KLS martin GROUP

maXium® smart Q and maXium® smart E

The smart choice for every OR

www.klsmartin.com

Together with our customers, we are determined to realize reliable and future-oriented energy-based surgical solutions.
Day in, day out, we work passionately to develop products and services that help optimize clinical outcomes and patient well-being.

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maXium® smart Q and **maXium®** smart E – The ultimate sidekick in every OR

In a world full of technological innovations, the maXium® smart Q and maXium® smart E are masterpieces of high-frequency device technology. These units are not merely a device, but a promise - a promise of precision, versatile applications, intuitive operation, and reliable performance.

The new units add further powerful units to the smartLine product family, offering the right solution for every requirement. Our high-end units offer a wide range of precisely controlled current types for a variety of surgical applications - from monopolar and bipolar cutting to coagulation.

In addition to the proven standard current modes PureCut and BlendCut, other specifically developed current modes are available which are optimally tailored to specific applications and thus set new standards in multifunctional electrosurgery.

This extension emphasizes our commitment to continuous improvement and providing state-of-the-art technologies to our users.

Variability through different variants

Three more units have been added to the smartLine family. The high-end unit, the maXium® smart Q, offers two monopolar and two bipolar working channels. The maXium® smart E is available in two versions (MMB and MBB) and features a total of three working channels. A maXium® smart E unit features a maximum of either two monopolar or two bipolar sockets. The three unit variants differ only in the number of sockets.

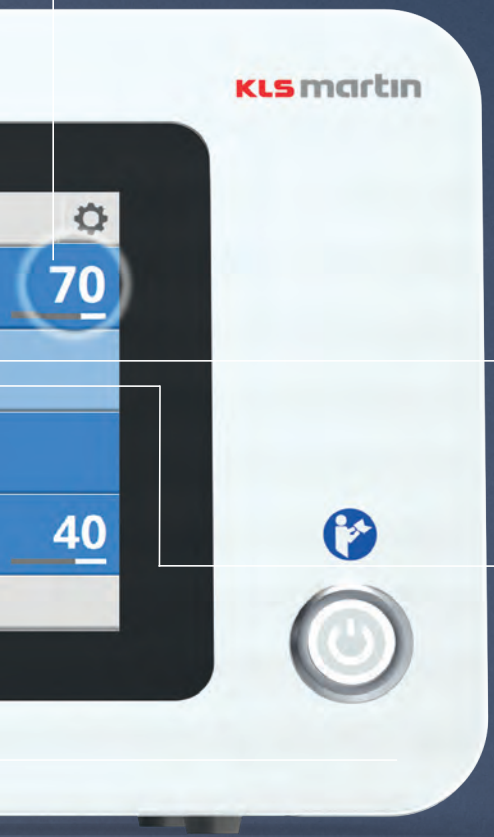
Compatible accessories:

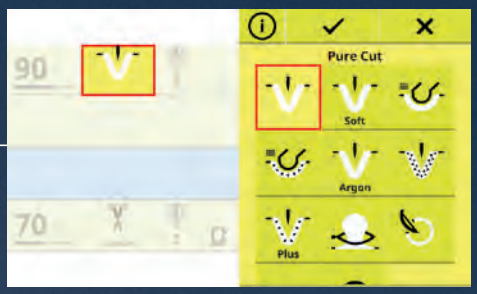
m-Version: KLS-Martin accessories
i-Version: International accessories

maXium® smart Q (MMBB)	**80-043-20-04**	**M**1: Instrument from KLS Martin (m-Version) **M**2: International instruments (i-Version) **B**1: Instruments from KLS Martin (m-Version, 3-pin-Version with support for vessel sealing) **B**2: Instruments from KLS Martin (m-Version, 3-pin-Version with support for vessel sealing)
maXium® smart E (MMB)	**80-043-11-04**	**M**1: Instrument from KLS Martin (m-Version) **M**2: International instruments (i-Version) **B**1: Instruments from KLS Martin (m-Version, 3-pin-Version with support for vessel sealing)
maXium® smart E (MBB)	**80-043-12-04**	**M**1: Instrument from KLS Martin (m-Version) **B**1: Instruments from KLS Martin (m-Version, 3-pin-Version with support for vessel sealing) **B**2: Instruments from KLS Martin (m-Version, 3-pin-Version with support for vessel sealing)

Operating philosophy

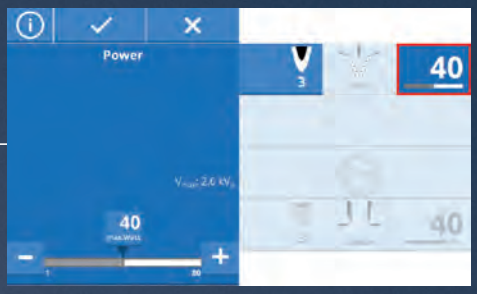
The maxi display immediately allows you to see the program used, the power setting, the selected current type, and the selected hand or foot control at a glance. You can view the various settings for all four working channels simultaneously.





