

EVPÚ Defence a.s.

the Czech brand for national security

EVPÚ Defence is the only Czech manufacturer of commander and gunner sights designed for special military vehicles and a leading global manufacturer of electro-optical systems. EVPÚ Defence, a.s., is a Czech company the head office of which is in Uherské Hradiště and which has been known for a long time in the inner circle of army, police, and security forces. The electro-optical systems manufactured in the southern part of Moravia guard frontiers of more than 40 nations all over the world and find frequent use in projects of the Ministries of Defence and police forces of the Czech Republic and Slovakia.

Each of the models described below was developed for a specific project, which fact shows that the company can provide flexible solutions and offer custom-made products.

These sights will be presented at the forthcoming IDET 2019 fair.

CRANE multipurpose sights – a multi-sensor electro-optical container developed primarily for integration into remote-controlled reconnaissance and surveillance systems and weapon stations.

Within its extensive and growing product portfolio, EVPÚ Defence, headquartered in Uherské Hradiště in the Czech Republic, numbers the CRANE series of commander's and gunner's sights, featuring cooled or uncooled thermal cameras. The multi-sensor electro-optical (EO) systems have been developed primarily for integration with remote controlled surveillance systems and remote-controlled weapon stations (RCWS) – the latter on combat and security vehicles – thanks to their modular architecture.

Three versions of the gunner's sight with uncooled camera are offered, intended for integration with RCWS incorporating machine guns of 7.62 or 12.7mm calibre:

- The **CRANE SR1G** features daylight optics provided by an aiming camera with a horizontal angle of 3.7° and a colour surveillance camera with 30x continuous optical zoom and a horizontal angle of 2.3-63.7°, while the 1024x768 thermal camera can switch between a wide field of view (FoV) of 18.1° for area surveillance and a narrow FoV of 6.1° for detail views. Distance measurements up to 32km are provided by a laser rangefinder. The system is entirely digital,

the GigE interface providing sensor communications with minimal interference and high quality image data. The CRANE SR1G will be integrated into the RCWS of a new chemical, biological, radiological and nuclear (CBRN) reconnaissance vehicle for the Army of the Czech Republic;

- The **CRANE XSR** incorporates a daylight surveillance camera featuring both monochrome and colour modes, with a 36x optical zoom capability. The 640x480 pixel uncooled thermal camera has two switchable FoV – 4.6° narrow and 14.3° wide;

- In the **CRANE SR**, two black and white aiming cameras with fixed focal lengths are partnered with the same thermal camera and laser rangefinder as for the CRANE XSR. Variants incorporating cooled thermal cameras are available for detecting targets at longer ranges and for a use for larger calibre RCWS. Two options are offered:

- The **CRANE XLR** features a cooled thermal camera module with a 640x512 pixel resolution and two switchable FoV of 2° and 10° horizontal angle for dark, dusty and difficult

operations. For daylight operations a colour surveillance camera module with a 36x optical zoom used. The sight is also equipped with a 20km-range laser rangefinder;

- The **CRANE LR** sight features two monochrome aiming cameras with fixed focal lengths and horizontal FoV of 2.8° and 10.5°. The bodies of all versions of the gunner's sights are ruggedised against shock, vibration and all unfavourable weather conditions. EVPÚ Defence does not simply assemble third-party components into systems: the company is a specialised manufacturer of the dedicated sensors, which are calibrated and tested in its purpose-built laboratory.

The company registered a high level of interest in the product during the IDEX 2019 exhibition in the United Arab Emirates, thanks to a live demonstration of the product.

The CMS-1 commander panoramic sight is a multi-sensor electro-optical system the sensors of which are mounted on a gyro-stabilized pan and tilt positioner, providing an



all-round field of vision to the commander irrespective of light or weather conditions. The vibration-resistant container comprises a daytime zoom camera (30x optical, 12x digital zoom) with a colour and a B/W modes. At night or in unfavourable conditions, a continuous-zoom cooled thermal camera is used. Distance measurement are performed by an eye-safe laser rangefinder which can reach up to 25,000 m. The commander sight's elevation range is between -90° and +70°.



Another interesting project fielded by the Army of the Czech Republic is known as SeeCheck – a system monitoring the surroundings of a vehicle and guarding the safety of its crew.

