

LAW ENFORCEMENT EQUIPMENT



DEFTECH GLOBAL LIMITED





DEFTECH GLOBAL LIMITED

SAFETY. PROTECTION. RELIABILITY.

PREFACE

Established in 2012 Deftech Global Ltd. has evolved into a renowned world-wide supplier of special purpose goods and equipment.

Deftech is closely connected to the leading OEMs of respective nomenclature in Ukraine and other post-Soviet and Eastern European countries.

Deftech's unique experience is based on its long-existing multinational ties, wide range of customers all-around the globe both governmental and private, and willing, highly-professional team of employees with extensive backgrounds in different contiguous spheres and markets.

Deftech is a customer-oriented company, striving to build and maintain close relationships based on trust and mutual understanding.

We have gained reputation of reliable partner, ready to provide support to customers in shortest period in different regions of the world.

We focus on delivering high-quality products and services adjusted to customer needs at competitive prices. We are used to work in tight time schedule conditions within certain budget restrictions whilst maintaining the highest standards and providing the optimal solutions.

Deftech has the honour to offer to your kind attention the present brochure which embraces our capabilities in the law enforcement sphere and adjacent areas, offering up-to-date products and solutions.

These are important but not the only fields where we actively participate.

In this regard may we kindly propose to pay attention also to our Aerospace, Navy and Armoured Vehicles product catalogues if you'd like.



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WEAPONS



WEAPONS

SHOTGUN VERTAC RS-X2



PUMP ACTION SHOTGUN

Caliber	12 Ga Magnum, 3"
Barrel length	51 cm / 21"
Chokes	Cylinder
Receiver	steel black anodized
Type of sights	adjustable rear & ghost ring
Overall length	109 cm / 45"
Length of pull	36,5 cm / 15"
Weight	3,3 kg / 4,12 Lbs
Capacity	7+1 shots

- Rugged and ultra-dependable, the Vertac Pump Action shotgun had been severely tested on the field.
- RS-X2 model comes with a black synthetic stock and fore end with slung swivels.
- The Ghost ring sight is optimized for rapid target acquisition
- The model RS-X2 is chambered for 3" 12 Gauge rounds.



Safety easy to handle



Ghost ring sight rail, sight fully adjustable for windage and elevation



Front blade sight work in conjunction with Ghost



Tactical style forend with picatinny rail

Interchangeable chokes



Black synthetic stock with rubber pistol grip



WEAPONS

PUMP-ACTION SHOTGUNS OF TYPE FORT-500



Pump-action shotguns of **FORT-500** type are smooth-bore weapon for law enforcement.

Sights are mounted on picatinny rail on shotgun receiver. Mounting of pistol grip and flashlight on the rail system are provided.

Attaching of special devices on the barrel is possible (for breaking lock, for shooting grenade with tear-gas).

CHARACTERISTICS	FORT-500M	FORT-500A	FORT-500T
Calibre	12	12	12
Barrel length, mm	345	510	510
Cartridge-chamber length, mm	76	76	76
Shotgun length:			
– with folded butt-stock, mm	775±5	750±5	930±5
– with unfolded butt-stock, mm	877±5	1010±5	1030±5
Shotgun height:			
– with folded butt-stock, mm	205±5	210±5	
– with unfolded butt-stock, mm	205±5	170±5	170±5
Shotgun width, mm	64	52±2	52±2
Magazine capacity, rounds	4	6	6
Weight of the rifle without belt, kg, not more than	4,12	4,1	4,3

WEAPONS

Z-10 20 SEMI-AUTOMATIC CARBINE



Z-10 20 is a semi-automatic carbine with the gas-collecting system Direct Impingement (DI) and with calibre of 308Win. Compatible in threading and coupling size with foreign analogues*. All components have a standard weight (gun group, buffer) and are strong enough for ammunition of group 308Win.

Special features:

- barrel length - 20", match, free float barrel;
- cold hammer forged barrels; chrome-plated channel and cartridge chamber
- turn of twist - 1:12";
- accuracy of fire when using high-quality ammunition – 0.7-1 MOA;
- muzzle thread - 5/8-24 TPI, two-chamber muzzle brake;
- coupling size of the gas unit – 0.936". Gas unit is low-profile, non-adjustable, mounted on coupling screws (not pins).

Barrel receivers of billet category are made by the method of milling cut from the plate of high-tensile aluminum alloy (without application of casting or die forging). After the CNC cycle, parts are finished by the stonewashing method and undergo hard anodizing and application of Cerakote coating. Available in the following colours: Sand, Black.

Fore grip has the length of 12.5" (320 mm) with the upper Picatinny rail; there is a possibility of installing side and lower additional rails.

The package includes buttstock and pistol grip A2, Magpul magazine, low-profile cocking handle, single-stage trigger and firing mechanism.

SPECIFICATIONS

Caliber	.308Win (7.62x51 mm)
Barrel	20" (508 mm)
Accuracy	0,7-1 MOA
Barrel receiver	Aircraft alloy D16T; milled (billet)
Lenght	1045 mm (with the muzzle brake)
Weight	5 kg (barrel weight – 1.945 kg)

WEAPONS

FORT PISTOLS | FORT-12



FORT 12 – is a semiautomatic pistol of 9x18 mm caliber with an effective range up to 50 meters. It is balanced and contains all the qualities of a combat pistol: metal frame, which secures reliability and strength, large magazine capacity, reliable safety system with capability to block hammer either on combat or in safety position; it is of a relatively low weight and small dimensions make it comfortable to carry. Therefore **FORT 12** was chosen as a service pistol of Ukrainian law enforcements. Optionally pistol can be equipped with sound suppressor, laser designator or tactical flashlight.

SPECIFICATIONS

Caliber (mm)	9x18 mm Makarov 9x17 mm Browning
Operation mode	Blowback operated
Trigger mechanism	Single or double action
Dimensions (mm):	
– Overall length	180
– Height	131
– Width	32
Barrel length	95
Weight with empty magazine (kg)	0,83
Muzzle velocity (m/s)	320 (9x18 mm) 305 (9x17 mm)
Magazine capacity (rds)	12
Practical rate of shooting	40
Rifling	6 grooves

WEAPONS

FORT PISTOLS | FORT-14TP



FORT 14 TP – a pistol, which is accurate, reliable and easy to use. The special feature in design of this model is fixed quick-detachable barrel.

Due to its ergonomics, extended barrel and extended line of sight «**FORT 14 TP**» has great accuracy even with rapid firing. That is why **FORT 14 TP** is a main pistol for officers of special enforcements.

Tactical complex **FORT 14 TP** consists of the pistol **FORT 14 TP** tactical light LT6A and sound suppressor **FORT 4** optionally it can be equipped with the magazine of extended capacity.

SPECIFICATIONS

Caliber (mm)	9x18 mm Makarov 9x17 mm Browning
Operation mode	Blowback operated
Trigger mechanism	Single or double action
Dimensions (mm)	
– Overall length	210
– Height	140
– Width	33
Barrel length	123
Weight with empty magazine (kg)	0,92
Muzzle velocity (m/s)	335
Magazine capacity (rds)	14 (24)
Practical rate of shooting	40
Rifling	6 grooves

WEAPONS

FORT PISTOLS | FORT-17



FORT 17 – in design of this model highly durable polymers reinforced by steel were widely used. As a result the weight of the pistol was decreased significantly without damage to the combat characteristics.

Due to plastic frame, ergonomics is highly increased and interchangeable back straps allow to fit grip size to the shooters hand quickly. Universal rail for assembling tactical accessories is situated under the barrel.

Besides **FORT 17** is available in two modifications: normal and for left-handed shooters.

SPECIFICATIONS

Caliber mm	9x18 mm Makarov 9x17mm Browning
Operation mode	Blowback operated
Trigger mechanism	Single or double action
Dimensions (mm)	
– Overall length	180
– Height	130
– Width	34
Barrel length	95
Weight with empty magazine (kg)	0,68
Muzzle velocity (m/s)	320 (9x18 mm) 305 (9x17 mm)
Magazine capacity (rds)	12
Practical rate of shooting	40
Rifling	6 grooves

AMMUNITION AND ACCESSORIES



AMMUNITION AND ACCESSORIES

FIREARM SOUND SUPPRESSION DEVICE PSUZV



Firearm sound suppression devices (**PSUZV**) are developed and manufactured by specialized scientific and research institute of National space agency of Ukraine in close cooperation with Special Forces community. First generation of **PSUZV** passed government trials and introduced into service in 1998. Consistently growing model range includes suppressors for pistols, assault rifles, sniper rifles and machine guns.

Suppressors tested in accordance with MIL-STD-1474D and provide hearing safe sound reduction level, remove muzzle flash, significantly lower recoil and muzzle jump.

Apart from low flash and sound signature, the use of **PSUZV** reduces dust/snow particles lifting, allows the voice communication between operators and «friend or foe» identification. Suppressors characterized by low back pressure levels, ensuring the clear field of view for shooter and minimal increase of rate of fire.

Suppressors for assault rifles, sniper rifles and machine guns manufactured from the heat resistant stainless steel. All components of suppressor are welded into structural monoblock which assures of long service life, resistance against extreme pressure and temperature, exclude possibility of wrong assembling after cleaning. Some models incorporate central tube bullet channel, which dramatically increases suppressor survivability under heavy duty use, low attachment threads and ammunition quality.

Proprietary black mate heat and scratch resistant coating is also not IR reflective.

Other materials (steel, titanium and aluminum alloys) custom coating and attachments available upon request.

Average specifications of typical suppressors.

Weapon	Caliber	Attachment type	Dimensions, mm	Material	Weight, kg
Pistol	9x19	TH 13x1	35x220	Aircraft aluminum	0,32
Assault rifle	5,56x45	1/2x28"	38x210	Stainless steel	0,54
Sniper rifle	7,62x51	TH 18x1	43x240	Stainless steel	0,7
Machine gun	7,62x54R	18x1.5L	43x240	Stainless steel	0,7

AMMUNITION AND ACCESSORIES

CARTRIDGES FORT-T CAL. 9 MM P.A.



Cartridges **FORT-T** are made from ecologically pure materials that are certified in Ukraine and intended for self-defense.

The use of those cartridges does not lead to hard physical injuries. Effective range of action 3,5 – 10 m.

SPECIFICATIONS

Cartridge diameter	9,5 mm
Cartridge length, not more than	22,7 mm
Missile velocity	300 ± 20 m/s
Diapason of usage	(-10)°C (+40)°C
Minimise distance of usage	3,5 m

VERTAC RS-X2 AMMUNITION

Gualandi Slug



Rubber Slug



SIXLUG



Standard Slug



Super Slug



12 cal. rubber Buckshot



Teflon Slug



Tornado Slug



12 cal. Rubber Slug



ANTI-RIOT EQUIPMENT



HYDRO-JET SPECIAL AUTOMOBILE AVS-40



SPECIFICATIONS

Base classis	КамАЗ-43118
Wheels formula	6x6
Engine output, kW(h.p.)	191(260)
Maximum speed, km/h	90
Fire-fight crew, including driver, persons	3
Capacities, m ³ (l), no less:	
-water tank	6,7(6700)
-foam-agent tank	0,05(50)
-painter tank	0,3(300)
-bottle for active mixture $v=0,027m^3(27 l)$	3
Pump	ПН-40УВ
-deliver, ms (l/s), no less	0,04(40)
-pump head, m	100+5
Roof monitors (light/power)	
-number, pieces	1/1
-control	electric drive
Rotation angles, degree	
-in horizontal plane	350/180
-in vertical plane	minus 15 plus 45
-maximum distance of deliver a jet, m, no less	50/40
Total weight, kg, no more	20780
Dimensions, mm, no more	9100x2500x3600

HYDRO-JET SPECIAL AUTOMOBILE AVS-30



Hydro-jet special automobile **ABC-30** is designed to counter with groups of individuals who violate public order via water-jet attack and other special agents, and is intended for delivery of operating crew, water, other special agents to the point of destination.

SPECIFICATIONS

Index	AVS-30
Base chassis	KpA3-63221
Wheels formula	6x6
Engine output, kW (h.p.)	243 (330)
Maximum speed, km/h	85
Fire-fight crew, including driver, persons	3
Total weight , kg, no more	24000
Capacities, m3 (l), no less:	7 (7000)
– water tank foam-agent tank	0,05 (50)
– painter tank	0,3 (300)
– bottle for active mixture $v=0,027$ m3 (27l),	3
Motor pump, type	MHA-27/100
– deliver, m3/s (l/s),	0,027 (1600)
– no less pump head, m	100±5
Roof monitor	
– number, pieces	1
– control	manual
Rotation angles, degree	
– in horizontal plane	350
– in vertical plane plus	+ / - 30
Under bumper nozzles	
– control	distance, pneumatic
– rotation angles in horizontal plane, degree	180±5
– maximum design distance of deliver a jet, m	30
Dimensions, mm, no more	10440x3200x4050

ANTI-RIOT EQUIPMENT | LESS-LETHAL WEAPONS

FORT-12R, FORT-12RM, FORT-12T, FORT-14R,
FORT-17R, FORT-17T, FORT-18R



FORT 12R – is the modification of pistol Fort 12 of 9 mm P.A. caliber with non lethal action uses ammunition with elastic bullet. A pistol with an effective range up to 10 meters intended for self-defence of civilians and serves as a service weapon for security agencies.

Modification **FORT 12RM** has improved ergonomics and changed the slide form.

Both modifications are made of high-quality steel and have service life of 50 000 shots.

SPECIFICATIONS

Caliber mm	9 mm P.A./ .45 Rubber	
Operation mode	Blowback operated	
Trigger mechanism	Single or double action	
Dimensions (mm)		
– Overall length	180	
– Height	131	
– Width	32	
Barrel length	95	
Weight with empty magazine (kg)	0,83	
Muzzle velocity (m/s)	300	
Magazine capacity (rds)	13	8
Practical rate of shooting	40	

ANTI-RIOT EQUIPMENT | LESS-LETHAL WEAPONS

FORT-12R, FORT-12RM, FORT-12T, FORT-14R, FORT-17R, FORT-17T, FORT-18R

FORT 12T – gas pistol with ability to shoot traumatic ammunition with elastic bullet caliber 9 mm P.A. Special feature of this model is availability of special «teeth» inside the barrel which prevent using normal ammunition.

FORT 14R – traumatic pistol of caliber 9 mm P.A. intended for self-defense of civilians. Due to extended barrel and extended sight radius **FORT 14R** assures of necessary accuracy even with rapid firing. Metal frame provides additional rigidity in design of the gun and increases the service life of pistol.

FORT 17R – traumatic pistol of 9 mm P.A. caliber intended for self defense of civilians. This model has a frame made of highly durable plastic reinforced by steel - as a result it has reduced weight which is important for everyday carrying. As the combat **FORT 17** pistol has interchangeable back straps enabling to fit the grip size to the shooter's hand.

FORT 17T – gas pistol with ability to shoot traumatic ammunition with elastic bullet caliber of 9 mm P.A. The special feature of this model is availability of special «teeth» inside the barrel which prevents using normal ammunition.

FORT 18R – traumatic pistol of 9 mm P.A. caliber intended for self defense of civilians. Design features of this model are extended barrel which increases accuracy, massive slide which reduces recoil, reduced weight due to polymer frame and interchangeable back straps enabling to fit the grip size to the shooter's hand.

Technical data	FORT 14R	FORT 17R	FORT 18R
Caliber (mm)	9 mm P.A./ .45 Rubber	9 mm P.A./ .45 Rubber	9 mm P.A./ .45 Rubber
Operation mode	Blowback operated	Blowback operated	Blowback operated
Trigger mechanism	Single or double action	Single or double action	Single or double action
Dimensions (mm)			
– Overall length	207	180	207
– Height	140	132	131
– Width	33	34	34
Barrel length	124	95	124
Weight with empty magazine (kg)	0,86	0,68	0,71
Muzzle velocity (m/s)	320	300	320
Magazine capacity (rds)	15 (8)	13 (8)	13 (8)
Practical rate of shooting	40	40	40

BATONS



The batons **BRL**, **BR-M**, **BRE** are made of a resilient rubber.

They have a leather loop on a hilt for comfortable carrying and are intended for use by patrol and guard services.

Option: rubber baton holder made of leather for carrying on the belt.

	1	2	3	4
Characteristics	Rubber baton BR-M	Expandable rubber baton BRE	Baton «TONFA»	Rubber baton BRL
Length, mm	600	450-650	850-900	450
Diameter, mm	30	30	25	30
Weight, kg	0,820	0,63	0,45-0,50	0,51

ANTI-RIOT EQUIPMENT

METAL HANDCUFFS



Metallic handcuffs have 8 degrees of protection:

1. High-quality steel.
2. The connection of three rings eliminates the ability of their break while jamming and boring.
3. There is a double number of wedges.
4. The presence of two teeth at each wedge.
5. The presence of a pin for the key.
6. The concealed rivets.
7. The presence of blocking on an unsanctioned opens of the lock.
8. There are slots in the sector and pins in the cramp. The handcuffs bear break effort up to 200 kg.

IRONS



Irons are used by force structures for physical restriction of the person committed a crime, and criminal's transporting in the vehicle that is not intended for that.

Irons don't require special service and keep its performance at temperature from -45°C to +40°C and relative humidity up to 98%.

SPECIFICATIONS

Weight, not more, kg	1,1
Break effort, not less, kg/s	200
The number of snaps into action, not less, times	5000

COMPLETE SET OF DEFENCE ANTI-RIOT ARRANGEMENTS



Complete set is intended for defence of the parts of the body exposed to traumas most of all and consists of the follow parts:

- protectors on legs and knee;
- protectors on arms and elbows;
- protectors on forearms and shoulders.

Complete set is made of shockproof polymerous material and has high shock-absorber properties.

Owing to the relatively low weight the complete set can be used for long term carrying.

ANTI-RIOT EQUIPMENT

PROTECTIVE SHIELDS



Intended to use in police or internal law enforcement troops. They ensure protection against gun bullets and large caliber shot. Can be modified to protect against Kalashnikov automatic gun (protection level 3 according to Ukrainian standard). Equipped with a viewing window and armored glass. They envisage availability of small wheels, tear gas capsule or lantern.

PLASTIC ANTI-RIOT SHIELD



The anti-riot shield is made of a polycarbonate sheet giving maximum vision, lightness and long durability, with the protection against UV-radiation, 10 year guarantee.

There is a shock-absorber with a grip and a belt on the inner side of the shield. Handgrip and arm fastening may be quickly rearranged and it permits to use the shield by left and right hands.

In accordance with the consumers order an inscription can be done at the front side of the shield and a polycarbonate sheet will protect it.

SPECIFICATIONS

Shield height, mm	1000
Shield width, mm	550
Mass, kg	
at polycarbonate sheet thickness 3 mm	3,3
at polycarbonate sheet thickness 4 mm	4

ANTI-RIOT EQUIPMENT

METAL ANTI-RIOT SHIELD



The anti-riot aluminum shield is designed for the protection of police officers against stones and sticks while performing their duties.

The shield is made of high-quality aluminum alloy.

There are two handles glazed with plastics and two absorbers, which allow using the shield by left or right hand or by both hands simultaneously.

SPECIFICATIONS

Shield height, mm	1000
Shield width, mm	670
Thickness of the sheet, mm	2
Mass, kg, not more than	3,8

OPTICAL EQUIPMENT



SIGHT ARCHER TSA-11



Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 55

Detection: 1700 m

Recognition: 400 m

Identification: 200 m

Sight is equipped with attachment for the installation of additional equipment, hand strap for a comfortable and secure grip device, standard photo-mount for the tripod.

- Downloadable reticles with automatic reverse and zoom;
- Ballistic amendment;
- Electronic level;
- Profiles for different weapons or ammunition;
- Multi-mode, built-in photo and video recording module;
- USB interface for data retrieval, management and programming of the sight;
- 2 and 4 x digital zoom;
- Different color schemes for improvement of the image;
- Light and presence sensors;
- Manual and automatic calibration of the detector;
- Switchable composite video-output;
- Remote control.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- ARCHER TSA-11;
- 4 AA batteries, power adaptor, car adaptor;
- Video output/power input connector adaptor;
- USB cable;
- Wrist strap;
- Manual;
- Bag, case.

ARCHER TSA-11 was specifically designed for tactical weapons. The advantages of this thermal weapon sight are the small size and light weight. The device has the mechanical multiposition switcher of power supply. Such a decision can not only switch on the device "by the touch" but instantly select one of the given operating modes. The optical scheme of the ARCHER TSA-11 provides an image of the observed object by athermal fixed focus 40 mm lens, that is supplied for military purposes and 55mm lens with adjustable focus for hunters.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	40mm		
Relative Aperture	F/1.0		
Field of view	6.0° x 4.7°	6.0° x 4.8°	11° x 9.0°
Focus range	5m ??	8m ??	8m ??
Eye relief	50 mm		
Dioptric adjustment of ocular lens	-6 ? +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB, CAN, Wi-Fi		
Number of the down-loaded aiming marks	Up to 20, with the ability to edit and upload		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Permissible shock value	300g		
Batteries work time	6 / 8 h	8 / 10 h	
Dimensions (without eye-cup)	170x92x75,5mm		
Weight without batteries	0,75kg		

SIGHT ARCHER TSA-9/75



Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 75

Detection: 2200 m

Recognition: 600 m

Identification: 400 m

- Uploadable reticles with automatic contrast-reversing and dimensional scaling;
- Ballistic corrections;
- Electronic horizon level;
- Profiles for different types of weapons and ammunition;
- Multifunctional built-in module for photo and video recording;
- USB interface for information exchange, device control, and programming;
- Digital x2 and x4 zoom;
- Different color palettes for the image improving;
- Ambient and proximity sensors;
- Manual and automatic calibration;
- Outgoing composite video output;
- Remote control.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- ARCHER TSA-9;
- 4 AA batteries;
- Rechargeable cassette;
- Power adaptor;
- Car adaptor;
- Video output/power input connector adaptor;
- USB cable;
- Wrist strap;
- Manual;
- Bag;
- Case.