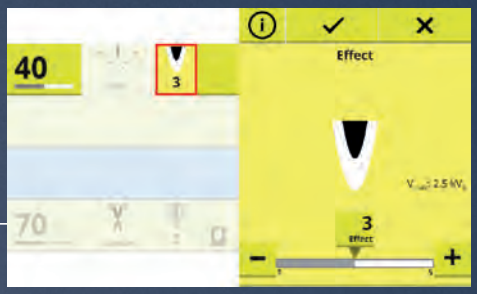
Current type

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



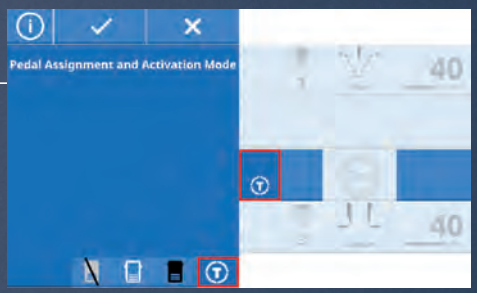
Output power adjustment

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



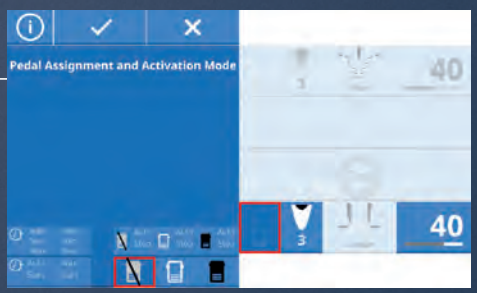
Effect adjustment

The desired effect can be configured individually. Here, the unit automatically ensures an optimal result: If the selected combination of effect and power falls into an illogical range, the power is intelligently corrected.



Trigger function

The activated trigger function ensures that the current flows continuously until sealing is completed, without needing to keep the activation button pressed throughout the entire sealing process.



