Counterfeit Document Detector
GEWR-09

Operating manual

This Operation Manual (OM) for GEWR-09 counterfeit document detector (hereinafter 'device' or 'product') contains device overlook, description of operation modes, characteristics of operation and maintenance of GEWR-09. This Operation Manual contains all the necessary information to operate the product.

No additional training of the operator is required. The product is safe for the operator and others, provided the requirements of this OM are being followed during operation and maintenance.

1. Overlook

GEWR-09 is designed for visual control of authenticity of protected printing products, detection of forged blanks, and the changes in the original notes. The device enables it to control the following types of printing products:

- banknotes;
- identity cards;
- travel documents;
- financial and property records;

and other types of printing products with security elements detected during optical inspection applying radiation of different wavelengths.

2. Technical Characteristics

Table 1

2.1	UV wavelength	365 nm
2.2	UV emission power in the center of the working area	3.5±0.5 mW / cm^2
2.3	Upper infrared wavelength	830 nm, 940 nm
2.4	Lower infrared wavelength	940 nm
2.5	Lighting in the center of the working area	3.2 ± 0.4 klx
2.6	Lighting of the working area at inside light inspection	0.9 ± 0.1 klx
2.7	Resolution of video camera	640x480
2.8	Diagonal screen size	4"
2.9	Size of the working area at inside light inspection	150x70 mm
2.10	Desktop size	220x120 mm
2.11	Size of the working area at inside light inspection	50x35 mm
2.12	Power consumption up to	15 W
2.13	Power voltage	100... 240V/ 50 Hz
2.14	Dimensions while in operation; with a display folded	286x180x185 mm; 286x180x245 mm
2.15	Weigh	1.85 kg
2.16	Operating temperature range	+5 °C ... +35 °C
2.17	Extreme temperature range	-40 °C ... + 60 ° C

3. In Box

Table 2

№	Name	Quantity
1	GEWR-09	1
2	Mains adapter	1
3	GEWR video magnifier*	1
4	Operation manual	1
5	Control test	1
6	Box	1

*can be supplied in the delivery set of version GEWR-09.02

Product components are shown in Figure 1.

Fig.1 GEWR-09 delivery set

4. Product Appearance

4.1. General view of the product is shown in Figure 2.

4.2. The product has the following structural components:

Table 3

№	Name
1	Desktop
2	Upper panel
3	Display
4	Control Panel
5	Main switch button
6	Connector for mains supply
7	Connectors for external devices +12 V
8	Connector for external video source
9	Connector for external video receiver
10	Connector for video magnifier
11	Display brightness adjustment knob
12	Display contrast knob