ARCHER TSA-9/75 – top model in the line of thermal sights of our company.

Extremely long distances and really extreme conditions – will not be an obstacle for conducting accurate shooting, and advanced functionality and the new software will be an excellent tool in the most demanding tasks.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	75mm		
Relative Aperture	F/1.0		
Field of view	6.0° x 4.7°	4.4° x 3.4°	8.3° x 6.4°
Focus range	5m ??	8m ??	8m ??
Eye relief	50 mm		
Dioptric adjustment of ocular lens	-6 ? +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB, CAN, Wi-Fi		
Number of the downloaded aiming marks	Up to 20, with the ability to edit and upload		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Permissible shock value	300g		
Batteries work time	6 / 8 h	8 / 10 h	
Dimensions (without eye-cup)	230x105x93mm		
Weight without batteries	1.3kg		

SIGHT ARCHER TSA-9/55



ARCHER TSA9/55 – a new model of thermal sight that combines the simplicity and reliability of the design, ergonomic design and high specifications. As in all the sights ARCHER you stay confident even in the most challenging environments – in the dark, in the rain, snow and fog. A built-in video will preserve the memory of the best moments of the hunt.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 55

Detection: 1700 m

Recognition: 400 m

Identification: 200 m

- Downloadable reticles with automatic reverse and zoom;
- Ballistic amendment;
- Electronic level;
- Profiles for different weapons or ammunition;
- Multi-mode, built-in photo and video recording module;
- USB interface for data retrieval, management and programming of the sight;
- 2 and 4 x digital zoom;
- Different color schemes for improvement of the image;
- Light and presence sensors;
- Manual and automatic calibration of the detector;
- Switchable composite video-output;
- Remote control.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- ARCHER TSA-9;
- 4 AA batteries;
- Rechargeable cassette;
- Power adaptor;
- Car adaptor;
- Video output/power input connector adaptor;
- USB cable;
- Wrist strap;
- Manual;
- Bag;
- Case.

SPECIFICATIONS

SPECIFICATIONS			
Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	55mm		
Relative Aperture	F/1.0		
Field of view	6.0° x 4.7°	6.0° x 4.8°	11° x 9.0°
Focus range	5m ??	8m ??	8m ??
Eye relief	50 mm		
Dioptric adjustment of ocular lens	-6 ? +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB, CAN, Wi-Fi		
Number of the downloaded aiming marks	Up to 20, with the ability to edit and upload marks		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Permissible shock value	300g		
Batteries work time	6 / 8 h	8 / 10 h	
Dimensions (without eye-cup)	262x78x75mm		
Weight without batteries	1.1kg		

SIGHT ARCHER TSA-5R/640-55



Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 55

Detection: 1700 m

Recognition: 400 m

Identification: 200 m

- Uploadable reticles with automatic contrast-reversing and dimensional scaling;
- Ballistic corrections;
- Electronic horizon level;
- Profiles for different types of weapons and ammunition;
- Multifunctional built-in module for photo and video recording;
- USB interface for information exchange, device control, and programming;
- Digital x2 and x4 zoom;
- Different color palettes for the image improving;
- Ambient and proximity sensors;
- Manual and automatic calibration;
- Outgoing composite video output;
- Remote control.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- ARCHER TSA-5;
- 6 AA batteries;
- Rechargeable cassette;
- Power adaptor;
- Car adaptor;
- Video output/power input connector adaptor;
- USB cable;
- Wrist strap;
- Manual;
- Bag;
- Case.

ARCHER TSA 5/55 – proven over the years operating model. The simplicity and reliability of the design, ergonomic design and high performance – all this gives the hunter undeniable advantages in the most challenging environments – in the dark, in the rain, snow and fog. Built-in video will preserve the memory of the best moments of the hunting.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	55mm		
Relative Aperture	F/1.0		
Field of view	6.0° x 4.7°	6.0° x 4.8°	11° x 9.0°
Focus range	5m ??	8m ??	8m ??
Eye relief	50 mm		
Dioptric adjustment of ocular lens	-6 ? +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB, CAN, Wi-Fi		
Number of the downloaded aiming marks	Up to 20, with the ability to edit and upload marks		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Permissible shock value	300g		
Batteries work time	6 / 8 h	8 / 10 h	
Dimensions (without eye-cup)	270x68x78mm		
Weight without batteries	0,95kg		

SIGHT ARCHER TSA-150



Introducing the new sight ARCHER TSA-150.

This device has been specifically designed for use with a variety of anti-aircraft guns, portable anti-tank systems and as part of sighting systems of armored vehicles.

The device has the ability to use ballistic corrections, built-in pictures – and videos, and established a high-quality lens with a focal length of 150mm and a relative aperture of F / 1.0, to detect and identify objects at great distances. Also, the device has a wired remote control and remote display.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 150

Detection: 4400m

Recognition: 1200m

Identification: 600m

The highly sensitive passive receivers of far infrared (heat, LWIR) range of high resolution and sensitivity, built on advanced 17 μ VOx-detectors of FLIR Systems, Inc. are used in the sight

A modern high-tech electronic components made possible to realize the broad functionality of the device with minimum dimensions, weight, and power consumption. The device is equipped with a serial interface for programming and remote control. Built-in recording module allows to make photo and video in several modes and store it into the internal memory card. The data is read via a wired (USB) or wireless (Wi-Fi) interfaces. The device has two universal hermetic connector for power charging and video output control device.

Structurally, the sight is made in shockproof waterproof aluminum housing, resistant to corrosion and download the inert gas. The device is controlled consequence of the wired remote.

SPECIFICATIONS

SPECIFICATIONS		
Detector		
Resolution of the detector	336 x 256	640 x 512
Pixel size	17 μ	
Spectral range	7,5-13,5 μ m	
Sensitivity	<50mK	
Optics		
Lens	150mm	
Relative aperture	F/1.0	
Horizontal field of view	2.5°	4.2°
Focusing range	20m \div ∞	
Electronics		
Frame ratio	9-25 Hz (PAL) 8-30 Hz (NTSC)	
Video output	PAL or NTSC, programmable	
Interface	USB, CAN, Wi-Fi	
Number of built in aiming marks	Up to 20 with the ability to edit and upload	
Operational parameters		
Start up time	2s	
Operating temperature range	-40°C till +55°C	
Mechanical shock	E-5400, Para.3.2.24.6.3	
Dimensions	315x181x181mm	
Weight	4,5kg	

MONOCULARS

MONOCULAR ARCHER TMA-55M



ARCHER TMA-55M – is a new model of the TMA series. The monocular is equipped with the presence sensor, a high-aperture lens with manual focusing, and works from standard batteries of the AA size.

The device corresponds to a class of protection of ip67.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 55
 Detection: 1700 m
 Recognition: 400 m
 Identification: 200 m

- Compact, light weight;
- FLIR System, Inc. detectors;
- Display AMOLED of high resolution;
- Special produced ocular, optimized for the display;
- Ambient and proximity sensors
- Waterproof body of high-impact plastic resisting the impact and corrosive environment;
- External power supply;
- Hand strap to hold the device ;
- Standart fastening to the face-mask or on a photographic tripod;
- Device's fast start and ready to use;
- Wide operating temperature range;
- Meet IP-67.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Monocular ARCHER TMA-55M;
- Video output/External power supply adaptor;
- USB interface cable;
- Hand Strap;
- Manual;
- Bag;
- Case.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	55mm		
Relative Aperture	F/1.0		
Field of view	8.3° x 6.4°	6.0° x 4.7°	11.4° x 8.8°
Focus range	5m ÷ ∞	8m ÷ ∞	8m ÷ ∞
Eye relief	25 mm		
Dioptic adjustment of ocular lens	-6 ÷ +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Batteries work time	6h		
Dimensions (without eye-cup)	160x81.9x70mm		
Weight without batteries	0.5kg		

MONOCULARS

MONOCULAR ARCHER TMA-55



ARCHER TMA-55 – is modification of device TMA-35 with improved optical system. Monocular is equipped with a high-aperture lens with manual focus and a longer focal length. With comparable size and weight device has significantly longer detection range.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 55

Detection: 1700 m

Recognition: 400 m

Identification: 200 m

- Compact, light weight;
- FLIR System, Inc. detectors;
- Display AMOLED of high resolution;
- Special produced ocular, optimized for the display;
- Waterproof body of high-impact plastic resisting the impact and corrosive environment;
- External power supply;
- Hand strap to hold the device ;
- Standart fastening to the face-mask or on a photographic tripod;
- Device's fast start and ready to use;
- Wide operating temperature range;
- Meet IP-67.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Monocular ARCHER TMA-55;
- Video output/External power supply adaptor;
- USB interface cable;
- Hand Strap;
- Manual;
- Bag;
- Case.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range		7,5-13,5 μm	
Sensitivity	<100mK		<50mK
Optics			
Lens		55mm	
Relative Aperture		F/1.0	
Field of view	8.3° x 6.4°	6.0° x 4.7°	11.4° x 8.8°
Focus range	5m ÷ ∞	8m ÷ ∞	8m ÷ ∞
Eye relief		25 mm	
Dioptic adjustment of ocular lens		-6 ÷ +2	
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Batteries work time	6h		
Dimensions (without eye-cup)	160x81.9x70mm		
Weight without batteries	0.5kg		

MONOCULARS

MONOCULAR ARCHER TMA-30M



ARCHER TMA-30M – compact thermal monocular in shockproof sealed housing. Small size and weight, user-friendly controls, the ability to mount on a helmet or headband, a tripod mount – all this provides a wide range of use of the instrument. Monocular is used by hunters, security and law-enforcement agencies. Also, device is equipped with ambient and proximity sensors.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 30
 Detection: 1100 m
 Recognition: 280 m
 Identification: 140 m

- Compact, light weight;
- FLIR System, Inc. detectors;
- Display AMOLED of high resolution;
- Special produced ocular, optimized for the display;
- Ambient and proximity sensors;
- Waterproof body of high-impact plastic resisting the impact and corrosive environment;
- External power supply;
- Hand strap to hold the device ;
- Standart fastening to the face-mask or on a photographic tripod;
- Device's fast start and ready to use;
- Wide operating temperature range;
- Meet IP-67.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Monocular ARCHER TMA-55;
- Video output/External power supply adaptor;
- USB interface cable;
- Hand Strap;
- Manual;
- Bag;
- Case.

SPECIFICATIONS

Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	30mm		
Relative Aperture	F/1.0		
Field of view	13° x 10°	9.5° x 7°	18° x 14°
Focus range	5m ÷ ∞	8m ÷ ∞	8m ÷ ∞
Eye relief	25 mm		
Dioptric adjustment of ocular lens	-6 ÷ +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Batteries work time	6h		
Dimensions (without eye-cup)	139x74x51mm		
Weight without batteries	0.35kg		

MONOCULAR ARCHER TMA-35



The device has:

- Fixed digital x2 and x4 zoom;
- USB interface for information exchange control, and programming;
- Automatic and manual adjustment of brightness and contrast of the image

Depending on modification, the device may also

be equipped with:

- LED flashlight;
- Universal mount (one or two).
- Compact, light weight;
- FLIR System, Inc. detectors;
- Display AMOLED of high resolution;
- Special produced ocular, optimized for the display;
- Waterproof body of high-impact plastic resisting the impact and corrosive environment;
- External power supply;
- Hand strap to hold the device ;
- Standart fastening to the face-mask or on a photographic tripod;
- Device's fast start and ready to use;
- Wide operating temperature range;
- Meet IP-67.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Monocular ARCHER TMA-55;
- Video output/External power supply adaptor;
- USB interface cable;
- Hand Strap;
- Manual;
- Bag;
- Case.

ARCHER TMA-35 – compact thermal monocular in shockproof sealed housing. Small size and weight, user-friendly controls, the ability to mount on a helmet or headband, a tripod mount – all this provides a wide range of use of the instrument. Monocular is used by hunters, security and law-enforcement agencies and, in the energy and construction, inspection and diagnostics.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 35

Detection: 1100m

Recognition: 280m

Identification: 140m

SPECIFICATIONS

SPECIFICATIONS			
Detector			
Resolution	324 x 256	336 x 256	640 x 512
Pixel Pitch	25μ		17μ
Spectral Range	7,5-13,5 μm		
Sensitivity	<100mK	<50mK	
Optics			
Lens	35mm		
Relative Aperture	F/1.2		
Field of view	13° x 10°	9.5° x 7°	18° x 14°
Focus range	5m ÷ ∞	8m ÷ ∞	8m ÷ ∞
Eye relief	25 mm		
Dioptic adjustment of ocular lens	-6 ÷ +2		
Electronics			
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)		
Video-output	PAL or NTSC, Programmable		
Display, resolution	AMOLED, 800 x 600		
Interface type	USB		
Operational parameters			
Start-up time	2s		
Operating temperature range	-40°C till +55°C		
Battaries work time	6h		
Dimensions (without eye-cup)	139x74x51mm		
Weight without batteries	0.35kg		

OPTICAL EQUIPMENT

MONOCULARS

MONOCULAR ARCHER TMA-20 MONOCULAR ARCHER TMQ-19



ARCHER TMA-20 – a compact thermal imaging monocular. This device has been specifically designed to be mounted on a headband or helmet. The device has a small size, weight and convenient controls. A lens with a focal length of 20mm manual focus mechanism allows you to comfortably use the monocular in a wide range of distances. The device is powered by a single battery CR123, also has a function of an external power supply.

ARCHER TMQ-19 – an ultra-compact thermal imaging monocular. Ultra-small size and weight make it comfortable to use monocular placing it on the headband or helmet. The instrument has a convenient controls and objects with a focal length of 19mm focused in the range from 10 m to infinity. The device is powered by a single battery CR123, also has a function of an external power supply.



BINOCULARS

GOGGLES ARCHER TGX-8/75M



ARCHER TGX 8 – further development of the TGA 4. In this model there is a compact laser rangefinder with a wave length of 1550nm . The device has a much better performance both on the measurement range and the possibility of the range finder to work in difficult weather conditions – fog, rain , snow.

Also the device is equipped with presense sensor and batteries are charging directly in the device.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 75

Detection: 2200m

Recognition: 600m

Identification: 300m

- 2 and 4 x digital zoom;
- Different color schemes for improving the perception of the image;
- Manual and automatic calibration of the detector;
- Switchable composite video output.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Goggles ARCHER TGA-8/75M LRF;
- Power adaptor;
- Car adaptor;
- 6x rechargeables;
- USB cable;
- Case;
- Bag;
- Manual.

SPECIFICATIONS

SPECIFICATIONS		
Detector		
Resolution	336 x 256	640 x 512
Pixel Pitch	17μ	
Spectral Range	7,5-13,5 μm	
Sensitivity	<50mK	
Optics		
Lens	75mm	
Relative aperture	F/1.0	
Field of view	4.4° x 3.4°	8,3° x 6.4°
Focus range	8m ÷ ∞	
Eye relief	25 mm	
Dioptic adjustment	-6 ÷ +2	
Electronics		
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)	
Video-output	PAL or NTSC	
Display, resolution	AMOLED, 800 x 600	
Interface type	USB	
Operating parameters		
Start-up time	2s	
Operating temperature range	-40°C till +55°C	
Operating time rechargeables/batteries	8 / 10 h	
Measurable Distance	1500m	
Dimensions	190x146x90mm	
Weight with batteries	1.2kg	

BINOCULARS

GOGGLES ARCHER TGA-4/75M



ARCHER TGA 4 – thermal binocular with integrated laser rangefinder. The device allows to solve problems not only target detection, but also determine the distance to it. The device also has the possibility of measuring the azimuth and elevation angle of the target. functions, ergonomic design make an indispensable instrument for a wide range.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 75

Detection: 2200m

Recognition: 600m

Identification: 300m

- 2 and 4 x digital zoom;
- Different color schemes for improving the perception of the image;
- Manual and automatic calibration of the detector;
- Switchable composite video output.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Goggles ARCHER TGA-4/75M LRF;
- Power adaptor;
- Car adaptor;
- 4x rechargeables;
- Charger;
- USB cable;
- Case;
- Bag;
- Manual.

SPECIFICATIONS

SPECIFICATIONS		
Detector		
Resolution	336 x 256	640 x 512
Pixel Pitch	17μ	
Spectral Range	7,5-13,5 μm	
Sensitivity	<50mK	
Optics		
Lens	75mm	
Relative aperture	F/1.0	
Field of view	4.4° x 3.4°	8,3° x 6.4°
Focus range	8m ÷ ∞	
Eye relief	25 mm	
Dioptic adjustment	-6 ÷ +2	
Electronics		
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)	
Video-output	PAL or NTSC	
Display, resolution	AMOLED, 800 x 600	
Interface type	USB	
Operating parameters		
Start-up time	2s	
Operating temperature range	-40°C till +55°C	
Operating time rechargeables/batteries	8 / 10 h	
Measurable distance	1000m	
Dimensions	190x146x90mm	
Weight with batteries	1.2kg	

BINOCULARS

GOGGLES ARCHER TGA-3/75



Binocular Archer TGA-3/75 - modern compact surveillance device. High performance optical system, an enhanced feature set, ergonomic design makes the device indispensable for a wide range of applications.

Efficient range according to the growth of a human figure:

Detector: 336, 640; Lens: 75

Detection: 2200m

Recognition: 600m

Identification: 300m

- 2 and 4 x digital zoom;
- Different color schemes for improving the perception of the image;
- Manual and automatic calibration of the detector;
- Switchable composite video output.

The device is delivered in a sealed high-impact case with a set of necessary accessories:

- Goggles ARCHER TGA-3/75;
- Power adaptor;
- Car adaptor;
- 4x rechargeables;
- Charger;
- USB cable;
- Case;
- Bag;
- Manual.

SPECIFICATIONS

Detector		
Resolution	336 x 256	640 x 512
Pixel Pitch	17μ	
Spectral Range	7,5-13,5 μm	
Sensitivity	<50mK	
Optics		
Lens	75mm	
Relative aperture	F/1.0	
Field of view	4.4° x 3.4°	8,3° x 6.4°
Focus range	8m ÷ ∞	
Eye relief	25 mm	
Dioptic adjustment	-6 ÷ +2	
Electronics		
Refreshing	9-25 Hz (PAL) 8-30 Hz (NTSC)	
Video-output	PAL or NTSC	
Display, resolution	AMOLED, 800 x 600	
Interface type	USB	
Operating parameters		
Start-up time	2s	
Operating temperature range	-40°C till +55°C	
Operating time rechargeables/batteries	8 / 10 h	
Dimensions	190x146x90mm	
Weight with batteries	0.95kg	

RADIO AND JAMMING EQUIPMENT



GSM NETWORKS RADIO-MONITORING SYSTEM

PORTABLE GSM NETWORKS RADIO-MONITORING POST ARG-64

PORTABLE GSM NETWORKS RADIO-MONITORING POST (ARG-64)

ARG-64 system – is intended for fast arrangement of interception post for GSM standard communication sessions in the area of targets location.

System does not require any actions from operator and works in fully automated mode. When switched on the system performs the following actions:

- automated scanning of radio-environment;
- automated tuning to base stations, available at the location of system installation;
- automated recording of the intercepted data to removable storage. The data are recorded to the storage in encrypted form.

For decryption and data procession the storage should be removed from the system and forwarded to the Centre of information procession.

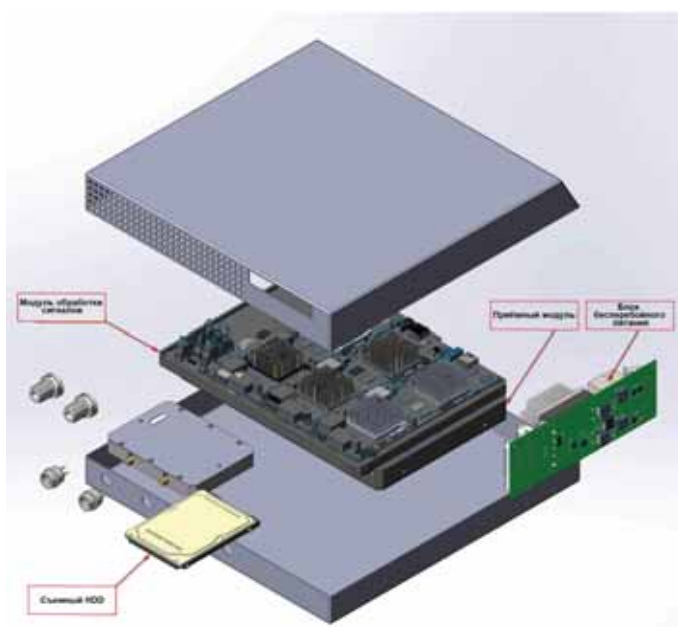
Optionally, by customer's request the system can be equipped by wireless data transmission means. Type, characteristics and scope of such means should be defined at the pre-agreement projecting stage.