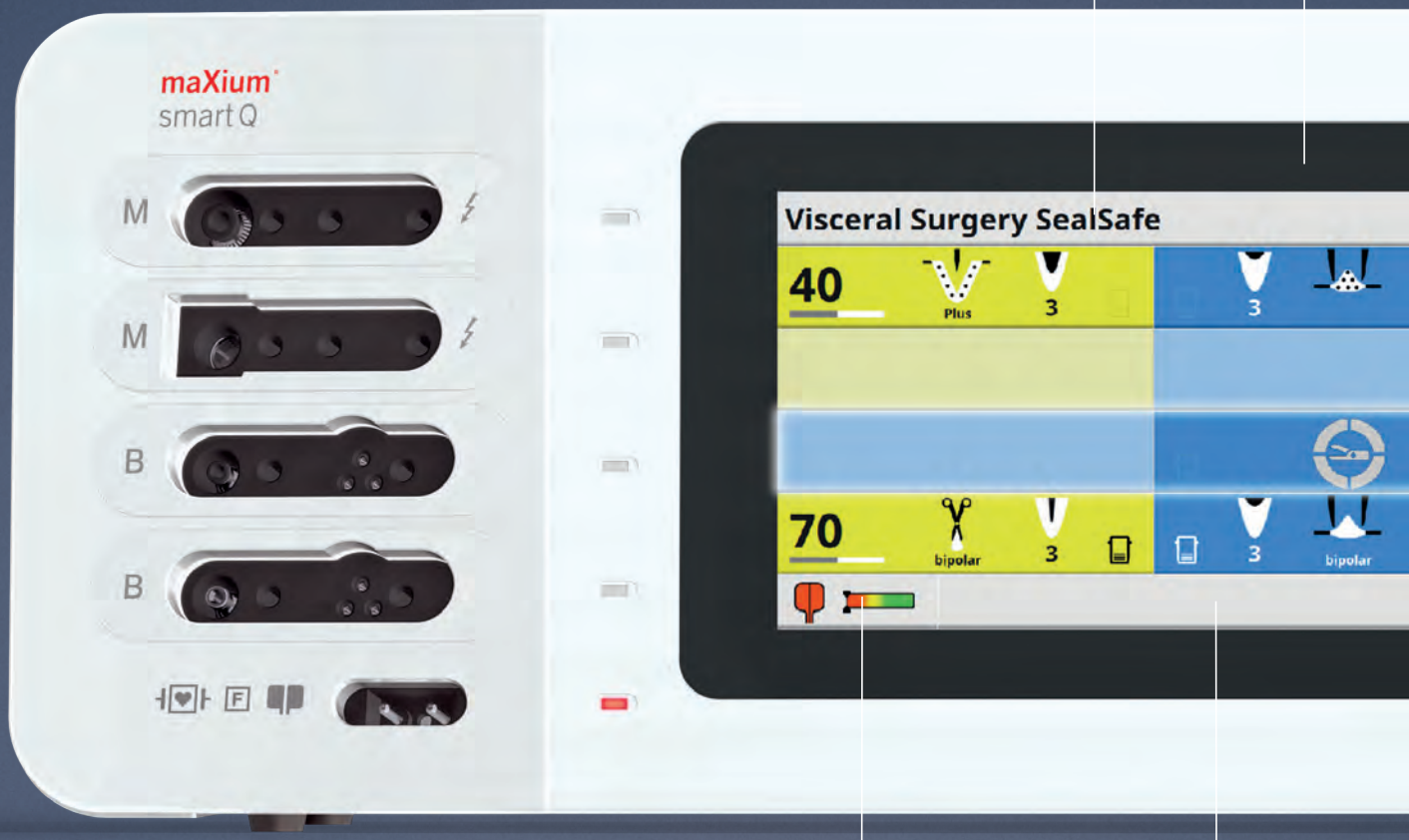
Activation

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

Graphical user interface (GUI)

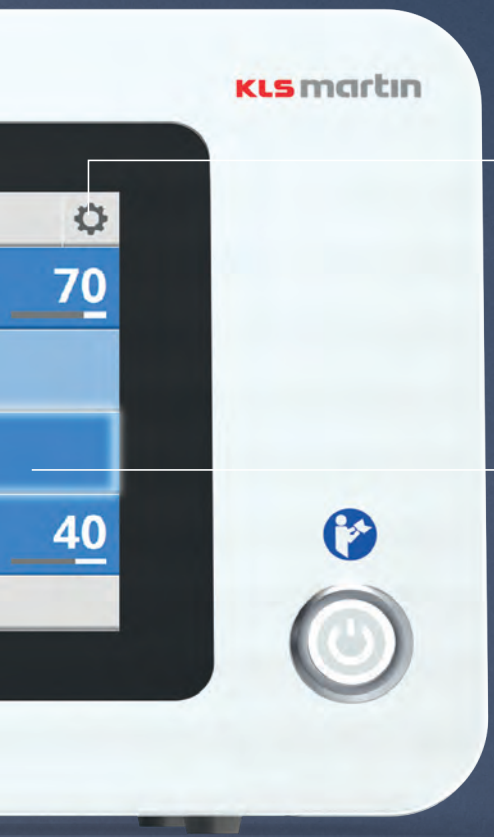
The high-quality 7-inch touchscreen enables direct, touch-based interaction with the unit - for a state-of-the-art and convenient user experience with direct access to all relevant parameters.

All settings can be made intuitively via the touch display using the proven smartLine operating philosophy.



NE-Monitoring

Patient Control System (PCS) for maximum safety in the operating room and display of the neutral electrode used. The bar indicator provides feedback on the current NE status at all times - an additional safety feature.



Last used programs (LUPs)

The “Last used programs” favorites list allows quick and easy access to the five most recently used programs as well as the default program.

Touch display

7" high-precision touch display

Setup

In this area, one can conveniently adjust all common settings such as program, NE, VAC, sound, screen, time, argon, language, and service parameters.

Horizontal assignment

With the well-defined horizontal placement of the monopolar and bipolar sockets plus the display of all pertinent parameters on the screen, the user is always aware of the particular presettings.

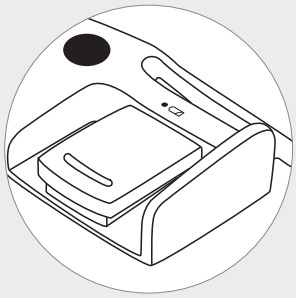
Information

Information, warnings, and error messages appear in this area. At the same time, it is possible to view the activation overview.

Software options – A new era of electrosurgery begins

Our solution offers maximum adaptability through optional software modules which can be enabled depending on the specific medical discipline, area of application, or individual requirements. This way, you obtain exactly the functionalities you require – without unnecessary complexity. This modular structure enables targeted use in various specialist areas and supports efficient integration into existing work processes.

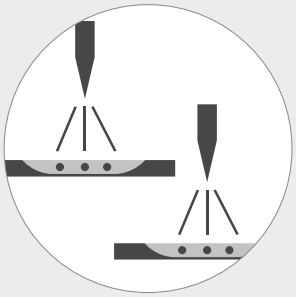
All software options must be ordered separately and are not included in the standard scope of delivery. These options must be selected and added individually to meet the specific requirements of the application.



SWAP® Mode

80-094-00-04

Easy switching between up to five predefined programs from the sterile area. With the SWAP® mode, a program change can be performed from the sterile area using a footswitch or handle, allowing the cutting or coagulation performance to be adapted to the respective surgical situation. No support is required from the non-sterile area.



Duo Prep, Duo Spray

80-094-01-04

With the Duo currents, both monopolar outputs can be used simultaneously and, if necessary, in two different surgical fields in parallel. One example of its use in cardiac surgery is the dissection of the great saphenous vein and the small saphenous vein with minimal coagulation and simultaneous dissection of the mammary vein.

Neptun

80-094-02-04

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.

