AOHUA

ENDOSCOPE IMAGING PROCESSOR

AQ-300/ AQ-300E/

AQ-300N/ AQ-300S

INSTRUCTIONS FOR USE

Shanghai AOHUA Photoelectricity
Endoscope Co., LTD.

CE 0344

Important Information — Please Read Before Use

Intended use

1.1. AQ-300 endoscope imaging processor is intended to be used with video endoscope and light source manufactured by Aohua in endoscopy, endoscopic diagnosis and endoscopic treatment.
Do not use this instrument for any purpose other than its intended use.

Instruction manual

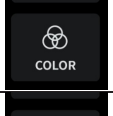
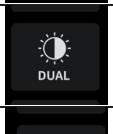
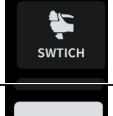
This instruction manual should be kept in an accessible place. Before use, thoroughly review this manual which contains the most appropriate instructions regarding to the maintenance and operation of this endoscope imaging processor. Although the endoscope imaging processor itself is fine and precise, the malfunction rate could be significantly reduced by following the essentials in this manual during operation and maintenance, resulting in extended lifetime of the endoscope imaging processor.
Any questions about the information provided in this instruction manual or about the endoscope imaging processor operation and safety regards, contact with Aohua.

User qualifications

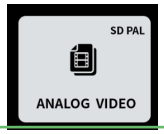
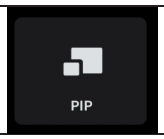
This instrument should be used by persons trained in the use of this instrument.
If there is an official standard on user qualifications to perform endoscopy and endoscopic treatment that is defined by the medical administration or other official institutions, such as academic society on endoscopy and endoscopy physicians, follow that standard. If there is no official qualification standard, the operator of this instrument must be a physician approved by the medical safety manager of the healthcare facility or person in charge of the department (department of internal medicine, etc.).
The physician should be qualified to operate and safety perform the planned endoscopy and endoscopic treatment following guidelines set by the academic societies on endoscopy, etc., and considering the difficulty of endoscopy and endoscopic treatment. This manual does not explain or discuss endoscopic procedures.

Ancillary equipment

The safety of the endoscope imaging processor does not only rely on the endoscope imaging processor itself, but also relies on its ancillary equipment. To guarantee the compatibility, only the ancillary equipment manufactured by Aohua or confirmed by Aohua is recommended to use.
Aohua prepared the standard accessory and spares list. Please carefully check the items in the package according to the list provided in Section 1.1, “Checking the package contents list” after purchase. If any item is missing or damaged, contact Aohua or distributor immediately. Prior to the

	Default the current user's enhanced modes and levels for each mode
	Default the current user's metering mode and dimming level
	Default the current user's stored image area and format when release
	Default the current user's CBI regular mode
	Default the current user's CBI Plus mode
	Default the current user's color setting
	Default the current user's dual light mode
	Default the current user's remote switch control mode
	Default the current user's light source status(ON/OFF)
	Default screen lock time when the current user is not operating the touch panel
	Default the current user's recording quality.
	Default the function to save image when un-freeze

Maintenance interface

Displayed Text	Description
	Change video output format
	PIP(Picture-in-picture) function

1.3.

04 Operation

CAUTION

- Do not turn OFF the endoscope imaging processor or disconnect the endoscope until the white balance adjustment is completed.
- Do not allow other light to enter the white balance cap when adjust the white balance.
- When adjust white balance, the distal end of the endoscope should be inserted into the white balance cap.
- The endoscope imaging processor has a white balance memory function. After the video endoscope is connected, the user should check whether the color of the endoscope image on the monitor is normal. If there is a color deviation, the color needs to be reset.

4.4 Touch panel operation

1.4.

The touch panel icons can adjust the image display, perform edge enhancement, structure enhancement, hemoglobin enhancement and other image processing functions; and can freeze, replay, image zooming, turn the pump ON or OFF, turn the light source ON or OFF and adjust the light brightness. For the specific operation procedures, see Section 4.4.3, “Icon functions”. The displayed text information shows the current status of the icons.

4.4.1 Turn the touch panel ON

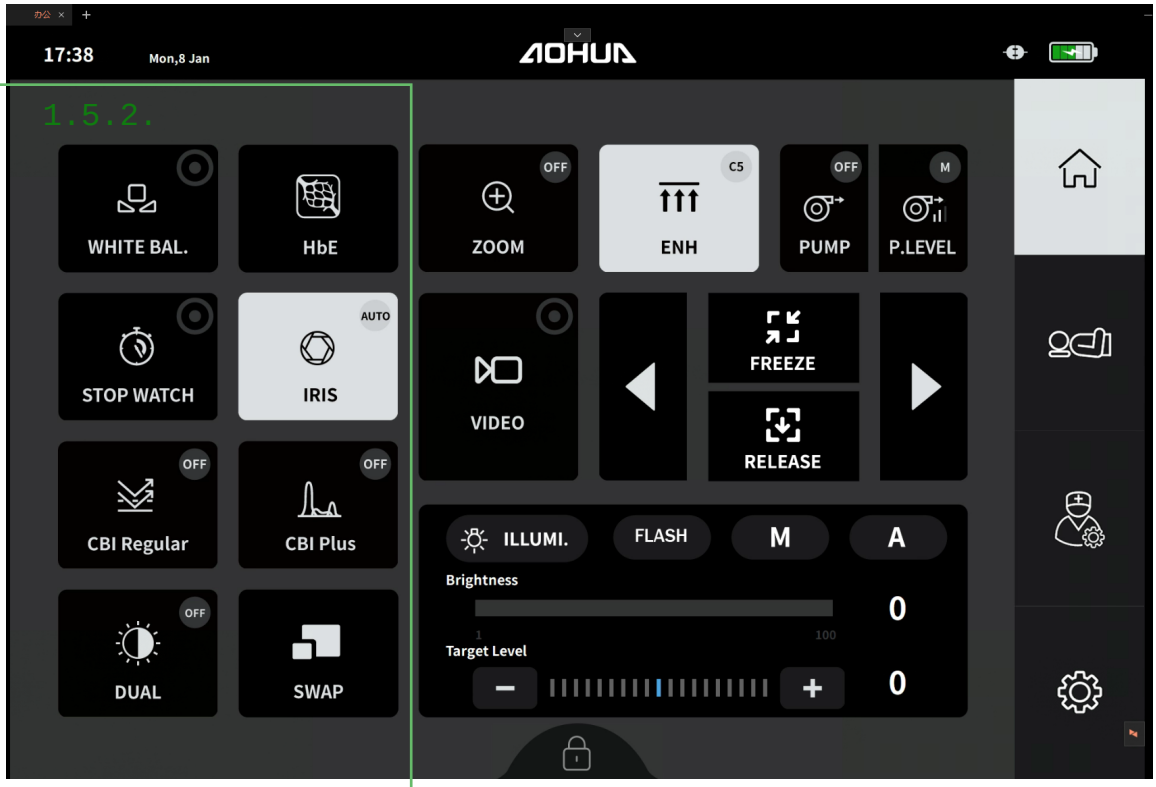
1. Turn the power switch on the top of the touch panel ON.
2. Enter the name and password, then tap “Log in” Icon to enter the home. The login interface is shown in figure 4.4.1.1.

02 Nomenclature and Functions

(Figure 4.4.2.1: Login interface)

1.4.

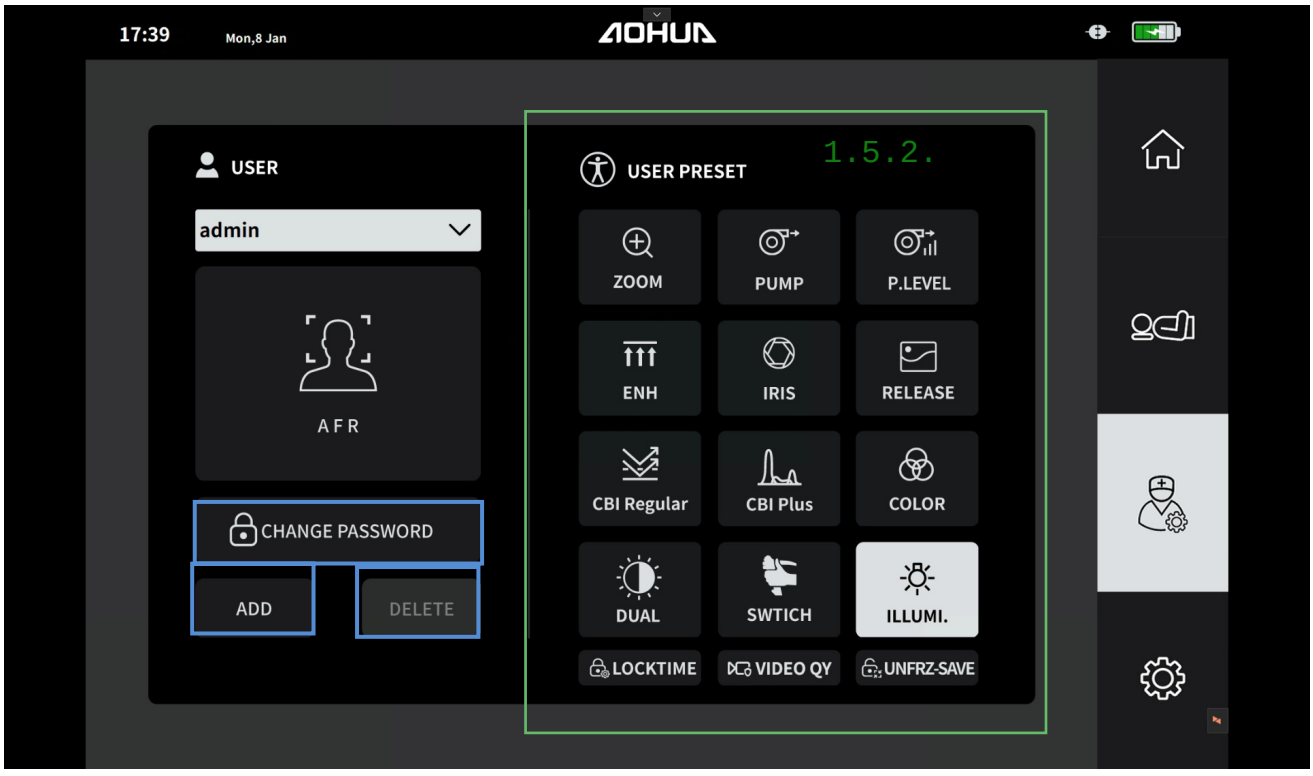
1.13.



(Figure 4.4.2.2: Main interface)

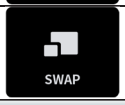
(Figure 4.4.20.1)

2 Tap the “ADD” icon (See Figure 4.4.20.2) to add new user. Set the information as required, and then tap the “SAVE” icon to save new user information. 1.5.2.



(Figure 4.4.20.2)

02 Nomenclature and Functions

	Freeze image
	Release the frozen image and save image
	CBI regular function switch
	CBI Plus function switch
	Lamp control
	Brightness control of light source
	Dimming level control
	Manual brightness adjustment mode
1.6. 	Automatic brightness adjustment mode
	Light source blinking
	Dual light switch (ON/OFF)
	Switch the image display mode
	Battery indicator
	Connection successfully/ or fail
	Home
	Patients’ information
	User information
	Setup

04 Operation

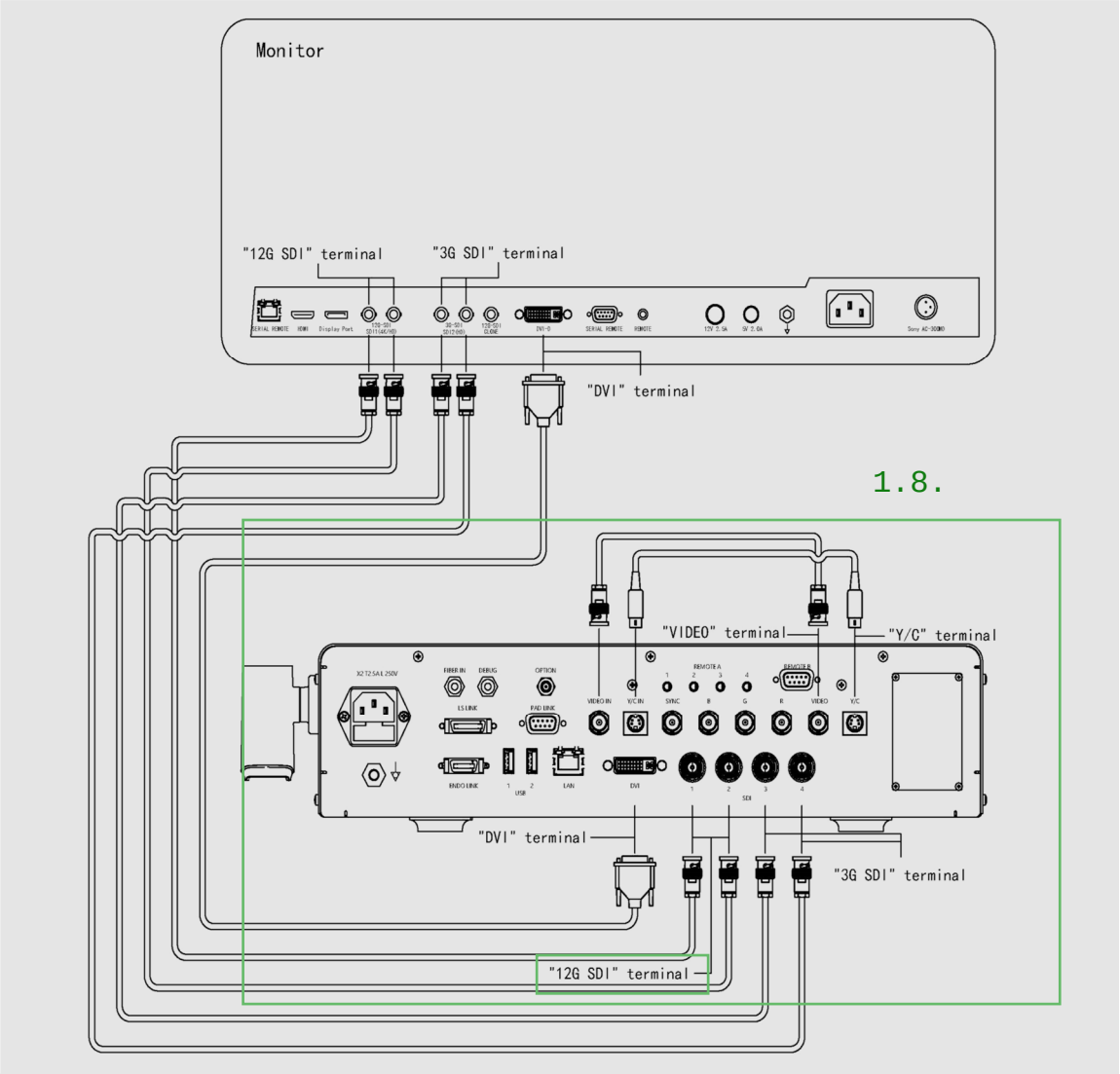
(Figure 4.4.10.1)

1.7. 4.4.9 IRIS mode setting

This operation changes the IRIS mode of endoscopic image among automatic mode, peak mode and average mode.

1. The “IRIS” icon always in highlighted that indicates it on the successful activation status. Tap and hold the “IRIS” icon (see Figure 4.4.11.1) to select the IRIS mode among “Auto” (automatic mode), “PEAK” (peak mode) and “AVE” (average mode) and setting the “IRIS TARGET” on selected IRIS mode, the range of “IRIS TARGET” is -9 to 9. and then tap the “save” icon.
2. Tap the “IRIS” icon to turn ON the IRIS mode setting function. The current IRIS mode displayed in the upper right corner of the icon.

- Connect the SDI terminals of the imaging processor with the SDI IN terminals of the monitor using the SDI cables.
- For PIP function, using the S-VIDEO cable to connect the Y/C IN terminal of the imaging processor with the Y/C terminal of external input equipment or using the CVBS cable to connect the VIDEO IN terminal of the imaging processor with VIDEO terminal of external input equipment.



(Figure 3.1.11)

CAUTION

- For ancillary devices, consult Aohua to confirm equipment compatibility. Aohua is not responsible for any consequences caused by using of unapproved device.

04 Operation

WARNING

- Always use minimum required level of brightness when operating a close view of mucous membranes for an extended period.
- Do not bring the disconnected end of the endoscope or optical fiber in contact with the body or any flammable objects after using the endoscope with intense illumination for a long period. A fire or burn may result due to the extremely high temperature.

4.4.12 Flash

This operation makes the examination lamp flickering when the imaging processor connects with the light source.
The examination lamp will flicker 5s~8s when tap the “Flash” icon (see Figure 4.4.14.1).

(Figure 4.4.14.1)

4.4.13 Video recording

The captured video can be recorded by this operation.

1. Before to start the video recording function, the portable memory must be inserted into the

1.10.

04 Operation

USB port on the front panel of the imaging processor. If the portable memory is identified, the displayed in monitor indicates the video and photo icon.

2 Tap and hold the “VIDEO” icon (see Figure 4.4.15.1) to start the video recording function. Re-tap the “VIDEO” icon to stop capturing video. The highlighted icon indicates the active status, the dimmed icon indicates the inactive status.

(Figure 4.4.15.1)

3 The video captured will be automatically saved into portable storage device. (The portable memory must be inserted into the USB port on the front panel of the imaging processor. Otherwise, this function is not available)

4.4.14 Timing

This operation timing the endoscopic observation time.

1 Tap and hold the “STOP WATCH” icon (see Figure 4.4.16.1) to select the operation among “Start/Pause”, “Mark” and “Clear” icon. Tap the “Start/Pause” icon to start or stop timing, tap “Mark” icon to mark any point in time, and tap “Clear” icon to clear the time information. The highlighted icon indicates the active status.

2 The test information displayed in monitor indicates the timing information and marked point in time.

02 Nomenclature and Functions

2.1 Nomenclature and functions

2.1.1 Front panel

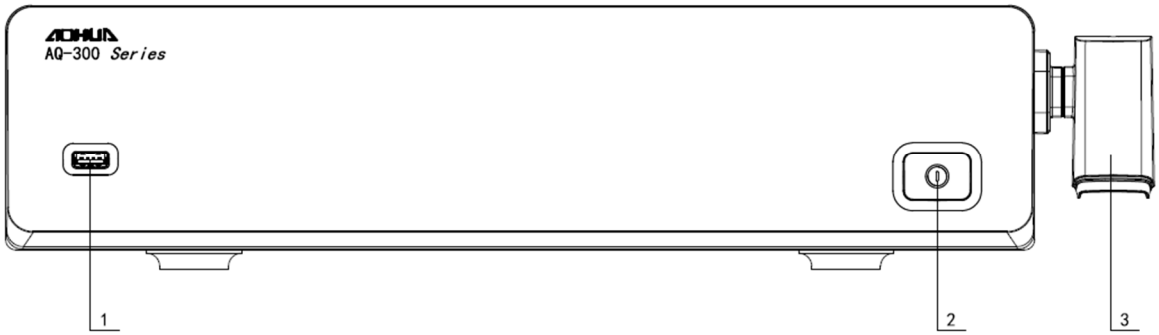


Figure 2.1.1 Front panel

Nomenclature	Description
1. USB Port	Insert portable memory into this port. 1.10.
2. Power Switch	Press to turn the endoscope imaging processor ON or OFF.
3. White Balance Cap	Insert the distal end of the endoscope to perform white balance adjustment

(Figure 4.4.11.1)

3 The information displayed on the monitor indicates the selected IRIS mode.

4.4.10 Air feeding 1.12.

This operation feed the air through the endoscope into the target area.

1 Tap and hold the “PUMP” icon (See Figure 4.4.12.1) to switch the air pump on or off

2 Tap and hold the “PUMP M” icon (See Figure 4.4.12.2) to select the airflow rate level among “H” (High),” M” (Middle),” L” (Low). The default level follows the user interface's presets.

