



J S C V Y M P E L

JSC VYMPEL is a leading company engaged in development, installation and testing of unique air and space defense systems, including early warning and space monitoring systems.

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Guarding the cosmos for the world



ROBOTIC OPTOELECTRONIC COMPLEX

Experience — Knowledge — Development — Reliability — Consistency

Situational awareness of the space environment requires the possession of highly informative means of observing space objects (SO).

JSC VYMPEL, in cooperation with JSC Astronomical Scientific Center, offers a line of robotic optoelectronic complexes (OEC) for observing SO in near-Earth orbits of any type. The line includes telescopes with lenses with an aperture of 30 cm, 50 cm and 65 cm. The 30 cm lens can be integrated into binoculars.



ROBOTIC OPTOELECTRONIC COMPLEX



FUNCTIONAL CAPABILITIES OF THE OEC

1. Automatic execution of the observation plan, downloaded directly to the OEC or remotely (via the Internet) from the User's operations center.
2. Smart control of operating modes of the complex, obtaining and processing in real time of optical images of analyzed sections of the starry sky.
3. Detection of space objects in optical images (even without a priori information), estimation of their current angular coordinates and magnitude of brightness.
4. Association of measurements in tracks of SO.
5. Data formation in agreed format for transmission to the User's operations center.

COMPOSITION AND MAIN TECHNICAL CHARACTERISTICS OF THE OEC AND ITS ELEMENTS

1. Optical modules with aperture sizes of 30, 50 and 65 cm.
2. Digital photodetector (domestic development) FPU 4040 with CMOS-sensor:
 - Number of pixels in FPU is 4096×4096 ,
 - The size of one pixel is 9×9 microns,
 - Frame rate is up to 20 Hz,
 - Quantum yield of at least 70%,
 - Reading noise is 4 e,
 - Dynamic range of at least 80 dB.

3. A set of detectors and sensors providing operation of the OEC in a wide range of external conditions and protection from external adverse factors (in accordance with the requirements of the User).
4. An installation kit adapted for a specific User and appropriate conditions for placement and functioning of the OEC.
5. OEC software (the composition and scope of software are determined by agreement with the User).
6. Set of working design documentation (WDD).

DELIVERY CONDITIONS, TERMS, TECHNICAL-ECONOMIC CHARACTERISTICS

Production and supply of OEC are made under an agreement with the Customer (User). "Turn-key" delivery and launch of the complex are possible. The cost and delivery time, considering the uniqueness of the complex, are determined depending on the requirements of the Customer and the operating conditions of the OEC at the deployment site.

If necessary, at the request of the Customer, the OEC can be integrated with monitoring information tools operating in other frequency ranges (as part of individual projects).