Bipolar resection

80-094-04-04

In contrast to classic monopolar resection, which requires the use of a non-conductive irrigation fluid, bipolar resection uses only electrically conductive saline solution (NaCl) as the irrigation medium. This particularly reduces the risk of a TUR syndrome. The specifically developed current forms enable precise cutting and coagulation of excess tissue and allow the use of large cutting loops for faster work.

SealSafe® IQ

80-094-05-04

Latest bipolar sealing technology. This results in an optimized and rapid sealing process with various advantages for the procedure and the patient.

GI currents

80-094-06-04

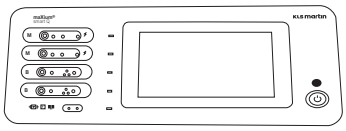
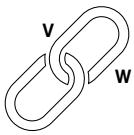
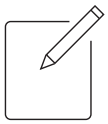
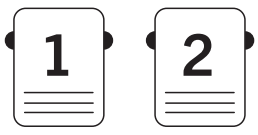
The Mucosect, Papilla, and Polyp currents are specifically developed, application-specific current types for polypectomy, papillotomy, and endoscopic mucosal resection. These pulsating mixed current modes automatically alternate intermittently between cutting and coagulation to enable precise, effective, and gentle tissue removal.

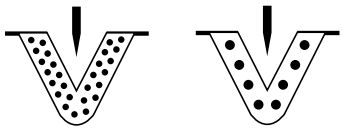
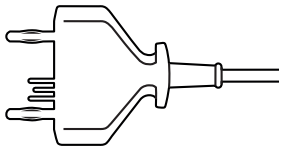
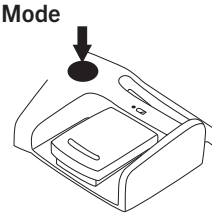
Enhanced footswitch

