

OPTICAL-ELECTRONIC SYSTEMS FOR UAV



GOES MFMGV -15



Gyrostabilized optical-electronic system with high resolution television module , thermal imaging (IR) module, laser rangefinder

Characteristics of the tracking system

Maximum angular velocity of tracking	60°/s
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Adaptive tracking window	min - 16x16 pixels max - 128x128 pixels
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Accuracy of target coordinate determination	30 m
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OTHER CHARACTERISTICS

Weight	12 kg
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Dimensions	260x385x315 (LxHxW)
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Operating temperature range	-20 °C +40 °C
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Maximum power consumption	120 W
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Voltage	15-26 V
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Independent video recording to internal memory	64 GB
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Detection and recognition ranges

	IR MODULE	TV MODULE
Human	2 200 m / 1 000 m	7 500 m / 3 500 m
Vehicle	4 500 m / 2 300 m	11 000 m / 6 500 m
Tank	5 500 m / 2 800 m	15 000 m / 10 000 m

TV MODULE

Sensor type	CMOS
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Spectral range	VIS 0.4 - 0.75 μ m
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Matrix resolution	1920x1080 px
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Optical zoom	x60
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Focal length	6 – 408 mm
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Horizontal field of view	1.4° - 50°
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IR MODULE

Sensor type	Uncooled microbolometer
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Spectral range	LWIR 8 – 14 μ m
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Matrix resolution	640 × 512 px
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Focal length	20 - 100 mm
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Horizontal field of view	4.4° - 22.5°
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Digital zoom	x4
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LASER RANGE FINDER

Wavelength of radiation	1535 $\pm$ 5 nm
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Frequency of measurement	5 Hz
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Measured distances	100 – 15,000 m
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Measurement accuracy	$\pm$ 2 m
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GYROSTABILIZED PLATFORM

Number of stabilization axes	2 axes (azimuth, elevation)
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Effective working range	0-40 Hz
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Maximum angular velocity	300°/s
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Stabilization accuracy	0.05 °
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Movement along the azimuth axis	360°
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Movement along the elevation axis	From +2° to - 182°
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GOES MFMGV -5



Gyrostabilized optical-electronic system with high resolution television module, thermal imaging (IR) module, laser rangefinder

Characteristics of the tracking system

Maximum angular velocity of tracking	40°/s	
Adaptive tracking window	min max	16x16 pixels 128x128 pixels
Accuracy of target coordinate determination	30 m	

OTHER CHARACTERISTICS

Weight	7 kg	
Dimensions	315x385x315 (LxHxW)	
Operating temperature range	-20 °C +40 °C	
Maximum power consumption	80 W	
Voltage	15-26 V	
Independent video recording to internal memory	64 GB	

TV MODULE

Sensor type	CMOS
Spectral range	VIS 0.4 - 0.75 μm
Matrix resolution	1920×1080 px
Optical zoom	x30
Focal length	4,6-136
Horizontal field of view	2.2° - 65.4°

IR MODULE

Sensor type	Uncooled microbolometer
Spectral range	LWIR 8 – 14 μm
Matrix resolution	640 × 512 px
Focal length	55 mm
Digital zoom	x4

LASER RANGE FINDER

Wavelength of radiation	1535 ± 5 nm
Frequency of measurement	5 Hz
Measured distances	100 – 45 00 m
Measurement accuracy	± 1 m

GYROSTABILIZED PLATFORM

Number of stabilization axes	3 axes (azimuth, elevation, roll)	
Maximum angular velocity	250°/s	
Stabilization accuracy	0.05°	
Movement along the azimuth axis	360°	
Movement along the elevation axis	360°	
Movement along the tilt angle axis	± 15°	

Detection and recognition ranges

	IR MODULE	TV MODULE
Human	450 m / 150 m	1700 m / 600 m
Vehicle	800 m / 300 m	6000 m / 2000 m
Tank	1200 m / 500 m	10 000 m / 4000 m

GOES- TV



Gyrostabilized optical-electronic system with high resolution television module

Characteristics of the tracking system

Maximum angular velocity of tracking	30 °/s
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Adaptive tracking window	min - 16x16 pixels max - 128x128 pixels
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Accuracy of coordinate determination of a ground object	30 m
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Detection / recognition ranges

TV MODULE

Human	1700 m / 600 m
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Vehicle	6000 m / 2000 m
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Tank	10,000 m / 4,000 m
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TV MODULE

