mm
Ammunition initiation distance (full detonation)	30-50 mm	30-50 mm	30-50 mm
Distance for destruction of ammunition shell (without complete detonation)	250-400 mm	250-400 mm	200-500 mm
Temperature range	-40ºC to +50ºC	-40 ºC to +50ºC	-40ºC to +50ºC
Acceptable humidity value	from 10% to 100%	from 10% to 100%	from 10% to 100%

Small cumulative charges (further on - MKZ) provide the controlled destruction of ammunition without their initiation (explosion), thus:

• the negative impact of the regular explosion of ammunition is minimized (no destruction of objects, contamination of territories with fragments, change of the surface topography, etc.);

• there is an opportunity to use the remnants of ammunition and explosives in the economic interests (collection and processing of metals, chemical materials, etc.).

Depending on the conditions of use of the small cumulative charges, it is possible to neutralize the ammunition by completely detonating or partially destroying their shell (without detonating the explosive), which allows:

to accelerate the pace of demining

to reduce disposal costs

to use recycling products in the future

ELECTRONIC INTELLIGENCE

Our electronic communication systems are designed for radio monitoring and radio control of VHF radio communication systems during search operations, when performing tasks on state border protection, during operations by groups of troops (forces) of the armed forces and counter-terrorist operations. Can be used on its own or as part of an overall intelligence system.

SPHERE/AZIMUTH

«SPHERE» and «AZIMUTH» - complexes for radio monitoring of VHF communication systems.

Complexes provide:

· automatic search and identification of emission of analog and digital VHF radio frequency range;

· multichannel reception, demodulation and decoding of communication sessions;

· registration of language, text and service information;

· listening to negotiations, processing and analysis of the results of the monitoring;

· generation of the reports on the results of the complexes operation, with binding to subscribers, networks and time.

Complexes automatically identify, decode and direct analog and digital system communications. Complexes in the automated or manual mode allow to reveal the sources using PPRF.

· mobile operators use radio relay lines to transmit information (bills, data) between base stations and the switch unit. The information is transmitted from one base station to the next, which complements it with its data and transmits it further. When intercepting a radio relay communication line, one can control the traffic of a large number of subscribers to large areas at a distance.

VECTOR

«VECTOR» - complex of interception of digital radio relay networks.

The complex provides:

· automated search of radio relay stations by frequency and in space;

· determination of directions on the radio relay station (by azimuth and angle) with reflection on the built-in electronic maps;

· interception of signals of radio relay stations at a distance of up to 30 km;

· determination of carrier frequency, type of modulation, speed of manipulations and polarization;

· determination of the type of radio relay station and activation of the corresponding processing algorithm;

· registration of all communication sessions;

· automatic demodulation, decoding and demultiplexing of signals of the radio relay system with storage in the database of service information and information content of intercepted sessions;

· processing of synchronous binary streams of level E1 (G.732), in the channels of second generation mobile operators (2G), built on the standard ETS 300 594

(level 1), ETS 300 595 (level 2), ETS 300 596 3);

· access to information about intercepted sessions with the ability to search and filter service information;

· listening to language sessions, viewing SMS and USSD;

· generation of the reports on the results of the complexes operation.

PRISM

«PRISM» - complex of radio monitoring of GSM communication systems.

The complex provides:

· registration of all communication sessions of base stations in the area of operation of the complex;

· interception of base station signals, regardless of their affiliation to the country and the operator;

· automatic decryption (algorithms A5 / 1 and A5 / 2, including Random Padding) and decoding of communication sessions with subsequent storage in the database;

· access to information about intercepted communication sessions with the ability to search and filter service information;

· listening to language sessions, viewing SMS and USSD; control of target objects, with sound and light signaling of interception of their communication sessions;

· the ability to identify the phone with a known subscriber's number using short calls or hidden SMS;

· generation of the reports on the results of the complexes operation.

Options for placement of complexes:

· stationary version,

· in transport of different types: SUVs, minibuses, trucks, armored vehicles. Placement of different complexes on one transporting base.