(Figure 4.4.12.1)

(Figure 4.4.12.2)

3 Tap the “PUMP” icon to activate the air feeding function. Highlighted icon indicates the successful activation, dimmed icon indicates the inactive status. The current airflow rate level displayed in the upper right corner of the icon.

6 Equipped with combination enhancement function.

7 Equipped with color customization function.

8 Equipped with digital magnification function.

9 Equipped with Image freezing and replaying function.

10 Equipped with freeze selection function, freeze and real-time images can be displayed in parallel when freezing: the best image display can be automatically selected from the cached images within a certain time before the Image freeze is on to prevent the frozen image dragging caused by jitter.

11 Used with AQL-300L light source to perform chromoendoscopy and white light endoscopy (CBI) and reproduce two methods in a single display.

12 Equipped with image quality noise reduction function

13 Equipped with dark area correction function

14 Equipped with dual optical function

15 Equipped with foot switch function and endoscopic function button customization function.

16 Equipped with endoscopic automatic identification function.

17 Equipped with video recording function

18 Support connecting keyboard for functional operations

19 Support character input operation through the touch panel

20 Equipped with Y/C, VIDEO signal input interface, can input video images to the image processor, and in the form of PBP (Picture by Picture) on the screen, input signal interface can be selected in the menu Settings.

21 Supports a variety of signal output methods, including SDI, DVI, VIDEO, Y/C output, component output (RGB, SYNC), etc.

22 Equipped with network interface (LAN port).

23 Authorized user login

24 Administrator login

25 Equipped with USB portable memory function (It takes effect only after the authorized user successfully logs in).

26 Equipped with image processing and system control functions.

27 Supports input of patient information.

28 Display light source life information

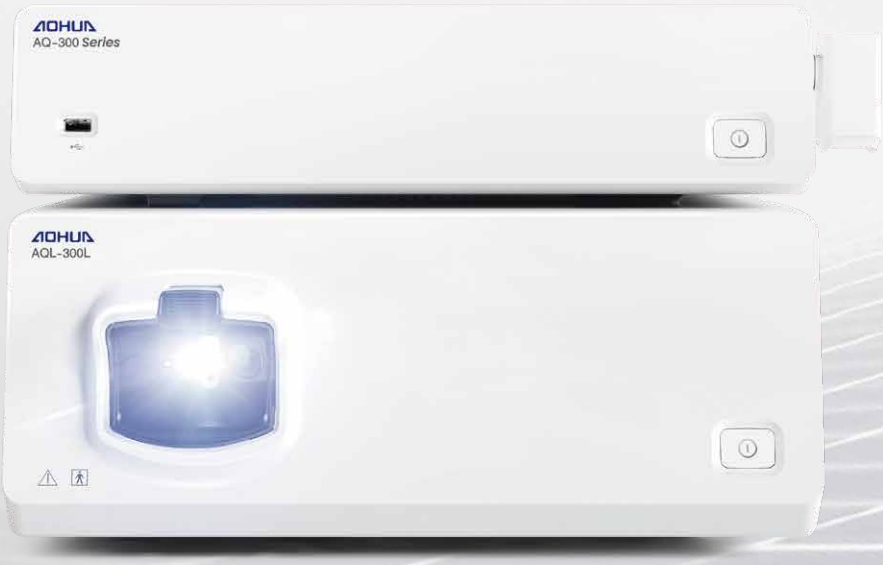
29 Equipped with face recognition function

30 Equipped with the function of switching between Chinese and English interfaces. 1.13.

AOHUA

Ultra HD Endoscopy System

AQ-300



The Future Of Endoscopy Is Here

1.8.

With a 4K Display and the 4K Processor, the AQ-300 offers an improved endoscopic image, to advance your diagnosis.


1.4.
7.8.

4 CBI Modes On 5LED

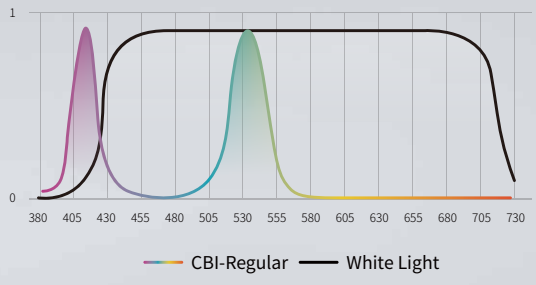
The AQ-300 offers four chromoendoscopy modes achieved through various combinations of its five LED light source. These modes provide efficient, fast, and accurate solutions for clinical problems in different scenarios.

1.2.1.

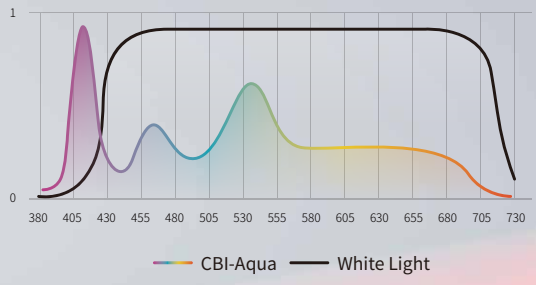
1.2.2.

1.2.3.

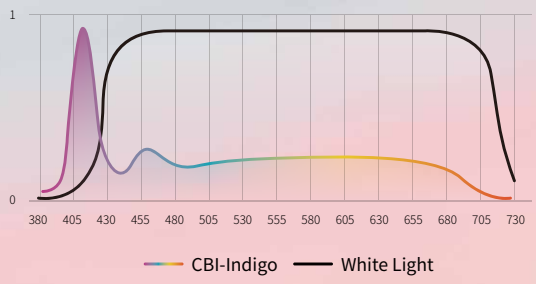
CBI-R Regular



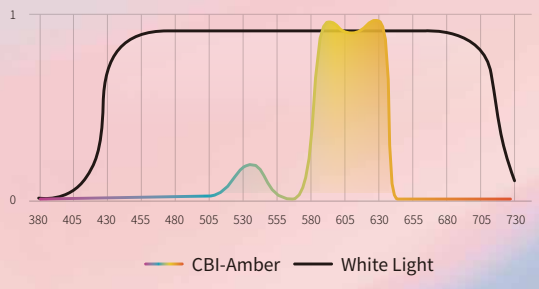
CBI-Q Aqua



CBI-D Indigo



CBI-M Amber



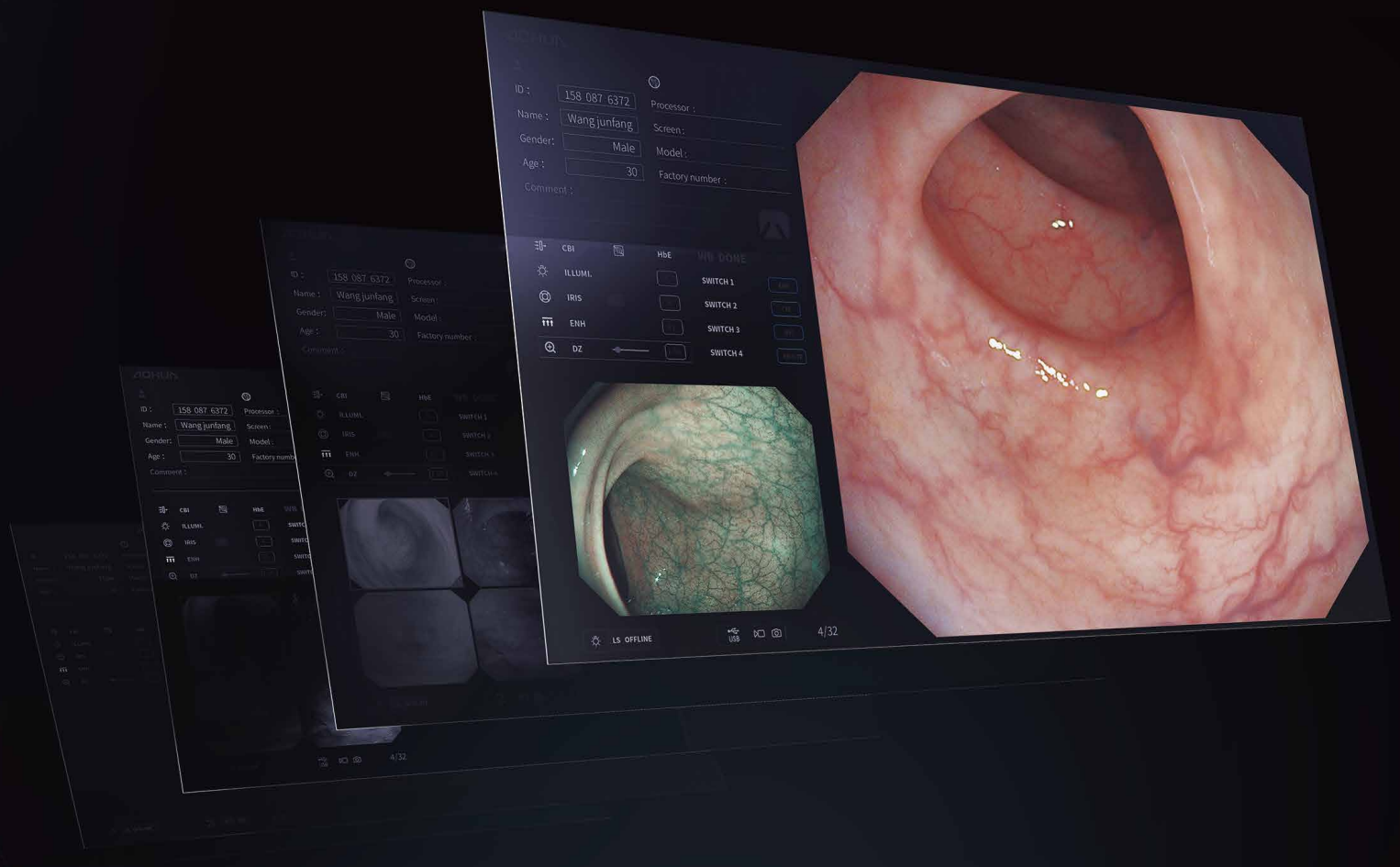

AQ-300 Series
AQL-300L

Laser Transmission And Wireless Power Supply

The integration of laser transmission enables high-speed transmission and improved insulation strength and anti-interference of high-frequency signals, ensuring a more stable transmission of images. Additionally, the implementation of wireless power supply technology eliminates the risk of patients being exposed to electric leakage.

Dual Image Display

The AQ-300 enables the display of both white light and optical chromoendoscopy images on the same screen, allowing for a clear visualization of the differences between the two.



Intelligent

Experience the advanced intelligent operation flow of the AQ-300, which includes some innovative features.

1.11.

Functions and Features

Q2

Light Source	5 LED
Chromoendoscopy	CBI Regular / CBI Indigo / CBI Aqua / CBI Amber
Image Enhancement	Structure / Edge / Combination
Brightness Adjustment	Automatic / Manual mode
Digital zooming function	1 / 1.2 / 1.5/ 1.8 / 2 times
Freeze and playback	Freezes the real-time image and plays it back.
IRIS	Peak/Average/Auto
USB Storage	High definition images and videos can be stored at any time
Dual Image Display	Display both WLI image and CBI image

GI Endoscope

5th Generation Handle

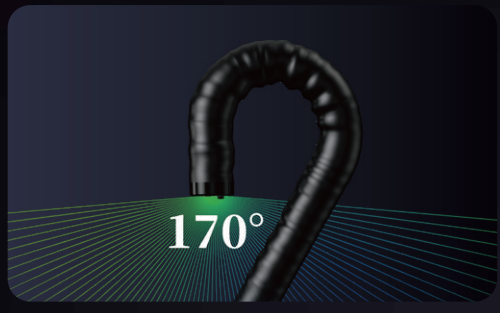
The newly launched handle design is lighter, which effectively reduces hand fatigue.

Standard Forwarding Water-jet

The entire series of gastrointestinal endoscopes includes the forwarding water-jet function, which helps maintain a clear view during diagnosis and treatment. 8.9.

Large Instrument Channel

The available options include a 3.2mm large instrument channel gastroscope and a 4.2mm large instrument channel colonoscope.



170° field of view

The AQ-300 offers a wider field of view, which is included in the entire colonoscopy series.

3 Light Guides

The endoscopic tip is designed with 3 light guides, ensuring brighter and more uniform illumination, especially for far-field areas.

UHD-GT/CL/ED

	Model	Working length	Total length	Distal end outer diameter	Insertion tube outer diameter	Instrument channel inner diameter	Depth of field	Field of View	Angulation range
7. Video Gastroscopes	* UHD-GT300	1100mm	1400mm	9.2mm	9.2mm	2.8mm	2-100mm	145°	U210°D120°L100° R100°
	* UHD-GT300T	1100mm	1400mm	9.8mm	9.6mm	3.2mm	2-100mm	145°	U210°D120°L100° R100°
	* UHD-GT300Z	1100mm	1400mm	9.9mm	9.6mm	2.8mm	1.5-3mm (Mag) 3-100mm (Normal)	95° 145°	U210°D120°L100° R100°
	UHD-GT300XP	1100mm	1400mm	5.4mm	5.8mm	2.4mm	2-100mm	140°	U210°D90°L100° R100°
	UHD-GT300XTP	1100mm	1400mm	5.9mm	6.0mm	2.8mm	2-100mm	140°	U210°D90°L100° R100°
8. Video Colonoscopes	* UHD-CL300I	1350mm	1650mm	12.2mm	12.0mm	3.8mm	2-100mm	170°	U180°D180°L160° R160°
	* UHD-CL300L	1700mm	2000mm	12.2mm	12.0mm	3.8mm	2-100mm	170°	U180°D180°L160° R160°
	* UHD-CL300TI	1350mm	1650mm	12.2mm	12.0mm	4.2mm	2-100mm	170°	U180°D180°L160° R160°
	* UHD-CL300TL	1700mm	2000mm	12.2mm	12.0mm	4.2mm	2-100mm	170°	U180°D180°L160° R160°
	* UHD-CL300ZI	1350mm	1650mm	12.8mm	12.0mm	3.8mm	2-3.5mm (Mag) 3-100mm (Normal)	90° 170°	U180°D180°L160° R160°
	* UHD-CL300ZL	1700mm	2000mm	12.8mm	12.0mm	3.8mm	2-3.5mm (Mag) 3-100mm (Normal)	90° 170°	U180°D180°L160° R160°
	* UHD-CL300PI	1350mm	1650mm	9.8mm	9.8mm	3.2mm	2-100mm	170°	U210°D180°L160° R160°
	* UHD-CL300PL	1700mm	2000mm	9.8mm	9.8mm	3.2mm	2-100mm	170°	U210°D180°L160° R160°
	* UHD-CL300TPI	1350mm	1650mm	10.2mm	10.5mm	3.8mm	2-100mm	170°	U210°D180°L160° R160°
	* UHD-CL300TPL	1700mm	2000mm	10.2mm	10.5mm	3.8mm	2-100mm	170°	U210°D180°L160° R160°
Video Duodenoscope	UHD-ED300V	1250mm	1530mm	13.5mm	11.2mm	4.2mm	4-60mm	100°	U120°D90°L90° R110°

*: Forwarding water-jet
Mag: magnification mode

Bronchoscope

Ultra Large Instrument Channel

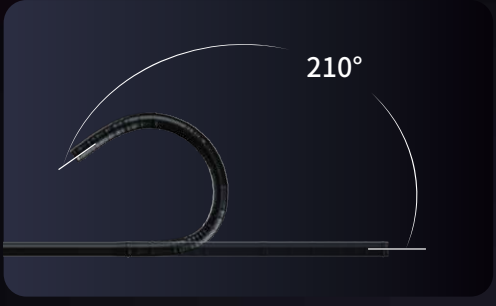
3.2mm instrument channel with 5.8mm insertion tube (VBC-T300H)

Ultra Slim Insertion Tube

2.8mm distal end with 1.2 instrument chanel (VBC-XQ300)

Left/right Rotation

Control ring enables left and right rotation of the insertion tube by 120° in both directions.



210° Upward Rotation

All VBC-300 series support 210° upward rotation to enable easier access to bronchus.

Angulation Lock

Lock button on the handle enables locking of the distal tip in an angulated position.

VBC-300 Series Video Bronchoscope

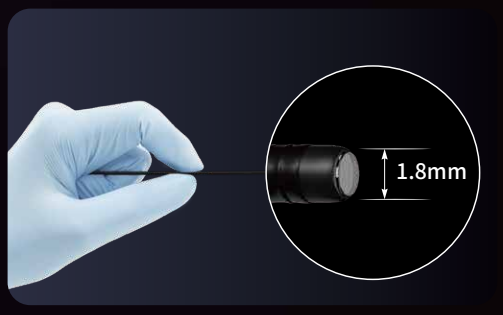
Model	Working length	Total length	Distal end outer diameter	Insertion tube diameter	Instrument channel inner diameter	Depth of field	Field of view	Angulation range	Left/right rotation
VBC-XQ300	600mm	870mm	2.8mm	2.8mm	1.2mm	2-100mm	120°	U210° D130°	L120° R120°
VBC-N300	600mm	870mm	3.8mm	3.8mm	2.2mm	2-100mm	120°	U210° D130°	L120° R120°
VBC-T300	600mm	870mm	4.9mm	4.9mm	3.0mm	2-100mm	120°	U210° D130°	L120° R120°
VBC-N300H*	600mm	870mm	4.9mm	4.9mm	2.2mm	2-100mm	120°	U210° D130°	L120° R120°
VBC-T300H*	600mm	870mm	5.8mm	6.1mm	3.2mm	2-100mm	120°	U210° D130°	L120° R120°

* supports HDTV image

Laryngoscope

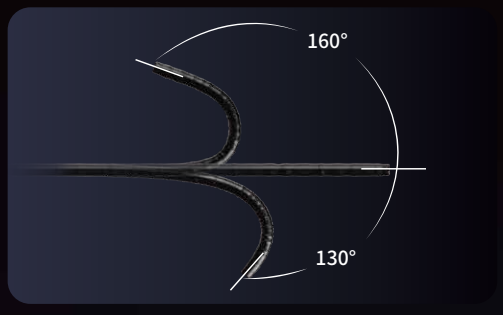
Ultra Large Instrument Channel

2.2mm instrument channel with 4.9mm insertion tube(VRL-N300H)



Ultra Slim Insertion Tube

VRL-X300 with 1.8mm distal end provides excellent insertion.



Large Angulation

All VRL-300 series support 160° upward and 130° downward angulation to assist observation of a wider field of view.

7.8.

Fully Waterproof

The fully waterproof cover will make the cleaning process more efficient.

New Generation Handle

The new generation handle optimized with a more ergonomic design makes the endoscope more comfortable.

VRL-300 Series Video Laryngoscope

Model	Working length	Total length	Distal end outer diameter	Insertion tube diameter	Instrument channel inner diameter	Depth of field	Field of view	Angulation range
VRL-X300	300mm	570mm	1.8mm	1.9mm	/	2-100mm	120°	U160°D130
VRL-XQ300H*	300mm	570mm	2.8mm	2.8mm	/	2-100mm	120°	U160°D130°
VRL-N300H*	380mm	650mm	4.9mm	4.9mm	2.2mm	2-100mm	120°	U160°D130°

*supports HDTV image

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See the Manual for details of contraindications or precautions.

v3.1_2409_EU

CBI ATLAS

(First edition)

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website: www.aohua.com/en

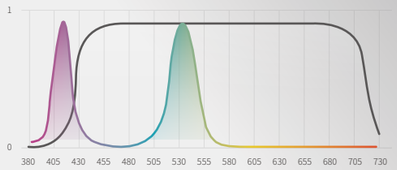
See the Manual for details of contraindications or precautions.

4 CBI Modes On 5LEDs

The aq-300 provides four chromoendoscopy modes achieved through various combinations of its five leds light source. These modes offer efficient, rapid, and precise solutions for clinical challenges in various scenarios.

1.2.2.

