



Spectral Luminescent Microscope Regula 5001MK



The device is intended for advanced authenticity verification of passports, ID cards, travel documents, visa stamps and seals, including but not limited to entry permits, driving licences, vehicle registration certificates and other vehicle related documents, banknotes, revenue and special stamps, securities and other documents with security features.

The microscope enables to conduct the following types of expertise: dactyloscopic, ballistic, trasological, handwriting and forensic.



The microscope is constructed in metal body and intended for desktop use. It is operated with the help of the buttons of the front panel or/and <u>Regula Forensic Studio</u> software. The buttons are responsible for the activation of light sources and adjustment of camera parameters in different examination modes. The latter are displayed on the LCD display.

The device has a set of light sources of visible, infrared and ultraviolet spectral ranges and imaging filters used for carrying out forensic expertise. The microscope enables to capture, process and store digital images of examined objects and perform additional visual control using the binocular nozzle.

Regula 5001MK.01 is equipped with an analysis stand which enables to clamp examined objects (bullets, cartridge cases, etc.), to rotate them radially and axially, as well as in the tangential direction (when the movable pincer is taken off).

Functionality

- Manual or remote control of:
 - magnification
 - light sources
 - imaging filters
- Zooming images of examined objects on the monitor screen via USB 2.0 digital camera (3.1 MP)
- Viewing fragments of examined objects
- Capturing, processing and storing images of examined objects on the PC via <u>Regula Forensic Studio</u> software
- Additional visual control using the binocular nozzle with changeable 8x and 14x eyepieces
- Zooming in and out on the images of examined objects
- Examination of objects in visible, high-intensity UV or IR light

Light complexes

- 1. **Spectral luminescent.** The spectral luminescent light complex is used to examine objects in different spectral ranges due to the position of the light sources relative to the working surface. Light sources used:
 - 7 light sources in visible, IR and UV spectral ranges
 - 4 modes of white oblique light and 4 modes of IR oblique light intended for surface microrelief examination
- 2. **Ring.** The ring light complex is used to examine objects under shadowless illumination of white and IR light. Each light source has 7 operation modes:
 - ring
 - semiring (2 modes)
 - quadrant (4 modes)
- 3. Bottom. The bottom light complex is used to detect watermarks, security threads and fibers, see-through register, continuous printing and to reveal document alterations such as erasure, etching and washing-off.

Special features

- Relatively small size of the device
- Compact arrangement of light sources
- · Coarse and fine focus adjustment
- Multilingual interface

Application

- Border control and immigration services
- Customs authorities
- Law-enforcement agencies



- Forensic laboratories
- Financial institutions
- Other agencies and organizations authorized to check documents

Delivery set

- Analysis stand which enables to clamp examined objects for Regula 5001MK.01
- Regula Forensic Studio software intended for capturing, processing and storing images of examined objects
- Eyepieces:
 - 8X
 - $\circ~$ 8X with a measuring scale
 - 14X



Functionality						
Light complexes	Light sources, nm					
Luminescent	incident	white				
		ultraviolet	365			
		royal blue	455			
		blue	470			
		cyan	505			
		green	530			
		amber	590			
		red	627			
		infrared	870			
			950			
		high-intensity infrared	980			
	oblique	4 white				
		4 infrared	870			
Bottom	white					
	infrared		870			
	UV bottom lighter		365			
Ring	36 white					
	36 infrared		870			

Lens magnification, times	Digital channel (frame size 2048×1536)			
	field of view, mm	resolution, ppi	magnification (for a 21-inch monitor), times	
0,6	21,5×16	2 420	19,9	
1	12×9	4 360	35,5	
2	6×4,5	8 670	71,1	
4	3×2,2	17 350	143,3	
7	1,6×1,2	32 500	266,7	

Lens magnification, times	Lens magnification with the eyepiece, times				
	8		14		
	field of view, mm	magnification, times	field of view, mm	magnification, times	
0,6	39	4,8	29	8,4	
1	22	8	16	14	
2	11	16	8	28	
4	5,5	32	4	56	
7	3	56	2,1	98	

Colour camera:

- Type CMOS
 Effective pixels 3,1 MP
- Frame size, pixels:

http://www.regulaforensics.com/



2048×1536 (Full Frame)
1920×1080 (Full HD)
1280×720 (HD)

Camera filters, nm:

- bandpass 420-1100
- IR low-pass 700
- IR high-pass 650
- IR high-pass 670
- IR high-pass 700

Maximum size of an examined object, mm - 420×300

Maximum thickness (height) of examined objects, mm - 170

Connection interface — USB 2.0

Dimensions (length × width × height), mm — 440×440×600

Weight, kg - 20

Power supply voltage, V — 12 ± 0.5

Power consumption, W - 60

PC requirements

- Minimum configuration:
 - OS Microsoft Windows 7 (Service Pack 1)
 - processor Intel® Core™ i5 3.0 GHz
 - RAM, GB 4
 - minimum free disk space, GB 1
 - display resolution, pixels 1600×1200
 - connection interface USB 3.0
- Recommended configuration:
 - OS Microsoft Windows 7 (Service Pack 1)
 - processor Intel[®] Core[™] i7 3.4 GHz
 - RAM, GB 16
 - $\circ\,$ minimum free disk space, GB 1
 - display resolution, pixels 1920×1200 or higher
 - connection interface USB 3.0

Regula orensic/science systems



Incident white light X1





Incident white light X4





Incident white light X7





Incident UV light (365 nm) X0,6





Incident UV light (365 nm) X2





Transmitted white light X1

Regula torensic science systems



IR luminescence X1





Oblique white light X1





Oblique IR light X1





anti-Stokes luminescence X1





Incident ring white light X0,6





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Incident ring white light X1
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Incident semiring IR light X2