



English

Processor

OPERATION MANUAL

Version 1.0 2024-05-15

EP-8000

Thank you for purchasing our product. Read this manual carefully before use to avoid unexpected accidents and to take full advantage of the product's capabilities.

897N206347B

Introduction

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5	Function Settings
6	Preparation and Inspection of the System
7	Method of Use
8	Image Recording
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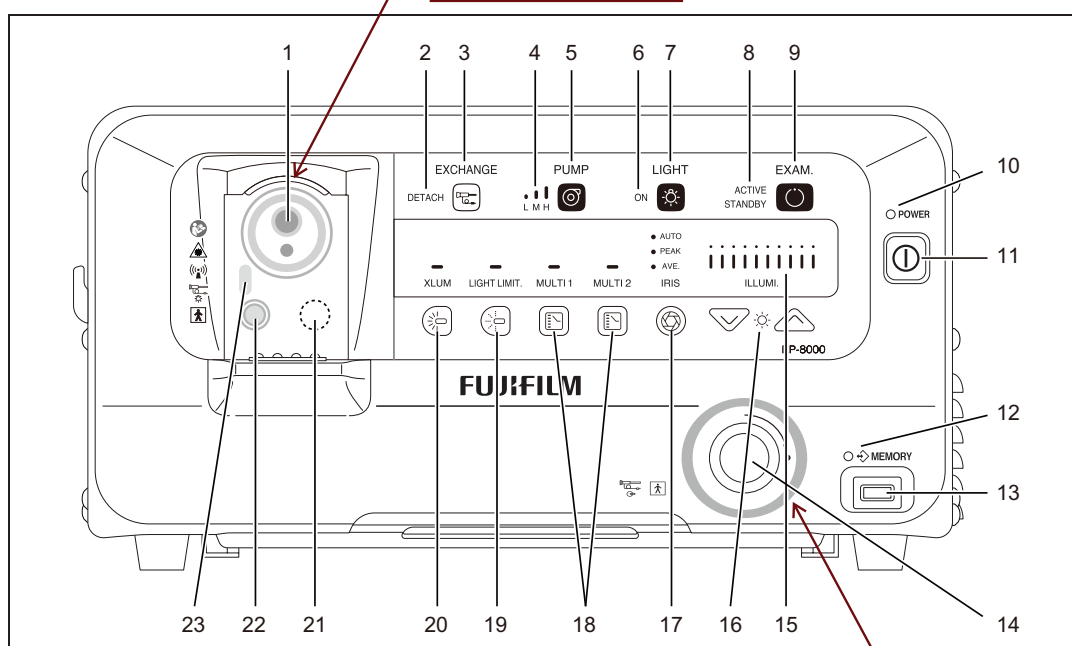


Name and Function of Each Part

This chapter describes the name and function of each part of this product.

3.1 Front Panel

Bekontakčiai endoskopai
p. 1.1.4.



1. Scope Connector Socket



Accepts the scope connector or LG connector of the endoscope.

2. EXCHANGE Indicator

DETACH

During an examination, this indicator lights up in blue when the endoscope is ready to be detached.

Kontaktus turintys endoskopai
p. 1.1.4.

3. EXCHANGE Button

EXCHANGE



Used to turn the power to the endoscope ON and OFF when exchanging the endoscope during an examination.

When this button is held pressed for about 2 seconds, it flashes in orange and then lights up, and the endoscope turns off.

When "DETACH" of the EXCHANGE indicator lights up in blue, the endoscope can be exchanged.

When this button is pressed after exchanging the endoscope, the endoscope turns on.

Note

- While this button is flashing in orange, do not detach the endoscope.

Power to the Endoscope ON:

Lights up in blue.

Power to the Endoscope OFF:

Lights up in orange.

4. Air Supply Indicator



Indicates an air supply pump's operation of "H", "M" or "L".

5. Pump Button

PUMP



Switches the air supply amount to "H", "M", "L" or "OFF".

"H", "M" and "L": Lights up in green.

"OFF" : Lights up in orange.

6. Lighting Indicator

ON

The "ON" indicator appears when the light is on.

7. Light Button

LIGHT



Turns on/off the light.

Turn on the light immediately before stating an examination.

ON: Lights up in blue.

OFF: Lights up in orange.

Note

- If the examination is not performed immediately, turn off the light temporarily.

8. EXAM. Indicator Lamp

**ACTIVE
STANDBY**

Indicates the examination status. It also indicates the status of the connected endoscope together with the indication of the EXCHANGE button.

Examination in Progress and Power to the Endoscope ON:

“ACTIVE” lights up in blue and the EXCHANGE button lights up in blue.