ARG-64 system includes:

1. Signals reception and procession unit.
2. Removable data storage.
3. Special software.
4. Omni-directional GSM antenna.
5. Directional GSM antenna, for better reception of low power uplink signals.
6. Main accumulator battery ± 24 V.
7. Auxiliary accumulator battery ± 24 V.
8. Battery charger.
9. Camouflaged cover with system mounting frame.
10. Shock and water-protection case for transportation.

Key features:

- Fully automated operation – automated scanning of radio-environment, automated tuning to base stations, available at the location of system installation, automated recording of the intercepted data to removable storage.
- Absence of transmitting modules makes it impossible to detect the system presence with direction finding equipment;
- Long duration of autonomous operation with battery, possibility of hot swap of the battery during the operation;
- Impossibility of access to intercepted data by third persons, the data are stored in encrypted form.



Technical features:

Signals reception and procession unit (SRPU):

- Frequency bands: GSM 850, R-GSM 900, DCS 1800, PCS 1900;
- Quantity of duplex reception channels: 64;
- Sensitivity of reception section: -105 dBm;
- Removable data storage;
- Automated tuning and data recording into the storage;
- Power supply: battery ± 24 V, main ~ 220 V (optional);
- Battery "hot swap" support;
- Duration of continuous work with standard battery: up to 20 hours;
- Dimensions: 290x300x70 mm.

GSM NETWORKS RADIO-MONITORING SYSTEM

GSM NETWORKS RADIO-MONITORING CARRIED POST ARG-BP



GSM NETWORKS RADIO-MONITORING CARRIED POST (ARG-BP)

ARG-BP system – is intended for fast arrangement of interception post for GSM standard communication sessions in the area of targets location with complex electro-magnetic and operative environment (upper levels of buildings, territories, closed for motor transport, park zones, separate districts or localities with limited or impossible usage of specialized vehicles.

ARG-BP system includes:

1. Signals reception and procession unit.
2. Operator workstation, based on notebook computer.
3. Portable operator workstation, based on tablet computer.
4. Special software.
5. Omni-directional GSM antenna, receiving.
6. Omni-directional GSM antenna, for embedded modem.
7. Directional GSM antenna, for better reception of low power uplink signals.
8. Omni-directional Wi-Fi antenna, for remote control of the system.
9. GPS-antenna, for system location detection sub-system.
10. Main accumulator battery ± 12 V.
11. Auxiliary accumulator battery ± 12 V.
12. Battery charger.
13. Main power supply unit ~ 220 V.
14. Special backpack with system mounting frame.
15. Shock and water-protection case for transportation.

Key features:

- Possibility of remote control from notebook or tablet computer over Ethernet;
- Possibility of operation “on-move” (while operator moves as pedestrian) in carried variant of implementation with autonomous power supply from battery, in vehicle with power supply from vehicle’s

electric system;

- Possibility of fast replacement of battery in field, providing the necessary time of operation;
- Possibility of autonomous operation without instant control by operator;

Technical features:

Signals reception and procession unit (SRPU):

- Frequency bands: GSM 850, R-GSM 900, DCS 1800, PCS 1900;
- Quantity of duplex reception channels: 128;
- Sensitivity of reception section: -105 dBm;
- Embedded decryption module for A5/1 algorithm (optional);
- Embedded recording (processing) module;
- Power supply: battery, vehicle’s electric system ± 12 V, main ~ 220 V (with external power supply unit);
- Battery “hot swap” support;
- External interface: Ethernet;
- Dimensions with SRPU and battery installed: 255x135x400 mm.
- Weight with SRPU and battery installed: 16 кг.

Decryption module for A5/1 algorithm (optional):

- Keys calculation performance: up to 16 keys per second;

Recording module:

- Class: embedded computer;
- Processor: Intel Core i7 (4 cores);
- RAM: 8 GB;
- SSD: 1000 GB.
- Wi-Fi module 802.11ac (5 GHz);

Portable operator workstation based on tablet computer:

- Class: tablet computer;
- Model: Samsung Galaxy Note 8.0;
- Control interface: Wi-Fi 5 GHz.

GSM NETWORKS RADIO-MONITORING SYSTEM

ARGUMENT PORTABLE GSM NETWORKS RADIO-MONITORING POST



ARGUMENT system – is intended for passive interception of GSM standard communication sessions with support of decryption of A5/1, A5/2 encryption algorithms.

The system has compact dimensions and can be installed in the vehicle. System is intended for operative deployment at targets location area. Power supply is provided from batteries or from vehicle's electric system. Due to presence of A5/1 decryption unit, the access to intercepted data can be provided immediately in the same vehicle.

ARGUMENT system includes:

1. Signals reception and procession unit.
2. A5/1 decryption unit.
3. Operator workstation, based on notebook computer.
4. Special software.
5. Omni-directional GSM antenna on magnetic basement 7 dB.
6. Omni-directional GSM antenna on magnetic basement 3 dB.
7. GPS-antenna on magnetic basement.
8. Antenna amplifier for directional antenna 12dB.
9. Directional antenna 12dB with mast mounting supplies.
10. Inverter (optional).
11. Shock and water-protection case for transportation.

Key features:

- Passive interception;
- Wide-band receiver;
- Possibility of operation of several reception units with one decryption unit;

- Support of distributed reception technique;
- Possibility of recording of all the traffic from controlled base stations;
- Possibility of fast searching and listening of subscriber's sessions in near area;
- Possibility of slowing or fastening of playback without voice timbre change;
- Possibility of operation in autonomous mode without operator's participation.

Technical features:

- Signals reception and procession unit (SRPU):
- Frequency bands: GSM 850, R-GSM 900, DCS 1800, PCS 1900;
- Quantity of duplex reception channels: 64, 128, 256;
- Sensitivity of reception section: -105 dBm;
- Power supply: 12 – 24 V (vehicle's electric system);
- External interface: Ethernet.

Decryption module for A5/1 algorithm:

- Keys calculation performance: up to 16 keys per second;
- Consumed power: 180 Watt;
- Weight: 6 kg.

Workstation operator:

- Class: notebook computer;
- Processor: Intel Core i7 (4 cores);
- RAM: 8 GB;
- SSD: 1000 GB.
- Class: tablet computer;
- Model: Samsung Galaxy Note 8.0;
- Control interface: WiFi 5 GHz.

RADIO AND JAMMING EQUIPMENT

GSM NETWORKS RADIO-MONITORING SYSTEM

RADIO FREQUENCY CONTROL 20-2500 MHZ RANGE SUPPRESSION SYSTEM GARANT



Garant system is determined to suppress the receiving channels of various radio devices, radio channels of stationary, mobile and handset radio stations, cellular communication system radiophones, and also to protect the movable objects (moving column and single combat and transport vehicles) by preventing radio-controlled explosives blowing up (mines, landmines etc). The task is performed by interference of signal radiation in the whole frequency range where those control radio links can be used. In Garant system extra wide-band dipole antennas are used, that provides the possibility of covering the 20-2500 MHz frequency by four radio suppression units with an antenna on each block. The technical characteristics of wide-band antennas that are used in the Garant system exceed the analogues. The efficiency of antennas in the wide band of frequencies is achieved by using special optimized impedance inductance-capacitor inclusions to the antenna dipole. Antennas are designed especially for using on the moving transport vehicles and are placed on the cases of radio suppression units. The antennas are constructively demountable. At system deployment (folding) there is the fast connection of the antenna to a corresponding block without using a high-frequency cable that provides serviceability and improves reliability. Garant system can be installed on the vehicle of almost any kind. For example, all four suppression units can be installed

on the armored carrier, on the roof of the car body-van or on the tank. The system is designed on the basis of the operating experience of the similar device which was used by Ukrainian peacekeeping forces on the Near East. Use of this device allowed neutralizing several attempts of radio-controlled blowing up while automobile column was moving (the explosions occurred after the columns passed the place of radio-controlled landmine area beyond the radio countermeasure zone).



RADIO AND JAMMING EQUIPMENT

JAMMING, TRACKING AND SURVEILLANCE

SOKOL-3 JAMMER

POWER SUPPLY UNIT INCLUDING CONTROL CABLE AND POWER CABLE



MICROWAVE UNIT



SOKOL-3 – Multi-Frequency Microwave Generator controlled by computer and having complex characteristics of time and amplitude for examination of chaos in electronic devices for the frequency from 15 MHz to 10 600 MHz SOKOL-3 with additional satellite downlink frequencies blocking modules is intended for the radio countermeasure of various radio means, radio communication channels of stationary, mobile and man-pack radio set, military radio-controlled armament systems, mobile phones reception paths of cellular communications systems, and also for protection of mobile vehicles (moving truck trains and single vehicles) and stationary objects by prevention of radio-controlled firing explosives (mines, high-explosive charges, etc.). The given problem is solved by the radiation of jamming radio signal in all frequency range, where the use of the specified control radio links is possible. The system is developed on the basis and in view of operating experience of the product similar to destination which is used by the USA peace-making contingent in the Middle East. The use of this product has allowed neutralizing some attempts of radio-controlled firing at the movement of the truck trains (explosions have taken place after passing by the truck trains of the radio-controlled charge position outside of the radio countermeasure zone).

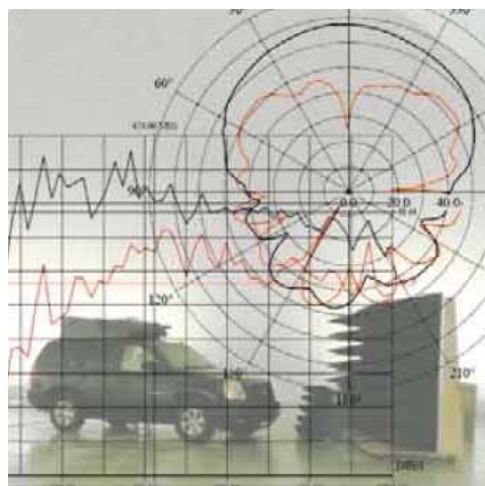
PLACE OF INSTALLATION:

- SUVs;
- APCs;
- VVIP Cars.

APPLICATIONS:

- VVIP Protection;
- Force Protection;
- Vehicle Convoy Protection;
- EOD Operations;
- Event, Base or Venue Protection;
- Communications Jamming.

TESTED AND PROVED EFFECTIVE RANGE OF PROTECTION OF SOKOL-3 JAMMER IS 1000 METERS



SOKOL-3 JAMMER

SOKOL-3 Jammer consists of the following components:

1. Microwave Unit:
 - Twenty-seven generating channels;
 - Separate generating C and Ku-bands units;
 - Four of broadband microwave TWT power amplifier;
 - Six multi-managed switch;
 - Unit of measurement and display of output parameters;
 - A computer control unit;
 - Antennas system
2. Power supply units;
3. Batteries unit;
4. Power cable;
5. Control cable.

EACH OF 27 FREQUENCY CHANNELS OF THE JAMMER:

1. Has a generator of harmonic signals, tunable in the frequency band corresponding to the channel number;
2. Has a noise generator, overlapping the frequency band of the concerned channel;
3. Has a separate noise generators for c-band and Ku-band up to 14 800 MHz;
4. Has a separate generator of harmonic signals, tunable in the frequency band corresponding to the C-band and Ku-band up to 14 800 MHz.

TECHNICAL PARAMETERS:

- Jamming range – from 15 MHz to 18 500 MHz
- Output power – not less than 1050 Watt
- Accuracy of frequency setting – not less than 1 MHz
- Range of adjustment of the output power – 0 ... 20 dB
- Parameters of the pulse signals:
 - Minimum signal duration – 50 nanosecond
 - The minimum pulse period / pulse repetition cycle – 100 nanosecond
 - Maximum number of the pulses during one cycle – 1024
 - The level of suppression of higher harmonic – min 40 dB
- Power supply – not more than 2 000 Watt
- Dimensions microwave unit – 485x470x380mm
- Dimensions C and Ku-band unit 485x470x380mm
- Weight of the microwave unit – 35 kg
- Weight of the C and Ku-band unit – 32 kg
- Dimension of the power supply unit – 485x470x380mm
- Weight of the power supply unit – 30 kg
- Weight of TWT amplifier unit – 150 kg
- Weight of power supply TWT amplifier unit - around 150 kg
- Total Weight of the SOKOL-3 Jammer – around 450 kg

**ALL COMPONENTS OF THE SYSTEM
ARE CERTIFIED IN ACCORDANCE
WITH MILITARY STANDARDS**

ENVIRONMENTAL CONDITIONS OF OPERATION:

- Temperature range (outside) – from - 50 to 60°C
- Humidity – up to 95 %
- Atmospheric pressure – from 630 to 800 mm mercury column

SOKOL-3 JAMMERS PROVIDES:

- Real-time jamming / suppression through the complete frequency range;
- Field programmability for rapid adjustment;
- Modular construction for easy maintenance, repair and upgrade;
- Efficient power management and power supply

**THE MULTI-FREQUENCY GENERATOR SOKOL-3
IS CAPABLE TO OPERATE CONTINUOUSLY NOT
LESS THAN
20 HOURS WITH SUBSEQUENT
BREAK ON 1 HOUR**

RADIO AND JAMMING EQUIPMENT

JAMMING, TRACKING AND SURVEILLANCE

COUNTER-SURVEILLANCE EQUIPMENT PLASTUN-3D MOBILE SYSTEM



The PLASTUN-3D-MOBILE System is intended for electronic protection of premises. The System makes detection of presence of electronic bugs which use radiofrequencies, infrared range, wiring communication and power supply lines for transmission of collected data / information.

The PLASTUN-3D-MOBILE System is mounted in "Peli" case and it is intended for special inspection procedures.

A key feature of the System is an unlimited accumulation (limited by disk memory space only) of radiofrequencies surrounding measurements and their storage in a server database.

The PLASTUN-3D-MOBILE System allows to make direction-finding of radio-radiation source using accumulated data from database. There is a display mode showing detected sources of radiation on the plan of premises or terrain in real time with their characteristics and review.

SPECIFICATIONS

Working frequency range, MHz	25 ... 3000 (21000 optional)
Receiver resetting step during scanning, MHz	6
Spectral resolution during monitoring, KHz	12.5
Spectral resolution during analysis, Hz	500 ... 400000
Visualizsation of spectral panjoramas, value	Minimum, instantaneous, maximum, two-dimensional and three-dimensional array
Period of continuous accumulation for storage volumes	Up to 180 days
Scanning speed per aerial, MHz/s	Up to 3000
Number of aerial inputs	8 ... 32
Number of wiring inputs	1 ... 4
Number of inputs of electric power supply network	1 ... 2
Number of infra-red sensor inputs	1 ... 2
Investigation range of wiring and power supply lines, MHz	0.1 ... 30
Dynamical range, not less than, dB	84
Sensitivity, not less than, uV	1.0
'Danger' signals detection algorithms	Space-magnitude selection; analysis of harmonics presence, acoustic linking for searching of AM-FM bugs, spectrum shape analysis, WiFi analysis, Zigbee
Nearest area direction finding	Available
Dimension and weight	Dimension and weight depend on selected configuration. The unit could be mounted either in a wall niche or on 19" shelving rack

THE MOBILE RADIOMONITORING SYSTEM ARGUS-M2



The **Mobile Radiomonitoring System (MRMS) ARGUS-M2** is designed for automated monitoring of radio-frequency spectrum, measurement of different parameters of electromagnetic emissions and radio signals, and for online direction finding of transmitters and radioelectronic systems outside the availability zones of fixed DF and radiomonitoring stations.

MRMS ARGUS-M2 is based on high-performance measurement equipment of the ROHDE & SCHWARZ (Germany) company:

- R&S FSP30 spectrum analyzer;
- R&S EB200 monitoring receiver;
- R&S EBD195 direction finder processor;
- R&S HE010 and R&S HE500 monitoring antennas;
- R&SADD195 and R&SADD071 DF antennas;
- R&S AC008 microwave directional antenna;
- R&S HE200 portable directional antenna;
- R&S ARGUS-IT spectrum monitoring and management software;
- R&S Map View geographic information software.

MRMS ARGUS-M2 ensures achieving following tasks:

- systematic monitoring and measurement of the radio stations parameters (level, frequency, offset, deviation, field strength and power flux density, bandwidth, modulation parameters);
- measurements for EMC (electromagnetic compatibility);
- identification of the interference sources.

SPECIFICATIONS

Operating frequency ranges:	
direction finding mode	20... 3 000 MHz
radiomonitoring mode	20... 26 500 MHz
Instrumental error of DF in frequency 20... 80 MHz	2 degree
80... 1 300 MHz	1 degree
1,3... 3 GHz	2 degree
Sensitivity at frequency of 1 GHz	-145 dBm
Average positioning error	less than 15m
Power supply systems: in the mobile mode in the fixed mode	12V/ 24V DC 220 VAC (external)
Max power consumption	1000W
Time to establish an operating mode	less than 15 min
Operating temperature (inside a car)	+5...+55°C
Maximum dimensions, WxHxD	2242x2650x5290 mm
Maximum height with deployed mast	9450 mm
Weight with driver	2870 kg

RADIO AND JAMMING EQUIPMENT

JAMMING, TRACKING AND SURVEILLANCE

FULL-BAND RADIO-ELECTRONIC JAMMING MOBILE STATION MODEL JYT-MJ01



Mobile station JYT-MJ01 is intended for the area and motorcades guarding at the explosives' defusing locations to provide antiterrorist conditions.

PARAMETERS:

Coverage: radius 100-500 metres (75dBm depending on the base radio station distance);

Power transfer: complete package $\geq 1100W$ 50-140W per channel;

Supported signal types: GSM900, CDMA800, CDMA2000, DCS1800/1900, 3G, 4G;

Other signal types: remote controls, remote-piloted spies, wireless microphones, wireless telephones, pagers, car control consoles, GPS, satellite phones, WLAN, Bluetooth, Wi-Fi, etc.

Number of output channels: 12.

FUNCTIONS:

- Car installed; wide coverage, continuous signal jamming within 20MHz – 3000MHz range;
- Easy settings change due to its modular design; autonomous control of each channel; separate adjustment of the control panel and driver to provide more convenient operation;
- Frequency separation provides the optimal interference effect at different frequencies
- Effective energy distribution minimizes power loss and improves efficiency; energy supply is adjusted by means of a special mechanism;
- The system of antennas with a high gain factor ensures more precise signal;
- Integrated "intelligent" thermostat guarantees long operating period;
- Modern fabrication techniques; waterproof and shockproof casing;
- ISO 9001:2008 quality system certification.



RADIO AND JAMMING EQUIPMENT

JAMMING, TRACKING AND SURVEILLANCE

FULL-BAND RADIO-ELECTRONIC JAMMING MOBILE STATION MODEL JYT-MJ01

SPECIFICATIONS

Frequency parameters are adjusted according to the customer's terms and requirements.
Standard parameters are given in the table.

Channel	Frequency	Power
Remote control	25-60 MHz	80W
Civil PPT	135-174 MHz	100W
PPT	200-300MHz	100W
PPT/Car control	312-318 MHz	100W
PPT/CDMA450M	400-500 MHz	100W
CDMA	850-894 MHz	120W
GSM	925-960 MHz	120W
DCS/PHS	1805-1920 MHz	100W
D/WCDMA/CDMA2000	2010-2170 MHz	100W
Other signals	1100-1300 MHz	50W
GPS/ Satellite phone	1520-1580 MHz	50W
Wi-Fi/Bluetooth/4G	2400-3000 MHz	100W
	Power	1120W
Total weight	88 kg	
Antenna dimensions	Antennas total:12 H4:1530 Φ 16 B4:700 Φ 35	
Power supply	Portable generator (5000 W)	
Ambient temperature, °C	-20°C – 50°C	
Humidity	≤80%	
Antenna parameters	Omnidirectional antenna; amplification 7dBi	
Design	Shockproof casing, resistant to compression, detachable for a quick dislocation	
Dimensions, mm, no more	9100x2500x3600	

INSTALLATION ON VEHICLES

Antenna installation

- 1) Considering low-frequency antenna length, it is recommended to install this antenna at the car rear.
- 2) High-frequency antenna is installed on the car roof. The antenna movable mechanism makes it possible to fold it while in waiting mode
- 3) It is recommended to install the set on crossover / SUVs to guarantee its efficiency.

Power supply

- 1) The portable battery is required for this device operation.
- 2) The output power of the power supply source in use shall not be less than 50000KVA.
- 3) It is recommended to use BUFFALO battery.

Cooling and ventilation

- 1) The device is equipped with proper cooling and ventilation systems.
- 2) It is recommended to provide the air inlet to ensure optimal air circulation when installed on cars.

JAMMING, TRACKING AND SURVEILLANCE

REMOTE VIDEO SURVEILLANCE SYSTEM ON MICON G24-SE BASE

GSM/GPRS photo recorder Micon G24-SE is a modular unit. It contains 1 to 4 Micon S54F photo recorders and GPRS modem/controller that operates the whole device and provides the data transmission to the GSM cellular channel (in GPRS mode). Apart from the possibilities provided by the Micon S54F photo recorders the device allows transferring the actual photos from cameras and archives of accumulated shots to the supervisory console.