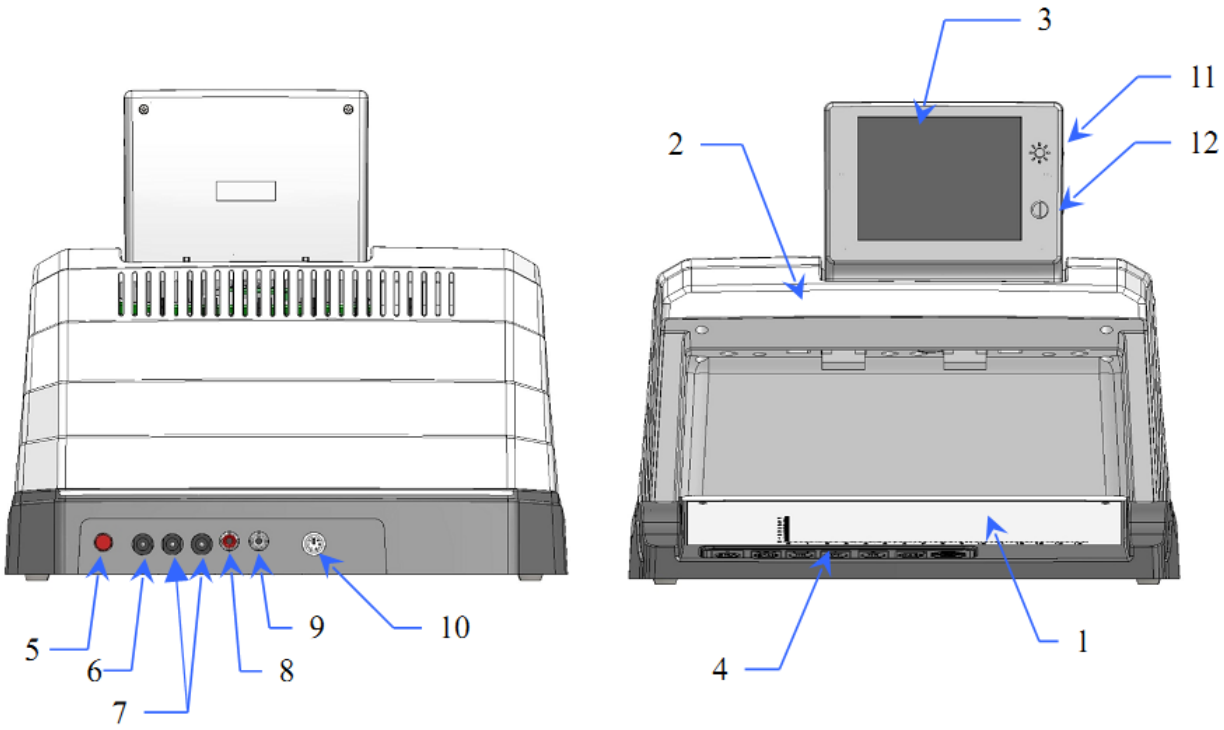

Fig.2 GEWR-09 appearance and controls

4.3. Appearance of the control panel is shown in Figure 3.
4.4. Control panel contains the following controls and indicators:

№	Button	Indicator	On Display
1	ON	1.1 Enable	-
2	2 WHITE	2.1 Upper white 2.2 Lower white	WHITE ↓↓ WHITE ↑↑

		2.3 Side white	WHITE ↓↓
3	IR	3.1 IR upper 830 nm 3.2 IR upper 940 nm	IR 830 IR 940
4	UV	4.1 UV 365 nm	UV
5	IR	5.1 IR lower	IR 940 ↑↑
6	VIDEO	-	EXTERNAL VIDEO

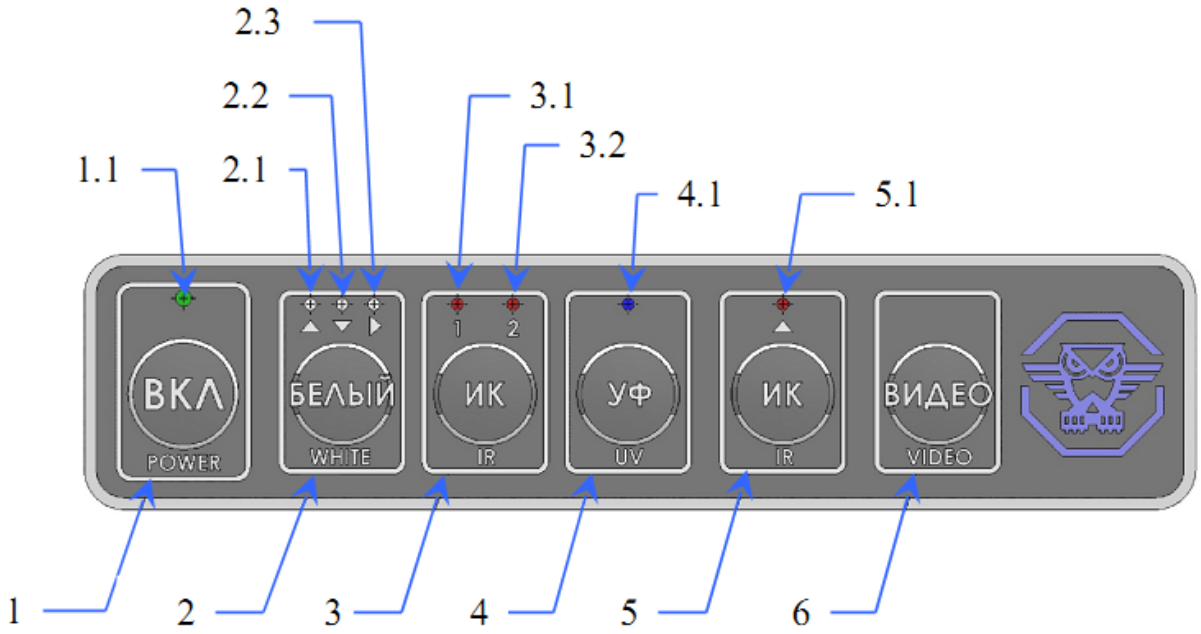

Fig.5 Control panel

5. Proper use

5.1. Operational restrictions

5.1.1. Before starting, carefully read this Operation Manual

5.1.2. The product is designed for operation in capital heated rooms at ambient temperature in accordance with p.2.16 under conditions precluding condensation of water and any water ingress onto or into the components of the product.

5.1.3. Connecting the product to the mains must be carried out only with the regular power supply.

5.1.4. Connecting external devices via power supply must be carried out only when the device is switched off.

5.2. Getting Started

5.2.1. Before starting, after transportation the device should be kept at room temperature for at least 3 hours.

5.2.2. Mount the product on the workplace. Do not leave the product in places with bright light or in the area of sunlight. Strong ambient light will degrade the capability of detecting specific security marks and reduce display contrast, which will lead to the fatigue of the operator.