Endoscope is Exchangeable during Examination and Power to the Endoscope OFF:

“ACTIVE” lights up in blue and the EXCHANGE button lights up in orange.

Endoscope is Exchangeable before/after Examination and Power to the Endoscope OFF:

“STANDBY” lights up in orange.

9. EXAM. Button

EXAM.

Press this button at the starting and finishing of the examination.

When pressed at the starting of an examination, this button lights up in blue and the endoscope turns on. In addition, “ACTIVE” of the EXAM. indicator lamp lights up in blue.

When held pressed for about 2 seconds at the finishing of the examination, this button flashes in orange and then lights up, and the endoscope turns off. In addition, “STANDBY” of the EXAM. indicator lamp lights up in orange.

Note

- When exchanging the endoscope during an examination, use the EXCHANGE button.
- While this button is flashing in orange, do not detach the endoscope.

Examination in Progress and Power to the Endoscope ON:

This button lights up in blue and the EXCHANGE button lights up in blue.

Endoscope is Exchangeable during Examination and Power to the Endoscope OFF:

This button lights up in blue and the EXCHANGE button lights up in orange.

Endoscope is Exchangeable before/after Examination and Power to the Endoscope OFF:

This button lights up in orange.

10. Power Indicator Lamp

POWER

Lights up when the power is ON.

11. Power Button



Used to turn the power supply ON/OFF.

12. Memory Access Lamp

MEMORY

Indicates the state of the connected external storage device.

Standby: Lights up in green.

While accessing: Flashes in orange.

USB jungtis atminties įtaisams.
p. 1.1.2.1.

13. USB Memory Slot

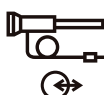


Used for connecting the external storage device.

→ “5.4.3 External Memory Tab”

→ “8.7 Copying Images to External Storage Device”

14. Electrical Connector Socket



Used to connect the electrical connector of the 600 system scope, 580 series scope or 530 series scope.

Receives data from and exchanges information with the endoscope using a dedicated protocol.

15. Indicator



Indicates the light intensity when the light is turned on.

When the brightness adjustment button is pressed, this indicator indicates the level of brightness to be used as a standard.

16. Brightness Adjustment Button



Adjusts the level of the automatic light control.

17. IRIS Mode Button

- AUTO
- PEAK
- AVE.
- IRIS



Used to switch the iris mode between “AUTO”, “PEAK” and “AVE.”.

→ “7.25 Switching the IRIS Mode”

18. MULTI 1 Button / MULTI 2 Button



The desired function can be assigned to this button.

→ “4.2.4 Function Tab”

19. Light Limit Button



Controls the light intensity of the light.

The indicator blinks when the light save function is turned on.

20. XLUM Button



The light flashes with the maximum light intensity.

The indicator blinks when the transmitted illumination is turned on.

21. Power Supply Section

Supplies power to the endoscope.

22. Receiving Window

Receives data from the endoscope using a dedicated protocol.

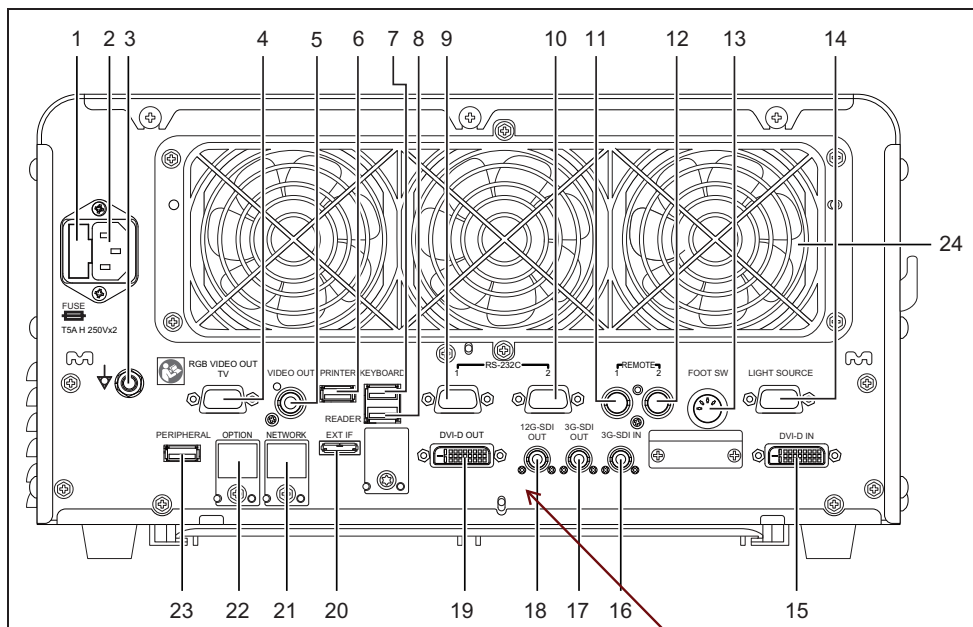
23. Communication Window (LED)

Exchanges information with the endoscope via infrared communication using a dedicated protocol.