The number of modules can be increased up to 4. The remote (up to 200 m) camera modules can function at the negative temperature (up to -30°C), and there are also individual SD cards (up to 840 000 photos at the capacity of 32 GB) for each camera.

Functionalities:

- Fixation of action on the distant object to the SD memory card;
- The distant object image transferring to the supervisory console, telephone (mobile terminal) on the user's request/probe triggering;
- The possibility of remote viewing of the image archive that is saved on the memory card of the photo recorder(s); Receiving the single image (or a series of images) from the object on the user's request.



Solar battery (panel)

Main unit "MiCON G24"

Infrastructure external backlighting

CAM1 camera in the anti-vandal sealed casing

The program complex MiCON PANORAMA is recommended to be used as the software. It contains both the client and the server software including DBCS. The client program is used by the dispatcher in the places, for example, in the regional authorities to control the jurisdictional areas and sections.

SATELLITE MONITORING SYSTEMS



SATELLITE MONITORING SYSTEMS

THURAYA MONITORING SYSTEM

Thuraya Services:

- Voice communication
- Short message
- Data transfer
- Fax

Thuraya Service Coverage:

- Thuraya - 2 is located in geosynchronous orbit at 44° E longitude, inclined at 6.3 degrees.
- Thuraya - 3 is located in geosynchronous orbit at 98.5° E longitude, inclined at 6.2 degrees.

Thuraya spot beams

- Coverage area consists of multiple spots, created by spot beams created by 128 element L-band antenna that support up to 351 separate spot beams, each configurable to concentrate power where usage needs it.

Thuraya Signals Flow:

Thuraya combines two types of links:

- between satellite and Mobile Earth Station (MES) or handset, being established in L-band at frequencies 1.6 GHz for uplink and 1.5 GHz for downlink
- between satellite and Primary Gateway Earth Station (GATEWAY), being established in C-band at frequencies 6 GHz for uplink and 3 GHz for downlink

GATEWAY is also responsible for tracking, telemetry and control center for the satellite.

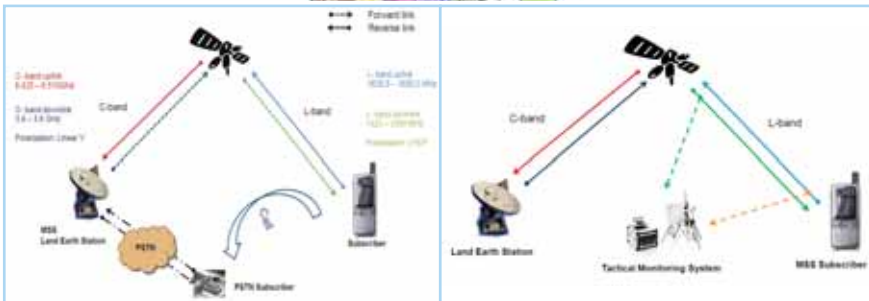
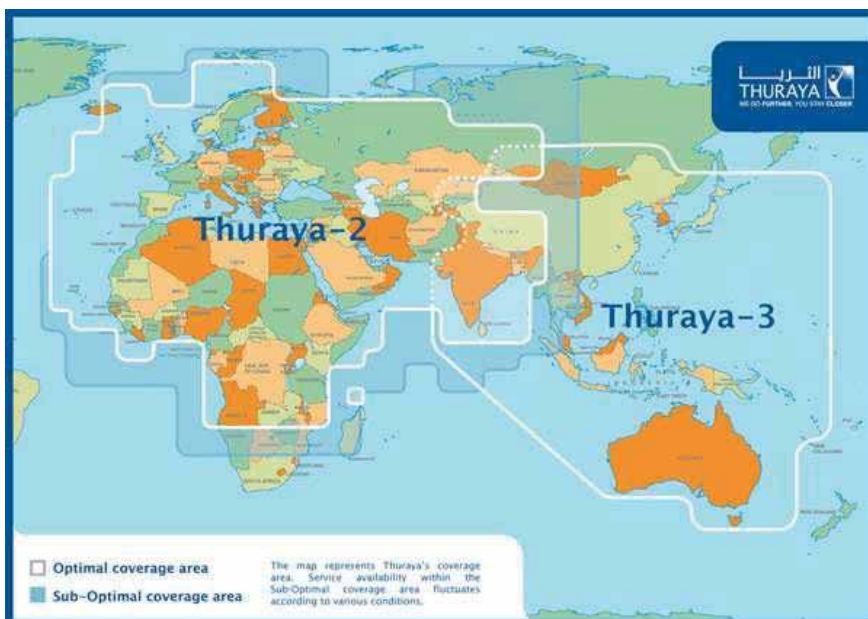
Strategic Monitoring Solution

Strategic monitoring solution is designed to passively intercept downlinks from the Thuraya satellite at C-Band and L-Band.

The two-side interception (uplink + downlink) is possible only when the target is in on direct line-of-sight.

In other cases, one-side (downlink) interception is provided.

In 5-8% of cases an echo of uplink signal is present in downlink signal that makes possible to listen both sides of communication.



Cluster of interest (Home cluster):

The C-Band coverage includes the entire Thuraya network. The L-Band coverage is restricted to the spot-beams where the L-Band antennas are located, and the spot-beams surrounding them. The system covers total of 7 Spot-Beams with L-Band interception for Thuraya-2. The standard spot-beam

SATELLITE MONITORING SYSTEMS

THURAYA MONITORING SYSTEM



diameter is about 450KM. The Main C-band and L-band subsystems are to be located together at a single site – Main Stationary System.

Proposed Strategic Solution structure

The system will monitor sessions between Thuraya terminal and any of the following:

- PSTN / mobile network subscriber
- Thuraya terminal – via satellite or regular GSM
- Other satellite subscriber, such as Inmarsat, Iridium, etc.

The intercepted information includes CDRs of Thuraya sessions, including full session details from the system L-Band coverage area and partial details from C-Band signaling that does not have the corresponding L-Band channels.

Properties of solution

Real time interception is made on target basis. Targets may be unique or group and is described by mean of filters. As soon as all targets are defined (filters are set), traffic that matches the filters is recorded, processed, indexed and became available for operators for further processing. Also priority level may be assigned to the Target.

All types of events, like standby, shutoff (last known position), and current activity are saved into database.

Database records include:

- MES category: Targeted, Known, Unknown
- MES ID (IMEI, IMSI, TMSI)
- Phone number, if known
- Name, if given
- GPS position
- Call duration and phone number contacted
- Spot beam ID

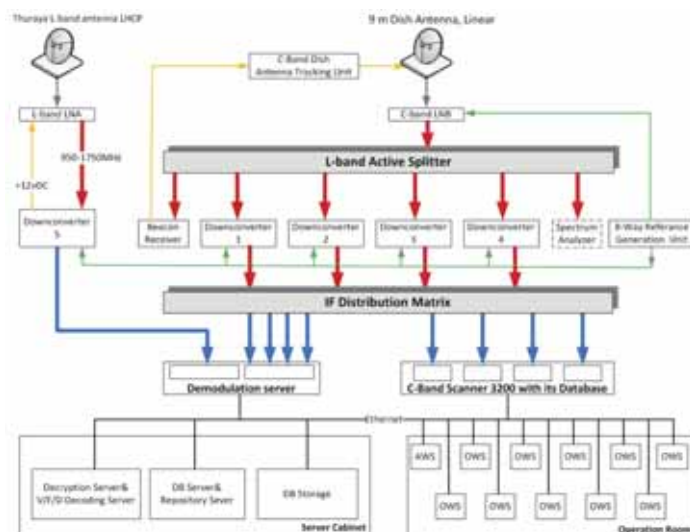
Encrypted items

All traffic on signaling channels is not encrypted but informational channels are.

Thuraya use A5/2-GMR-1 algorithm to encrypt voice, SMS, fax and data transmission and A5/1-GMR-1 algorithm for Location Update (IMSI Attach) process.

Integrated into STMS deciphering subsystem gave the possibility to process:

- Call content including Voice, SMS, Fax & Data
- IMEI of the MES
- Calling Line Identity Presentation (CLIP)



Filtering criteria are defined as follow:

- Thuraya handset identification: TMSI/IMSI/IMEI/MSISDN
- Dialed number in outgoing calls, including wildcard
- Calling number during incoming call (if available)
- Spot beam number
- Geographic area to filter as per GPS position
- Type of session (Voice, Fax, Data)
- Time & Period of interest

SATELLITE MONITORING SYSTEMS

SATELLITE MONITORING SOLUTION

Existing solution

Numbers of simultaneous Carrier demodulating and processing capabilities:

- SCPC Communicating terminals: 20
- TDM/TDMA/FTDMA VSAT networks: 16 (Each VSAT networks having 1 TDM Outroute and 3 TDMA / FTDMA inroutes).
- Handle atleast 12 E1 and 4 E2 bit streams simultaneously (point to point links).

List of disadvantages

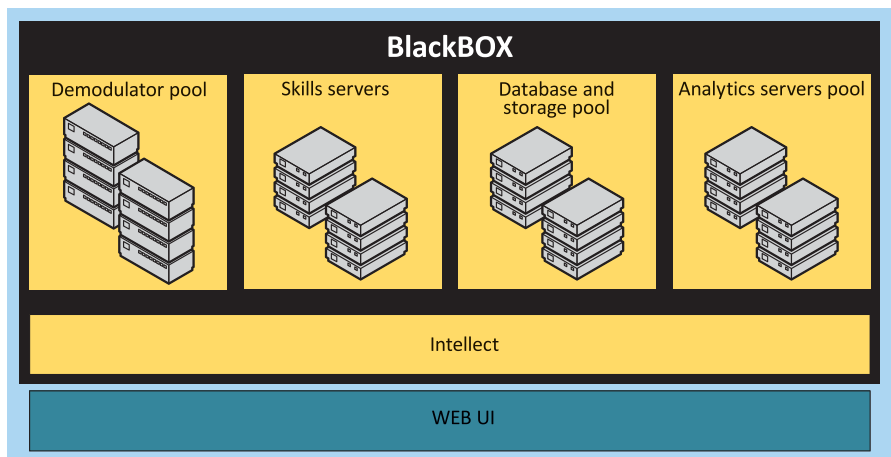
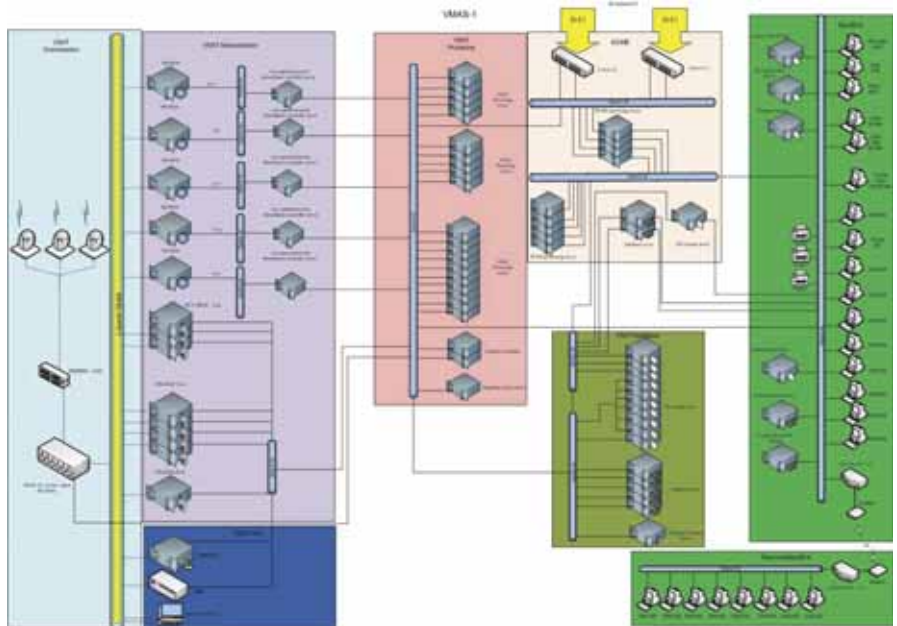
Open architecture systems that require the staff with:

- special knowledge in signal analysis;
- network infrastructure support;
- operation systems support;
- database administration;
- etc.

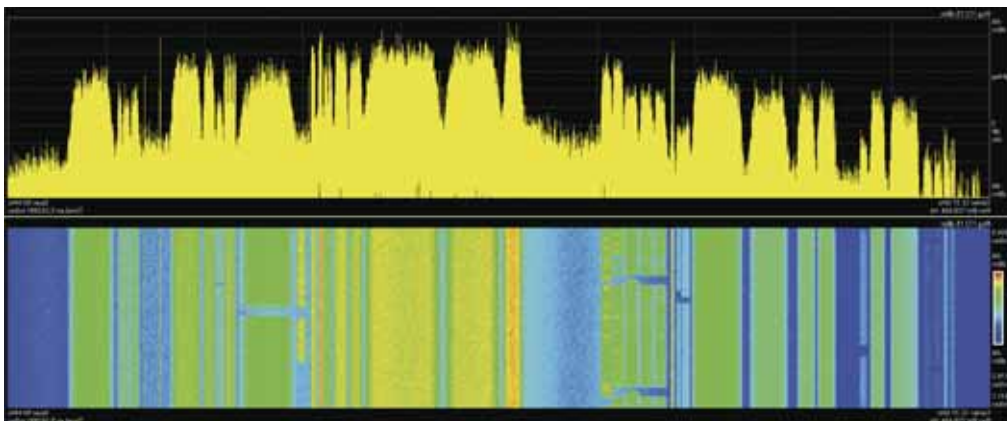
Special Hardware

Multi-channel digital receiver with decoder RCV-20x is intended for: reception of L-band signals, demodulation, decoding, descrambling, de-framing and sending data over the local area network for further processing by external software.

One wideband or up to four narrow-band channel for one L-band signal.



Typical transponder spectrum



SATELLITE MONITORING SYSTEMS

SATELLITE MONITORING SOLUTION

Transponder frequency plan

1	Satellite	Polarization	Frequency	Modulation	Symbol Rate	Payload	Equipment	From	To	Decoder (first)	Descrambler	Framer	Decoder (secondary)	SNR
2	Express AM-22	H	11020.00	QPSK	5000000	DVB-SD	Linkstar	Russia	Russia	VIT3/4 DVB	DVB	BYPASS	DVB RS 188/204/08/12X17	12.00
3	Express AM-22	H	11085.63	QPSK	240061	HDLC	iDirect	Russia	Russia	TPC_IDT 32x26-32x21	SS 3.20	BYPASS	not set	7.70
4	Express AM-22	H	11089.60	QPSK	259700	HDLC	iDirect	United Kingdom	Georgia	TPC_IDT 64x57-64x57	SS 3.20	BYPASS	not set	7.00
5	Express AM-22	H	11112.83	ACM	5300000	DVB-S2D	Linkstar	Russia	Russia	LDPC_DVB_ACM	DVB	BYPASS	not set	13.00
6	Express AM-22	H	11128.99	QPSK	675284	HDLC	iDirect	Russia	Libya	TPC_IDT 128x120-128x120	SS 3.20	BYPASS	not set	7.40
7	Express AM-22	H	11562.36	QPSK	2500008	DVB-SD	Linkstar	Turkey	Turkey	VIT5/6 DVB	DVB	not set	DVB RS 188/204/08/12X17	9.20
8	Express AM-22	H	11562.36	QPSK	2500000	DVB-SD	Linkstar	Turkey	Lebanon	VIT5/6 DVB	DVB	BYPASS	DVB RS 188/204/08/12X17	9.50
9	Express AM-22	V	10965.51	QPSK	7915258	DVB-SD	Gilat	Russia	Russia	UNCODED	AS 14,15	BYPASS	not set	10.40
10	Express AM-22	V	11124.47	QPSK	8776000	DVB-SD	Linkstar	Russia	Russia	VIT5/6 DVB	DVB	not set	DVB RS 188/204/08/12X17	2.30
11	Express AM-22	V	11124.47	QPSK	8776000	DVB-SD	Linkstar	Russia	Russia	VIT5/6 DVB	DVB	BYPASS	DVB RS 188/204/08/12X17	13.00
12	Express AM-22	H	12539.42	QPSK	5369287	HDLC	iDirect	Afghanistan	United Kingdom	UNCODED	SS 3.20	BYPASS	not set	8.10
13	Express AM-22	H	12546.28	QPSK	5511400	HDLC	iDirect	Afghanistan	United Kingdom	UNCODED	SS 3.20	BYPASS	not set	8.80
14	Express AM-22	H	12576.76	QPSK	2963037	HDLC	iDirect	Afghanistan	United Kingdom	UNCODED	SS 3.20	BYPASS	not set	9.00
15	Express AM-22	H	12581.23	QPSK	4222027	HDLC	iDirect	United Kingdom	Afghanistan	UNCODED	SS 3.20	BYPASS	not set	10.00
16	Express AM-22	H	12581.81	QPSK	375340	TDMA	iDirect	Sweden	Romania	not set	not set	not set	not set	6.00
17	Express AM-22	H	12582.28	QPSK	375340	TDMA	iDirect	Sweden	Romania	not set	not set	not set	not set	6.00
18	Express AM-22	H	12582.75	QPSK	375340	TDMA	iDirect	Sweden	Romania	not set	not set	not set	not set	6.00
19	Express AM-22	H	12597.06	QPSK	5511392	HDLC	iDirect	Afghanistan	United Kingdom	UNCODED	SS 3.20	BYPASS	not set	6.70
20	Express AM-22	H	12601.78	QPSK	2741228	HDLC	iDirect	United Kingdom	Afghanistan	UNCODED	SS 3.20	BYPASS	not set	8.20
21	Express AM-22	H	12695.55	8PSK	3333000	DVB-S2D	DVB-RCS	Italy	Italy	LDPC	DVB	BYPASS	not set	7.60
22	Express AM-22	V	12570.66	QPSK	495725	HDLC	iDirect	United Kingdom	Austria	not set	SS 3.20	BYPASS	not set	10.00
23	Express AM-22	V	12577.80	QPSK	991536	HDLC	iDirect	Afghanistan	Afghanistan	not set	SS 3.20	BYPASS	not set	8.70
24	Express AM-22	V	12590.93	QPSK	495725	HDLC	iDirect	United Kingdom	Afghanistan	not set	SS 3.20	BYPASS	not set	7.90
25	Express AM-22	V	12591.42	QPSK	165242	HDLC	iDirect	Afghanistan	United Kingdom	not set	SS 3.20	BYPASS	not set	7.00
26	Express AM-22	V	12619.94	QPSK	1210267	HDLC	iDirect	Lebanon	China	UNCODED	SS 3.20	BYPASS	not set	8.30

Skill list

Signal type	FDMA	TDMA	FTDMA	MFTDMA	...	
Modulation	BPSK	QPSK	16QAM	16APSK	...	
Error Correction Code	Sequential code	LDPC	BCH	Turbo code	...	
Scrambler	Additive	Self-Synchronized				
Framer	E1 D/I	T1 D/I	IBS	IDR	EDMAC	...
Multiplexing	DTX-240	DTX-360	DX-3000		...	
Channel level protocol	HDLC	Frame Relay	Ethernet		...	
Protocol	IP	TCP	UDP		...	
Payload type	Voice	Data	Signalization		...	

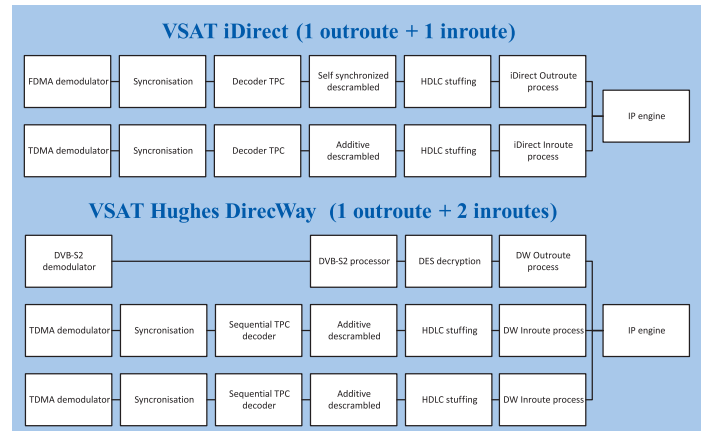
VSAT iDirect (outroute)

Signal type	FDMA	TDMA	FTDMA	MFTDMA	...	
Modulation	BPSK	QPSK	16QAM	16APSK	...	
Error Correction Code	Sequential code	LDPC	BCH	Turbo code	...	
Scrambler	Additive	Self-Synchronized				
Framer	E1 D/I	T1 D/I	IBS	IDR	EDMAC	iDirect
Multiplexing	DTX-240	DTX-360	DX-3000		iDirect	
Channel level protocol	HDLC	Frame Relay	Ethernet			
Protocol stack	IP/TCP:UDP					
Payload type	Voice	Data	Control channel		...	

VSAT iDirect (inroute)

Signal type	FDMA	TDMA	FTDMA	MFTDMA	...	
Modulation	BPSK	QPSK	16QAM	16APSK	...	
Error Correction Code	Sequential code	LDPC	BCH	Turbo code	...	
Scrambler	Additive	Self-Synchronized				
Framer	E1 D/I	T1 D/I	IBS	IDR	EDMAC	iDirect
Multiplexing	DTX-240	DTX-360	DX-3000		iDirect	
Channel level protocol	HDLC	Frame Relay	Ethernet			
Protocol stack	IP/GRE/IP:TCP:UDP				...	
Payload type	Voice	Data	Signalization		...	