Sensor type	CMOS
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Spectral range	VIS 0.4 - 0.75 μ m
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Matrix resolution	1920x1080 px
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Optical zoom	x30
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Focal length	4.6-136
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Horizontal field of view	2.2° - 65.4°
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GYROSTABILIZED PLATFORM

Number of stabilization axes	2 axes (azimuth, elevation)
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Maximum angular velocity	200 °/s
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Stabilization accuracy	0.07°
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Movement along the azimuth axis	360°
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Movement along the elevation axis	360°
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OTHER CHARACTERISTICS

Weight	1,1 kg
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Dimensions	145x175x145 (LxHxW)
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Operating temperature range	-20°C +40°C
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Maximum power consumption	40 W
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Voltage	15-26 V
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GOES TV-IR



Gyrostabilized optical-electronic system with high resolution television module, thermal imaging (IR) module

OTHER CHARACTERISTICS

Weight	1.4 kg
Dimensions	150x175x145 (LxHxW)
Operating temperature range	-20 °C +40 °C
Maximum power consumption	40 W
Voltage	15-26 V

Characteristics of the tracking system

Maximum angular velocity of tracking	30 °/s
Adaptive tracking window	min - 16x16 pixels max - 128x128 pixels
Accuracy of target coordinate determination	30 m

Detection/recognition ranges

	IR MODULE	TV MODULE
Human	450 m / 150 m	1000 m / 400 m
Vehicle	800 m / 300 m	2400 m / 800 m
Tank	1200 m / 500 m	4500 m / 1500 m

TV MODULE

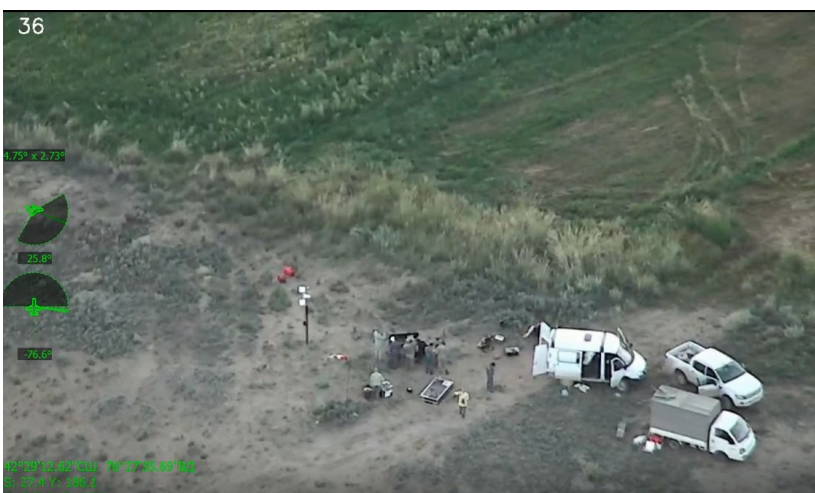
Sensor type	CMOS
Spectral range	VIS 0.4 - 0.75 μm
Matrix resolution	1920x1080 px
Optical zoom	x10
Focal length	5.1-51 mm
Horizontal field of view	1.4° - 58°

IR MODULE

Sensor type	Uncooled microbolometer
Spectral range	LWIR 8 – 14 μm
Matrix resolution	640 × 512 px
Focal length	55 mm
Horizontal field of view	8°
Digital zoom	x4

GYROSTABILIZED PLATFORM

Number of stabilization axes	2 axes (azimuth, elevation)
Maximum angular velocity	200°/s
Stabilization accuracy	0.05°
Movement along the azimuth axis	360°
Movement along the elevation axis	360°



GOES TV-LR



Gyrostabilized optical-electronic system with high resolution television module, laser rangefinder

OTHER CHARACTERISTICS

Weight	1.4 kg
Dimensions	145x175x145 (LxHxW)
Operating temperature range	-20 °C +40 °C
Maximum power consumption	40 W
Voltage	15-26 V

Possibility of integration into the fire correction system

Characteristics of the tracking system

Maximum angular velocity of tracking	3 0 °/s
Adaptive tracking window	min - 16x16 pixels max - 128x128 pixels
Accuracy of target coordinate determination	30 m