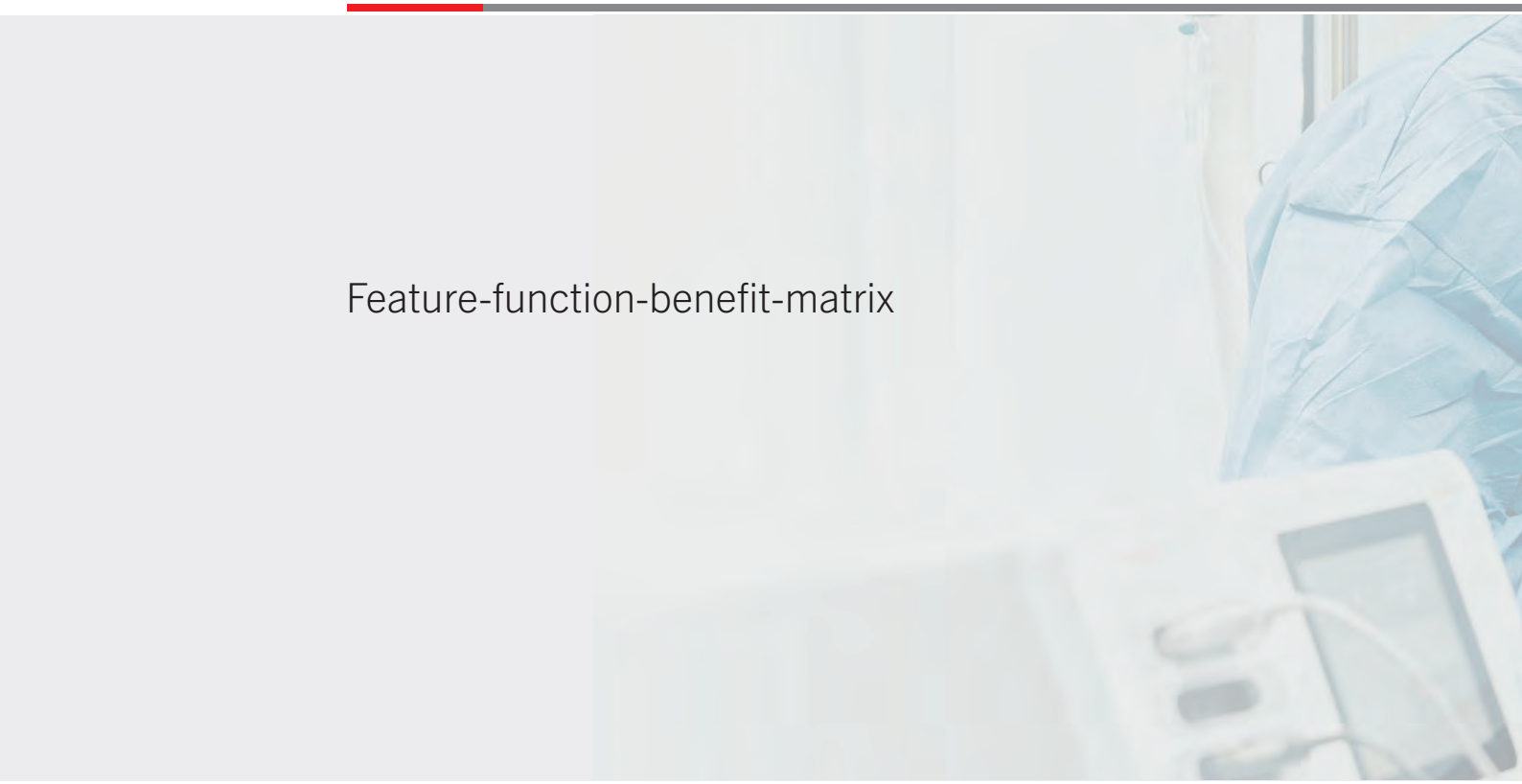
80-094-07-04

On the one hand, this option allows two separate dual-pedal footswitches to be used in two different locations in the operating room, thereby increasing flexibility. On the other hand, it can be used for robot applications.

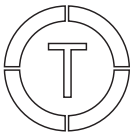
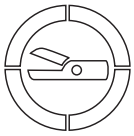
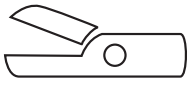
Feature-function-benefit-matrix

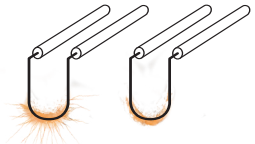
Feature	Function	Benefit
Sockets for accessories 	Sockets for various HF accessory instruments (MBB, MMB, MMBB).	With up to four sockets available, there is no need for adapters or instrument changes during surgery.
Effect-power coupling 	If either the effect or the power is changed, the respective other parameter automatically adjusts itself - provided that it lies outside a reasonable range.	Perfect balance between effect and power with maximum efficiency in every situation.
Quick edit 	With the Quick Edit function, all parameters changed in a channel can be confirmed simultaneously at the end.	Quick access and direct adjustment of parameters - all in a single step.
Enhanced footswitch 	Two dual-pedal footswitches can be connected for robot-assisted applications.	Compatible with robotic systems for integration into automated operating room environments.

Feature	Function	Benefit
Plus currents  Plus Plus	The developed Plus currents are stable and have constant power and performance, regardless of tissue resistance.	Owing to a PER (Power Efficiency Ratio) of 99%, the instrument does not even stick in the case of fatty tissue and guarantees consistent cutting and preparation results.
Enhanced currents 	Specifically developed GI currents such as Mucosect, Papilla, and Polyp.	GI-specific currents for various applications in the field of flexible endoscopy.
Plug & Play 	The Plug & Play function of IQ instruments recognizes the connected instrument and automatically sets the current to a suitable default value.	No adjustments are necessary, making the unit very simple and easy to use.
SWAP® Mode 	In SWAP® mode, the physician can switch between up to five different predefined programs.	Time savings and independence, as no assistance is required from a non-sterile person when changing programs.