VSAT processing chains



List of disadvantages

- Comtech EF (DMD-20, CDM-625, ...)
- Paradise Datacom (PD10, PD25, ...)
- Datum Systems PSM-500
- Radyne DMD20
- Comstream CM701

List of VSAT knowledges

- Hughes Network Systems TES
- Hughes Network Systems PES
- Hughes Network Systems DirecWay
- Gilat SkyEdge
- iDirect (Infinity, Evolution)
- DVB-S\S2\RCS
- Nextar BOD DAMA
- Viasat Linkstar

SATELLITE MONITORING SYSTEMS

SATELLITE MONITORING SOLUTION

List of DCME knowledges

- ECI Telecom DTX-240 (T, D, E, F)
- ECI Telecom DTX-360
- ECI Telecom DTX-600
- Mitsubishi DX-3000
- Mitsubishi DX-7000 (A, B)
- NEC NCI-501
- A-bis
- OKI TC-2000
- CS-8000
- Celtic-3G
- PCM-30
- ADPCM-60
- E1
- E2

List of postprocessing

- Speaker Identification / Verification
- Language Identification (50+ Pre-trained languages)
- Speech Transcription (English (strong on non-native speakers), Czech, Russian, Chinese (Mandarin))
- Acoustic Keyword Spotting (English (strong on non-native speakers), Russian, German, Polish, Spanish (Venezuelan), Arabic (Levantine), Czech, Slovak, Hungarian)
- Gender Identification
- Optical character recognition
- Document categorization
- Creation the dossier for the object of interest
- Link and event investigation
- Early warning of abnormal behavior
- Reporting

VEHICLES



TRITON-01 4X4 LIGHT ARMoured PLATFORM (LAP)



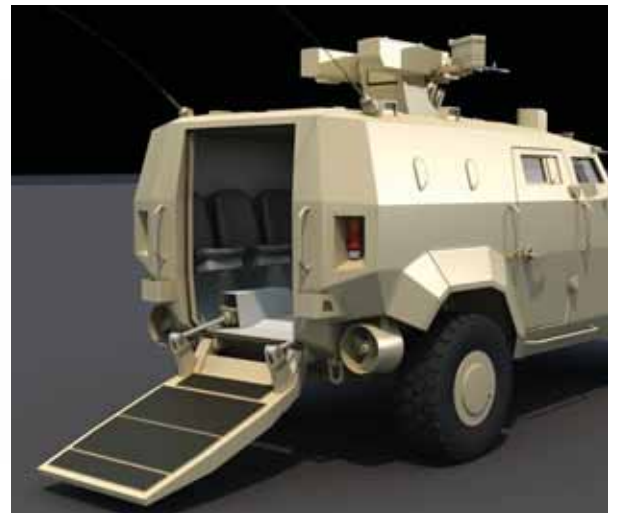
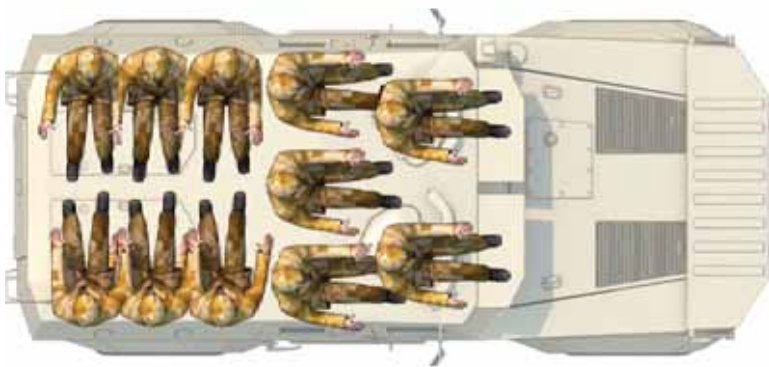
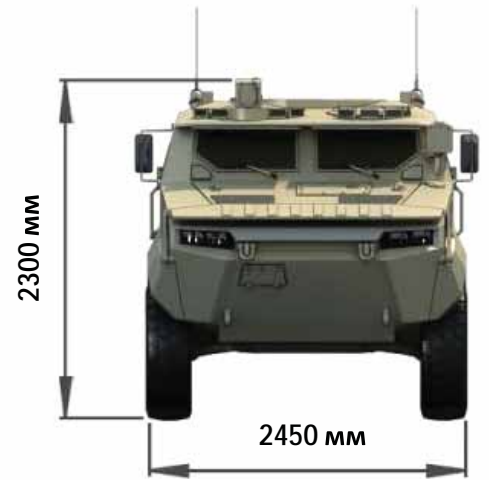
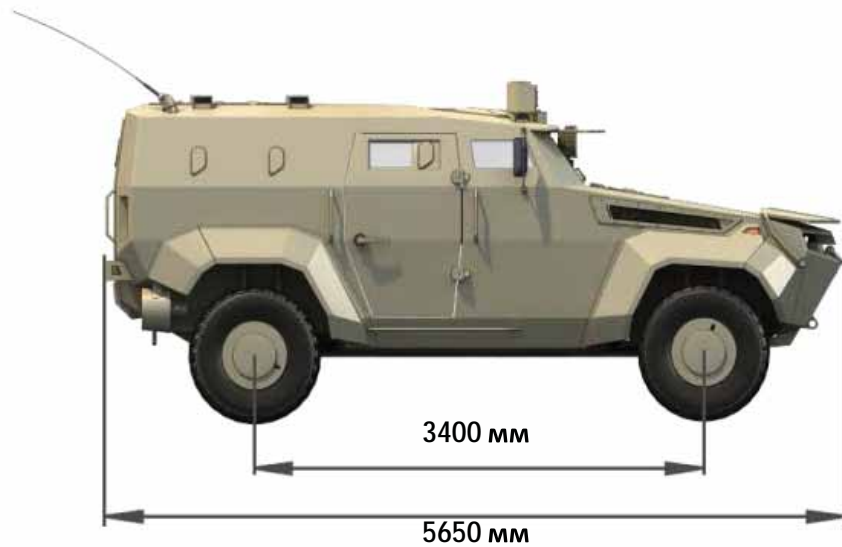
Triton-01 is a 4x4 armoured vehicle designed for the transportation of military personnel, ammunition, cargo and light weapons station, communication and special equipment.

The platform is designed for support of troops, rapid reaction forces, police etc. during intelligence, defensive, anti-terrorist and peace-keeping operations.

The platform is able to fulfil combat tasks both at day and night, in off-road conditions and across water obstacles, wading and floating.



TRITON-01 4X4 LIGHT ARMoured PLATFORM (LAP)



Swimming speed up to	max. speed	wall thickness to pass	clearance	heeling	heeling	endurance range
10 km/h	110 km/h	0,4 m	0,4 m	24°	30°	700 km

TRITON-01 4X4 LIGHT ARMoured PLATFORM (LAP)

Performance

Vehicle's armoured all-metal, welded, leak-free shell protects personnel against 7.62 mm amunitions, antipersonnel mines and is equipped with NBC hazards protection.

The v-shaped bottom provides mine protection.

Combat crew - 11 persons (commander, driver, operator of remotely-controlled machine-gun and eight troopers).

Total weight of the platform is up to 8 t.

Platform layout

Platform layout provides the front power plant, ensures good cross-country ability, security and comfortable transportation, mounting and dismounting of crew and troopers.

The platform provides an easy access to the power plant elements, steering gear, braking system and the air system during operation, maintenance and repair.

Its structure includes three compartments: engine, combat and troop compartments. Engine compartment located in front is separated from other compartments with a leak-free vibro-noiseproof wall.

Central part of the platform shell contains combat compartment with space for commander, machine-gun operator (depending on type of weapon station installed) and driver, as well as the communication facilities, ammunition load, outfit and parts and accessories.

The troop compartment is located in the rear part of the platform with seats for troopers, observation devices and gun ports.

There is a folding hydraulically operated door at the back of the platform.

A water drive engine is located at the back of the platform.

A lever hoist is installed at the front of the platform to ensure overcoming of obstacles and evacuation, which also provides the platform capability of self-extraction.

The platform design provides installation of special equipment:

- lever hoists, carrying capacity of 2.5 t;
- navigation aids;
- heating and air conditioning systems;
- tires inflation system;
- observation devices: day (periscopic, prismatic, heated) and night for a driver and the sighting viewers for commander;
- radio equipment;
- collective protection system facilities.

The platform can function within -40 to +50 Co temperature range.

Weapons

- 12.7 mm machine gun;
- 40 mm grenade launcher.

Ammunition load: 12.7 mm - 50/100 rounds (option of 200); 40 mm - 32 rounds.

Weapon station weight - 300 kg.

Viewing and sighting

Daylight sight: double-field colour CCD camera

Night sight: uncooled thermal camera

Ranging laser: eye-safe colour LCD display 12"

Weapon operation:

horizontally: 360 deg.;

vertically: -7 to +60 deg.;

high-speed targeting:

horizontally: from 45 deg./s;

vertically: from 30 deg./s;

low-speed targeting:

horizontally up to 0.15 deg./s.;

two-axis stabilization:

available, automatic tracking (option).

VARTA TACTICAL ARMORED PERSONNEL CARRIER



SPECIFICATIONS

Main characteristics

Maximum speed	110 km/h
Ground clearance	400 mm
Vehicle height	2 900 mm
Vehicle cruise range	1000 km
Max. height of vertical obstacle	400 mm
Max. trench width	1 m
Max. gradient	30°
Max. side slope	15°
Max. fording depth bot less	1 m
Crew	2 persons
Troopers	8 persons

Engine and transmission

Engines	YaMZ / Cummins
Transmission	Manual
Emission grade	Euro 4
Power/GVW	270 h.p. (300 h.p. Cummins +)
Differential	Axle and enter axle differential locking
Conditioner	Dual (front and rear) Air Conditioner (hot/cold)
Tires	Continental (RunFlate military, off-road) Central Tire Inflation System (CTIS) ABS and TCS

VARTA TACTICAL ARMORED PERSONNEL CARRIER

Protection levels and exterior

- Protection of the vehicle hull including engine bay and glass - STANAG 4569 level 2 (STANAG 4569 level 3 – may be provided as per Customer's requirement)
- Under body V-hull blast shield - STANAG 4569 level 2a, 2b (STANAG 4569 level 3a, 3b – may be provided as per Customer's requirement)
- Rotating Counterbalance Roof Hatch, and a Flush to Floor Rotating Gunner Stand
- Fire Suppression System with manual and automatic discharge operations, and optical sensors for immediate reaction, to defeat Molotov Cocktails and fires ignited from Explosives
- Three Gun Ports are available on each side
- Rear view camera
- Exterior running boards and hand rails that can hold up to 4 persons on each side of the vehicle

- Two front doors (driver-commander)

- One-piece rear door
- Specially designed door locking (meet design and testing requirements of the FMVSS 206)

Interior equipment

- Anti-blast personnel seats along with energy dumper
- UHF vehicle communication station
- Automatic fire suppression system
- Military style illumination/head/side lights
- Military style wrench (water proof)
- Sport style shock absorbers FOX
- Undercarriage type military
- Front window glass - dual, combat type
- Side view mirrors – anti-shock heated and electrically driven mirrors



DOZOR-B ARMoured PERSONNEL VEHICLE



DOZOR-B armoured personnel carrier is a version of multi-purpose wheeled vehicle. It is designed to transport goods and people and to provide protection against small arms and NBC factors. **DOZOR-B** is suitable for usage by special units and police forces as a vehicle or carrier for different types of armament and military equipment. It can be used during both military and peacekeeping operations, moving on highways and cross-country terrains. This vehicle is available in the following modifications:

- armoured personnel carrier
- armoured vehicle
- NBC reconnaissance vehicle - command vehicle - ambulance
- reconnaissance vehicle
- general purpose vehicle



DOZOR-B ARMoured PERSONNEL VEHICLE

SPECIFICATIONS

Vehicle type	Wheeled, armoured	Distance range, km:	
Combat weight, tons	6,9	– on road	1000
Overall dimensions, mm		– off road	700
– Length	5400 (without the winch) 5680 (with the winch)	Maximum angle of gradient, deg.	30
– Width	2400	Operation temperature, C°	-40/+50
– Height	2700	Towing force of the winch, tons	6,8
Ground clearance	400	Armament:	
Crew, men	3	Machine gun (remote control):	NSVT
Troops, men	8	Caliber, mm	12,7
Number of firing ports	6	Ammunition allowance, pes.	450
Mobility characteristic:		Traverse, deg.	360
Wheel arrangement	4x4	Elevation, deg.	-3 to +68
Type of tires	Tubeless, bulletproof, with central pressure control	Additional equipment:	
Engine type	DEUTZ BF 4M 1013 FC (EURO-3), four-cylinder diesel turbocharged engine with intercooler	NBC system	Filtering and ventilating unit
Engine power, kW (h/p)	1122 (197)	Navigation system	Satellite SN-3003 Bazalt
Power-to-weight ratio hp/t	28,5	Air cooling system capacity, kW	4,4
Type of transmission	Automatic, hydro-mechanical 1000LCT	IR night vision system range, m	180
Maximum speed, km/h:		Radio ultra-shortwave communication system range, km	20
– on road	90-105		
– off road	65		

ARMoured COMBAT VEHICLES

KOZAK 5



KOZAK 5 is a vehicle for police and special forces based on 4x4 truck Ford F550, specially modified by official Ford converter “DBL Design” (front axle strengthening, suspension and brakes enforcing, bigger wheels installing). Level of ballistic protection – STANAG level 1+.

Is intended for small groups transporting and using its body as armor screen in case of skirmishes. Also can be equipped by ladder for buildings assault.

SPECIFICATIONS

GVW	10000 kg
Length	5380 mm
Width	2360 mm
Height (by roof)	2320 mm
Engine	Ford, diesel
Power	400 hp
Torque	997 Nm
Transmission	TShift, automatic
Seating capacity	3 – 8
Ballistic protection	STANAG level 2

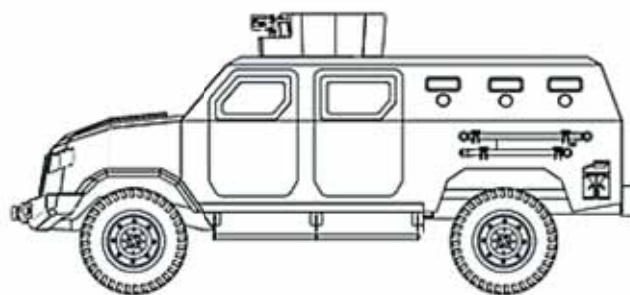
ARMoured COMBAT VEHICLES

KOZAK 5

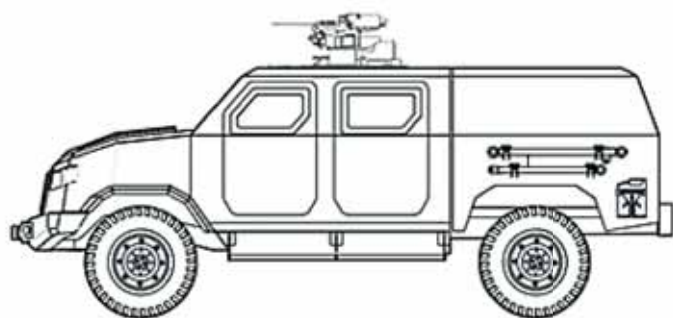
MODIFICATIONS



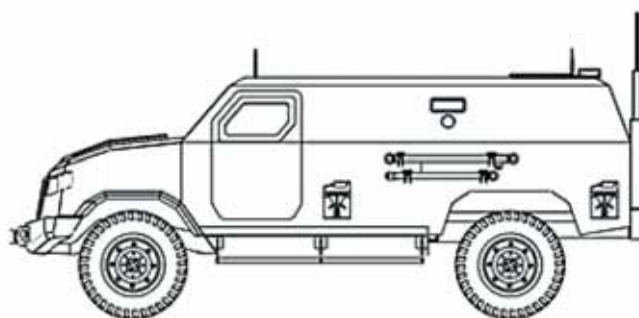
Police Vehicle



Personnel Carrier



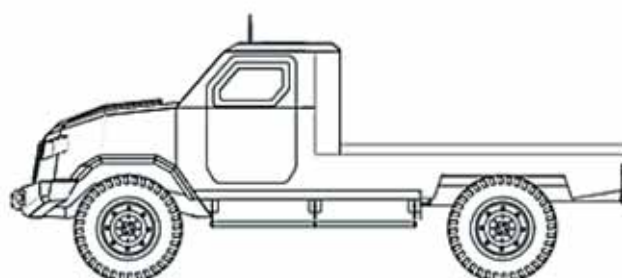
Tactical Vehicle



Reconnaissance Vehicle



Ambulance Vehicle



Cargo Vehicle

CARS FOR CASH-IN-TRANSIT

TOYOTA HILUX



MERCEDES-BENZ SPRINTER 313/515



VOLKSWAGEN TRANSPORTER T5



FORD TRANSIT 350



VOLKSWAGEN CADDY



- The Bank equipment (storehouses of values; doors; safes; cases archival; the equipment for depositaries; means of technical protection of the information; servers, currency exchange items; cash cabins; protection platforms-slucies)
- The Fire-prevention equipment (doors; gates; a curtain; a glazed partition; the hatch; the valve)
- The Equipment for nuclear stations (hatches; gates)
- Security glazing

CARS FOR CASH-IN-TRANSIT

ADDITIONAL OPTIONS



Fire-extinguishing of engine compartment



Run-flat system



Rear lattice door



Armored luggage compartment



Lifter for armoured glass



Battery protection

SAFETY AND SECURITY BASE EQUIPMENT



Bend glassing



Weak places additional protection



Siren and flashlights control



Flat glassing



Unloading rollers



Suspension reinforcement



Armoured evacuation-ventilation hatch



Hidden type gun-ports



Flashlights. Type1

CARS FOR CASH-IN-TRANSIT



Flashlights. Type 2



Door stoppers



Suspension reinforcement



Viewing windows



Intercom system



Girth-rail locking system



Sliding side armoured door



Additional seats



Safe



Folding table



Weapon fixation



Lightening



Decoration



Additional mirrors

FREIGHT CARS FOR CASH-IN-TRANSIT

KAMAZ 6520



MERCEDES-BENZ AXOR



MAZ 630305-250



IVECO EUROCARGO



SAFETY AND SECURITY BASE EQUIPMENT



Steel armoring of a driver's compartment



Bulletproof glass of the cabin, hidden fire-ports



Armored hatch and ventipane



Strengthened door pillars, places of fastening of veils and units of doors



Arresters of opening of doors of cabin



Rollers of unloading of doors of cabin

FREIGHT CARS FOR CASH-IN-TRANSIT



Special internal mechanical door locks (crossbars) which provide protection against breaking and vibration at movement of the car



Ventilating set in a crew compartment



Front and rear attack bumper



The air conditioner in a crew compartment



Doors in a load compartment, with opening aside a collector compartment



Door lattice before the rear door of a load compartment



Special internal mechanical door locks (crossbars)



Internal communication between a cabin and a collector compartment "Intercom"



Siren



Air conditioner



Steel armoring of a crew compartment



Bulletproof glass of crew compartment



Armored hatch ventipane



The collector compartment is equipped with 4 seats



A case for personal things of crew members

CARS FOR TRANSPORTATION OF DETAINEES AND PRISONERS

CITROEN JUMPER



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp	Max speed, km/h	Average fuel consumption, l
3120	1870	1932	2,2	120	150	8,1
Acceleration to 100 km/h in sec.	ABS	ESP	EBD	Heavy duty battery	Engine pre-start heating	Reinforced running gear
13,2	+	+	+	+	+	+

FORD CONNECT



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp
2100	1492	1364	1,8	90
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
16,3	155	6,9	+	+ +

FORD TRANSIT



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp	Max speed, km/h	Average fuel consumption, l
3390	1762	1985	2,4	155	120	9,5
Acceleration to 100 km/h in sec.	ABS	ESP	EBD	Heavy duty battery	Engine pre-start heating	Reinforced running gear
13,9	+	+	-	-	-	-

KAMAZ



Technical characteristics

Length, mm	Width, mm	Height, mm	Engine, l	Engine power, hp
8000	2500	2962	10,85	240
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
-	80	26,4	-	- -

CARS FOR TRANSPORTATION OF DETAINEES AND PRISONERS

PEUGEOT EXPERT



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp
2245	1600	1449	1,6	90
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
16,5	150	7,8	+	+ +

RENAULT KANGOO



Technical characteristics

Length, mm	Width, mm	Height, mm	Engine, l	Engine power, hp
4213	1829	1799	1,461	80
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
16	158	5,3	+	+ +

RENAULT MASTER



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp	Max speed, km/h	Average fuel consumption, l
3083	1765	1894	2,3	100	134	8,0
Acceleration to 100 km/h in sec.	ABS	ESP	EBD	Heavy duty battery	Engine pre-start heating	Reinforced running gear
14,3	+	+	-	+	+	-

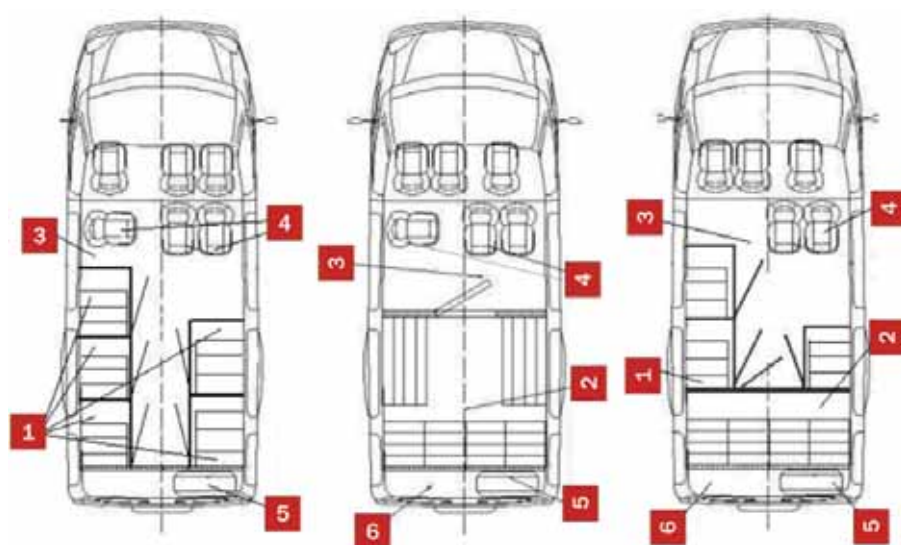
VOLKSWAGEN CADDY



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp
2250	1588	1257	1,6	75
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
15,1	144	8,2	+	+ +

CARS FOR TRANSPORTATION OF DETAINEES AND PRISONERS



1. Solitary camera
2. General camera
3. Guard room
4. Guard seats
5. Spare wheel
6. Auxiliary compartment

BASIC COMPLETE SET

- Alarm and loud-speaking device
- Working salon (4 places) with a basic upholstery, lighting and seats
- The compartment calculated on the maintenance of two detainees, equipped with an anti-vandal covering
- Additional latticed metal back door with the stationary lock and the protected loops
- Revised rear doors of the body, confused inside metal sheets
- Metal partition behind the back seat, separating the main salon from a special compartment
- Latticed or muffled window in a metal partition between a special compartment and salon
- Lighting in a special compartment
- Plafond of lighting and the conducting, protected from deliberate damage
- Seats in a special compartment
- Heater of a special compartment
- Electric blocking of the swing door
- Radio station
- Fog lights
- Special colored graphic paint scheme

The equipment of the vehicle may be modified according to the customer's specification.

