

POLISH RADAR TECHNOLOGY

Advanced Protection Systems SA, located in Gdynia, Poland, is developing innovative SKYctrl anti-drone systems based on the proprietary FIELDctrl 3D MIMO radar. They effectively detect, classify, track and neutralise UAVs (unmanned aerial vehicles). Based on artificial intelligence and machine learning algorithms, the device automatically classifies and distinguishes UAVs from other similar targets such as birds. The company is both the manufacturer and owner of the technology.

SOLUTION APPRECIATED BY THE ARMED FORCES OF UKRAINE

Anti-drone systems are used by armies and services responsible for the security of critical infrastructure, such as airports and refineries. They are also used in the protection of mass events or the detection of smuggling activities (e.g. in prisons). APS solutions protect key locations around the world, both military and civilian.

The Ukrainian Armed Forces using the SKYctrl system confirm its effectiveness: They stated that *'So far, this is the best system we have used. Its range corresponds to the specification and is even greater, depending on the flight altitude of the BSP. It even sees birds, but does not neutralise them because it automatically distinguishes them from drones.'*

NEW CHALLENGES AND THREATS FROM RUSSIA

The dynamic rise of drone warfare is due, among other things, to the low price of simple armed UAVs which can harm very expensive tanks, air defence sites, missile launchers or howitzers. There are regular organised drone attacks on military logistics bases or airfields deep inside Ukrainian territory. Military conflicts affect entire states and societies. Not only armed forces, but also civilians or energy infrastructure are the objects of hostile influence.

In APS, we agree that protection and defence challenges are overlapping. Countries on NATO's eastern flank, particularly vulnerable to Russian aggression, need solutions that are interoperable and allow armed forces and other uniformed services to work together seamlessly. The SKYctrl anti-drone system can act as a key element of state defence in wartime, as well as an element of state protection in peacetime.

AN OPPORTUNITY FOR THE POLISH DEFENCE INDUSTRY

The Polish defence industry today faces a huge opportunity to promote its own innovative and cost-effective solutions, such as the C-UAS (counter unmanned aircraft system) SKYctrl systems. These have already been delivered to the Polish Armed Forces and could be an attractive proposition for other NATO allies.

Poland is currently building a layered, high-end air defence system - the most ambitious project of its kind in Europe, and the solution developed by APS is part of it. The SKYctrl anti-drone system is an integral part of Poland's layered integrated air defence system. It is responsible for protecting the upper tiers of the system (specifically the Wisła and Narew) from drones, which directly reflects the concept of 'defender defence'.

DEVELOPMENT AND DIRECTIONS OF INTERNATIONAL COOPERATION

APS products are deployed in NATO member states and therefore must comply with the principle of interoperability. Anti-drone solutions in allied countries should work seamlessly together, as drone warfare is a threat that cannot be underestimated. SKYctrl systems have an open architecture and are designed to allow easy integration with the operation of other systems and platforms, for example as part of the European Sky Shield Initiative (ESSI).