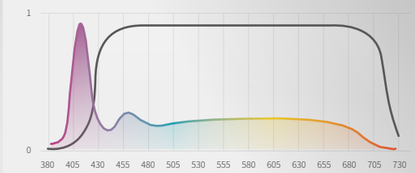
CBI Regular/CBI-R



- 405-425nm wavelength blue light is easily absorbed by mucosal fibrous tissue, while 530nm wavelength light acts on submucosal blood vessels under led light source.
- The CBI mode uses 405-425nm and 530nm led light sources, which can distinguish the range of mucosal lesions and highlight the distribution of submucosal blood vessels

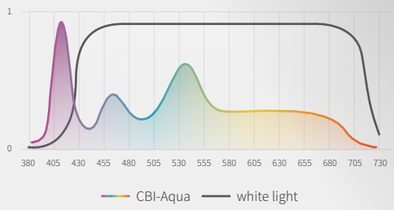
1.2.3.

CBI Indigo/CBI-D



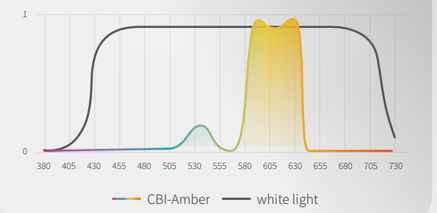
- On the basis of blue narrowband light, combined with an appropriate amount of white light illumination, further color expansion is carried out on the red area to enhance the contrast of blood vessel texture display and color difference contrast in the red area, effectively improving the contrast between mucosa and blood vessels

CBI Aqua/CBI-Q



- Using partial blue and green narrowband light and providing quantitative white light for the image
- Can better increase the visibility of mucosal tissue structure under endoscopy

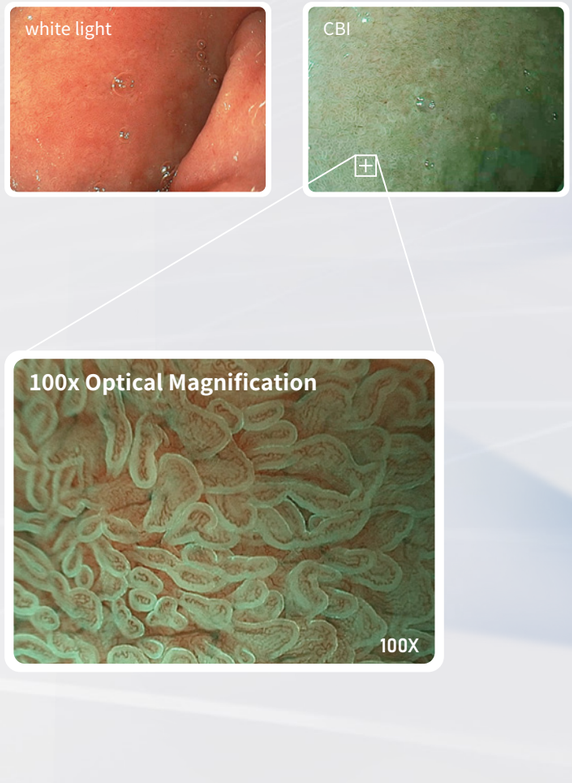
CBI Amber/CBI-M



- Combining red and green light, amber mode is mainly using amber light paired with image processing algorithm and contrast feedback adjustment technologies to observe bleeding spot covered by superficial blood

100x Optical Magnification

The application of advanced micro sensor transmission image technology. Resolution is greatly improved, and the image can be enlarged without compromising clarity. Maximum magnification rate is no less than 100 times.



32" 4K Medical Display

FM-E3230D, FM-E3230DG, FM-E3230DN

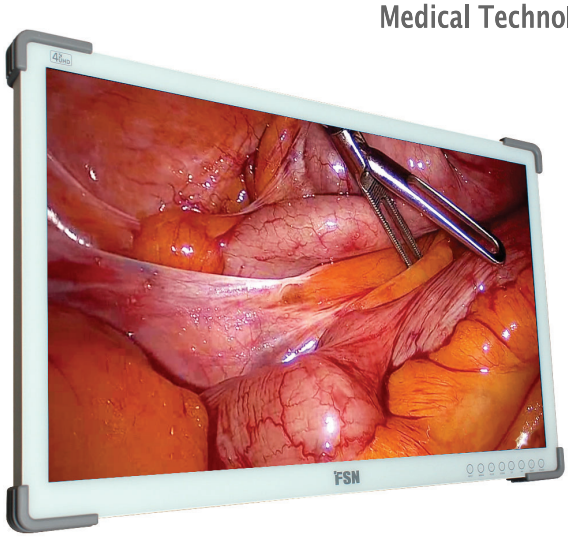
- *Supports HDR for incredible picture quality.*
- *Options for 12G-SDI or 10G SPF+ support.*
- *Web-based network control system.*

Enhance Image Quality

The next level of surgical display monitor performance has arrived with FM-E3230D series. This model features UHD resolution for high levels of detail and ultra-sharp picture clarity. In addition to HDMI and DisplayPort, FM-E3230DG offers 12G-SDI signal input and output. FM-E3230DN supports video over IP using 10G SFP+ technology.

Quad window layouts are available with FM-E3230DG and FM-E3230DN.

Additional benefits of this display include multi-window layouts, save and recall preset configurations, HDR support (wide color gamut), and smart input sensing that switches to a designated second source when the main signal is no longer available. 5V and 12V output power on the displays can be utilized for components such as a wireless receiver.

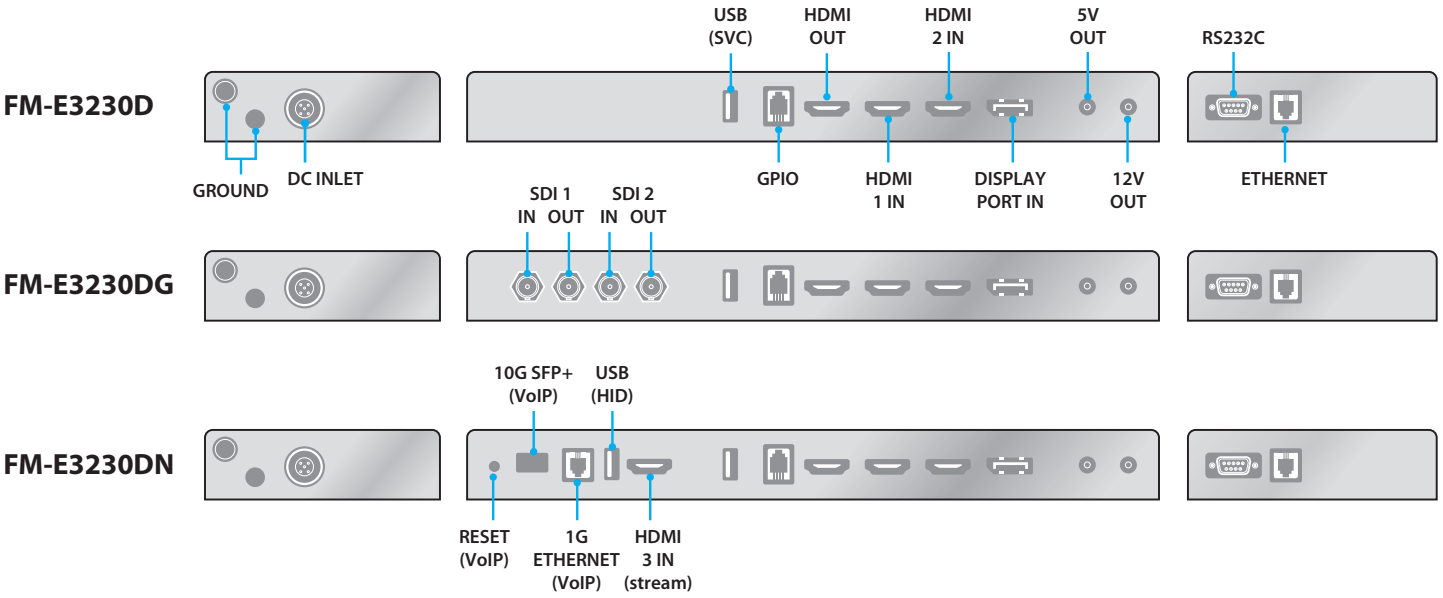


Built for the OR

FSN monitors are designed with maximum viewing angles, allowing several clinicians to view the display in the same room without loss of image quality or distortion. Protective guards on the bezel corners help reduce bumping incidents. A back cable cover is provided with each monitor to manage cords and wires.

Web-Based Control

These monitors have a built-in network control system. Using REST API architecture, users can configure various parameters including firmware, EDID data, and 3D LUT data.



32” 4K Medical Display

FM-E3230D, FM-E3230DG, FM-E3230DN

Medical Technologies

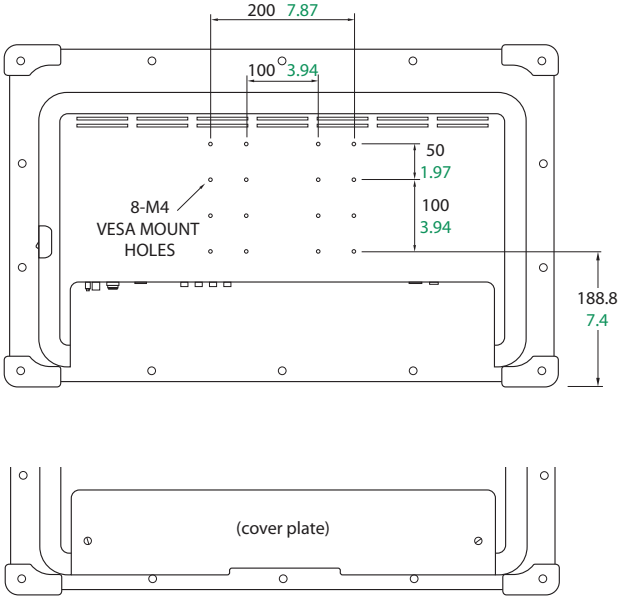
Specifications

General Features

Item	Description
Panel	32 inch TFT LCD (LED)
Resolution	3840 x 2160 pixels
Active Area	708.48 (H)mm x 398.82 (V)mm
Pixel Pitch (mm)	0.1845 x 0.1845
Response Time (typical)	20 ms
Number of Colors	1.07 Billion
Brightness (typical)	850 cd/m²
Color Gamut	BT.709 and BT.2020
Contrast Ratio (typical)	1500 : 1
Surface Treatment	Anti-glare
Viewing Angle (CR>10)	R/L 178°, U/D 178°

		FM-E3230D	FM-E3230DG	FM-E3230DN
Input Signal	HDMI	x 2	x 2	x 3
	DP	x 1	x 1	x 1
	SDI (12G)	-	x 2	-
	10G SFP+ (Rx)	-	-	x 1
Output Signal	HDMI	x 1	x 1	x 1
	SDI (12G)	-	x 2	-
	10G SFP+ (Tx)	-	-	x 1

Item		Description
Power Supply		AC/DC Adaptor (AC 100~240V, DC 24V/8.3A)
Power Consumption		190W max
Accessories Included		User manual, AC-DC adaptor, AC power cord, DP cable, HDMI cable, BNC cable (FM-E3230DG), Screw BH M4 x 14
Latency		2 ms
Unit Dimension		773(W) x 478(H) x 75.2(D) mm 30.43(W) x 18.82(H) x 2.96(D) inch
Package Dimension		914.4(W) x 749.3(H) x 234.95(D) mm 36(W) x 29.5(H) x 9.25(D) inch
IP Rating		IP33 - overall
Weight	FM-E3230D	10.5 kg, 23.15 lbs. (monitor with cover) 16.3 kg, 35.94 lbs. (shipping package)
	FM-E3230DG	10.7 kg, 23.6 lbs. (monitor with cover) 16.5 kg, 36.38 lbs. (shipping package)
	FM-E3230DN	10.6 kg, 23.4 lbs. (monitor with cover) 16.4 kg, 36.16 lbs. (shipping package)
Certifications		ANSI/AAMI ES60601-1(UL60601-1), CAN/CSA C22.2 No. 60601-1, FCC Class B, EN60601-1, EN60601-1-2, CE, MDR(EU) 2017/745 Class I Medical Device



FSN Medical Technologies products meet EU RoHS Directive 2011/65/EU+2015/863/EU and Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) obligations. FSN manages the information flow as required by regulations.

Specifications are subject to change with or without notice. Doc. # FSN2086 Rev. 7/24

fsnmed.com

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Tel: 714-300-0540
Fax: 714-300-0546

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Tel: 714-507-3855

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Foreseeson (Shanghai) Medical Equipment Co., Ltd.
Room 1010, Building A
1439 Wuzhong Road
Rhein Hongjing Center
Minhang District, Shanghai, China
Tel: 18521095596

Medical electric suction unit

4.

MEVACS M38, M46

Ordering number: *MEVACS M38 –No: 72001.00*
MEVACS M46 –No: 72001.01

Operating Instructions

CE
2265

NP-MEVACS M38, M46, D4O-0014.12, ENGLISH, 3.5.2019 © JS

MEDIST s.r.o., Petrusovskeho 4, 06601 Humenne, Slovakia
T/Fax:00421-57-7753276, E-mail:medist@medist.sk, http://www.medist.sk

1. Introduction

*High-efficiency suction units **MEVACS M38** and **MEVACS M46** are available for using into all kinds of surgery, gynaecology, liposuction and at suction for surgical patients at AR-UIC departments. Oilless vacuum-pump guarantees long time for no service-need operation. Microbiological filter, silicone hoses and unbreakable vessels guard high hygiene at work. Collecting secret vessels are autoclave.*

Main advantages of the suction unit are the following:

1. ***Oil-free vacuum pump**,* maintenance-free.
4.1. 2. ***High level of underpressure*** - 93 kPa / 700 mmHg (93% vacuum).
4.2. 3. ***High suction output vacuum pump*** - MEVACS M38 -40 l/min., (MEVACS M46 -50 l/min.)
4. ***Long-term operation*** - several days.
5. **Simple operation of** underpressure level by regulator valve
6. ***Very low noise level.***
7. ***Reliable protection system against reservoirs overfilling:***
   - ♦ safety vessel for frothed secretions
   - ♦ safety valve against oversuction in the cover of secretion vessel
   - ♦ hydrophobic bacteriologic filter (prevention of fluid penetration to vacuum pump)
8. ***Protection of the unit, personnel and patient against infection*** by means of fitted bacteriologic filter.
9. ***The possibility of all functions operation by means of foot control.***
10. ***Wide range of additional equipment:***
    - unbreakable autoclavable vessels for secretion with volume 0.5 L, 1 L, 2 L, 4 L, 5 L
    - universal truck with a basket, dish, holders...
    - suction adapters, single-use suction bags, cylinders ...
    - various diameters of silicone suction hoses
    - ♦ vacuum-extractors, curettage adapters

1.1. Purpose of designation of the Medical device

Suction units MEVACS are designed for suction liquids, blood and secretions, for creating vacuums in body cavities and the like. An extensive range of applications is also available in laboratories, or its industrial use within the range of technical parameters.

1.2. Areas of use

a) Surgery - Neurosurgery - Cardiosurgery - Plastic surgery - Accident surgery - Orthopaedics
b) Anaesthetic/Resuscitation Dpt., Ward of internal diseases - Intensive Care Unit - Endoscopy
c) Gynaecology (suction curettage, vacuum extraction)
d) Ambulances, other - in the range of technical parameters

2. Equipment

2.1. Basic equipment

You can find the following in the transport packing of the unit of basic performance delivery:

- **suction unit MEVACS**, on which the following is fitted:
  - ⇒ plastic polycarbonate vessel for secretion 2.0 l
  - ⇒ push cover for the 2.0 l vessel
  - ⇒ safety vessel
  - ⇒ suction microbiologic filter
  - ⇒ safety vessel and 2,0 l vessel holder
  - ⇒ suction silicone hose ∅ 8 x 3
- **electric cord**

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4.3.2.
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- ⇒ safety vessel and 2,0 l vessel holder
- ⇒ suction silicone hose ∅ 8 x 3

■ **electric cord**

2.2. Optional accessories

	Name / type	Ordering number
A-2	Suction hydrophobic microbiologic filter ϕ65mm/8mm (2200-02 / M03.1.003)	42101.01
A-3	Suction hydrophobic microbiologic filter ϕ65mm/11-16mm (2200-16 / M03.1.004)	42101.03
A-4	Suction microbiologic filter 2000/09	42101.02
A-5	Silicone hose 10 x 3	40100.04
A-6	Silicone hose 8 x 3	40100.00
A-7	Silicone hose 7 x 3	40100.05
A-8	Silicone hose 6 x 3	40100.01
B-12	2.0 L jar CM	42011.02
B-12.1	2.0 L jar CM with lid - APEC, autoclavable at max 143°C	42011.30
B-13	2.0 L jar TM, polycarbonate, pressure lid	42011.11
B-14	2.0 L jar TM, polysulfone, pressure lid	42011.09
B-15	2.0 L jar TM, polycarbonate, silicone ring lid	42011.15
B-16	2.0 L jar TM, polysulfone, silicone ring lid	42011.13
B-17	2.0 L jar TM, polycarbonate, screw metal lid	42011.14
B-18	2.0 L jar TM, polysulfone, screw metal lid	42011.21
B-19	2.0 L jar TM, polysulfone, silicone ring lid and angled metal tubing nipple	42011.20
B-21	4.0 L jar CM, polycarbonate, pressure lid	42011.23
B-22	4.0 L jar TM, polycarbonate, pressure lid	42011.12
B-23	4.0 L jar TM, polysulfone, pressure lid	42011.10
B-24	4.0 L jar TM, polysulfone, pressure lid, angled nipple	42011.22
B-24.1	5.0 L jar CM with lid - APEC, autoclavable at max 143°C	42011.31
B-24.2	5.0 L jar CM polycarbonate with lid	42011.32
B-37	Safety jar 300 ml with hose socket	73001.35
G-2.1	Trolley MEVOZ MV4 (for MEVACS, MEVACS M38,M46, S30/30) - eurorail	73000.40
G-3	Trolley basket for MEVOZ	28001.01
G-6	Suction catheter container 50/400 mm - TM	42003.01
G-8	Footswitch for MEVACS M	73000.04

4.3.3.

3. Installation

The MEVACS suction unit is a portable unit.
Possibility of location:

1. on a firm support plate
2. on MEVOZ trolley

3.1. Installation on a firm support plate

- The unit is self-supporting, it can be just put on firm support plate.
- The unit should have sufficient air circulation in order to avoid the overheating.
- Do not put the unit on subjects, which could block the vents on the unit bottom part (e.g. carpet, rug,...).

3.2. Installation on trolley

- put the unit with rubber legs on bed and secure with special screw with black head.

ENDO STRATUS™

Irrigation Pump

5.

Instructions for Use – GI Endoscopy

MODEL: EGA-500
MODEL: EGA-500E

Table of Contents

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CANTEL

Instruction Manual

English

Unpacking And Inspection

Upon receiving the ENDO STRATUS™ Irrigation Pump, ensure that the following items are contained in the shipping box:

- Base tray and Water Bottle Holder
- Operator's manual
- Foot Pedal
- Hardware to assemble base tray and Water Bottle Holder
- Power cord
- Pump Head

Read this manual thoroughly before proceeding with the operation of this equipment. The user manual is written at a level such that it can be understood by the intended users and is consistent with the education and training of users. These instructions should be stored and used for reference as needed. If there are any questions, please contact Customer Service - Service Department at 800-444-4729 / International: 01-782-594164.

Introduction

Definitions

Throughout this document the ENDO STRATUS Irrigation Pump may be referred to as "unit" or "device".

- mL/min – milliliters per minute (flow)
- kPa – kilo Pascal (pressure)
- VA – Volt Amps
- VAC – Volts Alternating Current (electrical potential)
- W – Watts
- Hz – Hertz (frequency)

5.1.

Indications For Use

- Federal (USA) law restricts this device to sale by or on the order of physician.
- The ENDO STRATUS Irrigation Pump is indicated for GI endoscopic irrigation with room temperature or warm water for use with washing catheters, integral GI endoscope water jet channels and GI endoscope working channels.
- The device contains a heated water bottle cradle that is intended to maintain a sterile water bottle for GI endoscopic irrigation at a maximum temperature set point of 37°C with a tolerance of ± 3°C.