VARIANTS OF EXECUTION OF THE VAN

1. Quantity of seats is 12; there can be 3 persons in a cabin, including the driver; compartment for protection consists of 2 persons; there can be 7 persons in compartments for detainees; the compartment for detainees consists of 3 single cameras and the 1 four - seat camera.
2. Quantity of seats is 10: there can be 3 persons in a cabin, including the driver; compartment for protection consists of 2 persons; there can be 5 persons in compartments for detainees; the compartment for detainees consists of 5 single cameras.
3. Quantity of seats is 13: there can be 3 persons in a

cabin, including the driver; compartment for protection consists of 2 persons; there can be 8 persons in compartments for detainees; the compartment for detainees consists of the 1 general camera.

“PADDY WAGON” (THE VEHICLE FOR THE TRANSPORTATION OF PRISONERS)

Possesses very high quality, thanks to the use of modern equipment, European and western producers, and the original certified accessories. All process of production of cars for transportation of prisoners is exposed to multistage quality control.

The internal space of the paddy wagon is divided into three components: driver cabin, the camera for prisoners and salon for escort placement. The framework of the paddy wagon is strengthened with the expense of thick-walled profile pipes. Another design feature of the car is the association of basis camera and a framework, which excludes escape or illegal penetration. Capacity of the special car is up to 20 people (including – 3 persons of an escort), and 2 more places in a cabin of the driver also. Use of the similar paddy wagon allows to carry out a through, counter and planned endeavors.

SINGLE AND THE GENERAL CONFINEMENTS.

Solitary confinements represent an all-metal frame design with a sitting for the prisoner. The camera is supplied with openings for natural ventilation, and also there is a protected lighting in the provided places. The door of the camera represents a metal leaf thickness 3 mm, and it can, both to slam, and to be closed manually. The door is equipped with viewing hatches. The floor is also covered with metal, and the external wall is supplied with a heater. The solitary confinement allows keeping the prisoner in full isolation from others.

The general camera is also all-metal design with openings for ventilation. It is fenced off by a trellised partition from other space of the van. Under the seats in the general camera there are hand-rails for handcuffs. The floor is metal and the external wall is warmed.

INFORMATION SUPPORT VEHICLE

MERCEDES SPRINTER



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp	Max speed, km/h	Average fuel consumption, l
3265	1780	1940	2,1	109	145	9,6
Acceleration to 100 km/h in sec.	ABS	ESP	EBD	Heavy duty battery	Engine pre-start heating	Reinforced running gear
15,1	+	+	+	-	-	+

IVECO DAILY



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp
4560	1800	2100	2,8	136
Acceleration to 100 km/h in sec.	Max speed, km/h	Average fuel consumption, l	ABS	ESP EBD
8	140	12	+	++

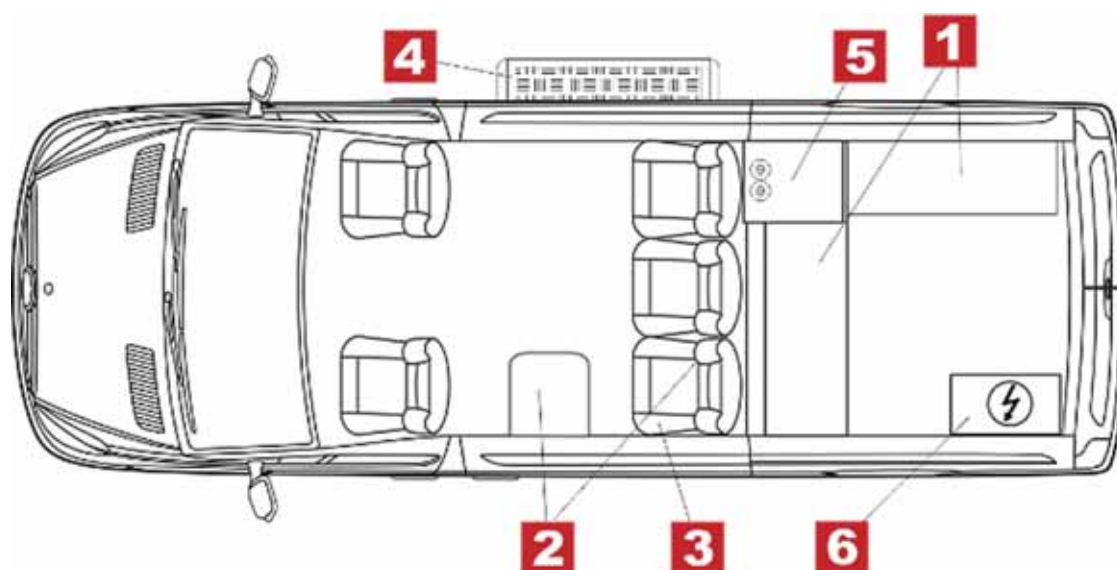
FORD TRANSIT



Technical characteristics

Inner length, mm	Inner width, mm	Inner height, mm	Engine, l	Engine power, hp	Max speed, km/h	Average fuel consumption, l
3390	1762	1985	2,4	115	120	9,5
Acceleration to 100 km/h in sec.	ABS	ESP	EBD	Heavy duty battery	Engine pre-start heating	Reinforced running gear
13,9	+	+	-	-	-	-

INFORMATION SUPPORT VEHICLE



THE WORKS ON RE-EQUIPMENT

Salon

- Sound, and vibration insulation
- Thermal insulation
- Lining of the floor by the slip resistant linoleum
- Decoration of the walls and the ceiling decorative carpet
- Lamps ceiling
- Heating system
- Forced-air and exhaust fan
- Hand-rail at the door for visitors
- Independent generator
- Sockets (220V)

Furniture

- Folding table
- Folding and stationary seat
- Rack with protection against vibration for placed in sound equipment
- Shelves and case for a propaganda product

External works

- Installation of loudspeakers on a special roof frame
- Footboard of lateral doors
- Footboard of back or lateral doors
- Pasting on a special propaganda coloring of boards and car roofs

Audio equipment

- All-weather loudspeaker
- The amplifier with a mixer
- Radio tape recorder, that supports reading MP3 or the laptop (a source of the written-down signal)
- Earphones for monitoring
- Standard microphone
- Microphone font

Additional equipment

- The ventilating hatch with the electric drive
- Lateral window
- Liquid crystal monitor (TV)
- Satellite TV-system
- Wash basin with the electric pump and a tank for water
- Mini kitchen
- Microwave oven
- Autonomous heater
- Refrigerator
- Minibar
- Additional LED lighting
- Individual lamps for reading
- Folding chairs beds
- Agitproduktsiya (frame campaign tents, flags, banners, clothing with the party logo, etc.)
- External surveillance cameras

VEHICLE ARMOURING



VEHICLE ARMOURING

ARMOURING OF VEHICLES



SAFETY AND SECURITY BASE EQUIPMENT OF ARMoured VEHICLES

- Air-conditioning
- Alarm system optical and acoustic
- System two – compartment:
 - armored crew compartment within 5 seats, incl. driver seat
 - non-armored load compartment protected against break-in
- Internal steel armoring of crew compartment of all vertical surface, roof, and glass (splinter-proof glass, bend and flat bulletproof glass, driver's and passenger's door bulletproof glass)
- The installation method of armored elements – overlapped
- Two side-viewing windows with armored glass
- Two invisible loopholes for firing out of cabin
- Armored ventilation hatch
- Armored evacuation hatch
- Special internal mechanical door locks (cross-bar system)
- Aural and light indication of cross-bars position on doors, electronic controlled doors
- Unloading rollers at driver's and front passenger's doors
- Driver/front passenger door stoppers
- Special floor with wear proof covering
- Soft decoration inside cabin (taking into consideration armoring)
- Light in both compartments
- Green lines at the vehicles body

ADDITIONAL OPTIONS

- External lock on driver's door
- Splinter-proof bottom armoring «Kevlar» (Twaron)
- Shelves and safe for valuables
- Intercom system «Drive-street»
- Additional seats in collector's compartment
- Front and back collision bumpers
- Armored protection of engine compartment
- Fire fighting aerosol unit
- Armored protection of fuel tank
- Drop table in crew compartment
- Additional light with flexible mount over collector's seat
- Additional heater
- Additional mirrors for guards
- Sliding door between collector's compartment and cargo compartment
- Armored battery
- Camera of back view
- «Run-flat» –system



VEHICLE ARMOURING

ARMOURING OF VEHICLES

LEVELS OF ARMoured PROTECTION

Ukraine ¹	Russia ²	Weapon	Calibre, Type of bullet	Description of bullet	Mass, g	Bullet velocity, m/s	Test range, m
PZSA-1	1	Makarov Handgun (ПМ)	9 mm 57-H-181c	Full metal jacket, round nose, soft steel core	5,9	315±10	5,0±0,5
PZSA-2	2	Tokarev Handgun (ТТ)	7,62 mm 57-H-134 c	Full metal jacket, round nose	5,5	430±15	5,0±0,5
PZSA-3	3	Kalashnikov AK-74	5,45 mm Ammunition 7H6	Full metal jacket, soft steel core	7,9	910±15	10,0±0,5
		Kalashnikov AKM	7,62 mm Ammunition 57-H-231 1943 year	Full metal jacket, soft steel core	3,4	730±15	10,0±0,5
PZSA-4	4	Sniper rifle Dragunov	7,62 mm Ammunition 57-H-323c	Full metal jacket, soft steel core	3,6	910±15	10,0±0,5
		Kalashnikov AK-74	5,45 mm Ammunition 7H10	Full metal jacket, soft steel core	9,6	850±0.5	10,0±0,5
PZSA-5	5	Kalashnikov AKM		Full metal jacket, soft steel core	7,4	745±15	10,0±0,5
PZSA-6	6	Sniper rifle Dragunov	7,62 mm Ammunition B-32	Full metal jacket, soft steel core	10,4	830±15	10,0±0,5
PZSA-PM		Hunter smooth-bore weapon	Breneke bullet cal.12	Full metal jacket, soft steel core	35,0	400±15	10,0±0,5

¹ State Standard of Ukraine DSTU 3975-2000 «Armoured protection of special-purpose vehicles»

² Russian Standard GOST R50963-96 (ГОСТ Р 50963-96)

Each level represents a particular of mounting mode of armoured elements and use of protective materials and component parts.

EUROPEAN STANDARD EN 1063 BALLISTIC STANDARDS

Classification	Weapon	Bullet				Test range, m
		Calibre	Type	Mass,g	Bullet velocity, m/s	
BR 1	rifle	22 LR	L / RN	2,6	360	10
BR 2	hand-gun	9 mm Luger	FJ / RN / S / C	8,0	400	5
BR 3	hand-gun	357 Magnum	FJ / CB / SC	10,2	430	5
BR 4	hand-gun	44 Magnum	FJ / FN / SC	15,6	440	5
BR 5	rifle	5.56 x 45	FJ / PB / SCP1	4,0	950	10
BR 6	rifle	7.62 x 51	FJ / PB / SC	9,5	830	10
BR 7	rifle	7.62 x 51	FJ / PB / HC1	9,8	820	10

L - lead

CB - coned bullet

FJ - full metal jacket bullet

FN - flat nose

HC1 - steel hard core, mass 3,7 g +/- 0,1 g, hardness more then 63 HRC

PB - pointed bullet

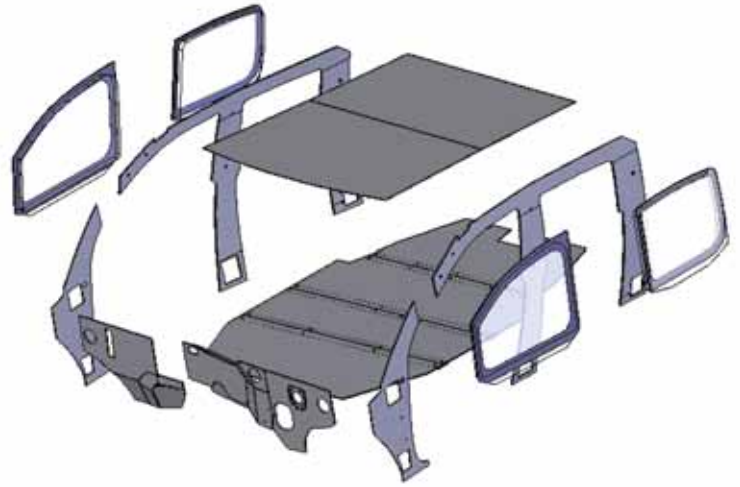
RN - round nose

SC - soft core (lead)

SCP1 - soft core (lead) and steel penetrator (type SS109)

VEHICLE ARMOURING

ARMOUR KITS FOR CIVIL VEHICLES



Armor kit is intended for transformation of the ordinary car in bullet-proof vehicle by means of armor plates and ballistic glasses. These elements are established in a passenger compartment and turn it into the bullet-protected capsule. All elements are welded among themselves and create a uniform bearing design, thus durability of a body of the car increases.

Ballistic glass is constructed using polycarbonate, thermoplastic sheeting, and layers of laminated glass. Armor plates are made from Sweden armor steel ArmoX 500T.



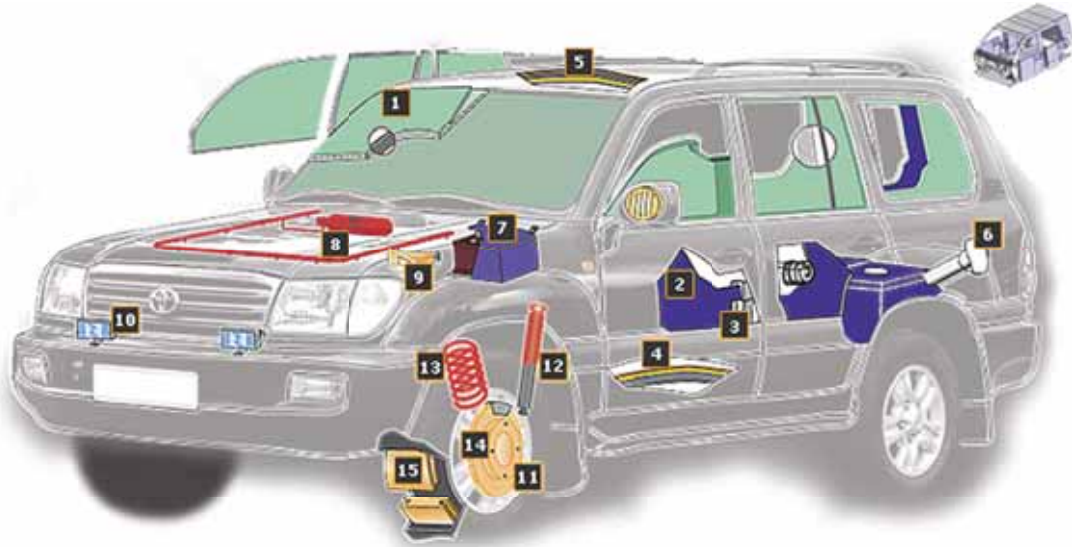
Possible variants of vehicles to arm on:

- Ford Expedition
- Toyota Land Cruiser 80
- Toyota Land Cruiser 90
- Toyota Land Cruiser 100
- Toyota Land Cruiser 105
- Toyota Land Cruiser 200

VEHICLE ARMOURING

SAFETY AND SECURITY BASE EQUIPMENT

cars of VIP class; cars cash – in - transit; cars for people carriage, military armoured vehicles



Bend glassing



Armored door



Armouring protection of the battery



Reinforced hinges adopted to the additional weight of the doors after armoring



Armored bottom



Automatic fire-extinguishing system of the engine compartment



Steel roof



Reservations fuel tank



Internal decoration with wash leather

VEHICLE ARMOURING

SAFETY AND SECURITY BASE EQUIPMENT



Door stoppers



Reinforced suspension system



Reinforced suspension system



Armoured partition wall

ADDITIONAL OPTIONS



Siren



Flashlights



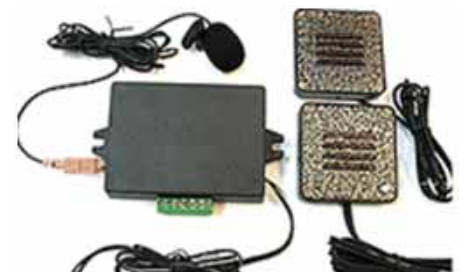
Run-flat system



Girth-rail locking system



Replacing the standard rear seat comfort



Intercom system

PROTECTIVE CONSTRUCTIONS



PROTECTIVE CONSTRUCTIONS

ARMOURED CHECKPOINT

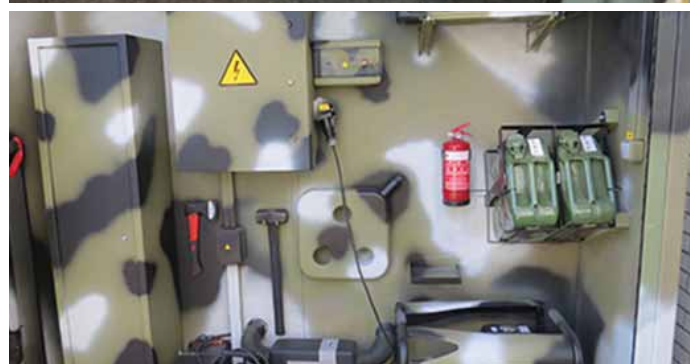


Purpose:

Guarding of bridges, aerodromes, military units location bases and other strategic objects.