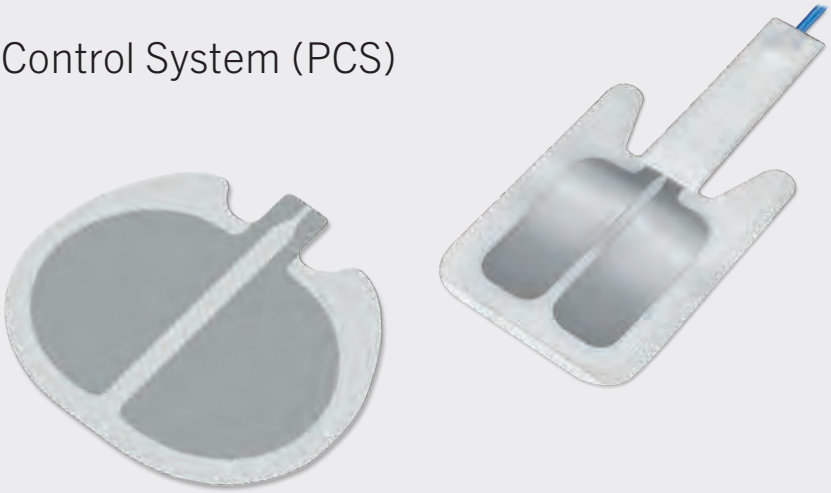


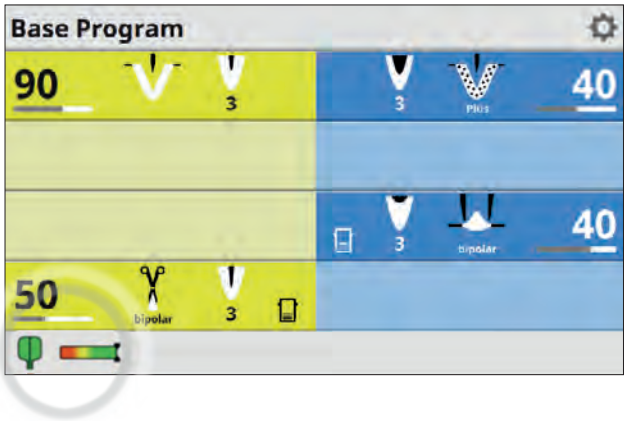
Feature-function-benefit-matrix

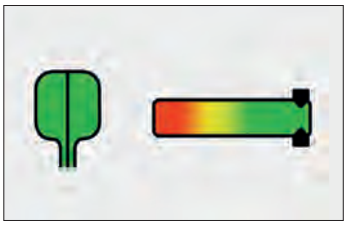
Feature	Function	Benefit
Trigger 	Our units feature a special activation option for vessel sealing instruments: With the innovative trigger function, a brief tap on the activation button is all it takes to reliably start the sealing process.	Focus on the essentials and ergonomic comfort.
SealSafe® IQ 	State-of-the-art bipolar vessel sealing technology.	SealSafe® IQ ensures an optimized and rapid sealing process with numerous advantages for both the surgeon and the patient.
Bipolate 	The Bipolate function allows vascular sealing instruments to be used with slightly opened jaws for standard bipolar coagulation.	No instrument changes during the intervention – for maximum efficiency and workflow continuity.
Software options 	The SWAP®, Neptun, Bipolar TUR, Gastro, Duo, SealSafe®, and footswitch extension software options can be installed individually as well as retroactively.	Faculty-specific device configurations are possible.

Feature	Function	Benefit
Activation overview 	The data for each activation are logged.	The most important technical surgery data are summarized and can be analyzed as required.
Touch screen display 	The high-quality 7-inch touchscreen enables direct interaction with the unit.	State-of-the-art technology, excellent visibility, and fast, intuitive navigation.
Saline/ Purisole detection 	When using currents underwater, these units can detect whether a salt or purisole solution is being used.	Safety feature to prevent patient injury.
Spark control  without with	Automatic power adjustment to the required minimum, thus reducing sparking.	Patient-friendly application due to consistent cutting quality, regardless of tissue properties and electrode geometry.
Patient Control System (PCS) 	Detection of the neutral electrode used and monitoring of adhesion of the contact to the patient's skin (only when using split NEs).	Reliable monitoring of the neutral electrode ensures maximum safety for patients and users.

Patient Control System (PCS)







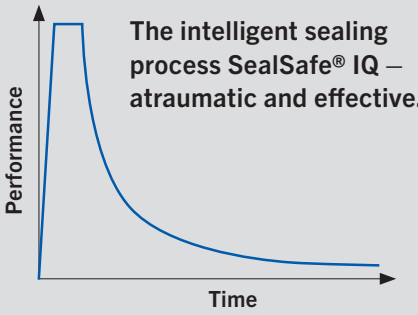
PCS – maximum safety with innovative return electrode monitoring

The Patient Control System (PCS) and the innovative neutral electrode indicator guarantee maximum safety for the patient and user.

The bar indicator provides feedback on the current NE status at all times - another plus in terms of safety. Only split neutral electrodes can be monitored with the PCS. When making your selection it is possible to choose between different return electrodes. When selecting a neutral electrode for infants or children, various restrictions are implemented on the unit:

- The available forms of current are limited in terms of power.
- Some types of current, which may be critical for small patients, are not offered.

Intelligent vessel sealing with **SealSafe®** IQ



The intelligent sealing process SealSafe® IQ – atraumatic and effective.

Vessel sealing:
up to ø 7 mm

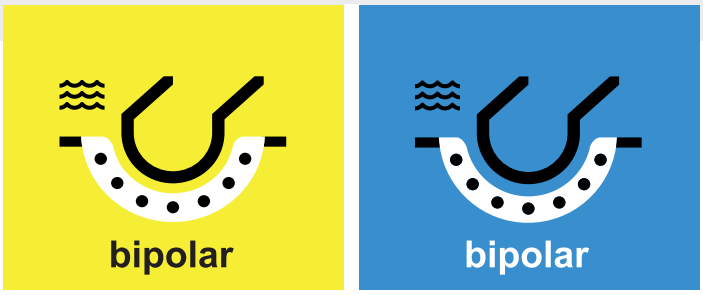
Minimal lateral thermal spread:
< 2 mm

Safe – vessel sealing with SealSafe® IQ

The maXium® smart Q and maXium® smart E combine user-friendliness, efficiency, and performance, ensuring optimal results through state-of-the-art sealing technology.