Contraindications

- The device should only be used for GI endoscopic procedures requiring irrigation of the gastrointestinal tract and should not be used for any other treatments or procedures.
- The device is not intended for use with or exposure to Magnetic Resonance Imaging (MRI) systems. Do not use the device in an environment where it could be exposed to MRI systems.

Warnings And Cautions

Signal Words

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.

Safety Symbols


Attention


Refer to operating instructions


WARNING: Dangerous voltage


Equipotentiality


Do not allow fingers to contact moving parts


Hot surface

MR unsafe

Technical Specifications

Electrical Specifications

Input Voltage:	100-240 VAC
Input Frequency:	50-60 Hz
Power Consumption:	110 VA
Fuse Rating:	M10AL250V Medium-acting, 10 amp, low-breaking capacity, 250 volt Replace fuses only with those of same type and rating
Certifications:	IEC-60601-1, IEC-60601-1-2, IEC-60601-2-18
Classification:	Class 1 Type B
Water Bottle Warmer:	20W resistive element with dual temperature sensors.
IP Rating (Ingress Protection):	IP24

WARNING: Grounding reliability can only be achieved when connected to a receptacle marked "Hospital Grade".

Mechanical Specifications

Physical Dimensions:

• Height	4 ¾" inches	121 mm
• Width	7 ¾" inches	197 mm
• Depth	13 ¾" inches	349 mm
• Weight	10.5 pounds	4.8 kg

Flow Rates:

• Auxiliary Water Channel	0-300 ml/min*
• Biopsy Channel	0-650 ml/min*

5.2.1.

5.2.2.

*These values are approximate and are based on an average flow obtained with three different manufacturer's GI endoscopes with biopsy channel diameters ranging from 2.8 mm - 4.2 mm and auxiliary water channel diameters ranging from 0.8mm - 1.0 mm. User results may vary depending on scope used, channel size and working channel length.

CAUTION: The ENDO STRATUS™ Irrigation Pump is intended for use only by physicians/ clinicians who are trained regarding the amount of water to use for irrigation and infusion during GI endoscopic procedures.

Environmental Requirements

- Operating Temperature: 16° to 24°C (+61° to 75°F)
- Operating Relative Humidity: 30% to 75% non-condensing
- Operating Pressure: 70 kPa-106 kPa_(10.2 PSI -15.4 PSI)

Accessory Items

Note: The ENDO STRATUS™ Irrigation Pump EGA-500 is intended to be used only with the specific models of compatible tubing sets, connectors and accessories identified in the table below and/or officially recommended by Medivators. Use of the device with accessories not identified in the table below or officially recommended by Medivators may result in incompatibility and/or the risk of cross-contamination and infection transmission.

Category / Type	Description	Order Number
Irrigation Tubing	ENDOGATOR™ Irrigation Tubing For Use With EGA-500	100130 (24 Hr Use)
	ENDOGATOR Irrigation Tubing For Use With EGA-500E	100130U (24 Hr Use)
	ENDOGATOR™ Hybrid Tubing For OLYMPUS® 140/160/180/190 Series GI Endoscopes For Use With EGA-500	100609 (24 Hr Use)
	ENDOGATOR Hybrid Tubing For OLYMPUS 140/160/180/190 Series GI Endoscopes For Use With EGA-500E	100609S (24 Hr Use)
Connectors / Valves / Adapters	ENDOGATOR™ Single Patient Use Auxiliary Water Jet Connector For OLYMPUS GI Endoscopes	100241 (Single Patient Use)
	ENDOGATOR Single Patient Use Auxiliary Water Jet Connector For PENTAX® GI Endoscopes	100242 (Single Patient Use)
	Adapter For Connecting ENDOGATOR Tubing To FUJIFILM™ 530 Series GI Endoscopes	100141 (Single Patient Use)
	Backflow Valve	100126 (Single Patient Use)
	Biopsy Irrigation Channel Tubing	100135 (Single Patient Use)
	ENDOGATOR™ Channel Adapter	100136 (Single Patient Use)
	DEFENDO™ Y-OPSY™ Irrigator For OLYMPUS GI Endoscopes	100303 (Single Patient Use)

ENDO STRATUS®

Irrigation Pump and CO_2 Insufflator | **Procedure**

CANTEL

PROCEDURE

Reducing the risk of patient cross contamination is at the forefront of infection prevention. Cantel innovates infection control products designed to improve patient outcomes, while increasing procedural efficiency.

ENDO STRATUS®

Irrigation Pump and CO_2 Insufflator | **Procedure**

ENDO STRATUS® CO_2 Insufflator

Compatible with

- ENDO SMARTCAP® Irrigation tubing (works with wall source or tanks (C or E size))
- All major GI endoscopes

ENDO STRATUS® Irrigation Pump

Compatible with

- ENDOGATOR tubing and connectors
- All major GI endoscopes

Pump includes comfortable, universal foot pedal

Warm water irrigation improves your visibility and your patient's comfort

Easy and quick to adjust flow rate

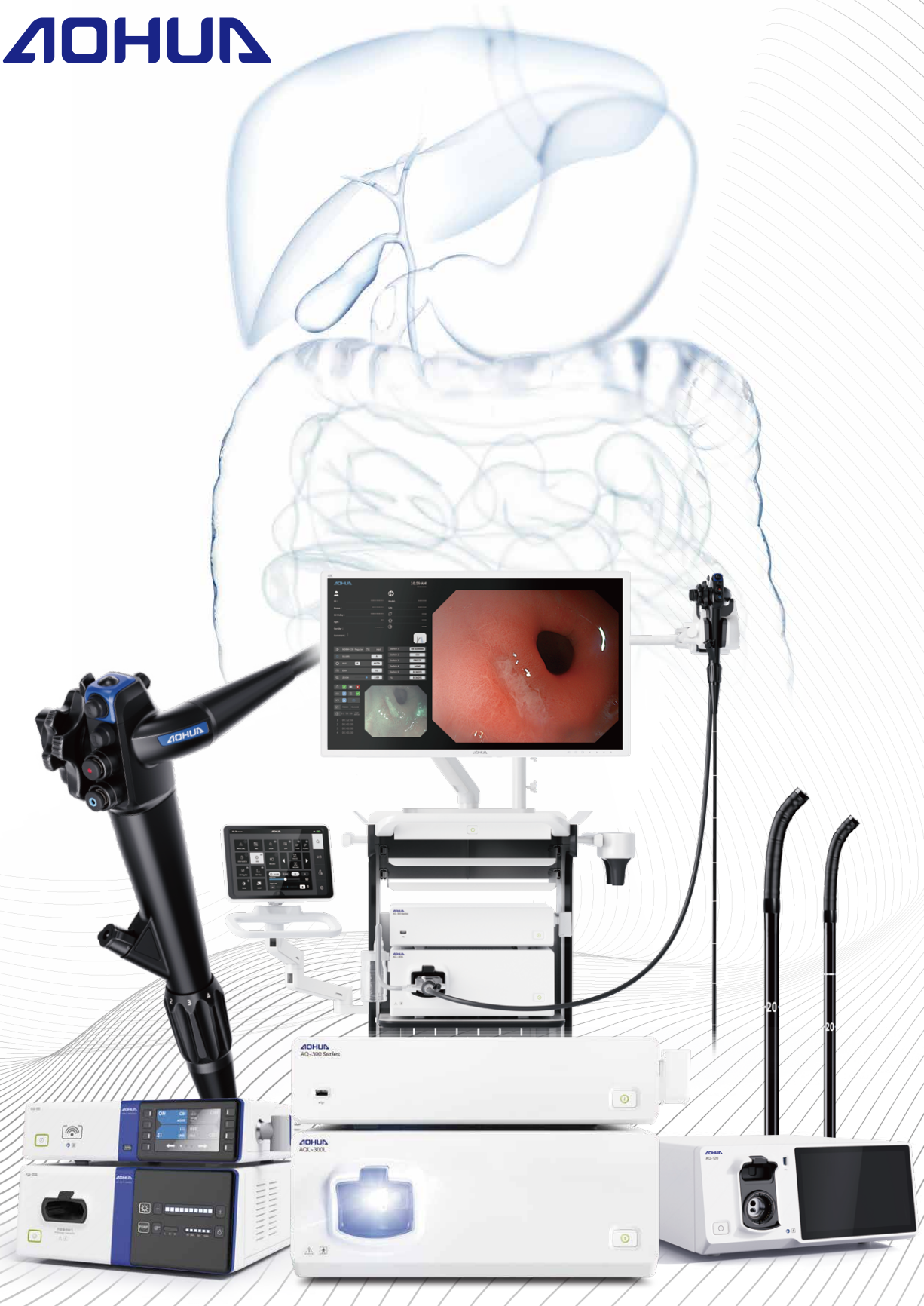
Compatible with ENDOGATOR tubing and connectors

Automatic prime button provides instant irrigation upon foot pedal depression

5.4.1.

Adjustable water bottle holder with integrated water heater

AOHUA



Gastrointestinal Endoscopy System

AQ-300 Ultra HD Endoscopy System

Contribute our most advanced and innovative technologies to this 4K flag-ship system to bring you the experience of future endoscopy

4 CBI modes on 5LED

The AQ-300 provides four chromoendoscopy modes achieved through various combinations of its five LEDs light source. These modes offer efficient, rapid, and precise solutions for clinical challenges in various scenarios.

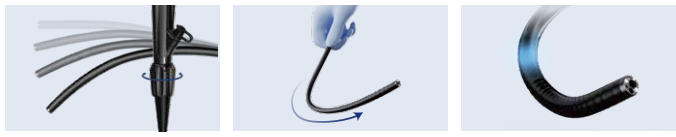
Intelligent

An Innovative Human-Computer Interaction Model
Discover the AQ-300's advanced intelligent operational flow, featuring capabilities like facial recognition, voice control, and customizable settings accessible via a remote touch control panel.

8.8.

Colo Smart Assistance (CSA)

Adjustable Stiffness / Sync Force Transmission / Elastic Bending



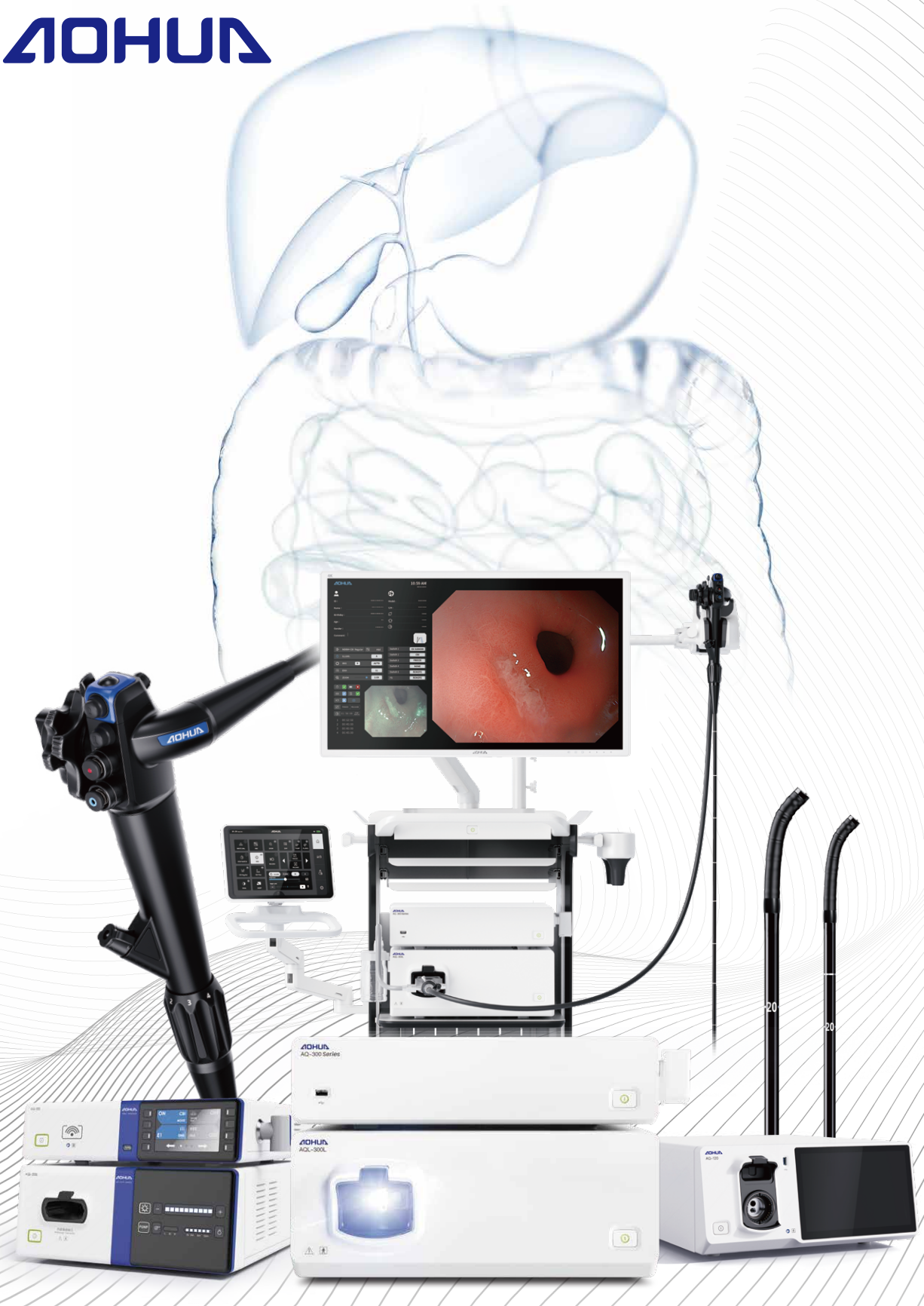
3 light guides

The endoscopic tip is designed with 3 light guides, ensuring brighter and more uniform illumination, especially for far-field areas.

Full Range Portfolio

Gastroscope	Colonoscope	Duodenoscope	Ultra slim	Optical zoom

AOHUA



Gastrointestinal Endoscopy System

Peripheral Equipment

AFP-1 Endoscopic Irrigation Pump

The water flushing pump flushes out blood, tissue and debris during the procedure, and helps to ensure a better view for patients who are not well prepared.

- 20’cutoff time after continuous flushing
- Compatible with waterjet and instrument channel
- Powerful and straight in line flushing
- 10-level precise water flow control
- Foot switch control
- Closed machine body and removable pump head

9.

ACD-1 Endoscopic CO_2 Insufflation Device

The CO_2 insufflator regulates carbon dioxide gas into a safe and stable level to supply endoscopes. CO_2 gas can be used to insufflate lumen for wider space, reduce smoke during intervention, increase patient comfort and shorten discovery time after the procedure.

9.1.

- Compatible with both gas tank and centralized supply
- Compact design and easy to use
- Gas filtering before entering the machine
- Two-step decompression mechanism

9.2.

ALD-1 Automatic Leakage Tester

The leak test is a time-consuming but very important test that must be performed before each reprocessing of an endoscope. By performing it automatically, this can save time and energy.

- Fully automatic, simply by pressing a button
- Compatible with scopes from major brands
- Compact design, easy to install and use
- IF design awarded

Endocarts International Ltd
55 Vanguard Way
Shoeburyness
Essex, SS3 9QY
United Kingdom
Tel: +44 (0) 1702 842400

INSTRUCTIONS FOR USE

MIG-20 CART

3.5.

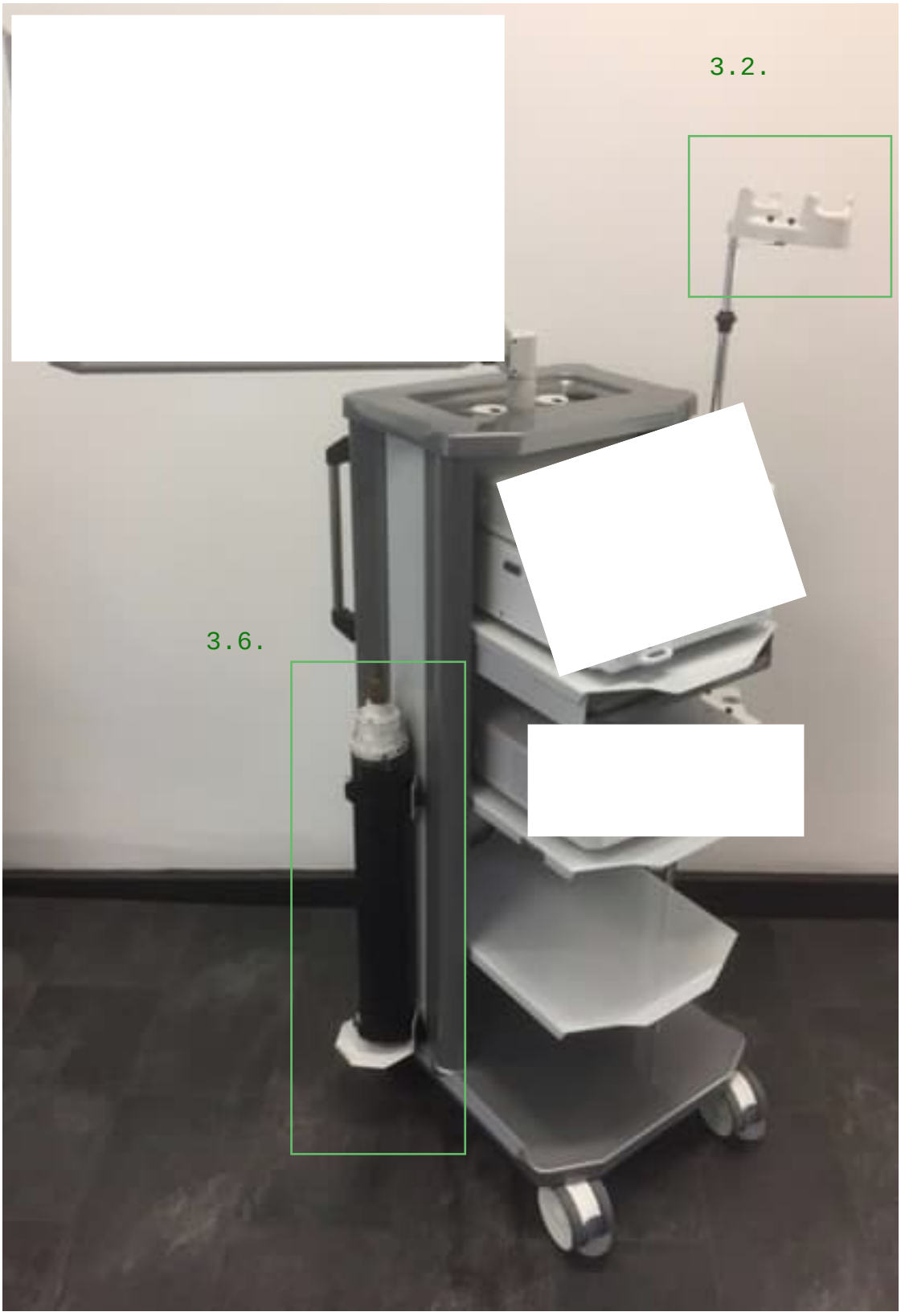
Endocarts International Ltd
55 Vanguard Way
Shoeburyness
Essex, SS3 9QY
United Kingdom
Tel: +44 (0) 1702 842400

CAUTION:

When moving the cart, use the back handle only, do not use the articulating arms, the monitors nor any other parts of the cart to push or pull the cart.
Not following these instructions could cause damage to the equipment and injury to the user

When moving the cart outside of the procedure room, the monitors must be positioned in TRANSPORT MODE. If the monitor is installed on an articulating arm, the end-user must ensure that the articulating arm is NOT extended, and the monitor remains centralized within the footprint of the cart as shown below.

3.1.


3.2.
3.6.

