

# SYCH 5K10 The Complex of Reconnaissance and Optical Devices Detection

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The complex is a multifunctional optoelectronic device designed for twentyfourseven video monitoring of the terrain aims searching and automatic detection of camouflaged optical aiming and tracking devices, determination of their coordinates and distance in difficult terrain and urban buildings conditions.

Providing an early and prompt detection of optical aiming devices and the fact of covert objects surveillance, the complex prevents a sniper attack or terrorist act at the stage of their preparation.

The complex SYCH 5K10 operates in two modes:  
1. Passive mode. Exploration of territories and the surrounding environment with the help of television and thermal imaging modules in order to find and detect targets, measure the distance to them and determine the coordinate

2. Active mode. Laser scanning of designated areas in order to search and automatically detect camouflaged optical aiming and tracking devices, measure the distance to them and determine the coordinates.

The complex makes possible to monitor the terrain and observe thermal objects in limited visibility conditions (poor lighting, smoke, fog), as well as to detect other passive and active heat sources hidden by vegetation. The detection of camouflaged optical aiming and tracking devices is made by their gleams, formed as a result of laser radiation reflection from their optical systems.

The complex includes an optoelectronic unit and thermal imaging module fixed on the pan-and-tilt platform and a tripod or bracket in case of mobile applications, and also a remote computer and an external battery.

The optoelectronic unit consists of a television module, a laser module, a laser rangefinder, a GPS receiver, digital compass, and a control unit.

Control of the complex operation modes and the parameters of all modules is performed from a remote computer by one operator. The remote computer monitor displays videos from the television and thermal imaging modules, an electronic map of the area indicating the location (coordinates) of the detected targets, operating modes and modules parameters. All received data of the distance and coordinates of the detected targets are automatically stored and transmitted to the command post and fire damage systems.

The scope of applications of SYCH 5K10 encompasses: the detection of snipers and camouflaged optical surveillance devices, security of special zones and territories, protection of objects of critical infrastructure, organization of anti-terrorist activity, providing the security of command posts and strong points, remote monitoring of terrorist (sniper) threats.

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<b>OPTOELECTRONIC UNIT</b>	
<b>TELEVISION MODULE</b>	
Video sensor type	CMOS
Video sensor resolution	1280 x 720
Wide field of view (H x V)	63.7° x 47.9°
Narrow field of view (H x V)	2.3° x 1.7°
Illumination operating range	0.001... 100000 lm
Detection range (man/vehicle)	3000 m / 9000 m
<b>LASER MODULE</b>	
Laser field (H x V)	0.1° x 1.7°
Spectral range of laser emitters	Infrared / Visible
Detection range of optical devices	up to 2000 m
<b>LASER RANGEFINDER</b>	
Wavelength	1550 nm
Radiation divergence	1 x 1 mrad
Measurement range	25 ... 6000 m
Distance error	±1 m
<b>PAN-AND-TILT PLATFORM</b>	
Scanning mode	Auto / Manual
Turning angle	±180°
Inclination angle	-30° ... +90°
Turn angular rate	0,006°/sec ... 100°/ sec
Inclination angular rate	0,003°/ sec ... 50°/ sec
Bridging distance of turn	0.006°
Bridging distance of inclination	0.003°
Power supply	12...30 V
Dimensions ((H x W x D)	265 x 174 x 138 mm
Weight	5.5 kg
<b>THERMAL IMAGING MODULE</b>	
Thermal sensor type	Uncooled microbolometer
Thermal sensor resolution	640 x 512
Objective	100 mm
Objective F number	F/1.0

Field of view	6.2° x 4.9°
Dimensions (Ø x L)	Ø115 x 250 mm
Weight	3.3 kg
Detection range (man/vehicle)	2500 m / 6000 m
<b>REMOTE COMPUTER</b>	
Type	Notebook
Core	intel® Core™ i5-520M
Operation memory	4 Gb
Memory	500 Gb
Operation system	Linux
Dimensions (L x W x H)	302 x 287 x 71 mm
Weight	3.7 kg
<b>GENERAL PARAMETERS</b>	
Connection interface	wire Ethernet (1000BASE-T), wireless (option)
Sensors interface	RS232 (RS485)
Power supply	24 V
Operating time	> 8 h
Power consumption	to 50 W
Operating temperature	-30°C ... +60°C
Dimensions (L x W x H)	280 x 250 x 170 mm
Weight	3.5 kg
Protection level	IP66

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