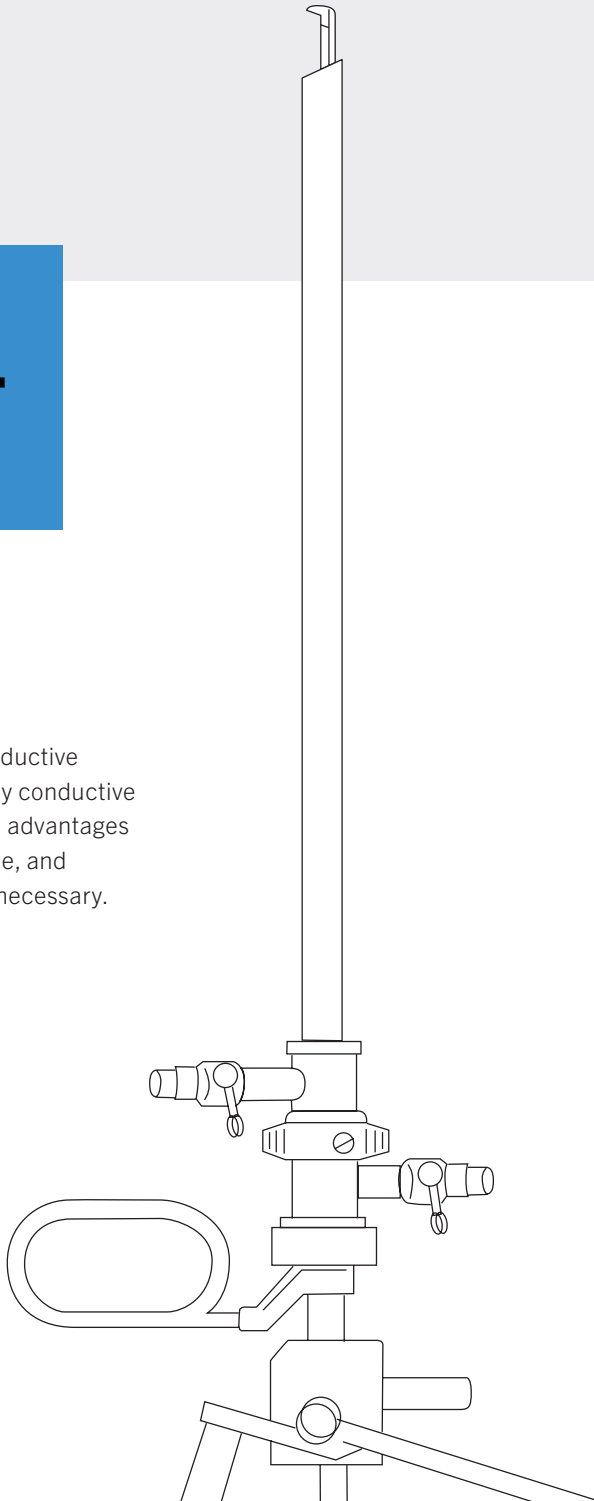
Together with the KLS Martin SealSafe® IQ instruments, the units form a bipolar sealing system that transforms the body's own structural proteins, such as collagen and elastin, in such a manner that veins, arteries, and tissue bundles are permanently and securely sealed.

Special currents for bipolar resection

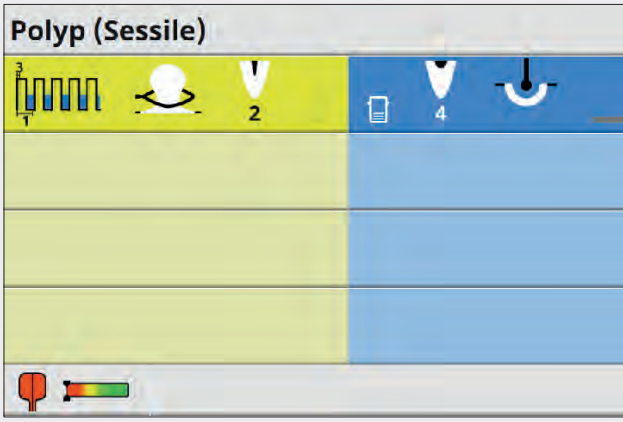


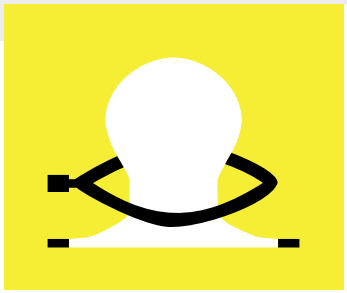
With optimized current modes

In contrast to classic monopolar resection, where a non-conductive irrigation fluid is used, bipolar resection uses only electrically conductive saline solution (NaCl) as the irrigation medium. This has two advantages for the surgeon: Firstly, it reduces the risk of a TUR syndrome, and secondly, it allows the duration of surgery to be extended if necessary.

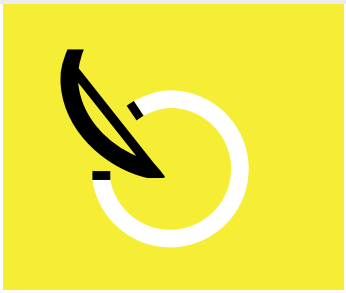


Special currents for gastroenterology

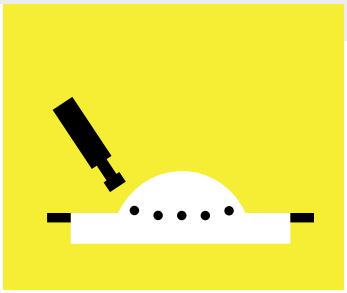




Polyp: Specifically for polypectomy



Papilla: For precise incisions during sphincterotomy/papillotomy



Mucosect: For controlled sequential incisions during mucosal resection and dissection.