Endocarts International Ltd
55 Vanguard Way
Shoeburyness
Essex, SS3 9QY
United Kingdom
Tel: +44 (0) 1702 842400

Please read this document fully before using the cart.
Endocarts International Ltd cannot be held responsible for damage and injuries caused by misuse or negligent maintenance.

1. INTRODUCTION

The Cart has been designed to allow safe and easy handling of video endoscopic equipment such as endoscopes, camera, CCU, monitor, light source, pump and video printer during both storage and use in an Hospital or Clinic operating/procedure room by the Hospital staff/Healthcare professionals.

The Cart can be configured in a variety of ways, to accommodate flat screen monitors up to a maximum of 20Kg in weight (when monitor placed on a monitor post).

As your MIG-20 cart may have been in its packaging for some time before you receive it, we recommend that the cart is cleaned by wiping the inside and outside surfaces with an environmental surface disinfectant/sanitising agent, as per your hospital/clinic policy.

3.4. Equipment on the cart can be switched on and off via a double pole isolating switch on the back of the cart, also a medical grade isolating transformer is usually fitted to the underside of the cart to provide protection against earth leakage currents.

	Item	Quantity	Part Number
3.3.	Cart with 2KvA Isolation Transformer	1	104491
	Cart (no transformer)	1	104490
	Optional Items *		
3.6.	CO2 Bottle Holder Assembly	1	101357
	I.V. Pole for 2 bags	1	106047
	Height Adjustable Twin Scope Hanger	1	104452
	LCD Monitor post	1	103339
	Articulating arm Short Extension	1	103922
	Heavy Duty Articulating Arm	1	103435
	Drawer Unit Assembly	1	106032
	MIG-20 Standard Shelf	1	106048

2. ASSEMBLY

Position the cart on a flat surface and apply both front castor brakes.

CAUTION: When assembling the cart, ensure that the main equipment is installed on the cart before fitting the articulating arm and monitor.
Failure to do this may result in the cart toppling over due to the weight and leverage of the arm & monitor.

When disassembling the cart ensure that the articulating arm & monitor are removed first.

NOTE: It is recommended that two people, working together, fit the flat screen monitors on the articulating arms.

KLS martin GROUP

Elektrochirurginis generatorius

maXium® smart C

6. Elektrochirurginis generatorius

The touch of simplicity

reddot award 2016 winner

DESIGN AWARD 2017

Focus Open 2016 Special Mention

www.klsmartin.com

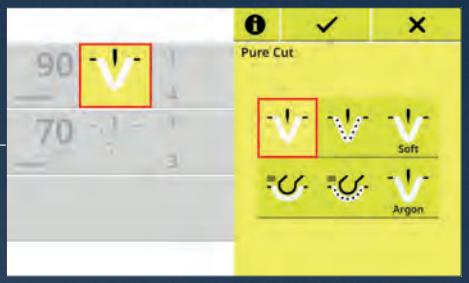
Whatever you are doing - all it takes is at your finger tip.

Naudojamas jutiklinis ekranas

Direct access to all the relevant parameters. From now on you can use the new touch display of the maXium® smart C to make all the settings intuitively, taking advantage of the proven maXium® user control philosophy.

6.2 Jutiklinis ekranas

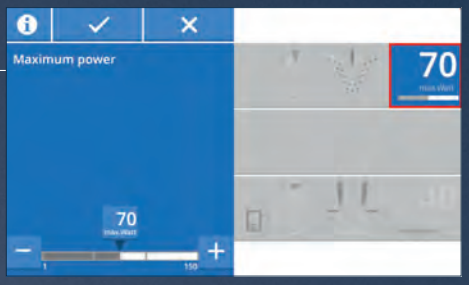
6.2. Ekrane rodompasirinktas srovės tipas/ režimas



Current type

With the proven, clearly arranged icons, making selections is quick and easy.

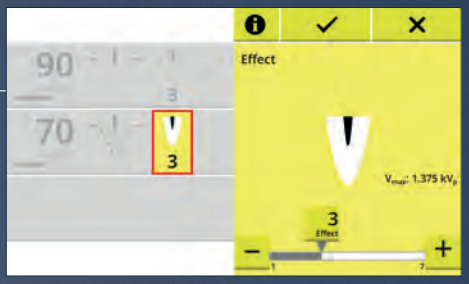
6.2. Ekrane rodoma ir reguliuojama išeinančios galios



Output power adjustment

With the slider and/or the +/- buttons the output power adjustment is quick and easy to perform, even in 1 W steps.

6.2. Išeinančios galios efekto reguliavimas

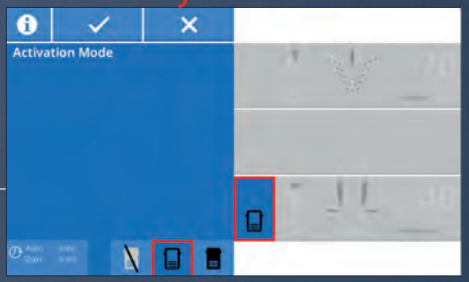


Effect adjustment

Effect can also be customized at low power.

Benefit: Maximum variable performance in all power ranges.

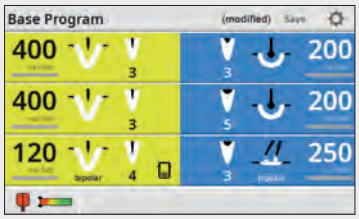
6.2. Ekrane rodomas ir pasirenkams aktyvacijos būdas: kojiniu jungikliu ar AUTOSTART funkcija



Activation

Easy assignment of activation – be it via a footswitch or an Auto Start function.

maXium® smart C
the epitome of performance
6.1. Didelės galios galimybės visose situacijose



High power capabilities in all situations

No matter what your procedure is: the maXium® smart C excels with its high power capabilities and therefore is in perfect position for a multitude of applications in the various OR specialties:

- monopolar cutting up to 400 watts — Monopolinis pjovimas
- monopolar coagulation up to 200 watts — Monopolinė koaguliacja
- bipolar cutting and coagulation up to 120 watts — Bipolinis pjovimas ir koaguliacija
- bipolar electrohydrothermosation up to 250 watts — bipolinė elektrohidrotermozė

Outstanding ease of use thanks to the proven program philosophy

The proven maXium® program philosophy lets you fall back on the programs already stored in the maXium® smart C or store programs you defined yourself.

Endo režimas yra specifinis srovės tipas polipektomijai / papilotomijai. Tai banguojančios srovės tipas, kuris automatiškai kaitaliojasi tarp pjovimo ir koaguliacijos.

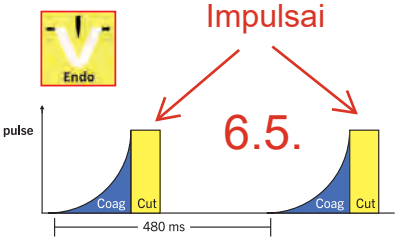
Options

6.1.

Endo Mode ENDO režimas

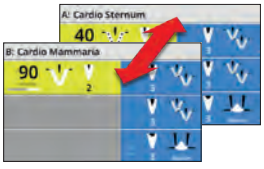
The Endo Mode is an application-specific type of current for polypectomy/ papillotomy. This is an undulating current type which automatically alternates between cutting and coagulation.

It is used for the resection with little loss of blood of small or pedunculated polyps using a polypectomy snare, and for the low-bleed incision using a fistulotome or needle knife.



SWAP Mode

In SWAP mode you can change the program from inside the sterile field either via the footswitch or handpiece, therefore letting you adjust the cutting and coagulation performance to the situation in the OR.



Neptun

Neptun is a bipolar current type for coagulation with liquid support (EHT method = electrohydrothermosation), which is chiefly used in parenchymal surgery (liver, spleen, kidney) with irrigated forceps.

The EHT method is characterized by a homogeneous, conservative coagulation effect and rapid procedure.

Duo Prep/Duo Spray

With the Duo currents it is possible to use the two monopolar outputs simultaneously and, if necessary, in two different surgical fields, e.g., in cardiac surgery, in preparation of the leg vein with only a small coagulation portion and simultaneous preparation of the mammary artery or in the field of breast surgery, for contactless surface coagulation with minimal depth effect and carbonization.

KLS martin GROUP

English

maXium® smart C

maxium® smart C Electrosurgical Unit with maxium® smart Beam

Instructions for Use

NRTL certification mark

CE 0297

Valid from software version V1.22

REF 90-046-52-10
Revision 11
Date of Release: 2023-11

www.klsmartin.com

6.2. Ekranas

e **i** **m** socket modules

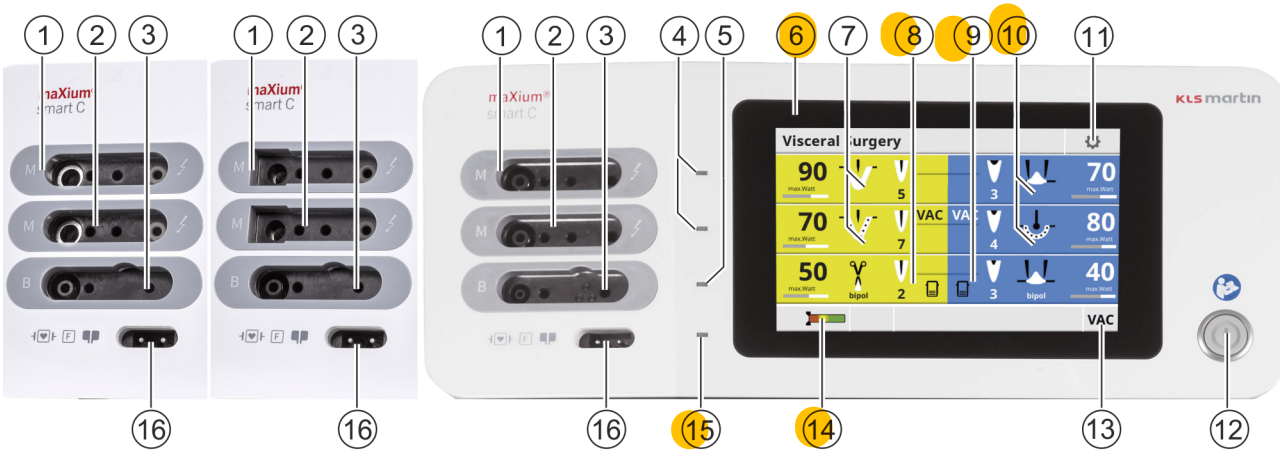


Fig. 6-1: *maxium® smart C with e, i and m socket modules*

Symbols on maxium® smart C: Refer to “Symbol Explanation”, page 2.

1 M Monopolar HF output port 1

2 M Monopolar HF output port 2

3 B Bipolar HF output

4 Activation indicators for monopolar HF output ports

5 Activation indicators for bipolar HF output port

6.2. 6 Touchscreen Lietimui jautrus (jutiklinis) ekranas

6.2. 7 Channel display Cutting for monopolar HF output ports Kanalo ekranas monopolinių AD (aukšto dažnio) išvesties prievadų pjovimas

6.2. 8 Channel display Cutting for bipolar HF output port Kanalo ekranas bipolinių AD (aukšto dažnio) išvesties prievadų pjovimas

6.2. 9 Channel display Coagulation for bipolar HF output port Kanalo ekranas bipolinių AD (aukšto dažnio) išvesties prievadų koaguliacija

6.2. 10 Channel display Coagulation for monopolar HF output ports Kanalo ekranas monopolinių AD (aukšto dažnio) išvesties prievadų koaguliacija

11 Selection **Service/Setup**

12 **ON/OFF** key

13 Screen “smoke evacuator (VAC) connected”

6.2. 14 NE indicator Neutralaus paciento elekrodo indikatorius

6.2. 15 Status indicator for neutral electrode Neutralaus paciento elekrodo prijungimo būsenos indikatorius

16 Socket for neutral electrode

17 Connection for mains cable

18 Connection for single-pedal foot switch

19 Connection for double-pedal foot switch

20 Connection for USB

21 Speakers

22 Type plate

23 Unlock device

24 Connection for MCB

25 Connection for maxium® smart Beam

26 Connection for bonding

- After any repositioning of the patient, the neutral electrode and its connection must be controlled for proper attachment.
- For applications with high power and long activation times, such as TUR-P and endometrium ablation, it is strongly recommended to use monitored adhesive two-piece electrodes.
- Do not apply the neutral electrode above implants or other metal parts, nor above bone protrusions or scarred tissue. If necessary, prepare the application site by cleaning and degreasing it; strong hair-growth is to be removed. For removal do not use substances (e.g. alcohol) that desiccate the skin.
- Do not use adhesive electrodes whose gel layer is injured, nor adhesive electrodes that have been detached. 2nd or 3rd degree burns might result. The cable clip for the connection of the adhesive electrode must cover the gel-free connector straps so that they cannot come into contact with the patient. Make sure that the cable clip and the connector straps match.
- For removal of the neutral electrode, do not pull at the cable or the connector strap. Quick removal of adhesive electrodes may hurt the skin.
- When using a Baby-NE or capacitive neutral electrode, making the corresponding selection in the sub-menu is obligatory.

An explanation for better understanding of these rules is provided in section 5.1 “Risks from Stray Currents”, page 20, and in section 5.2 “Risks from Current Concentration”, page 23.

9.5.2 KLS Martin Patient Control System (PCS) KLS Martin Paciento kontrolės sistema

Correct application of the neutral electrode is of particular importance. The maxium® smart C can be used both with single-piece and with monitored two-piece electrodes.

The Patient Control System (PCS) by KLS Martin is a tried and tested system for monitoring the connection and body contact of neutral electrodes. The PCS automatically detects whether a connected neutral electrode is single-piece or two-piece; user input is not required.

Monitoring of the quality of contact and confirmation via the indicator are possible only in case of split neutral electrodes (as well as Baby NE or Twin Pad II). Non-split neutral electrodes cannot be monitored; there is only an insertion detection on the device that informs the user that an instrument is connected.

The status of the neutral electrode is indicated by a light (15, Fig. 6-1) next to the NE connection socket, as well as in the lower left corner of the screen. If no neutral electrode is connected, the light at the socket will be flashing red, while the screen shows the representation of a red neutral electrode, and next to that an indicator representing the application state of the neutral electrode as a variable signal (only in case of split preselection of a neutral electrode). This indicator can be shut off if desired, see section 10.6.4 “Neutral electrode”, page 72. In this condition no monopolar HF current can be activated. When an attempt is made to activate an HF current, an intermittent acoustic warning signal is sounded and a message displayed in the status line of the screen.

6.2. Neutralaus elektrodo būsena rodoma

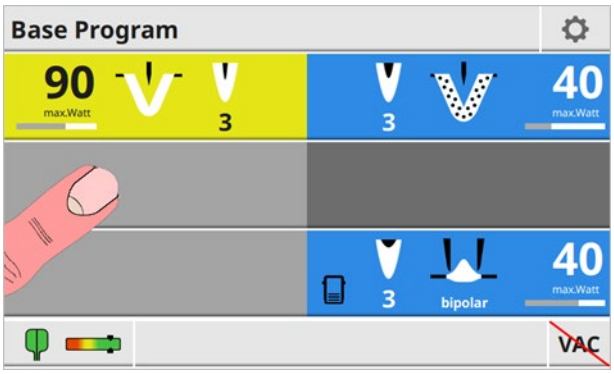
10 Using the maxium® smart C maxium Smart C naudojimas

10.1 General Information

To each instrument connection, on the screen a cutting channel as a yellow field and a coagulation channel as a blue field are assigned in horizontal direction. All settings of the device for clinical day-to-day operation are done via the touchscreen. Further adjustments which will generally be made only once for the intended workplace and rarely changed, are available in the **Setup** and **Service** menus, see section 10.6.8 “Service”, page 78. In daily routine, the parameters of the unit for a specific application are selected quickly and easily using pre-defined programs, which can then be modified or extended on a case-by-case basis as needed.

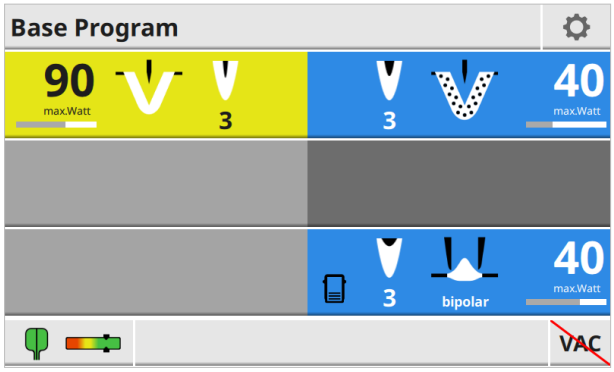
6.2.

10.2 Selection and Deselection of Working Channels Darbinių kanalų pasirinkimas ir atšaukimas



If there is no cutting or coagulation function assigned to a channel, this part is displayed on the screen as a gray field. If the user touches the gray field at any position, it is activated, and the parameters can be adjusted accordingly.

In order to improve the clarity of the screen layout, channels not required for the current application can be deselected. For this purpose, touch the corresponding area on the screen for at least 2 s. The channel display of the corresponding channel disappears from the screen and is replaced by a gray area. Thus up to five of the six channels can be deselected. This approach is especially recommended when working with programs that are tailored to very specific applications.



Deselection of an HF output port that is not used makes it much clearer to which of the two monopolar HF output ports an instrument for a specific application is to be connected (in the example: to the upper of the two HF output ports)

When attempting to activate a deselected channel with its activation source, the gray channel will display a message, accompanied by an intermittent acoustic signal. The HF current itself is disabled. To use the deselected channel again, touch the corresponding area on the screen to activate it. The maxium® smart C is equipped with an insertion detection, i.e. if a channel is activated via a foot switch and no instrument is inserted, a message is displayed on the screen that informs the user that no instrument is inserted into the channel that has been assigned to the foot switch.

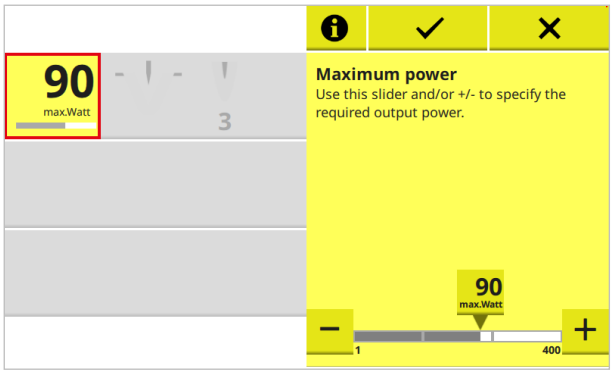
6.2. 10.3 Setting the Values for the Working Channels Darbinių kanalų verčių nustatymas

The channel fields are used for

- selecting the HF output power, page 59, pasirenkama AD (aukšto dažnio) išėjimo galia
- selecting the current, page 59, pasirenkama srovė
- in the case of argon-supported currents also for setting the gas flow, page 60
- setting of the effect, page 60, pasirenkamas galios efektas
- selection of the activation type/foot switch, page 60, pasirenkamas aktyvacijos tipas/ kojinis
- selection and setting of the smoke evacuator power, page 62.

The channel fields are selected by pressing the respectively corresponding field.

6.2. 10.3.1 Setting the HF Output Power pasirenkama AD (aukšto dažnio) išėjimo galia

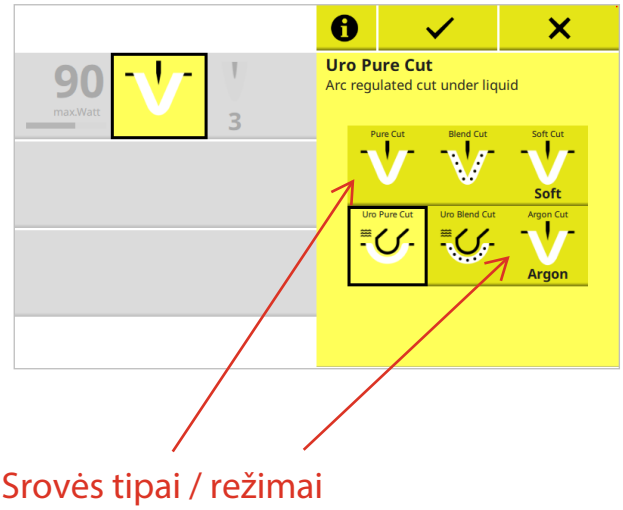


After selection of the Power value field, this field is displayed with a red frame. Next to it, a window opens, in which the **Maximum power** can be adjusted using a slider and/or the **+/-** buttons. Below the number for the power setting there is a horizontal bar indicating the power relative to its maximum value. This indicator is not linear.