The Czech Army uses the system on Iveco LMV 4x4 armoured vehicles and LOS-M and Sněžka-M tracked armoured reconnaissance and surveillance vehicles. The SeeCheck system is also integrated into communication and command role versions of the Pandur II 8x8 wheeled armoured vehicles which the Army of the Czech Army is currently preparing to field.

The SeeCheck monitoring/display system is designed particularly for monitoring close surroundings of the vehicle, protecting dismounted soldiers, or guarding the perimeter around the vehicle in both daytime and nighttime. The system which EVPÚ Defence developed on its own initiative and at its own expense consists of a control and display terminal designated TU-1 and a SeeCheck sensor-mounting pan device with a daytime and a nighttime branches. The former comprises a CCD module with a fixed focal length lens and a resolution of 720 TV lines; the nighttime branch makes use of an uncooled thermal imaging module the resolution of which is 324x256 pixels. The fields of view of both modules are optically aligned, their angle being 63°H. Optionally, the system can also be equipped with a sensitive AWIR uncooled thermal camera, or with a daytime/nighttime AWIR D camera with an IR illuminator.

The TU-1 terminal can control one SeeCheck sensor unit and up to four additional cameras mentioned above. Its side buttons, touch screen, and intuitive control software allow the operator to control the system easily and quickly. The terminal also permits, for instance, to display three videos or to merge images obtained from the CCD and IR modules of the SeeCheck unit.



In addition to developing, manufacturing, and maintaining the abovementioned elements, the company also integrates them into more complex surveillance and weapon systems. Thanks to cooperation with the parent company, EVPÚ a.s., it can deliver complete integrated solutions of remote-controlled surveillance systems and weapon stations. An example of the cooperation is the ZSRD-07 weapon station with a 7.62 mm FN MAG machine gun, which is in the inventory of the Army of the Czech Republic, or with a 7.62 mm PKT machine gun, which is mounted on Iveco 4x4 vehicles used by the Armed Forces of the Slovak Republic. Its new generation, Gladius, which is currently being developed, is armed with a 12.7 mm machine gun (NSVT or M2) and is considered for integration on 4x4 vehicles of the Armed Forces of the Slovak Republic.

TURRA 30 remote-controlled weapon station

Another example is the TURRA 30 weapon station, whose modular architecture permits the user to choose from various sight, weapon system, electrical equipment, or ballistic protection solutions. The TURRA 30 weapons station is armed with a 30mm Bushmaster Mk44 automatic gun (alternatively with a 30mm 2A42 gun), a 7.62 mm FN MAG machine gun, the 3rd generation SPIKE LR ATGM launcher, and smoke grenade dischargers.

The full version of TURRA 30's sighting system comprises a CRANE XLR stabilized gunner sight with a cooled thermal camera and an independent CMS-1 commander panoramic sight. The body of the weapon station is armoured, the basic version of the

armour providing STANAG 1 ballistic protection to the weapon station and STANAG 3 ballistic protection to the vehicle's crew. The weapon station's design permits to fit add-on armour, and thus increase the ballistic protection level. Thanks to ammunition being stored outside the crew compartment, the weapons being mounted above the hull roof level, and the operators being positioned outside the turret assembly, the safety of all crewmembers of the vehicle is greatly improved. TURRA 30's control unit enables full functionality of the vehicle's Battlefield Management System.

TURRA 30's electrical equipment is highly modular and enables maintenance to be performed and modifications to be implemented in an efficient and quick manner. The variability of the weapon station's components, from the basic version up to the complete version with the independent commander panoramic sight featuring the "hunter-killer" functionality, increased level of ballistic protection, smoke grenade dischargers, and other elements, such as a laser illumination detection and identification system, make the TURRA 30 weapon station a combat asset that can be integrated on a number of vehicles and gives the customer a possibility of choosing from a broad spectrum of configurations and prices.

Laser warning system

EVPÚ Defence also delivers and integrates an easy-to-operate, reliable laser illumination warning system, capable of alerting the user to a broad spectrum of laser devices, from laser rangefinders or laser target designators to laser beam guided weapon systems and some types of radars.

EVPÚ Defence, a.s., will display many products from its portfolio, including monitoring systems and all types of commander and gunner sights, at the forthcoming IDET fair in Brno. EVPÚ Defence will also be present at the DSEI fair in London, NATO Days in Ostrava, or Expodefensa in Bogota, Colombia, but will not display as many products as in Brno. Additional information about EVPÚ Defence's products can be obtained at www.evpudefence.com.