· autonomous power supply system of the complex;

· life support systems;

· rechargeable batteries.
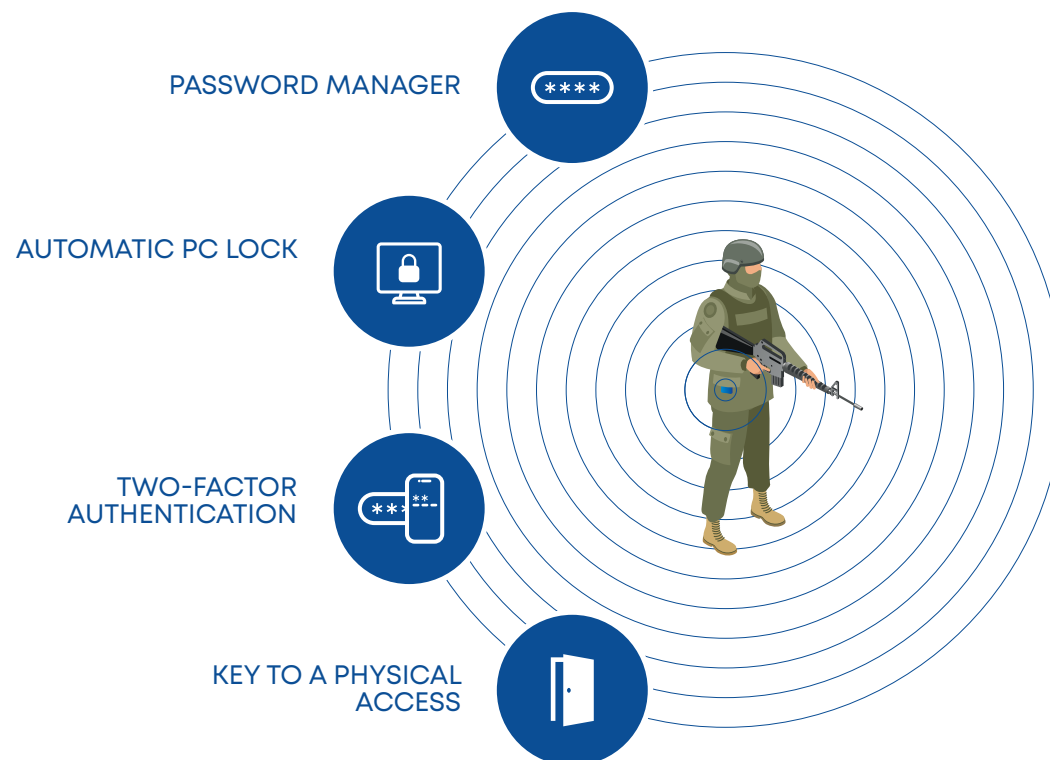
Additional equipment:

The design allows to carry out quick installation / dismantling of a complex to use it in the car or stationary.

IPI KEY remote digital token

The IPI Key Token is a portable wireless tag for secure and easy identification and authentication for access to military laptops, tablets, networks, servers, applications, web services, weapons and premises.

The IPI Key token is a light, strong, dustproof and shock-resistant device with the size of 37x65x8 mm. It can be stored in a soldier's pocket, attached to the sleeve or worn as an army badge around the neck.

- Encrypted storage for up to 1000 passwords
- One-time password generator RFC 6238
- Two-factor authentication FIDO U2F
- Password-free authentication FIDO 2
- Size 37x65x8 mm
- Built-in battery life up to 12 months
- Connection protocols
- Bluetooth with optional encryption ES-128
- RFID 125 kHz - Em-Marine standard,
- HID NFC 13.56 MHz
- Mifare standard of various modifications (optional)

IPI Client application for installation on laptops and tablets
- Protection against spoofing by means of checking the originality of the service before entering accounting data
- Automatic entry of accounting data
- Managing Personal Accounting Data Storage
- Windows 10 operating system

IPI Server server for the remote centralized account management:
- Integrates with Microso Active Directory
- Windows and Linux operating systems

PASSWORD MANAGER

AUTOMATIC PC LOCK

TWO-FACTOR AUTHENTICATION

KEY TO A PHYSICAL ACCESS