- Any adjustment can be confirmed by tapping the check mark or canceled by tapping the cross.

6.2. 10.3.2 Selecting the current Pasirenkama srovė

The maxium® smart C is equipped with various current types for monopolar and bipolar applications, for cutting and coagulation, depending on the application and instrument.
The individual icons indicate the differences in performance in form of the dots (more dots stand for increased coagulation) and the type of instrument to be used (e.g. cutting loop of a resectoscope).



Srovės tipai / režimai

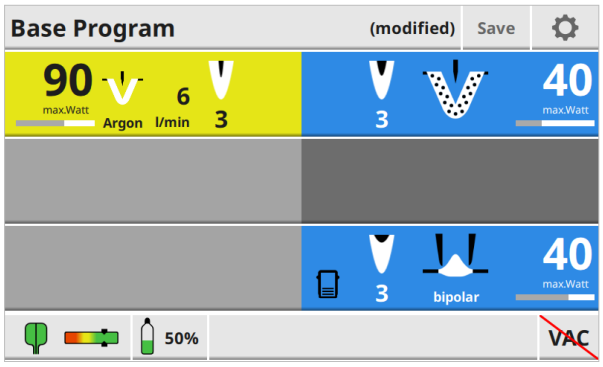
After selection of the Current type field, this field is displayed with a red frame. Next to it, a window opens, in which another **Current type** can be specified by selecting the corresponding icon. Outline the selected current type in black.

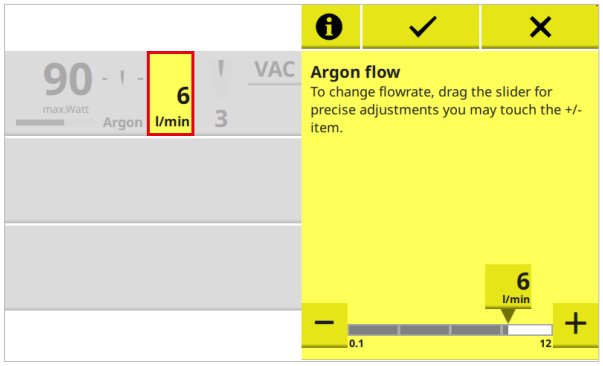
- Confirm the selection by pressing the checkmark, or cancel by pressing the cross.

For argon-supported current types, additionally the gas flow must be adjusted, see section 10.3.3 “Setting the Gas Flow”, page 60.

Each current type has a default value for the **Maximum power** and **Effect** stored, which will be used when the selection of the current type is confirmed. If these default values are changed, they must be subsequently changed separately.

10.3.3 Setting the Gas Flow





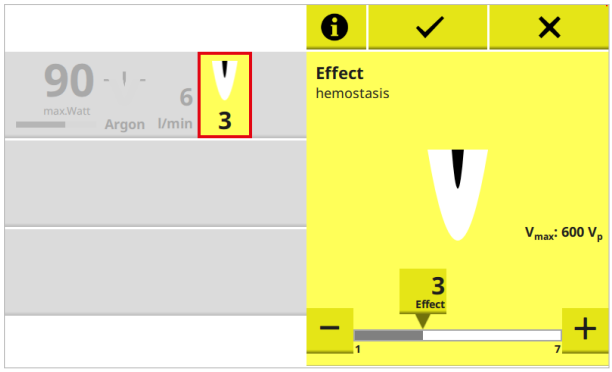
After selection of an argon-supported current type, a field is displayed on the right-hand side of the current type, in which the specified **Gas flow** is displayed.

After selection of this field, a window opens, in which the gas flow can be adjusted using the slider and/or the **+/-** buttons.

- Confirm the modified setting by pressing the checkmark, or cancel by pressing the cross.

6.2. 10.3.4 Setting the Effect Galios efekto pasirinkimas

The performance of the maxium® smart C can be changed via setting the **Effect**. For this purpose, there are several **Effect** settings for all current types, which result in different degrees of hemostasis, regardless of the selected power. When the **Effect** is being adjusted, the corresponding voltage values and the change in hemostasis are displayed in a diagram.



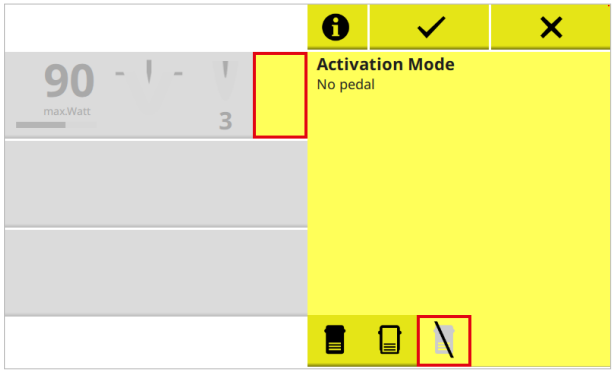
After selection of the Effect field, this field is displayed with a red frame. Next to it, a window opens, in which the **Effect** can be adjusted using the slider and/or the **+/-** buttons.

- Confirm the modified setting by pressing the checkmark, or cancel by pressing the cross.

6.2. 10.3.5 Selecting the Activation Type/Foot Switch Aktyvacijos tipo pasirinimas

The maxium® smart C can be activated via finger switches on the instrument, via foot switches, and for bipolar coagulation currents also automatically. While each finger switch is always unambiguously assigned to the channel to which its instrument is connected, foot switches must first be assigned to a channel by the user.

Two foot switches can be connected to the maxium® smart C, a double-pedal foot switch with a yellow pedal for cutting and a blue pedal for coagulation, as well as a single-pedal foot switch with a neutral black pedal.



After selection of the field next to the **Effect**, this field is displayed with a red frame. Next to it, a window opens, in which the **Activation Mode** for this current type can be selected:

- Left field: Single-pedal foot switch, black pedal
- Central field: Double-pedal foot switch, yellow pedal
- Right field: No foot switch, activation possible only via finger switch.

- Confirm the selection by pressing the checkmark, or cancel by pressing the cross.

If a foot switch assigned before is re-assigned in this process, it is removed from the previously assigned channel.

The following **Activation Modes** are available:

Monopolar cutting:

- using the finger switch
- using the yellow pedal
- using the black pedal

Monopolar coagulation:

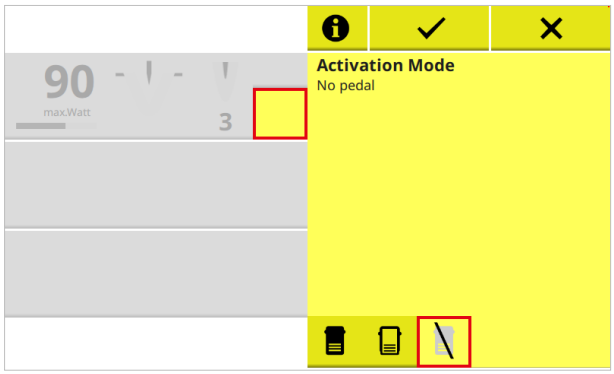
- using the finger switch
- using the blue pedal
- using the black pedal

Bipolar cutting:

- using the finger switch
- using the yellow pedal
- using the black pedal

Bipolar coagulation:

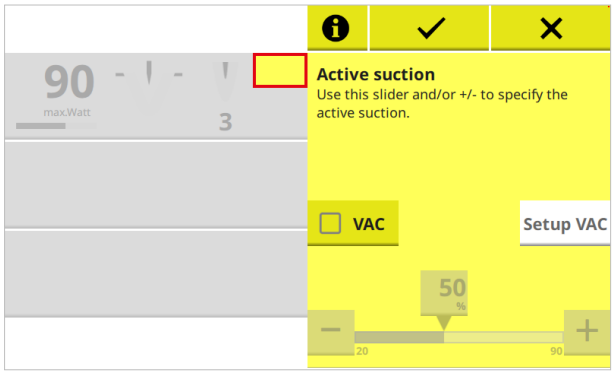
- using the finger switch
- using the blue pedal
- using the black pedal
- using auto start function without time delay
- using auto start function and time delay



If a smoke evacuator is connected, the area next to **Effect** is split, and the **Activation Mode** is selected in the lower part of the field.

10.3.6 Selection and Setting of the Smoke Evacuator Power

If a combination with a Vac (smoke evacuator) is available, its active suction power can be adjusted via quick access.



After selection of the field on the right of **Effect** and above **Activation Mode**, a window opens (the field is available only if a smoke evacuator is connected). This window is used to adjust the **Active suction** using the slider and/or the **+/-** buttons.

Furthermore, in this menu window the Vac for the channel can be disabled completely, or the setup of the Vas can be opened.

- Confirm a modified setting by pressing the checkmark, or cancel by pressing the cross.

Activation of HF power will cancel the operation, since availability of HF energy for the surgeon enjoys higher priority than adjustment of device parameters.

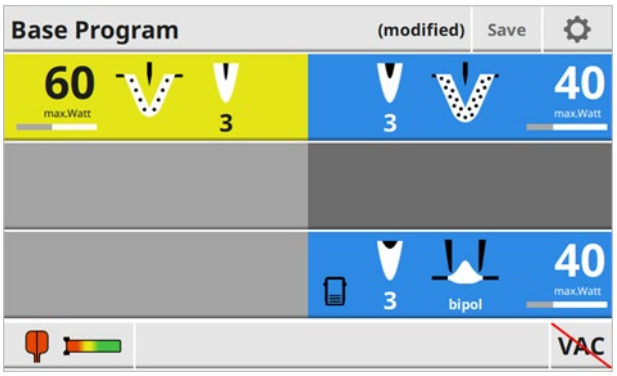
6.2.

10.5 Program settings Programos pasirinkimas

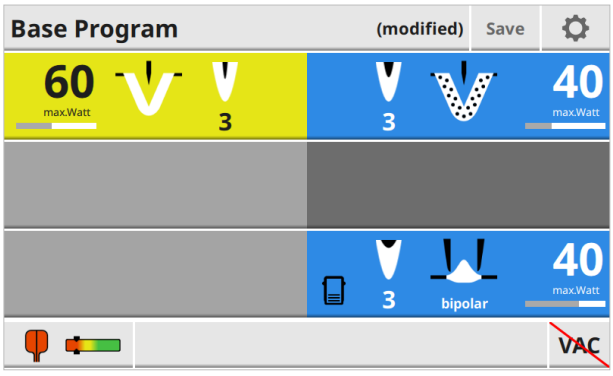
Setting each channel parameter before the operation is time-consuming due to the variety of options and carries the risk of operating errors. Therefore, such settings, called programs, will be saved under a name in the unit. Up to 50 such programs can be stored in the maxium® smart C. By factory default, there are already some programs saved which are denoted with applications for which they are particularly suitable. The operator can use, modify and save or delete these programs or create custom programs.

10.5.1 Base program Bazinė programa

The maxium® smart C can be set to automatically start with the base program upon activation.



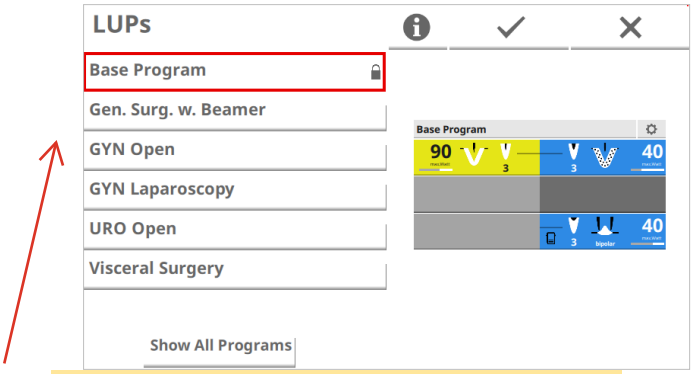
The settings of the **Base Program** can be changed, like those of every other program. In case of a deviation from the basic setting, the addition “modified” will appear suffixed to name in the status line on the screen, and “Save” will appear next to it. This modification, however, cannot be saved in the **Base Program**, as this is read-only. If the modifications are to be saved permanently, then the modified program must be saved under a new name, see section 10.5.4 “Saving a program under a new name”, page 66.



The **Base Program** cannot be deleted or overwritten.

With the function **Power-up with Base Program**, the **Service** menu offers the option of setting up the unit so that upon start-up the **Base Program** appears, rather than the last-used program. Here the settings of the base program can be changed as well, if this is explicitly desired. The procedure is described in the maxium® smart C Service Manual.

6.2. 10.5.2 Selecting Programs Programų pasirinkimas



Rodomos visos programos

There are two ways to select and activate a program stored in the unit:

- via the list of recently used programs
- via the **Program settings** menu

Selection via the list of recently used programs (LUPs):

- Press the current program name.
- The List of LUPs is displayed on the left side of the screen.
- Mark the desired program and confirm by tapping the check mark.

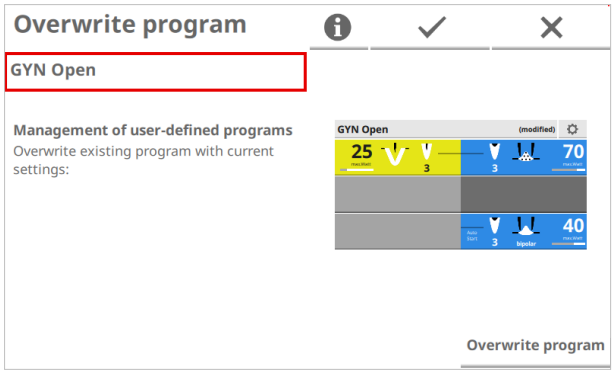
The settings of the program are applied on the screen.

Selection via the **Program settings** menu:

- Press the symbol to open the **Setup**
- Press **Program settings**
- Press **Select program**
- Press **Show All Programs**
- The list of all programs appears in alphabetical order
- Find the desired program by moving the scrollbar or wiping over the program names
- Select the program by pressing it
- Confirm by pressing the check mark

As soon as a program has been selected, a preview of the channel fields with the settings for this program is displayed on the right side.

6.2. 10.5.3 Saving modified programs Modifikuotų programų išsaugojimas



Changes made to a program can be made permanent.

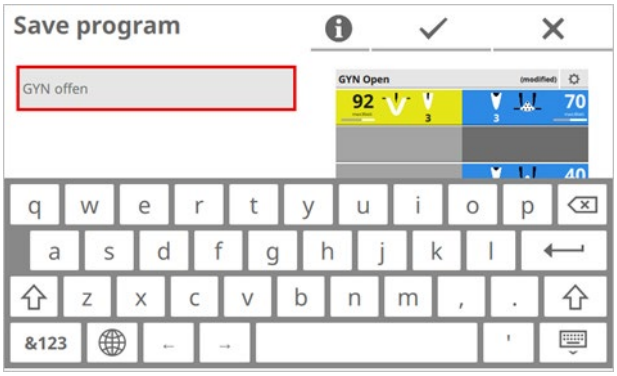
- Press **Save**
- Confirm by tapping the **check mark** or the **Return** button

or:

- Press the symbol to open the **Setup**
- Press **Program settings**
- Press **Overwrite program**
- Confirm by tapping the **check mark** or **Overwrite program**

The base program and programs with the “padlock” icon can be neither deleted nor overwritten. Changes can only be saved under a different program name, see section 10.5.4 “Saving a program under a new name”, page 66.

6.2. 10.5.4 Saving a program under a new name Programos išsaugojimas nauju pavadinimu



If a setting is to be saved as an independent program, this setting must be given a new name.

- Press **Save**
- Enter the new name
- Confirm by tapping the **check mark** or the **Return** button

or:

Press the symbol to open the **Setup**

- Press **Program settings**
- Press **Programming settings**
- Press **Save as**
- Enter the new name
- Confirm by tapping the **check mark** or the **Return** button

11 Currents, their Properties and Technical Data

11.1 Monopolar Cutting Currents Monopolinės pjovimo srovės

Pure Cut 6.4.

Pure Cut yra pjovimo srovė su maža koaguliacijos dalimi. Kadangi pjūvio kraštai koaguliuojami tik silpnai, atsiranda silpnas hemostatinis poveikis. Rezultatas yra vadinamasis „švarus pjūvis“, kuris labiausiai panašus į klasikinį pjovimą skalpeliu ir skatina žaizdų gijimą. Naudojant efekto nustatymą, galima keisti įtampą ir taip šiek tiek keisti hemostatinį poveikį.

Pure Cut is a cutting current with a low proportion of coagulation. Since the edges of the cut are coagulated only weakly, a low hemostatic effect results. A so-called “clean cut” results, which comes most closely to the classic scalpel cut and favors wound healing. Using the **Effect** setting, the voltage can be changed and thus the hemostatic effect slightly varied.

This current is equipped with a cutting effect regulation adapted to the power settings and varying commensurately with them. Thus always consistent cutting results are achieved, independent of cutting depth. The delivered power will usually be well below the selected power level, which is to be understood only as setting with power reserve. However, the selected power will never be exceeded.

⚠WARNING

Risk of injury due to failure of power control! Pure Cut srovės išėjimo galia gali būti nustatyta iki 400 W.

6.4. The output power of the Pure Cut current can be set to up to 400 W. At a power of more than 150 W, the risks of burns described in section 5.1, 5.2 and 5.3 will increase. The safety measures described therein shall be applied with increased diligence.

When using large-surface capacitive neutral electrodes that do not have direct contact to the patient’s body, the cutting effect regulation will not work. As a result, the current type is not available when selecting the Mega Soft NE.

Active accessories to be used with this current must be able to withstand an HF voltage of at least 1,100 V_p (depending on the selected **Effect**).

Technical Data

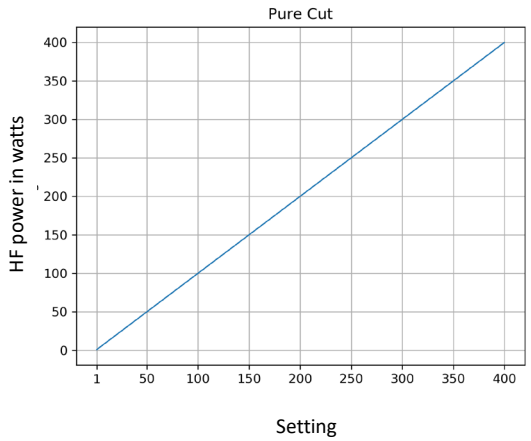
6.4.