3.2 Rear Panel

To configure a standard system or expand the system, the connector on the rear panel and the equipment are connected.

Ask our service personnel to make the connection.



1. Fuse Holder



Contains two T5AH 250V fuses.

2. Power Supply Connector

Used to connect the attached power cord.

3. Potential Equalization Terminal



Used to connect the equipotential plug.

When necessary for safety, this terminal is connected to a potential equalization terminal on a peripheral device to equalize the potential between this product and the peripheral device.

4. RGB TV Connector

Used to output a NTSC/PAL image. This connector outputs R, G, B, and SYNC video signals.

5. Video Connector

Outputs a composite video signal.

6. Digital Printer Connector

Used to connect a digital printer.

When using the endoscope visualizer EV-3D, connect the EV-3D to control the operation of it.

7. Keyboard Connector

Used to connect to the data keyboard DK-8000U.

8. Reader Connector
Used to connect a reader. (Not supported)
9. RS-232C Connector 1
Connector used for communication with a peripheral device connected with the RS-232C interface.
10. RS-232C Connector 2
Connector used for communication with a peripheral device connected with the RS-232C interface.
11. Remote Connector 1
Outputs a trigger signal to control peripherals. When the trigger or recording function is activated with the scope switch or foot switch, the corresponding signal is output.
12. Remote Connector 2
Outputs a trigger signal to control peripherals. When the trigger or recording function is activated with the scope switch or foot switch, the corresponding signal is output.
13. Foot Switch Connector
Used to connect the foot switch FS1.
14. Interface Cable Connector
Not available.
15. DVI-D IN Connector
The DVI-D connector used for input of peripheral device images.
PoP display is performed.
16. 3G-SDI IN Connector
The 3G-SDI connector used for input of peripheral device images.
PoP display is performed.
17. 3G-SDI OUT Connector
Used for connecting the LCD monitor or peripheral devices. Digital image signals are output from this connector by means of a serial interface.
18. 12G-SDI OUT Connector
Used for connecting the LCD monitor. Digital image signals are output from this connector by means of a serial interface.
19. DVI-D OUT Connector
Used for connecting the LCD monitor or peripheral devices. Digital image signals are output from this connector.
20. EXT IF Connector
IF connector for expansion.
Used to control the operation of the Endoscope Visualizer EV-3D via a dedicated protocol connection.
21. NETWORK Connector
Used to connect to the network.
Detach the screwed cover when using this connector.

22. OPTION Connector

Used to control the operation of the tablet over a network connection.
Detach the screwed cover when using this connector.

23. PERIPHERAL Connector

Used to control the operation of the endoscopic CO₂ regulator.

24. Ventilation Holes

Ventilation holes.

Chapter 11 Main Specification

This chapter describes the main specification and electromagnetic compatibility (EMC) information of this product.

11.1 Specification

CAUTION

- If the range of the operating environment for a piece of equipment is narrower than the range of the operating environment for this product, use this product within the range of the operating environment for the equipment. Otherwise, the equipment may not operate properly.

◆ Classification of Medical Electrical Equipment

1. Type of protection against electric shock:
Class I equipment
(Power supply: Protective earth plug)
2. Degree of protection against electric shock:
Type BF applied part
3. Degree of explosion protection:
Use is prohibited in an oxygen-rich environment or in a flammable gas atmosphere.
4. Degree of protection against ingress of water:
IPX0
5. Mode of operation:
Continuous operation