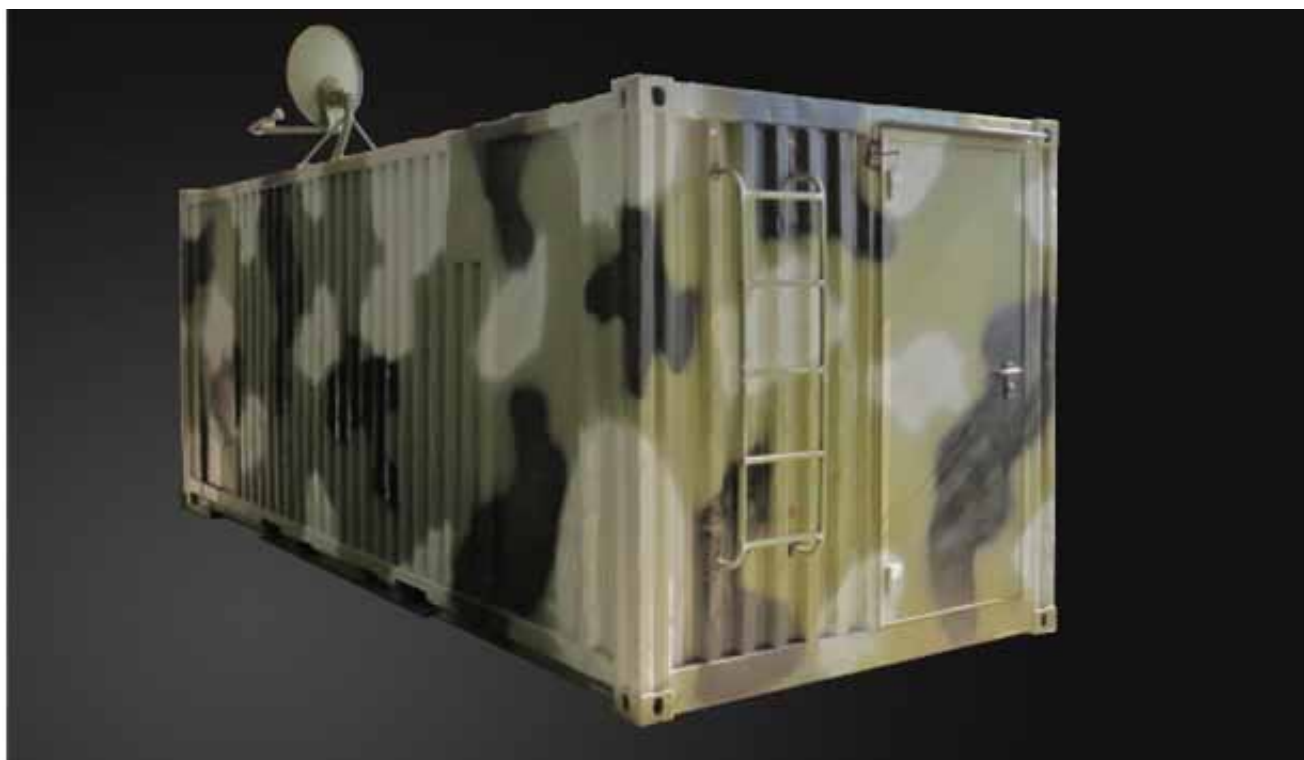
Description:

- walls of armoured steel with fragmentation-proof lining
- thermal and sound insulation
- rubber waterproofing and floor heat insulation
- bullet-proof complex glass with polycarbonate fragmentation-proof layer on the inside
- special window frames allowing for quick glass replacement
- blackout shutters on windows
- furniture (table, chairs, closet)
- combined extract and input ventilation with gunpowder gases extraction system and heating system
- self-contained electric system with generator
- indoor lighting with several lighting modes
- external directional operation searchlights
- radio communication system
- gun slots for reply fire
- 360° rotating module on the roof with fortification for weapon installation
- hatch in the side wall for emergency evacuation
- storage under the floor for bombing occurrence with reinforced floor area above it
- anti-cumulative grating for protection from hand-held antitank grenade launcher
- crowfoot on the roof
- concrete base plates for levelling



PROTECTIVE CONSTRUCTIONS

ARMOURED COMMAND POST



Purpose:

Holding meetings in field conditions.

Description:

- walls of armoured steel with fragmentation-proof lining
- thermal and sound insulation
- rubber waterproofing and floor heat insulation
- work place for meetings with conference table and armchairs
- operator work station
- radio communication system
- telephone communication system
- satellite video communication system for video conferences
- combined extract and input ventilation
- conditioner
- heating system
- generator for autonomous power supply
- slot for outer power supply source connection
- indoor lighting with several lighting modes
- network filters with information read-out prevention devices
- lightning guard
- special infra-red motion detectors non responding to small animals
- crowfoot on the roof
- concrete base plates for levelling



PROTECTIVE CONSTRUCTIONS

ARMoured AND SHOCKPROOF GLAZING



Certification:

Shockproof, breakproof and bullet-proof glass is tried by fixing it in regular frame of particular size:

- shockproof glass is tried by the sphere of the tempered steel with the weight of 4,11 kg from the height up to 10 m (size of glass 1100x900);
- breakproof glass is tried by the ax with normalized power of blows to making a hole 400x400;
- bullet-proof glass is tried by firing from fire-arms of corresponding class with regular ammunition (size of glass 500x500).

UNMANNED AERIAL SYSTEM



UNMANNED AERIAL SYSTEM

MARA 2M



System on the basis of UAV - Mara 2M is designed for protection, monitoring and search of objects on a distance up to 25 km.

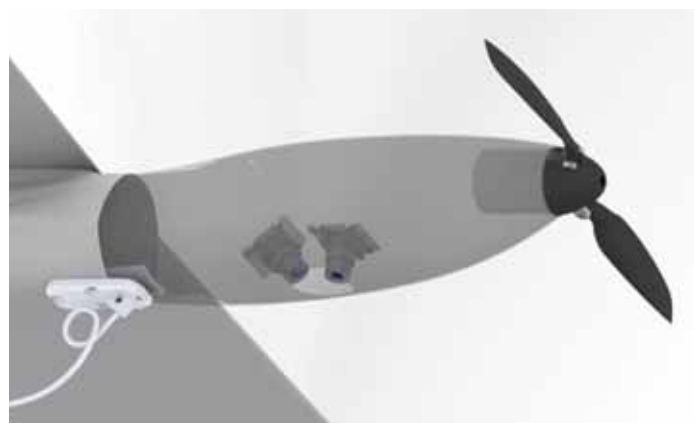
Payload of UAV Mara 2M allows to surveil in the visible or infrared spectrum with a resolution of 5cm per the point.

Software package allows to make a quick plan of a mission, to change it during the flight, to execute efficient binding of the objects to the maps and get its coordinates in geographical and rectangular coordinate systems.

SPECIFICATIONS

Operating range	up to 25 km
Flight duration	50-90 minutes
Range	up to 75 km
Adjustable flight speed	from 30 to 100 km/h
Operating altitude	50-750 m
Practical ceiling	2000 m
Electric power plant	Battery of LiPo or LiFePO4 type with capacity up to 6.5 Ah
Payload Weight	up to 0.4 kg
Allowable wind speed	up to 14 m/s

PAYLOAD OPTIONS



BASIC PLATFORM CAMERAS

- Amortized platform stabilized by bank angle
- Course camera installed at angel of 45° to the UAV axis with a 1.3 megapixel sensor and sensitivity from 0,02 candle-meter
- Survey camera directed vertically downwards, able to record high quality video (FullHD 1080p)
- Possibility to switch between cameras in flight
- Transfer of analog video signal to the ground control station.
- Ability to work in close infrared range (CIR)

UNMANNED AERIAL SYSTEM

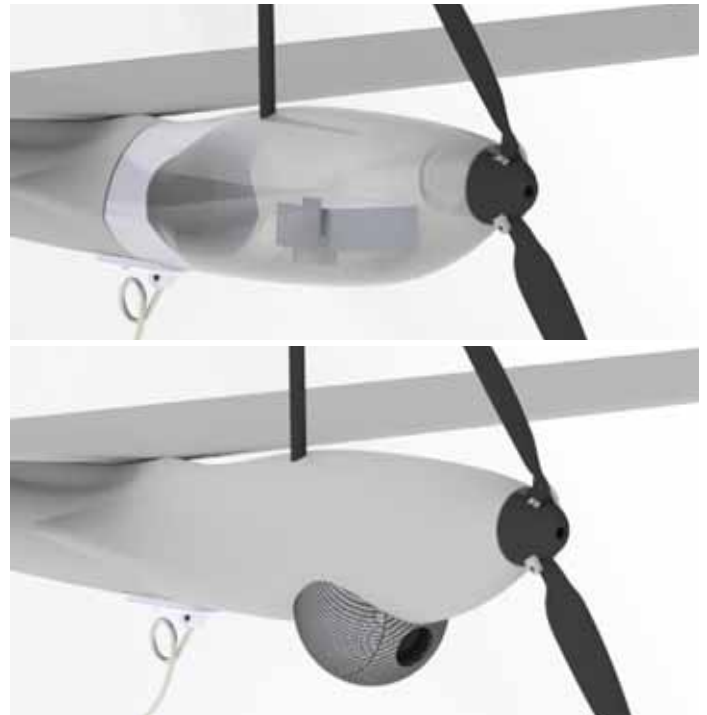
MARA 2M

RECONNAISSANCE CAMERA

- Onboard photographic surveying at resolution of 5cm per point
- The size of a picture is 3680x2760 pixels
- Transfer of analog video to the ground control station
- Dimensioning of pictures to the ground map
- Prompt coloured glass replacement
- Real time coordinates calculation

NIGHT-TIME PLATFORM

- Thermal camera (resolution 640x480 pixels, frame rate of 50 Hz and sensitivity 8-16 mkm) with a constant focal length
- High sensitivity night camera of the visible spectrum
- The ability to switch between images from the cameras in flight
- Transfer of analog video to the ground control station
- Ability of real time calculation of objects coordinates



SOFTWARE PACKAGE CAPABILITIES

- Software package of Mara 2M ground control station allows to control UAV flight and process the information received from payload in real time.
- Software package of pilot-operator workplace allows to control the main parameters of UAV flight, to create and update flight program. Pilot-operator may also analyze video and photographic materials.
- Software package of payload operator allows to process streaming video, to perform target detection, to set object's coordinates and display them on the map.

ADDITIONAL EQUIPMENT OF MARA 2M SYSTEM

- Emergency Search System (GSM-tracker)
- Flying over three-dimensional area map
- Automatic landing system
- Digital communication channel and data transmission based on COFDM technology
- Ability of remote control and data processing by satellite communication channel
- Automated tracking antenna
- Telescopic antenna mast
- Ability to work with mapping information in ArcGIS system
- GCS can be made with IP67 protection standard and consist of one unified working place aimed for UAV control and data processing on the basis of its own software (under testing)

SYSTEM KEY BENEFITS

- Interface and software ideology meet STAN-AG4586 standard
- Secured and encrypted communication channel
- Compact and light weight of the complex allows to carry it over and operate autonomously by two-man fire crew
- Fully automated flight with ability to change the mission in progress
- Ability for accurate landing in semiautomatic mode in limited areas due to wing-flap system
- Preparation for launch and deployment time not more than 10 minutes
- Ability to use different payload options
- Availability of sidelights which allows landing at darkness hours
- Low noise level due to good aerodynamics and the use of electric power plant
- High positional accuracy of exploration target
- Modern software with "friendly" interface
- Ease of assembly, modular construction and ability to interchange parts and assemblies
- High strength, stiffness and survivability of UAV Kevlar construction
- Good in-field maintainability of UAV

UNMANNED AERIAL SYSTEM

MARA 2M

SYSTEM COMPOSITION

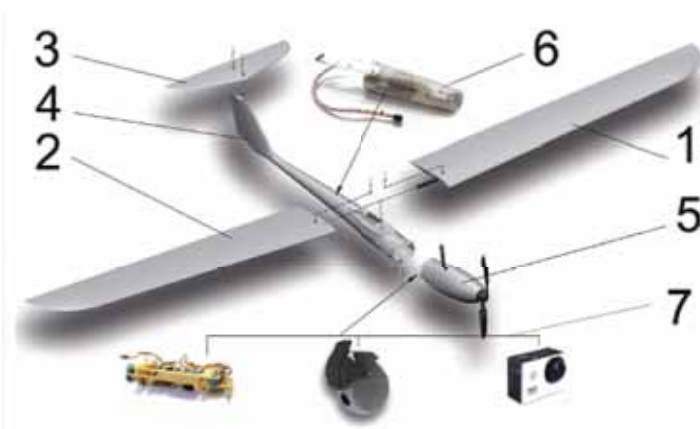
UAV MARA 2M - 3pcs (possibility to use UAV with different payload in a single complex)



- Ground Control Station (GCS):
 - Automated workstation of pilot-operator;
 - Automated workstation of payload operator;
 - Terminal of receive-transmit data line (TRTDL);
 - Remote control
- Table-case with PC equipped with sun and weathering protection visor
- Spare tools and accessories kit

- Additionally, the complex can be equipped with:
- Telescopic antenna mast with height up to 6m;
 - Automated TRTDL follow-up device;
 - System of wireless data transmission between and TRTDL GCS

COMPOSITE MODULUS OF UAV MARA 2M



- 1 - left wing console;
- 2 - right wing console;
- 3 - horizontal tail;
- 4 - aft fuselage with the control unit;
- 5 - nose fuselage with electric power plant and payload
- 6 - control unit;
- 7 - payload options:
 - Basic platform of cameras
 - Low platform
 - Reconnaissance camera

UNMANNED AERIAL SYSTEM

PATRIOT RV010

The unmanned aerial system (UAS) PATRIOT RV010 is designed for execution of the wide range of tasks at a distance of 30 km. The combination of the small size with a specially developed variant of coloring makes the aircraft almost invisible. The small mass-dimensional characteristics of the complex allow transporting it by both automotive engineering and the foot-borne way. The complex is deployed for a combat use in 7.5 minutes only.

The UAVs' control system allows performing a flight in accordance with both pre-set program and ground station commands, or through a combination of these modes. The basic system set consists of two UAVs, ground command module, radio module, and service kit. The unique engineering solutions allow quick on-demand production of a vehicle that is several times cheaper than other analogs.

COMPLEX MISSION

- Aerial reconnaissance
- Artillery fire adjustment
- High Altitude radio relay for ground communication systems and other UAVs
- The reference air target for radar systems equipment calibration and for the study of the UAVs fighting systems operation
- Geographic areas monitoring (immediate wildfires detection on the fields and forests, etc.)
- Monitoring of environmental and radiation conditions



SPECIFICATIONS

Tactical radius	30 km
Cruise speed	70 km/hour
Flight duration	2 hours
Operating temperature	from -20 °C up to + 45 °C
Control and command system	pre-programmed (according to the specified coordinated) and manually controlled (visual screen flight)
Engine	electric-powered
Operational altitude	100 – 2000 m
Maximum takeoff weight	3,5 kg
Payload weight	300 g

A1 – C FURIA



SPECIFICATIONS

Tactical radius	up to 40 km
Cruise speed	60-70 km/hour
Flight duration	more than 2 hours
Operating temperature	from -25 °C to + 40 °C
Engine	electric-powered
Operational height	800 – 1000 m
Maximum takeoff weight	5,5 kg
Payload	quickly replaceable daylight or thermal-imaging optical systems
Data transmission	digital control telemetering data line, analogue data-transmission line

The unmanned aerial system A1-C FURIA is designed for execution of a wide range of tasks at a distance of 40 km.

Control system allows performing a flight in accordance with either a pre-set program or ground station commands, as well as in combination of such modes.

COMPLEX MISSION

- Tactical reconnaissance tasks
- Detection of targets for the artillery
- Artillery fire adjustment
- Reconnaissance of the strikes outcomes

UNMANNED AERIAL SYSTEM

OBSERVER-S



Observer-S is a multi-purpose system intended for the aerial surveillance, photo and video filming with using the automatic flight mode along a specified trajectory and automatic take-off/landing mode.

The system allows conducting the aerial reconnaissance in the interests of armed forces, monitoring of environment and infrastructure facilities, executing search and rescue operations, protecting extended facilities (state borders, pipelines, railway and autoroads, power transmission lines) etc.

The system includes: two unmanned aerial vehicles, ground control station, antenna equipment, a set of batteries for UAV, battery-charging station, technological console for the pre-flight inspection, a set of spare parts and auxiliary equipment for minor repairs in the field conditions.

The system has a high degree of mobility. The whole kit may be stored inside an off-road vehicle. If necessary, the system can be transported by a group of four people.

SPECIFICATIONS

Flight duration	90-140 min
Flight distance	60-120 km
Distance from the reference point	15-30 km
Data link range	15-30 km
Data link	Digital data channel of 930-945 MHz carrier frequency, PPRF (pre-programmed radio frequencies) are used
Video channel	high-frequency AV channel
Video channel range	up to 30 km
Propulsive device	commutatorless synchronous electric engine
Payload	2 - 2,5 kg



UNMANNED AERIAL SYSTEM

COLUMBA



The system is designed for a battle area reconnaissance. Due to small dimensions and used materials it remains invisible both for visual observation and for radar systems.

Columba is quickly deployed, reliable in operation, resistant to mechanical and thermal effects, protected from moisture. The control is performed both in manual and in automatic modes, including automatic take-off and landing. Complex is able to determine coordinates of objects and perform their tracking.

Due to gyro-stabilized optoelectronic system, installed on the underside of the plane wings, the system conducts surveillance, reveals targets and provides target designation at considerable distances in all directions, including backward. Obtained information is transmitted to the ground control station via secure communication channel.

SPECIFICATIONS

Maximum takeoff weight	10 kg
Payload	1 kg
Tactical radius in on-line data transmission mode	up to 60 km
Operating temperature	from -30 °C to +40 °C
Maximal altitude	4000 m
Speed	60-150 km/hour
Total flight range	more than 200 km
Flight duration	120 min
Engine	electrical commutatorless motor
Data transmission	encryption coding, PPRF (pre-programmed radio frequencies)
Navigation	Global Navigation Satellite System

SPARROW



The system is designed for aerial reconnaissance at a distance up to 20 km. Wingspan up to 980 mm significantly increases its flight characteristics comparing with other systems of this category. Due to small dimensions and used materials it remains invisible both for visual observation and for radar systems.

Sparrow is quickly deployed, reliable in operation, resistant to mechanical and thermal effects, protected from moisture. The control is performed both in manual and in automatic modes, including automatic take-off and landing. Complex is able to determine coordinates of objects.

SPECIFICATIONS

Maximum takeoff weight	3,3 kg
Payload	0,5 kg
Tactical radius in on-line data transmission mode	up to 20 km
Operating temperature	from -30 °C to +40 °C
Maximal altitude	1500 m
Speed	60-110 km/hour
Total flight range	50 km
Flight duration	60 min
Engine	electrical commutatorless motor
Data transmission	encryption coding, PPRF (pre-programmed radio frequencies)
Navigation	Global Navigation Satellite System

UNMANNED AERIAL SYSTEM

LELEKA-100



The unmanned aerial complex (UAC) Leleka-100 is a program device complex of the autonomous remotely controlled aircraft for performing covert air operations, patrolling, ground map designing with the possibility of sending the operational information and receiving the precise coordinates in real time.

Implemented concept of automated aircraft control during the whole flight time simplifies the operator's work and allows concentrating on the analysis of operational information coming from UAC. There is also a possibility of combined operation which presumes partial operator's intervention who can direct the device in desired direction by joystick. After operator finishes intervention the device continues its route programmed in advance.

The UAC control is performed on the encrypted digital radio channel that allows receiving telemetry data during the whole flight time. The operator can track the UAC location on the satellite map, adjust the route, and command the emergency return to the take-off point or program any other landing point if needed.

UAC allows receiving of video data in PAL of 720x576 resolution in real time. The video transmission is performed in encoded form that excludes the possibility of intercepting by standard video receivers; moreover, the video-signal coming from UAC contains neither data, nor flight telemetry, nor GPS information. Thus, in case of intercepting or decoding of signal the locations of UAC and operator are not revealed. Optionally the UAC can be equipped with digital system of video transmission along with signal encoding on the basis of high-resistance encryption algorithm.

There is a video recording on board in the following format: 1080P 30FPS FULL HD that can be used for more detailed study and making zoomed snapshots of the locality after landing. Moreover, there can also be installed a separate photo-camera programmed for taking photos in pre-set time or on the command from the autopilot system.

SPECIFICATIONS

Size of the aircraft	2000 mm / 1100 mm
Take-off weight of the aircraft	4,5 kg
Airframe material	Composite ERO-fiberglass/ glass fiber hydrocarbon
The maximum flight altitude	1500 m
Cruising speed	60-80 km per year
Time in the air	Up to 3 hours (with battery capacity 16000 mAh)
Guaranteed length of the route	110 km (with battery capacity 16000 mAh) in conditions of severe weather conditions and head wind
Maximum length of the route	180 km (with battery capacity 16000 mAh) in conditions of wind speed up to 7m/sec and route optimization

UNMANNED AERIAL SYSTEM

LELEKA-100

Airplane control	A powerful two-way digital channel with encoding and receiving the telemetry data
Flight management system (basic completing)	An autopilot of full autonomy mode and possibility of manual correction of flight mission
Inertial flight management system (additional option)	Multimode autopilot with combined inertial GPS/SINS/AHRS system (not linear system of precise GPS/SINS/AHRS algorithm that is automatically switched to inertial AHRS mode to provide the flight safety in case of blocking GPS signal)
Navigation system	GPS/Glonass, compass, laser altimeter, barometer altitude sensor
Programming	Visual mode of satellite map
Moto-device	Brushless electrical engine 600 W
Moto-device power supply	Lithium-polymer accumulator 22,2 V capacity 10000-20000 mAh
Video camera	Possibility of distant management, gyroscopic stabilization in two areas, gyroscopic stabilization in three areas, tenfold distant controlled optical zoom (additional option)
Video data form	720x576 in the real time mode 1080P 30FPS FULL HD-on-board recording
On-board translation	High quality powerful channel in 720X576 size, stable translation on the distance up to 40 km., with video-signal coding that excludes the possibility of intercepting by standard video receiver
Video data geo form	According with the system GPS/Glonass with receiving the exact geographical coordinates
Thermal Imager (additional option)	384x288 size, 50 Hz, human detection 820-1140 m 640x480 size, 50 Hz, human detection 820-1140 m

The complex can be adapted on the customer's demand

THE SET OF SHIPPING OF UNMANNED AVIATION COMPLEX LELEKA-100

Aircraft unit	1
Ground equipment unit	1
Portable computer with software	1
Online viewing and video data recording with 19 inches LCD monitor unit	1
Power glider storage battery (DeViRo LiPo 11.1v 16000 mAh)	2
Radio -electronic device battery (LiPo 11.1v 1000 mAh)	1
Universal charging device	1
Transformer 12v-220v 500w	1
Shipping box	1
Repair kit and spare parts kit	1

The set can be adapted on the customer's demand

UNMANNED AERIAL SYSTEM

ANSER



ANSER Unmanned Aerial System is designed for aerial surveillance at day and night. Various payload permits to transform the UAV into radio relay system, into radiochemical detector and so on.