Galios nustatymo diapazonas:

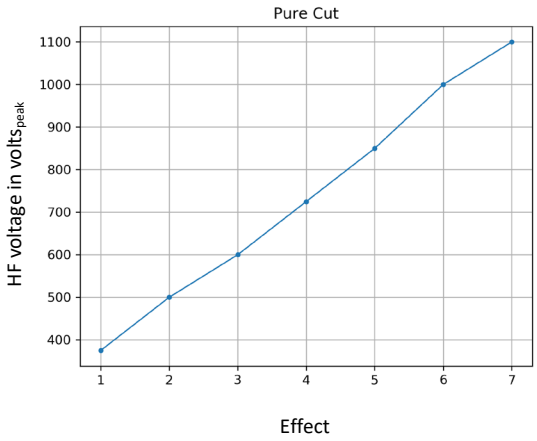
Power setting range:	1–400 W at 500 Ω
Max. periodic HF output voltage:	1,100 V_P at maximum **Effect** setting
Fundamental frequency:	404 kHz
Crest factor:	1.5
HF output current at rated load:	875 mA at maximum **Effect** setting

Output curves

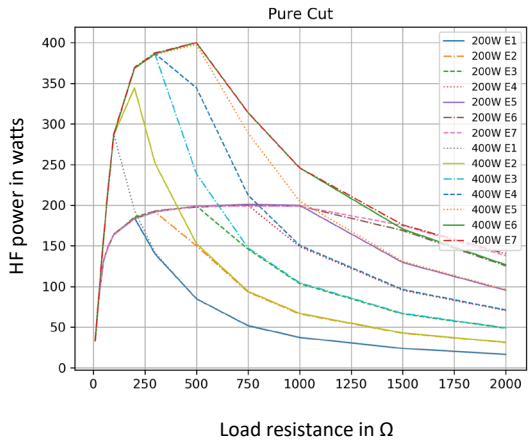
Output power versus set power



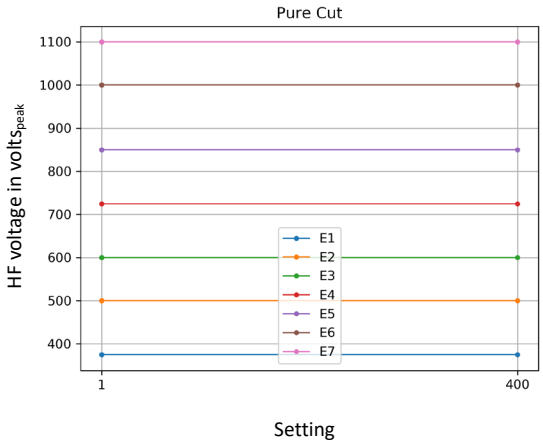
Repetitive peak output voltage versus set Effect



Output power versus resistance at 50% and 100% of max. power setting



Repetitive peak output voltage versus set power



Endo-Mode ENDO režimas 6.5.

Endo režimas yra specifinis srovės tipas polipektomijai / papilotomijai.

Endo-Mode is an application-specific type of current for polypectomy/papillotomy. It is used for bloodless resection of small or stalked polyps using a polypectomy loop and for bloodless incision using a fistulotomy device or needle knife. The repetition frequency of the incision pulse is always constant and cannot be adjusted. The duration of the incision pulse and therefore the incision width can be varied by using the **Effect** setting. The maximum average power that can be applied is selected by using the **Power** setting. A higher power setting tends to lead to an incision with a lower coagulation effect.

Pjūvio impulso pasikartojimo dažnis visada yra pastovus ir jo negalima reguliuoti.

⚠CAUTION

Risk of injury from excessive current density!

When removing polyps from the intestinal wall, there is a risk of local coagulation necrosis caused by excessive current density when HF current is used.

Make sure that the parts that make up the active electrode of the instrument do not come into contact with other metallic instruments. The incision pulses contain high output power for a short time.

When using pulsed incision, the yellow footswitch pedal should be kept pushed down for the entire duration of activation. **Do not push the pedal repeatedly!**

Active accessories to be used with this current must be able to withstand an HF voltage of at least 1,000 V_p.

⚠CAUTION

Danger of injury by operating errors!

Make sure that the parts that make up the active electrode of the fistulotomy device or needle knife do not come into contact with other metallic instruments, particularly not with the edge of the endoscope from whose working channel the fistulotomy device or needle knife protrudes.

When using pulsed incision, the yellow footswitch pedal should be kept pushed down for the entire duration of activation. **Do not push the pedal repeatedly!**

Active accessories to be used with this current must be able to withstand an HF voltage of at least 1,000 V_p.

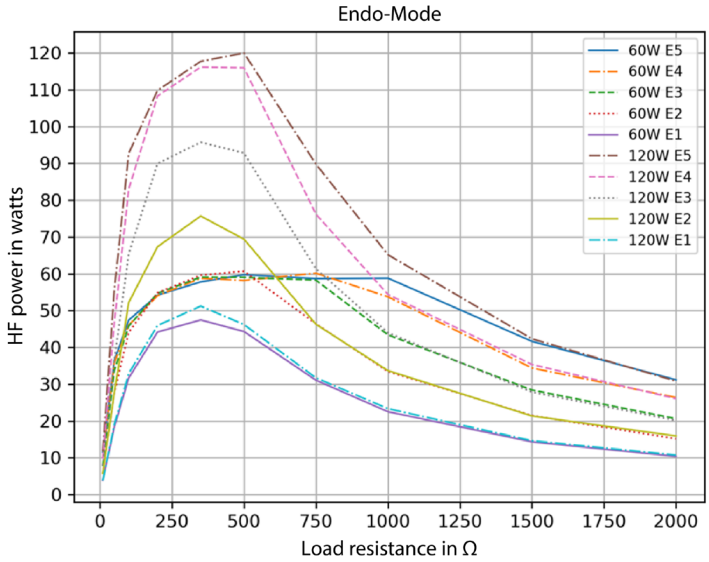
Technical Data 6.5.

Galios nustatymo diapazonas:

Power setting range:	1 – 120 W at 500 Ω
Max. periodic HF output voltage:	1.000 V_P
Fundamental frequency:	404 kHz
Crest factor:	1.5
HF output current at rated load:	490 mA

Output curves

Output power depending on resistance. The diagram shows averaged power values



11.2 Monopolar Coagulation Currents Monopolinės koaguliacijos srovės

Forced Clamp

The Forced Clamp coagulation current type is preferably applied indirectly via surgical instruments (e.g. hemostat, surgical forceps) for hemostasis. The needle, knife or lancet electrode of the electrode handle is brought into contact with the surgical instrument for activation (recommendation: first bring the active electrode into contact with the surgical instrument, only then start HF activation). Application is also possible directly via ball or paddle electrodes of the electrode handle. The current penetrates deep into the tissue, resulting in volume coagulation. If the instrument or electrode is only slightly in contact with the tissue, by design some sparking between the tissue and the electrode will be observed. Thus the tissue at the point of contact will be strongly desiccated; slight tissue carbonization will take place. Due to quickly occurring coagulation, the effective depth is limited. Using the **Effect** setting, the voltage can be changed and thus the hemostatic effect slightly varied.

The user himself determines the degree of coagulation by the duration of the activation.

Basically, under the condition that the same amount of HF energy is required the following apply:

- Low penetration:
  Short application time and correspondingly high HF output power
- Deep penetration:
  Long application time and correspondingly low HF output power

---

⚠CAUTION

Risk of injury from excessive power!

In case of indirect application via a hand-held instrument, this should be insulated so as not to expose the surgeon to the HF voltage transmitted directly from the active electrode to the instrument. Despite common practice it must be kept in mind that the surgical glove is no defined electrical insulation, and arcing may occur.

Active accessories to be used with this current must be able to withstand an HF voltage of at least 1,475 V_p (depending on the selected **Effect**).

Forced Prep

Monopolinė koaguliacijos srovė

6.7.

Forsuota koaguliacijos srovė Forced Prep veikia koaguliaciją greičiau.

In comparison to the Forced Clamp current, the forced coagulation current Forced Prep effects coagulation more quickly. This makes this current suitable for preparation, since despite its dominant coagulation it has an effective cutting power. If the instrument or electrode is only slightly in contact with the tissue, by design sparking between the tissue and the electrode will be observed. Thus the tissue at the point of contact will be strongly desiccated; slight tissue carbonization will take place. Due to quickly occurring coagulation, the effective depth is limited. Using the **Effect** setting, the voltage can be changed and thus the hemostatic effect slightly varied.

Basically, under the condition that the same amount of HF energy is required the following apply:

- Low penetration:
  Short application time and correspondingly high HF output power
- Deep penetration:
  Long application time and correspondingly low HF output power

Activation is done via the blue switches (finger or foot).

⚠CAUTION

Danger of injury by operating errors!

In case of indirect application via a hand-held instrument, this should be insulated so as not to expose the surgeon to the HF voltage transmitted directly from the active electrode to the instrument. It must be kept in mind that the surgical glove is no defined electrical insulation for this current, and arcing is indeed likely.

Active accessories to be used with this current must be able to withstand an HF voltage of at least 3,900 V_p (depending on the selected **Effect**).

6.7.

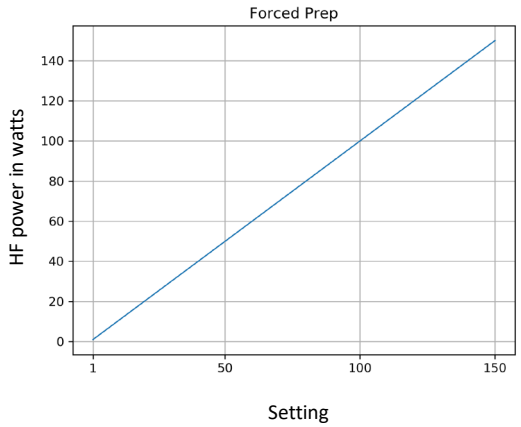
Technical Data

Išėjimo galios nustatymo diapazonas

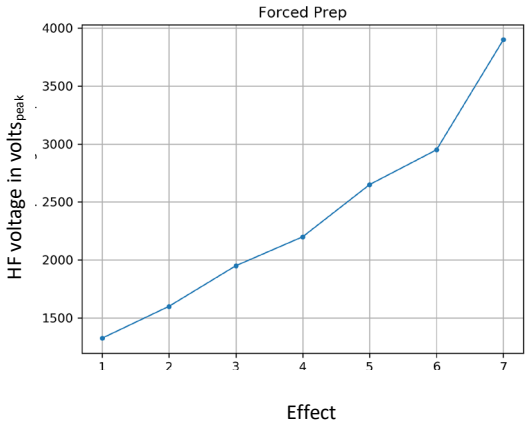
Output power setting range (sum of both outputs):	1–150 W at 1,000 Ω
Max. periodic HF output voltage:	3,900 V_P at maximum **Effect** setting
Fundamental frequency:	404 kHz
Crest factor:	3.1 – 5.5
HF output current at rated load:	385 mA at maximum **Effect** setting

Output curves

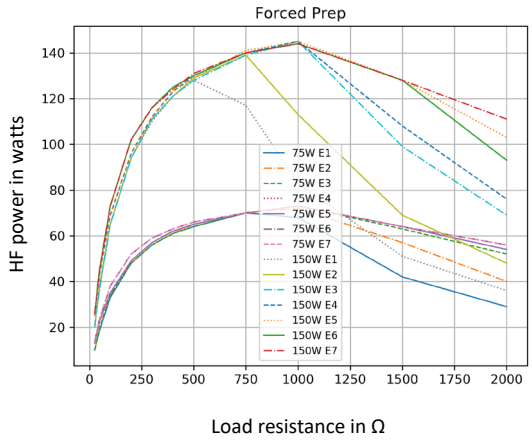
Output power versus set power



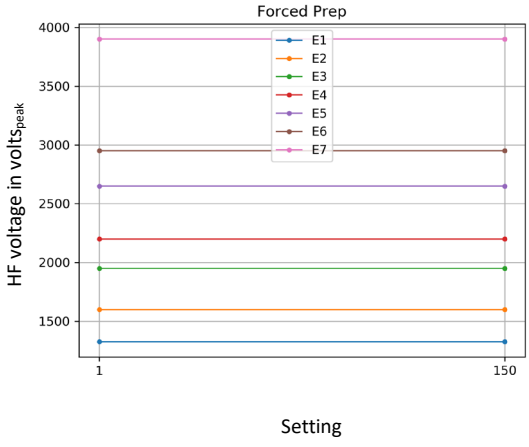
Repetitive peak output voltage versus set Effect



Output power versus resistance at 50% and 100% of max. power setting



Repetitive peak output voltage versus set power



Contact Coag

Monopolinė koaguliacijos srovė

6.6.

„Švelni“ „Contact Coag“ krešėjimo srovė pageidautina tiekiama per rutulinius arba mentinius elektrodus hemostazei.

The “gentle” Contact Coag coagulation current is preferably applied via ball or paddle electrodes for hemostasis. The current penetrates deep into the tissue, resulting in volume coagulation. The user himself determines the degree of coagulation by the duration of the activation. Using the **Effect** setting, the voltage can be changed and thus the hemostatic effect slightly varied.

Basically, under the condition that the same amount of HF energy is required the following apply:

- Low penetration:
  Short application time and correspondingly high HF output power
- Deep penetration:
  Long application time and correspondingly low HF output power

---

⚠ CAUTION

Risk of injury from excessive power! „Contact Coag“ srovės išėjimo galia gali būti nustatyta iki 200 W.

6.6. The output power of the Contact Coag current can be set to up to 200 W. At a power of more than 150 W, the risks of burns described in section 5.1 and 5.2 will increase. The safety measures described therein shall be applied with increased diligence.

Active accessories to be used with this current must be able to withstand an HF voltage of at least 875 V_p (depending on the selected **Effect**).

6.6.

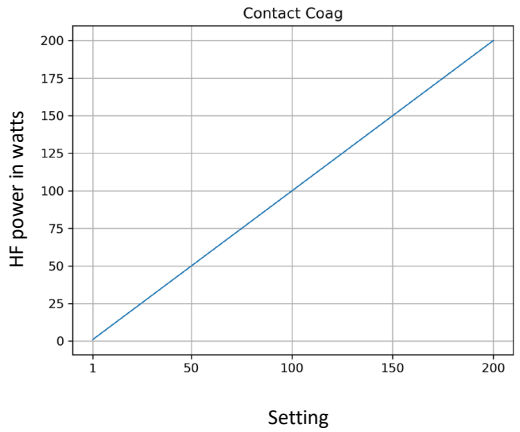
Technical Data

Galios nustatymo diapazonas:

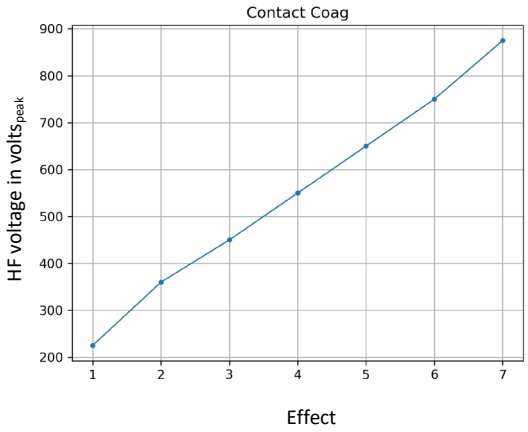
Power setting range:	1–200 W at 350 Ω
Max. periodic HF output voltage:	875 V_P at maximum **Effect** setting
Fundamental frequency:	375 kHz
Crest factor:	1.5 – 2.9
HF output current at rated load:	775 mA at maximum **Effect** setting

Output curves

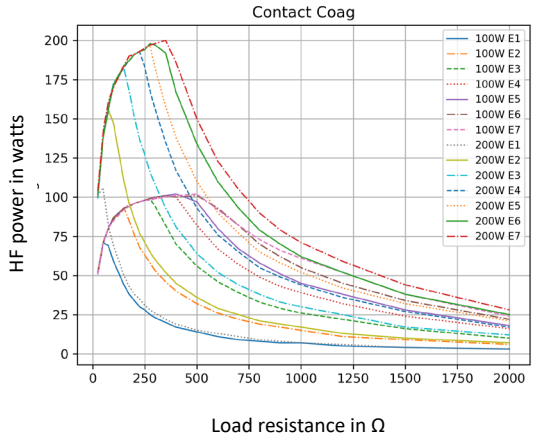
Output power versus set power



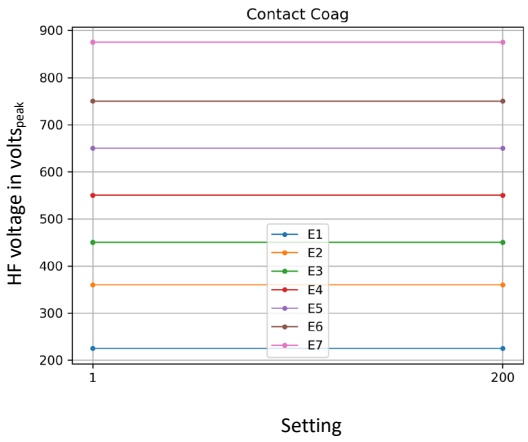
Repetitive peak output voltage versus set Effect



Output power versus resistance at 50% and 100% of max. power setting



Repetitive peak output voltage versus set power



11.4 Bipolar Coagulation Currents Bipolinės koaguliacijos srovės

BiCoag 6.8.

BiCoag yra atviros chirurgijos ir laparoskopijos srovė su bipoliniais pincetais.

BiCoag is a current for open surgery and laparoscopy with bipolar forceps. BiCoag can be selected using a foot switch, automatic start or automatic start with time delay; for further information, refer to section 9.7 “Automatic Functions of Bipolar Coagulation”, page 56. Using the **Effect** setting, the voltage can be changed and thus the hemostatic effect slightly varied.

Basically, under the condition that the same amount of HF energy is required the following apply:

- Low penetration:
  Short application time and correspondingly high HF output power
- Deep penetration:
  Long application time and correspondingly low HF output power

The start delay for **Auto Start** can be varied, see section 10.3.5 “Selecting the Activation Type/Foot Switch”, page 60.

NOTICE

Risk of material damage!

When placing the instrument into **Auto-start** mode, ensure that the instrument tip does not come into contact with any cloths soaked in water or any metal objects.

⚠ CAUTION

Danger of injury by operating errors!

For laparoscopic/endoscopic applications, the instrument may not be used in auto-start mode. For further information, refer to section 9.7 „Automatic Functions of Bipolar Coagulation“, page 56, and section 5.7.1 „Inadvertent emission of HF current“, page 32.

Arcing can occur in case of bipolar electrodes arranged in relative close vicinity. Arcing can occur especially when lifting up the instrument while a current or the generator is active and there is no contact to tissue/liquid.

Active accessories to be used with this current must be able to withstand an HF voltage of at least 300 V_p (depending on the selected **Effect**).

Technical Data

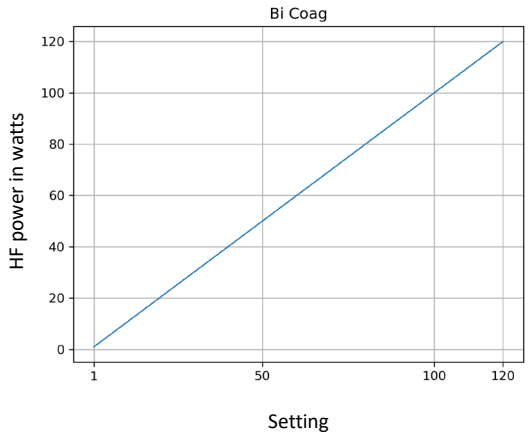
6.8.