◆ Applied Part

Insertion portion of applicable endoscope

◆ EP-8000 Specification

Power	100 - 240V ~ 50/60 Hz
Current consumption (rated)	3.0 - 1.5A
Fuse	T5AH250V×2 (Rating: 5A/250V)
Type of color	NTSC/PAL
Video output	DVI (Resolution: 1920 × 1080 pixels) 3G-SDI (Resolution: 1920 × 1080 pixels) 12G-SDI (Resolution: 1920 × 1080 pixels, 3840 × 2160 pixels)
Light control	Automatic light control by the control signal
Air supply pump	H/ M/ L/ OFF
Maximum air supply pressure	65kPa
Maximum water supply pressure	65kPa
Water supply method	Supplying water by pressurizing the inside of the water tank with air
Illumination source	LED LED šviesos šaltinis p. 1.1.
Maximum light output	3.6W or less (Measured with our jig)
Power transmission frequency	110 to 205 kHz
Effective radiated power	15 W or less
Image pickup method	Simultaneous ^{*1}
Iris mode	AUTO/PEAK/AVE.
Image zoom ^{*2}	Electronic zoom × 1.00 to × 2.00 (0.05 steps)
Memory	Patient data: 45 patients Procedure Name: 20 types Doctor's Name: 20 doctors Internal Memory: 16 GB Vidinė atminties talpa: 16 GB p. 1.1.2.3.
Built-in clock	Date, time (back up from the secondary battery)
Shooting counter	Adding up display Suderinami endoskopai p. 1.1.4.
Applicable endoscope ^{*3}	800 system scopes ^{*4} 700 system scopes 600 system scopes 580 Series Scope 530 Series Scope (EB-530H, EB-530P, EB-530S, EB-530T, EB-530XT and EB-530US only)
Dimensions (W × H × D)	395 × 210 × 515 mm (including projection)
Mass	18.0kg Svoris 18 kg. p. 1.1.5.

^{*1} Image pickup method using the image pickup color filters (red, green and blue) at the distal end of scope. White light is used as illumination light.

◆ Block Diagram

The diagram illustrates the EP-8000 system architecture. It features a main system enclosure with several internal components and external connections. The power supply section includes a switching power supply, noise filter, power switch, fuse, protective earth, and AC inlet. The main power is distributed to Power supply 1 and Power supply 2. Power supply 1 is connected to the Patient power supply, Patient applied part, and Electrical connector socket. Power supply 2 is connected to the Cooling fan, Image processing and Interface control, Peripheral interface, Front panel, Scope control, Air supply pump, Light source, and another Cooling fan. The Image processing and Interface control unit is also connected to the Data keyboard. The Scope control, Air supply pump, Light source, and Cooling fan are connected to the Scope connector socket. The diagram also shows a dashed line indicating isolation between the power supply section and the rest of the system.

This product complies with the requirements of
REGULATION (EU) 2017/745.
Classification : Class IIa

CE 0197

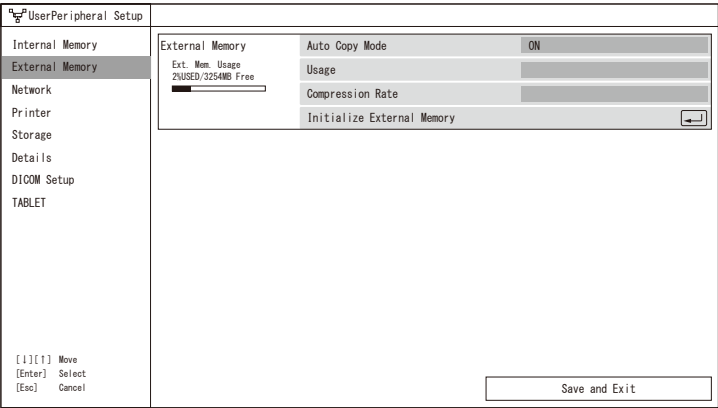
5.4.3 External Memory Tab

This product is equipped with the internal storage device used for recording images and for backing up images when the network transfer is enabled. Images in the internal storage device can be copied to an external storage device.

This section explains the settings regarding the external storage devices, how to initialize it and how to delete images.

For details on the number of recordable images and how to use recorded images, see “Chapter 8 Image Recording”.

→ “Chapter 8 Image Recording”



Category	Item	Value	Description
External Memory	Ext. Mem. Usage	-	The usage rate and free space of the external storage device are displayed.
	Auto Copy Mode	OFF	OFF: Images recorded in the internal storage device during an examination are not copied to an external storage device automatically. ON: Images recorded in the internal storage device during an examination are also copied to an external storage device automatically (simultaneous recording). Note <ul style="list-style-type: none">When “ON” is selected, attach an external storage device to this product before starting an examination.Use the external storage device only for this system. Do not share it with other systems.The images in the internal storage device can be copied manually to an external storage device after an examination is finished.
		ON	
	Usage	-	Not available.
	Compression Rate	-	Not available.

Automatinis kopijos režimas.
p. 1.1.2.2.

ERROR: syntaxerror
OFFENDING COMMAND: ----nostringval----

STACK:

-mark-
/sfnts
false