5.2.3. Connect the device to the mains using regular power supply via connector (position 6 Figure 2).
5.2.4. If necessary, connect additional external devices to the device via corresponding connectors (positions 7, 8, 10, Figure 2).
5.3. Product Use
5.3.1. Enable the device using main switch knob (Position 5, Figure 2). The device will be in sleep mode, there will be a voltage of +12 V at power connectors of external devices (Position 7, Figure 2)
5.3.2. Enable the device with the ON button (position 1, Figure 3). The ON indicator flashes (position 1.1, Figure 3), as well as built-in video camera and display (position 3, Figure 2).
5.3.3. Use the mode switch buttons (positions 2-5, Figure 3) to select the desired mode of operation. The list of modes is specified in p. 5.3.7.
5.3.4. Place the controlled object on the working desktop of the product (position 1, Figure 2).
5.3.5. At the control in the infrared emission with built-in video channel or external video magnifier, use knobs (position 11, 12; Figure 2) to set the optimal brightness and contrast of the display.
5.3.6. When applying external video magnifier or other video source, use Video button (position 6, Figure 3) to switch between input display signals.
5.3.7. Operating modes:

Table 5

Mode Number	Button	Press	Description
1	White	1	Enable impinging white light
2		2	Enable lower white light
3		3	Enable side white light
		4	Disable white light source
4	IR	1	Enable upper IR sources with wavelength 830 nm (IR1)
5		2	Enable upper IR sources with wavelength 940 nm (IR2)
6		3	Enable the mode of alternately switching the sources of IR radiation with wavelength of 830 and 940 nm.
		4	Disable upper infrared sources
7	UV	1	Enable UV source
8		2	Enable UV pulse mode
		3	Disable UV sources
9	IR	1	Enable lower IR sources with wavelength 940 nm
		2	Disable lower IR sources

5.3.8. When finished, turn off the device using the ON button.
5.3.9. If necessary, power off the device using main switch button and unplug the device.

6. Operating GEWR video magnifier

6.1. Video magnifier is in the delivery set of GEWR-09.02.
6.2. GEWR video magnifier is designed for a detailed study of security marks in the infrared range.
6.3. Technical characteristics of video magnifier:

Table 6

6.3.1	Blue-and-green wavelength	405 nm
6.3.2	Upper IR wavelength	IR-1 830 nm IR-3 940 nm
6.3.3	Side IR wavelength	IR-2 850 nm
6.3.4	Resolution of video camera	640x480
6.3.5	Field of view size of the camera	26x20 mm
6.3.6	Power consumption	no more than 2 W
6.3.7	Supply voltage	12 V
6.3.8	Dimensions	130x78x62 mm
6.3.9	Weight	0,25 kg
6.3.10	Operating temperature range	+5°C...+35°C
6.3.11	Extreme temperature range	-40°C...+60°C

6.4 Proper Use
6.4.1. Connect video magnifier to GEWR-09 via power connectors (position 7, Figure 2) and external video source connectors (position 8, Figure 2). Connection must be carried out when the device is disabled.
6.4.2. Connect the device according to p.5.3.1 - 5.3.2 of this Operation Manual.
6.4.3 Video magnifier is enabled automatically when power is supplied. At this time both video camera and IR-1 upper IR sources are enabled, which is indicated by the corresponding indicator.
6.4.4 Switch to external video source by pressing VIDEO button (position 6, Figure 3) on the control panel of GEWR-09.
6.4.5. Select document control mode by pressing the corresponding button on the magnifier's case.

Table 7

Mode Number	Button	Description
1	IR-1	Enable IR source 830 nm
2	IR-2	Enable side source of IR emission 850 nm
3	B-3	Enable source of blue-and-green emission 405 nm
4	IR-3	Enable IR source 940 nm
5	IR-1 + IR-3	Enable pulse mode of alternate enabling of IR-1 and IR-3 sources to control special IR-contrast marks

6.4.6. Pressing the button again disables the emission sources.

7. Product Maintenance

7.1. In the product, there are no components or elements with operating lifetime less than the lifetime of the product itself to be replaced during operating lifetime of the product.
7.2. Product repair is conducted by the manufacturer.
8. Transport, storage and disposal of the product.
8.1. Transportation of the product is carried out depending on the type of transport and range:
8.1.1. In a cardboard box with the marks "fragile", "up", "keep dry" applied on it.
8.1.2. In a wooden box or similar packaging according to its mechanical properties with the marks "fragile", "up", "keep dry" applied on it
8.2. The product should be stored in standard packaging in equipped warehouses at ambient temperatures from -10 ° C to + 40 ° C at a humidity of 80% across the temperature range.
8.3. Exposure to extreme temperatures during storage in accordance with p.2.17 is allowed for no more than 240 hours for the entire life of the product.
8.4. There are no special requirements for disposal of the product.
9. Resources lifetime and manufacturer's warranty
9.1. The manufacturer guarantees the product performance and basic technical characteristics within 12 months from the date of issue.
9.2. Operating lifetime - 10 years.
9.3. Mean time before failure - 50 000 hours.