Galios nustatymo diapazonas:

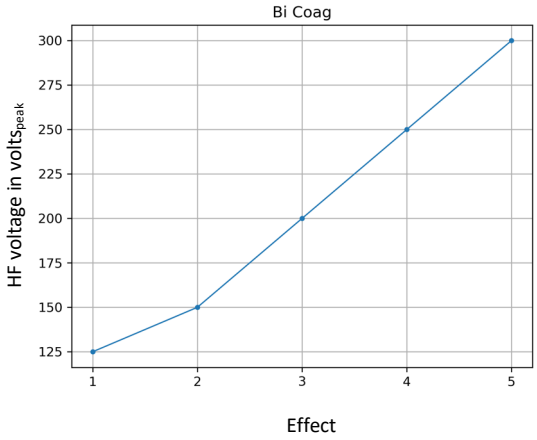
Power setting range:	1–120 W at 50 Ω
Max. periodic HF output voltage:	300 V_P at maximum **Effect** setting
Fundamental frequency:	457 kHz
Crest factor:	1.5
HF output current at rated load:	1.52 A at maximum **Effect** setting

Output curves

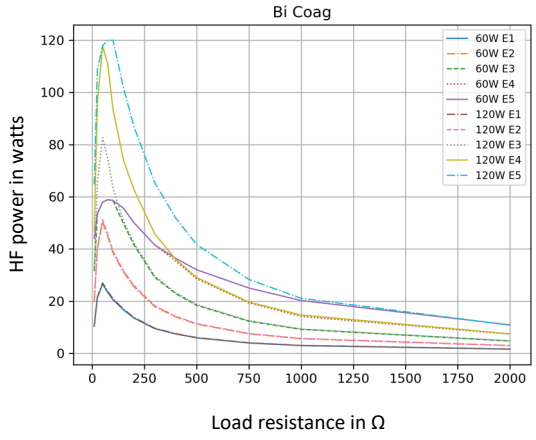
Output power versus set power



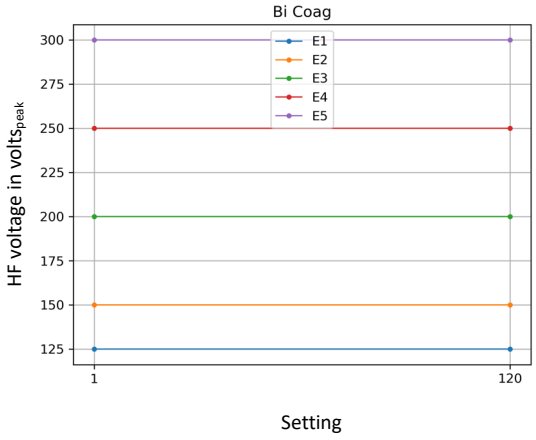
Repetitive peak output voltage versus set Effect



Output power versus resistance at 50% and 100% of max. power setting



Repetitive peak output voltage versus set power



KLS martin GROUP

PRIEDAI (KOMPLEKTACIJA)

Zubehör für die Hochfrequenzchirurgie
Accessories for Electrosurgery
Accesorios para la electrocirugía
Accessoires électrochirurgicaux
Accessori per elettrochirurgia

Electrosurgery

Neutralūs elektrodai

80-342-07-04

Twin-Pad II – Zweiflächen-Neutralelektrode, Kontaktfläche 200 cm², ohne Anschlusskabel

Twin-Pad II neutral electrode with two contact surfaces (split), contact surface 200 cm², without connection cable

Placa neutral Twin-Pad II con dos superficies, superficie de contacto de 200 cm², sin cable de conexión

Twin-Pad II électrode neutre double, surface de contact 200 cm², sans câble de raccordement

Twin-Pad II piastra neutrale con due superficie, superficie di contatto da 200 cm², senza cavo di connessione

Für die Verwendung der Twin Pad II wird die Verwendung eines Textilbands oder Stützstrumpfs der Kompressionsklasse 1 empfohlen.

When using the Twin Pad II, the use of a textile band or compression class 1 support stocking is recommended.

Durante el uso de Twin Pad II, se recomienda llevar tira auto-adhesiva o una media de soporte de clase de compresión 1.

En cas d'utilisation du Twin Pad II, il est recommandé de porter une bande auto-adhésive ou bas de contention correspondant à la classe de compression 1.

Per l'impiego del Twin Pad II si raccomanda di utilizzare un nastro in velcro o una calza di sostegno della classe di compressione 1.

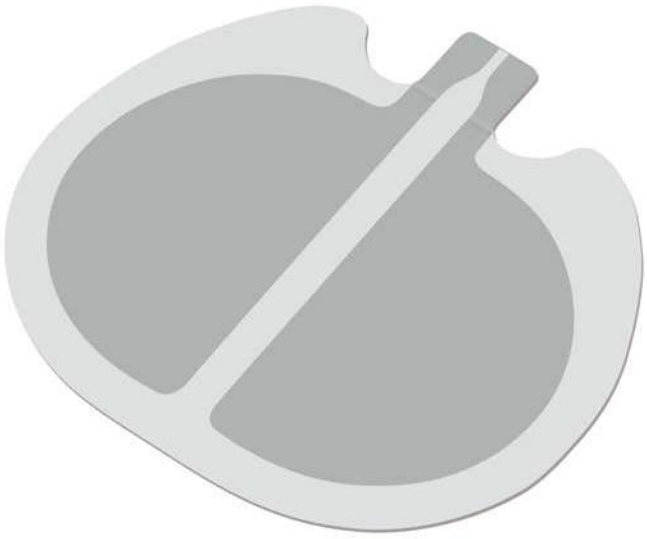
Hinweis:
Diese Neutralelektrode darf nicht mit den HF-Generatoren miniCutter und ME 102 eingesetzt werden!

Notice:
This neutral electrode must not be used with the miniCutter and ME 102 HF generators!

Indicación:
¡Esta placa neutra no debe utilizarse con el generadores de miniCutter y ME 102!

Indication:
Défense d'utiliser cette électrode neutre avec les générateurs HF miniCutter et ME 102!

Avvertenza:
questo elettrodo neutro non può essere usato con il generatori AF miniCutter e ME 102!



Neutralus paciento vienkartinis elektrodas

80-344-09-04 6.10

PCS-DuoSafe-Einmal-Neutralelektrode für Erwachsene und Kinder, geteilte Kontaktfläche 107 cm², ohne Anschlusskabel, 50 Stück/VE

PCS DuoSafe disposable neutral electrode for adults and children, split contact surface 107 cm², without connection cable, 50/pack

Placa neutra desechable tipo PCS DuoSafe con dos partes separadas 107 cm² para adultos y niños, sin cable de conexión, 50 piezas/unidad

Electrode neutre à usage unique type PCS DuoSafe avec deux surfaces de contact séparées 107 cm² pour adultes et enfants, sans câble de raccordement, 50 pièces/unité

Elettrodo neutro monouso tipo PCS DuoSafe con due superfici separate 107 cm² per adulti e bambini, senza cavo di connessione, 50 pezzi/unità

Anschlusskabel für Neutralelektroden
Connection cable for neutral electrodes
Cable de conexión para placas neutras
Câble de raccordement pour électrodes neutres
Cavo di connessione per elettrodi neutri

Neutralių elektrodų pajungimo kabeliai

80-294-40-04
4 m
KLS Martin

80-294-43-04
4 m
maXium® e
Erbe

80-294-44-04
4 m
International

6.11

80-373-00-04*
Textilband mit Klettverschluss, 100 cm, waschbar bei 60 °C
Textile band with velcro strap, 100 cm, washable at 60°C
Tira auto-adhesiva, 100 cm, lavable a 60 °C
Bande auto-adhésive, 100 cm, lavable à 60 °C
Nastro in velcro, 100 cm, lavabile a 60 °C

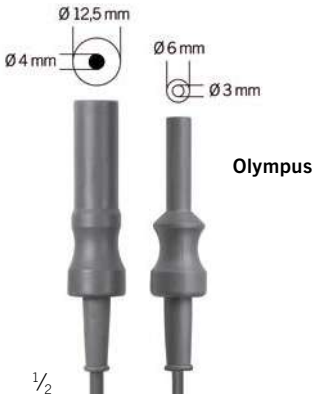
*** Original des Herstellers – Verfügbarkeit in Abhängigkeit von der Zulassungssituation des jeweiligen Marktes**
Original from the manufacturer – availability depending on the approval situation in the respective market
Original del fabricante – disponibilidad en función de la situación de homologación en el mercado respectivo
Original du fabricant – disponibilité dépendant des autorisations obtenues sur le marché correspondant
Originale del produttore – disponibilità in funzione della situazione di omologazione del rispettivo mercato

6

Anschlusskabel und Adapter
Connection cables and adapters
Cables de conexión y adaptadores
Câbles de raccordement et adaptateurs
Cavi di connessione e adattatori

Monopoliniai pajungimo kabeliai

max. 4000 V_p



80-289-40-04
4 m
Großer Koax-Stecker
➔ Instrumente mit 3-mm-Stecker (Olympus)
Large coax plug
➔ instruments with 3-mm plug (Olympus)
Clavija coaxial grande
➔ instrumentos con clavija de 3 mm (Olympus)
Grande fiche coax
➔ instruments avec fiche de 3 mm (Olympus)
Spina coassiale grande
➔ strumenti con spina da 3 mm (Olympus)

6.12.

83-120-50-04
5 m
Großer Koax-Stecker
➔ Instrumente mit 4-mm-Stecker
Large coax plug
➔ instruments with 4-mm plug
Clavija coaxial grande
➔ instrumentos con clavija de 4 mm
Grande fiche coax
➔ instruments avec fiche de 4 mm
Spina coassiale grande
➔ strumenti con spina da 4 mm

80-285-50-04
5 m
Großer Koax-Stecker
➔ Isolit-Pinzetten
Large coax plug
➔ Isolit forceps
Clavija coaxial grande
➔ pinzas Isolit
Grande fiche coax
➔ pinces Isolit
Spina coassiale grande
➔ pinze Isolit

80-289-42-04
4 m
Erbe Koax-Stecker
➔ instrumente mit 3-mm-Anschluss (Olympus)
Erbe coax plug
➔ instruments with 3-mm socket (Olympus)
Clavija coaxial Erbe
➔ instrumentos con conexión de Ø 3 mm (Olympus)
Fiche coax Erbe
➔ instruments avec prise de Ø 3 mm (Olympus)
Spina coassiale Erbe
➔ strumenti con presa da Ø 3 mm (Olympus)

83-122-60-04
6 m
Erbe Koax-Stecker
➔ instrumente mit 4-mm-Anschluss
Erbe coax plug
➔ instruments with 4-mm socket
Clavija coaxial Erbe
➔ instrumentos con conexión de Ø 4 mm
Fiche coax Erbe
➔ instruments avec prise de Ø 4 mm
Spina coassiale Erbe
➔ strumenti con presa da Ø 4 mm

83-122-50-04
5 m
Erbe Koax-Stecker
➔ instrumente mit 4-mm-Anschluss
Erbe coax plug
➔ instruments with 4-mm socket
Clavija coaxial Erbe
➔ instrumentos con conexión de Ø 4 mm
Fiche coax Erbe
➔ instruments avec prise de Ø 4 mm
Spina coassiale Erbe
➔ strumenti con presa da Ø 4 mm

max. 4000 V_p

½

80-285-55-04
4 m
3-Pin-Stecker
➔ Isolit-Pinzetten
3-pin plug
➔ Isolit forceps
Clavija de 3 patillas
➔ pinzas Isolit
Fiche à 3-broches
➔ pinces Isolit
Spina a 3 spire
➔ pinze Isolit

Olympus

½

80-289-41-04
4 m
3-Pin-Stecker
➔ Instrumente mit 3-mm-Stecker (Olympus)
3-pin plug
➔ instruments with 3-mm plug (Olympus)
Clavija de 3 patillas
➔ instrumentos con clavija de Ø 3 mm (Olympus)
Fiche à 3-broches
➔ instruments avec fiche de Ø 3 mm (Olympus)
Spina a 3 spire
➔ strumenti con spina da Ø 3 mm (Olympus)

½

83-120-51-04
5 m
3-Pin-Stecker
➔ Instrumente mit 4-mm-Stecker
3-pin plug
➔instruments with 4-mm plug
Clavija de 3 patillas
➔ instrumentos con clavija de Ø 4 mm
Fiche à 3-broches
➔ instruments avec fiche de Ø 4 mm
Spina a 3 spire
➔ strumenti con spina da Ø 4 mm

6.12

6

½

83-124-50-04
5 m
8-mm-Stecker
➔ MIC-Instrumente mit 4-mm-Anschluss
8-mm plug
➔ MIS instruments with 4-mm socket
Clavija de 8 mm
➔ instrumentos para la cirugía mínima invasiva con conexión de Ø 4 mm
Fiche de 8 mm
➔ instruments pour la chirurgie mini-invasive avec prise de Ø 4 mm
Spina da 8 mm
➔ strumenti per la chirurgia mininvasiva con presa da Ø 4 mm

½

83-124-52-04
4 m
8-mm-Stecker
➔ Isolit-Pinzetten
8-mm plug
➔ Isolit forceps
Clavija de 8 mm
➔ pinzas Isolit
Fiche de 8 mm
➔ pinces Isolit
Spina da 8 mm
➔ pinze Isolit

Kojiniai jungikliai

6.13

80-811-30-04

Doppelpedal-Fußschalter, explosionsgeschützt, AP-geprüft, IP X8, eintauchbar

Double-pedal foot switch, explosion- and anesthetics-proof (AP-tested), IP X8, immersible

Interruptor de pie de doble pedal, antiexplosivo, controlada su aptitud para anestésicos, IP X8, sumergible

Interrupteur à pédale double, anti-explosif, catégorie AP, IP X8, immergeable

Interruttore a pedale doppio, anti-deflagrante, testato AP, IP X8, immergibile

ME 400/200 (nur monopolar, monopolar only, sólo monopolar, monopolaire uniquement, solo monopolare)
ME 401/411 (nur monopolar, monopolar only, sólo monopolar, monopolaire uniquement, solo monopolare)
ME M1/ME MB 1
ME CD1
ME MB 3
ME MB 2
maXium®
maXium® smart C

80-811-32-04

maXium®-SWAP-Mode-Doppelpedal-Fußschalter Eco, AP-geprüft, IP X8, eintauchbar

maXium® double-pedal foot switch with SWAP mode Eco, AP-tested (anesthetics-proof), IP X8, immersible

Interruptor de pie de doble pedal maXium® con modo SWAP Eco, controlada su aptitud para anestésicos, IP X8, sumergible

Interrupteur à double pédale maXium® avec mode SWAP Eco, testé pour anesthésiants, IP X8, immergeable

Interruttore a doppio pedale maXium® con modalità SWAP Eco, a prova di anestetici, IP X8, immergibile

maXium®

maXium® ab HW 06, Software V3.398
maXium® from HW06 and software V3.398
maXium® a partir del HW06 y software V3.398
maXium® à partir de la version matérielle 06, version logicielle V3.398
maXium® versione HW06 o superiore e software V3.398 o superiore
maXium® smart C

80-830-02-04

Einpedalfußschalter, 5 m Kabel, explosionsgeschützt, AP-geprüft, IP X8, eintauchbar

Single-pedal foot switch, 5 m cable, explosion-proof, AP-tested, IP X8, immersible

Interruptor de pie de doble pedal con modo SWAP, cable 5 m, antiexplosivo, controlada su aptitud para anestésicos, IP X8, sumergible

Interrupteur à une pédale câble 5 m, anti-explosif, catégorie AP, IP X8, immergeable

Interruttore monopedale, cavo 5 m, anti-deflagrante, testato AP, IP X8, immergibile

ME 200/400 (nur bipolar, bipolar only, sólo bipolar, bipolaire uniquement, solo bipolare)
ME 401/411 (nur bipolar, bipolar only, sólo bipolar, bipolaire uniquement, solo bipolare)
maXium®
maXium® smart C

Für alle Fußschalter gilt die Kabellänge 5 m
Cable length for all foot switches: 5 m
Todos los interruptores de pedal usan un cable de 5 m de longitud
La longueur de câble de 5 m est valable pour tous les interrupteurs à pédale
Il cavo lungo 5 m è indicato per tutti gli interruttori a pedale

Shanghai Aohua Photoelectricity Endoscope Co., Ltd.
Aohua Endoscopy Building, No.66, Lane133, Guangzhong Road, Minhang District,
Shanghai, P.R. China

MANUFACTURER'S AUTHORIZATION

Date:21.11.2024

Whereas "**Shanghai Aohua Photoelectricity Endoscope Co., Ltd.**" who is established manufacturers of **AOHUA** brand medical devices, with Headquarters at No.66, Lane133, Guangzhong Road, Minhang District, Shanghai, P.R. China, provide the following explanations regarding certain functions of the AQ-300 endoscope system:

1. The AQ-300 endoscope system can create patient accounts, input relevant patient information, and store data for up to 500 patients in its internal storage. 1.9.
2. The AQ-300 endoscope system provides an observation mode under normal white light illumination (Normal mode). 1.2.1.
3. The AQ-300 endoscope system features structural enhancement, edge enhancement, and composite enhancement functions, designed to emphasize and improve different structures and areas within endoscopic images. 1.2.3.
4. The gastrointestinal endoscopes compatible with the AQ-300 endoscope system are equipped with 5 customizable function buttons. 1.5.1.
5. The AQ-300 endoscope system, through its paired touch panel, supports the control of at least 16 related functions, while its connected keyboard allows for the control of 11 functions. 1.5.2.

This statement serves to clarify the aforementioned functionalities of the AQ-300 product.

SHANGHAI PHOTOELECTRICITY ENDOSCOPE CO., LTD 上海奥华内镜股份有限公司

Shanghai Aohua Photoelectricity Endoscope Co., Ltd.
21.11.2024

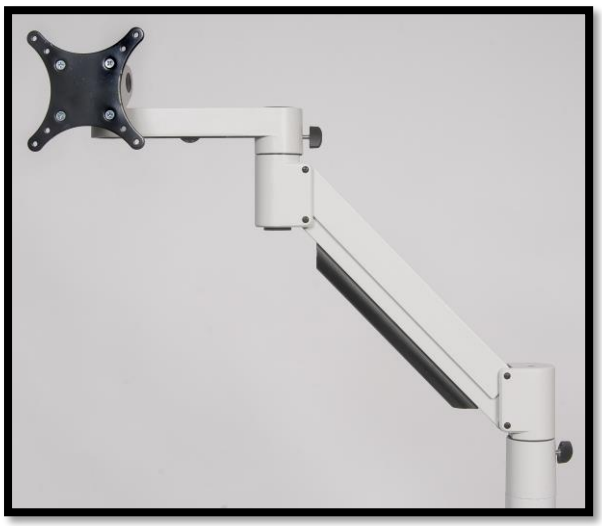
Endocarts International Ltd
55 Vanguard Way
Shoeburyness
Essex, SS3 9QY
United Kingdom
Tel: +44 (0) 1702 842400

16 December 2024

To whom it may concern, 3.1.

On behalf of Endocarts International Ltd, I wish to confirm that our range of articulating arms (part numbers 103922 and 103435) as shown below, are gas spring monitor arms.

P/N: 103922



P/N: 103435

Yours sincerely,

Renato Pichierri
Director
Endocarts International Ltd

Shanghai Aohua Photoelectricity Endoscope Co., Ltd.
Aohua Endoscopy Building, No.66, Lane133, Guangzhong Road, Minhang District,
Shanghai, P.R. China

MANUFACTURER'S AUTHORIZATION

Date:16.12.2024

Whereas "**Shanghai Aohua Photoelectricity Endoscope Co., Ltd.**" who is established manufacturers of **AOHUA** brand medical devices, with Headquarters at No.66, Lane133, Guangzhong Road, Minhang District, Shanghai, P.R. China, provide the following explanations regarding certain functions of the 300 serious endoscope:

The 300 serious endoscope (gastroscopes, colonoscopes, duodenoscope, bronchoscope, Rhino-laryngo scopes) connects to the system via a single connector, and the connector is waterproofed, no need for a waterproof cap, operate one-touch connection. 8.10.

This statement serves to clarify the aforementioned functionalities of the 300 serious endoscope.

Shanghai Aohu **Ltd.**
16.12.2024

Shanghai Aohua Photoelectricity Endoscope Co., Ltd.
Aohua Endoscopy Building, No.66, Lane133, Guangzhong Road, Minhang District,
Shanghai, P.R. China

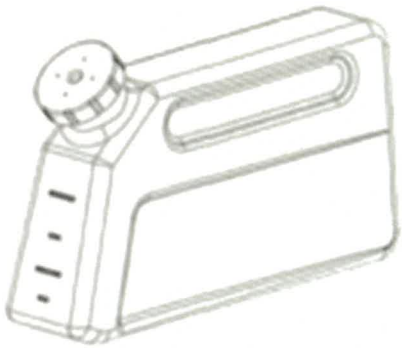
MANUFACTURER'S AUTHORIZATION

Date:16.12.2024

Whereas "**Shanghai Aohua Photoelectricity Endoscope Co., Ltd.**" who is established manufacturers of **AOHUA** brand medical devices, with Headquarters at No.66, Lane133, Guangzhong Road, Minhang District, Shanghai, P.R. China, provide the following explanations regarding certain performance of a water container(GS00163):

1. The capacity of this water container is not less than 4L.
2. The water container could steam sterilize with 137℃ in 3 mins as standard reference of ANSI/AAMI ST79:2006 or other equivalent standards for at least 50 times.
3. The out look of the water container is below.

5.4.



Shanghai A
16.12.2024