TV MODULE

Sensor type	CMOS
Spectral range	VIS 0.4 - 0.75 μ m
Matrix resolution	1920x1080 px
Optical zoom	x30
Focal length	4.6-136 mm
Horizontal field of view	2.2° - 64°

LASER RANGE FINDER

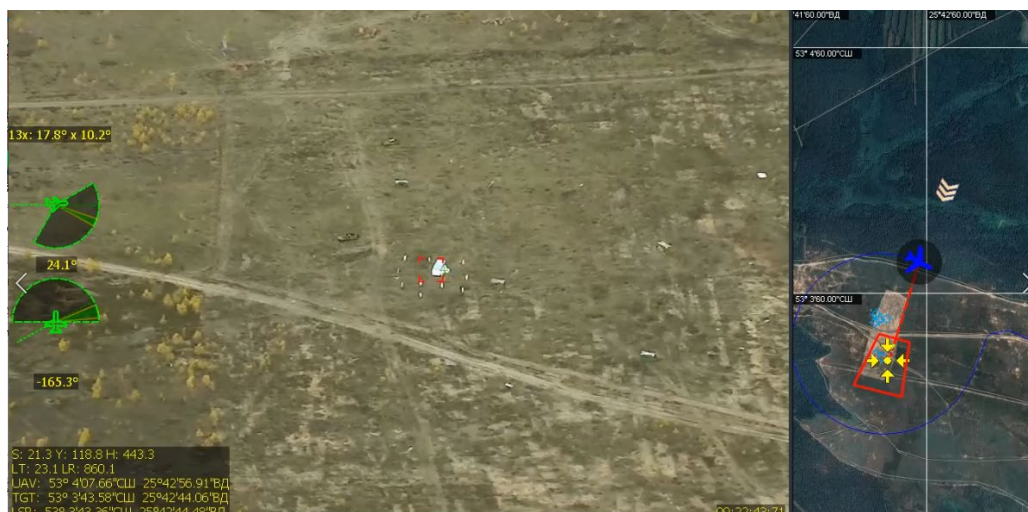
Wavelength of radiation	1535 $\pm$ 5 nm
Frequency of measurement	5 Hz
Measured distances*	30 – 4500 m
Measurement accuracy	$\pm$ 1 m

GYROSTABILIZED PLATFORM

Number of stabilization axes	2 axes (azimuth, elevation)
Maximum angular velocity	200°/s
Stabilization accuracy	0.05°
Movement along the azimuth axis	360°
Movement along the elevation axis	360°

Detection / recognition ranges

TV MODULE	
Human	1700 m / 600 m
Vehicle	6000 m / 2000 m
Tank	10,000 m / 4,000 m



OES-TV

High resolution TV camera without stabilization system



Quick-detachable payload for aircraft type UAV.

TV MODULE

Sensor type	CMOS
Spectral range	VIS 0.4 - 0.75 μm
Matrix resolution	1920×1080 px
Focal length	4 mm
Horizontal field of view	80°

OTHER CHARACTERISTICS

Weight	0.9 kg
Dimensions	150x200x200 (LxHxW)
Operating temperature range	-20 °C +40 °C
Maximum power consumption	10 W
Voltage	15-26 V
Independent video recording to internal memory	64 GB



OES-IR

High resolution IR camera without stabilization system

IR MODULE

Sensor type	Uncooled microbolometer
Spectral range	LWIR 8 – 14 μm
Matrix resolution	640 × 512 px
Focal length	19 mm
Digital zoom	x4
Horizontal field of view	10°

OTHER CHARACTERISTICS

Weight	0.9 kg
Dimensions	150x200x200 (LxHxW)
Operating temperature range	-20 °C +40 °C
Maximum power consumption	10 W
Voltage	15-26 V
Independent video recording to internal memory	64 GB



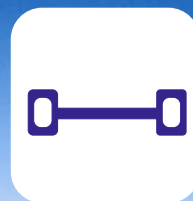
Automatic ground object tracking

Click on an object and the OES will start tracking it: be it a person, a vehicle or any other object



High resolution shooting and optical zoom up to 70x

Observe your target down to the smallest detail, no matter the distance



Laser rangefinder

High-precision laser rangefinder provides accurate target location slant range up to 15 km



Online video transmission and on-board recording

The mission can be recorded for later analytics



Able to work in difficult weather conditions

-20°C to +40°C



Object automatic tracking module