The system does not need any specially prepared area for take-off and for landing, and may be employed almost in any weather conditions.

SPECIFICATIONS

Maximal takeoff weight	23,0 kg
Payload	up to 6,0 kg
Flight range with data online transmission	up to 80 km
Employment temperature	from -30 up to +40 0C
Maximal flight altitude	3000 m
Speed	70-120 km/h
Maximal flight range	400 km
Flight endurance	360 min
Propulsion	Internal combustion engine
Data transmission, inscription	Digital channel, 128 bit key
Sensors	Heading camera, 2-axes stabilized gimbal equipped with 30x guided videocamera or with thermal imager
Navigation	Global Navigation Satellite System

APUS



Unmanned Aerial Vehicle is a part of the Artillery Fire Control System AFCS.

Control: full autopilot; possible encrypting flight rerouting; manual controls, landing - parachute.

Recognizes the 30cm-and larger-size objects at 1 km distance at dusk, equipped with night vision devices that can detect people up to 1km and vehicles – up to - 3km distance.

Ability to work in full radio silence.

SPECIFICATIONS

Maximum altitude	100-3000 m
Operating range	50 km
Payload Optical camera	4200x2800 pixels, 35mm F/2.8
Connection	digital 1,8GHz, up to 70 km of direct vision
Flight time, min	120
Speed, km/h	60-120
Take-off weight, kg	8

UNMANNED AERIAL SYSTEM

DRAGONFLY - 1603



DRAGONFLY-1603 main purpose is performing short range RSTA (Reconnaissance, Surveillance and Target Acquisition) missions over hostile territory both within and outside of line of sight from the ground station.

SPECIFICATIONS

Maximum speed of level flight, km/h	120
Cruising speed, km/h	80
Stall speed (with level stall with max takeoff weight), km/h	40
Maximum flight range, km	70
Maximum flight duration, hour	2
Minimum flight altitude, m	150
Service ceiling, m	2000
Rate of climb near the ground, m/s	5
Tale-off distance to a height of 15 m	100
Launching manner	Hand launch
Landing manner	Deep stall landing
Data link range for AGL 600 m, km	25
Maximum takeoff weight, kg	3.4
Payload, kg	0.4

YATAGAN – 2



Features:

- Hand launch from pneumatic box
- Electric motor
- Real time remote control
- Accurate delivery of warhead to a target
- Capable of striking troops and light combat vehicles
- Day and night operation at wind speed up to 10 m/s
- UAV utilizes the technology of “passive” flying to the target, using the autopilot and telemetry, to avoid external radio interference including the possibility of stealing of aircraft by enemy. When close to a target operator may adjust the aiming of the aircraft
- Available protected video-channel and remotely activated safety-protection system

SPECIFICATIONS

Weight	1.9 kg (with load – up to 2.9kg)
Operational range	up to 12 km
Active operation time	up to 30 min
Warhead	up to 1 kg
Radio link frequency	433 MHz
Two cameras	1) stationary with turn in aiming to a target (720 lines or HD 5Mp) 2) dynamic with 10x or 30x zoom and resolution of 15cm at 50m height and 50cm at 100m height
Camera field of view	within 146...170 degrees
Warhead	high-explosive and cumulative, weight - up to 1 kg
Battery	Li-Pol/Li-Fe or Li-Ion, current – up to 4Ah, voltage – 14.8V

UNMANNED AERIAL SYSTEM

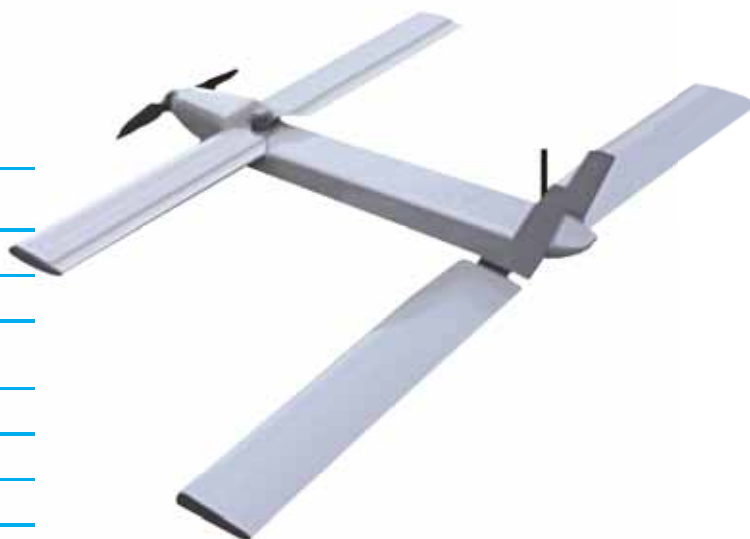
RAMA

Device is designed for multiple battlefield reconnaissance.

Able to fulfil operational reconnaissance tasks for Special Forces purposes.

SPECIFICATIONS

Weight payload	350 g
Maximum altitude	100-200 m
Maximum flying distance	50 km
Operating range	9 km
Payload	videocamera
Number of operators	1-2
Flight time, min	20-25
Speed, km/h	60-70
Take-off weight, kg	12



SPECTATOR-M



Key Competitive advantages:

- The operation does not require highly qualified personnel (operator training takes maximum 2 weeks).
- Easy to transport, the optimum size when folded into back pack (1300x400x200mm).
- The maximum time for preparation for launch from disassembled position is up to 2 minutes.
- Low noise and visibility.
- Optimal ratio of payload weight to unit weight.
- High aerodynamic qualities.

SPECIFICATIONS

Weight without payload	2 kg
Maximum altitude	2000 m
Operating range	20 km
Taking off	hand launch
Type of control	automatic, semi-automatic, manual
Flight time, min	up to 120
Speed, km/h	40-120
Take-off weight, kg	5.5

UNMANNED AERIAL SYSTEM

OSPREY



SPECIFICATIONS

Flight time	approx. 3 hours
Flight range	160 km (from take-off till landing, with 5% battery charge left, LI-PO batteries).
Flight range using Li-ION high current batteries	up to 240 km.
Radio channel distance	55 km
Maximum height	3000 m
Deployment time	15 min
Evac time	5 min
Take-off weight	6 kg
Wingspan	3,5 m
Thermal image camera	available
Daytime camera	available
Parachute landing	available
Landing controlled by operator	available
Automatic en-route flight	ensured
Take-off	semi-automatic, off hand
Inertial system	ensured
Encrypted control channel	ensured
Encrypted video channel	under testing

Advantages:

- Silent
- Reticent
- Flying at night
- Take off with the wind speed of 10 m / sec
- Does not require a catapult, launch is made by hand
- Custom software for coordinates positioning, operational data processing programs

Antenna complex:

Includes two antennas 433 mHz and 1080 GHz, two tripods, cables in protective sheath.

Ground control system:

Includes two working places, one for UAV operator, and second one for data analytic. Working places can work autonomously for the period of 12 hours.

Battery charging unit:

A case with 2 channels charger, allows to charge two batteries of any type simultaneously. Powered by a 220V - 12V.

Batteries:

Li-ION high current batteries (which are better than LI-PO batteries in terms of weight and capacity).

Portable weather station:

Includes tripod, anemometer (wind meter), wind direction indicator and temperature indicator.

Transportation bags:

Are designed in a way so that they can be equipped as a backpack and also be worn as a bag. Bag includes 02 planes and antenna complex.

Radio channels:

Video transmittance - AV 1080 GHz (digital radio channel 2.4 GHz or 5.8 GHz optional)
Telemetry - Link 433 mHz,
Manual control – 2.4 GHz (2 km distance), additional LRS 433 mHz is possible for ensuring of manual control at distances up to 40 km.

Payload:

GoPro 4 video camera
FLIR TAU thermal imager

Standard supply set includes two UAVs:

One equipped with daytime video-camera (parachute system optional).
Another one equipped with thermal image module (parachute system included).

UNMANNED AERIAL SYSTEM

DRONE BASED ON OCTOCOPTER PLATFORM



Drone – octocopter with 8 twined props - quadrocopter scheme.

Designed for search, detection and identification of objects in a given area or under the route with determined coordinates, as well as for airborne operations with payload. The complex allows to transmit real-time video and other useful information directly to the ground control station.

Can perform autonomous flight on a given route, which consists of a coordinates array in the fully automatic mode (operator free).

Under condition of absence of radio communication between UAV and ground control station (GCS) telemetry and photographically-acquired information is being recorded by on-board solid-state drive.

Can perform take-off and landing in fully automated mode from defined coordinates after the certain pre-flight preparations.

SPECIFICATIONS

Base length	0,56 m	The operating frequency of telemetry transmitter	915 Mhz
The diameter of the UAV in between of the motor axes	1,2 m	Method of space coordination	GPS
Height	0,54 m	Control and surveillance camera (with a thermal imager), (homing camera)	FullHD (1920x1080), ZOOM 30 kt function; 640x480 pixels, a lens with a focal length of 40 (possibly 60) mm
The diameter of the UAV including the span of rotor blades	1,42 m	Engines power	220W each
The angle of steady deflection	± 300	Battery capacity: - Basic (onboard) (8 pcs.) - Earthbased for vision system	12A-hour (22V) 5A-hour (11,1V)
Ability to perform a mission in fully automated mode	Yes	Stable performance of main batteries in flight (subject to a hovering condition)	60 min.
Flying range (manual and automated mode)	15 km	Vision system "UAV- to-ground"	PC monitor
Maximum flying height	500 m	Critical side winds	10 m/s
Maximum flying speed	50 km/h	Availability of gyrostabilizer	Yes
Runtime of flight assignment (including hovering mode)	60 min.	Availability of autopilot and the flight stabilization system	Yes
Availability of a ground station	Yes	Availability of obstacles recognition system	Yes
Maximum take-off weight (using LiPol)	16,5 kg	Availability of objects recognition and identification system (possible to determine a person or a car on a background of buildings, roads, afforestation, snow cover etc.)	Yes
Payload weight	3 kg		
The allowable range of operating load	+45 %		
Weight in transportable condition (without batteries and camera)	7,6 kg		
Weight of hard case with ground station and necessary equipment	20 kg		
The operating frequency of the airborne control commands receiver	433 Mhz		
The operating frequency of video channels "UAV-to-ground» (HD, SD)	1,1...1,3 GHz		

UNMANNED AERIAL SYSTEM

HORNET



Radio channels:

- Link 2.4G.
- Control 2.4G
- Video 1.2G.

SPECIFICATIONS

Flight time	40 min
Payload	up to 5 kg
Delivery range of 0.80 kg munition	5 km
Delivery range of 3.0 kg munition	3 km
Cruise flight height	400 m
Aiming, visual inspection of munition delivery and detonation is done online with the help of installed video camera	up to 120
Speed, km/h	40-120
Take-off weight, kg	5.5

Supply set includes:

- Hexacopter
- Transportation case
- Antenna system
- Ground control unit
- Charging unit
- Set of batteries

HORNET-M



SPECIFICATIONS

Flight time	70 min
Payload	up to 8 kg
Delivery range of 0.80 kg munition	8 km
Delivery range of 3.0 kg munition	5 km
Cruise flight height	400 m
Aiming, visual inspection of munition delivery and detonation is done online with the help of installed video camera.	

Radio channels:

- Link 2.4G.
- Control 433 mHz.
- Video 1.2G.

Supply set includes:

- Octocopter
- Transportation case
- Antenna system
- Ground control unit
- Charging unit
- Set of batteries

GROUND CONTROL STATION



- Video recorder;
- Computer with the following characteristics:
 - Processor - 2 cores, frequency - 2.5 GHz;
 - RAM - 8 GB;
 - 15" screen;
 - Hard drive - 320 GB;
 - Operating System: Microsoft Windows 7.
- Equipped with a color television screen to display an image received from video camera of the aircraft;
- A set of antennas to receive 2 types of video signal and telemetry;
- Equipped with manual and automatic flight control tools;
- Equipped with the tools of manual control of the camera;
- A set of software to provide automated control of UAV.

PERSONAL PROTECTION



PERSONAL PROTECTION

UNDERWEAR BULLETPROOF VESTS



Provide protection at levels II-A and II (NIJ) at weight 1,5 – 2 kg with the circular protection. Armor material – Kevlar, Tvaron or Daynema.

For increased level of protection the bulletproof vest is completed with additional plates:

- Soft armored elements made of Kevlar, Tvaron or Daynema to provide level of protection III-A (NIJ);
- Rigid armored elements made of aluminum alloy or Daynema for achievement of level of protection III-A (NIJ) + protection against TT bullets (with the steel core).

CORSAIR MT BULLETPROOF VEST



Corsair Mt was created with the help of experience gained through Ukraine's military forces participation in military operations in past years. It is designed for individual protection of combat vehicle crew from projectiles and armor fragments, pistol 9mm caliber, and from high temperature action and fire. FSP fragments simulator (fragment weight 1.1 g, speed >600 m/s) shows V50 ballistic resistance.

	Protection area, dm ² 52-54 sizes
Chest protection	22,4
Back protection	22,6
TOTAL	45

PERSONAL PROTECTION

ALL BULLETPROOF VESTS



Corsair



Corsair M3



Pantsir 3-95



Corsair M3m



Corsair M3mk



Corsair M3c



Corsair MPL



Corsair - Shturm

ALL BULLET-PROOF VESTS:

- Body armor of outer wearing;
- The body armor's shape is optimized according to projection of vitally important organs;
- According to requirements of customer it is determined material and color of facing cover, arrangement of pockets on external covers;
- The upper cover of the product is made of high-strength and wearproof fabric with water-repellent coating.
- It was issued health certificate;
- Anti-traumatic layer.

ARMoured HELMET



KASKA 1M model No. 1

Outer surface of helmet is coated with polyurethane enduring water-proof composition and dyed with matte dye.

Helmets provide head protection from artillery projectile fragments, mines, grenades, shrapnel and pistol bullets of 9 mm caliber.

Operating temperature is from -40°C to $+50^{\circ}\text{C}$

Form of outer surface of helmet enables to fix rail mounting (railing adaptor) and front mounting for night-vision device.

V50 ballistic resistance during shooting of FSP fragments simulator with weighing of 1,1 is no more 650 m/s.



KASKA 1M model No. 2

Is designed for law enforcement units and peacekeeping units. Helmet fixation is exercised by 4-point system of adjustable belt tape.

Sizes	Protection area, dm ²	Weight, kg ($\pm 0,1$)
Small	12,4	1,3
Medium	13,5	1,35
Large	14,4	1,45



KASKA 1M model No.3, version No.2

It differs from version No.1 in the fact that it has side cuts for an ear area.

Sizes	Protection area, dm ²	Weight, kg ($\pm 0,1$)
Size 1	11	0,9
Size 2	11,7	0,95

PERSONAL PROTECTION

BLAST ENGINEER SUIT



KS-1

The shot-firer's protective suit is used during laying and discovering explosives and mine clearing.

The suit consists of a jacket, trousers and boots. The item is manufactured ranging in three typical sizes. It is stocked with a removable «visor» with bullet-proof glass (2nd class of protection) and a «Kaska (Helmet) – 1» bullet-proof Kevlar Head-Piece. The suit is designed with an electrostatic charge relieving device. The area of the protective fabric packets shielding: 242 sq.dm (2nd type size).

The area of the additional metal armoulements shielding : 23 sq. dm. Weight of the suit – not exceeding 30 kg. (2nd type size).

The design of the suit makes it possible for the user to take off quickly the jacket and the trousers owing to the peculiar patented side, shoulder and back fixing parts of the item.

The ballistic protection is ensured by the flexible protective Kevlar Pockets placed in the jacket, trousers and boots covers. Metal armour elements improving the protection level are additionally placed in the jacket (the neck, breast and groin parts) and trousers (the shin, and hip parts).

The suit had underwent field polygon testing. The item guarantees protection against being hit by F-1, RGD-5 grenades, a 240g TNT blasting cartridge within one meter distance.

The ballistic fabric armour pockets had underwent testing at the Du Pont Industrial Fibre Certified Laboratory /USA/ in accordance with the STANA G 2920 International Testing System.

The fact that the «KS-1» Suits were successfully used by a Sapper sub-unit of the Ukrainian Ministry of Defense involved in clearing of mine areas in Lebanon with the UN mission bounds speaks in their favour.

The suit can be stocked with the video- and audio- communication system by the client's request.



KS-1 model 2

MISCELLANEOUS



MISCELLANEOUS

SIGNALLING KIT UP-50



Signaling Kit **UP-50** is designed for a wide range of customers wishes to ensure their safety by means of light (or sound – with adapter) signals, and the main users, professionals in this case – the rescuers. It is the part of the Survival Kit of each military pilot.

KIT is a simple protective device and is used to protect the facility or its perimeter – used by private security firms to protect the fields and construction sites.

In comparison with the signal gun/pistol, the launching device SIG-50, which is the part of Signaling **KIT UP-50**, has 4-5 times smaller mass, it is incomparably smaller in dimensions and has a secure attachment with the carabiner on the clothing or equipment. In addition, Signaling **KIT UP-50** has also advantage which does not have signal revolvers / pistols – remotely controlled shot used for protection of the facility or its perimeter. A similar but more complex device in design and operation used in the armed forces under the name «signal a mine». With the addition of the same set of **UP-50** is used by airport services for protection of airfields them and scaring birds away.

The set is indispensable in the areas with the absence of radio and telephone communication (active work in the mountains, cold and damp conditions, followed by the battery discharge), the emergency location designation, highlighting the object or course.

Composition of SURVIVAL KIT UP-50:

- launching device SIG-50 with the established center-fire striker;
- signals / pyrotechnic rockets, signal and blank cartridges cal. 5.6 mm / «Zhevelo» capsules with an adapter for them;
- spare «side» striker for the respective rockets and blank cartridges;
- packing for waterproof safety;
- operation manual.

For the perimeter security in addition to the standard set of **UP-50** Remote Launch Kit can be supplied:

- piece of thin wire with length of about 6 m
- plowshare for installation of the **KIT** in the ground, on the post (there are holes for fasteners - nails, string and other handy items).

There are other possible configuration options for the customers' orders.

MISCELLANEOUS TRAINING COMPLEX



Intended for teaching and training of fighting skills at shooting. It is completed with targets, the equipment for weapon uplaoding and armored partitions (for protection against a ricochet).

MISCELLANEOUS

CONTAINER FOR EXPLOSIVES TRANSPORTATION IZAT-1



Survive charge up to 600 grams of TNT equivalent with the shards of at least 1 / 3 the mass of the charge.

Products of **IZAT-1** series are designed for the safe transport of explosives through public places, as well as for blocking suspicious objects covering them or putting inside the unit.

Fully holds fragments, 100% eliminating the defeat of people by shards around in close proximity (1 meter) of the product. Significantly weaken the effect of shock waves, sending up the explosion products. Products are supplied with briquettes and fire blanking gel, which eliminates the possibility of fire after the detonation of explosives.

Products are disposable, after the detonation of explosives in them, are destroyed, while the destruction of products takes most of the explosion energy.

Products were tested in the technical-explosion laboratory of the Research Centre of Forensic Expert Affairs of Ukraine in 2009 and recognized as a fully fit for usage in places of mass events.

Technical characteristics	IZAT-2-200	IZA 1-2-400-360	IZA 1-2-400-250	IZAT-2-600
Survive charge of TNT	equivalent of 200 grams (with shards of at least 1 / 3 the mass of charge)	equivalent of 400 grams (with shards of at least 1 / 3 the mass of charge)	equivalent of 400 grams (with shards of at least 1 / 3 the mass of charge)	equivalent of 600 grams (with shards of at least 1 / 3 the mass of charge)
Product weight not exceeding	30 kg	45 kg	40 kg	60 kg
Product dimensions				
height	500 mm	500 mm	500 mm	500 mm
diameter	400 mm	400 mm	500 mm	500 mm
Cavity for storing charge				
depth	300 mm	300 mm	300 mm	300 mm
diameter	250 mm	360 mm	250 mm	250 mm
Colour of product	black, orange	black, orange	black, orange	black, orange

MISCELLANEOUS

FORENSIC CASES



Forensic case SV-2

94 items, the maximum set with digital camera, shockproof plastic case 370x290x430 mm., withstands static loads up to 80 kg



Forensic case SV-0,5

48 items, a digital camera with 2Gb RAM (aluminum case 380x260x120 mm). Case additionally strengthened by aluminum frame. Internal LED backlight (10 pieces)



Forensic case SV-1

80 items, aluminum case 450x350x170 mm. Case additionally strengthened by special frame. There is internal LED backlight (10 pieces). Specifically designed for the urban environment.



Forensic case OMP-1

33 items, aluminum case 330x210x90 mm. It is designed for photo documentation of the crime scene.



Set BRIBE-3

19 items, set of preparations for applying invisible marking, aluminum case 330x210x90 mm



Set BRIBE-2

10 items, set of preparations for applying invisible marking



Set BRIBE-1

7 items, set of preparations for applying invisible marking





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