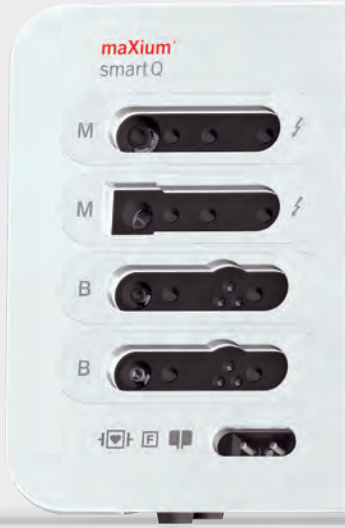
The Polyp, Papilla, and Mucosect current modes, which were developed specifically for gastroenterological applications, offer maximum precision and safety during endoscopic procedures. All three operate pulsating and enable atraumatic, controlled energy delivery.

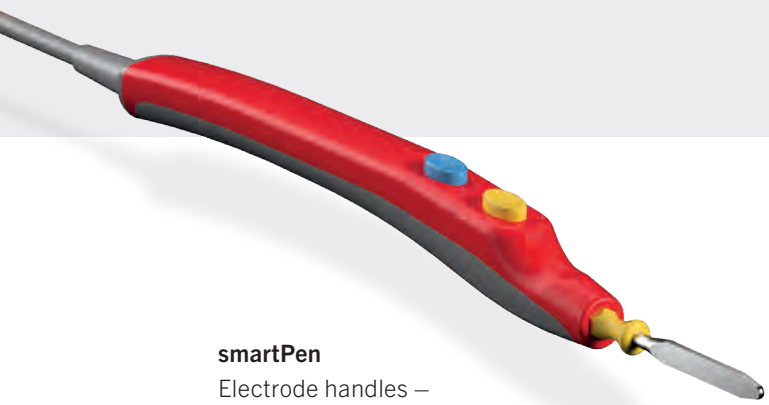
The duration and interval parameters can be set individually for all three current modes:

A prolonged duration results in stronger and faster cuts. The interval controls the rhythm of energy output and influences the cutting frequency.

This combination of pulsed current delivery and individually adjustable parameters enables safe, effective, and indication-specific application.

Footswitch and electrode handle for using the SWAP® Mode



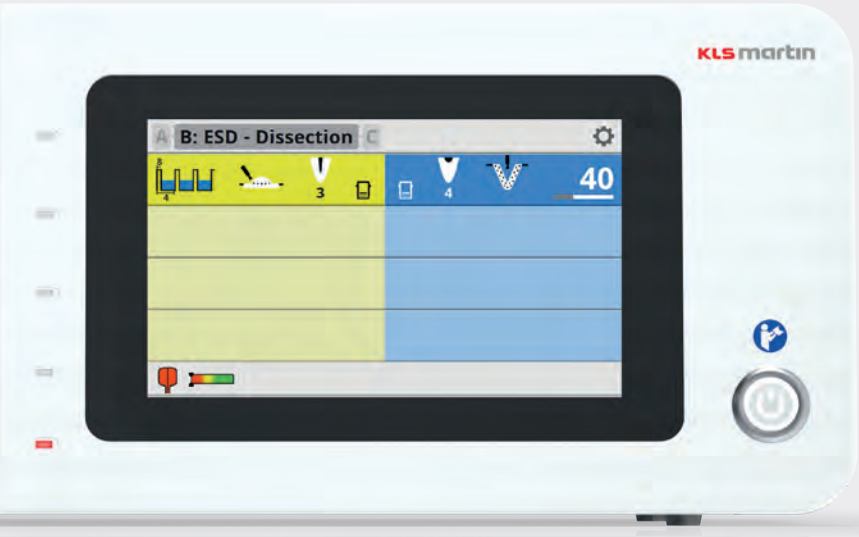


smartPen
Electrode handles –
uniform, ergonomic, efficient

smartOne
single-use electrode handles

80-830-21-04
Dual-pedal footswitch, with
SWAP® button, folding bracket,
and cable (length 5 m)

SWAP® Mode



SWAP® MODE

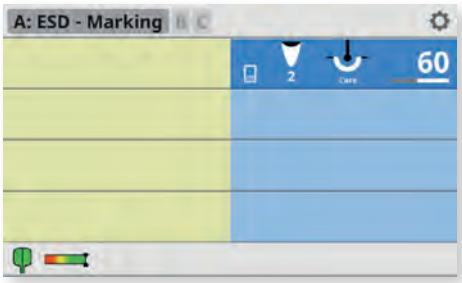
The fastest way to change settings is the SWAP® Mode.

The SWAP® Mode function allows you to switch between up to five preset programs from the sterile area using the footswitch or the two finger switches on the electrode handle.

No support is required from the non-sterile area.

1. SWAP®-Program

A

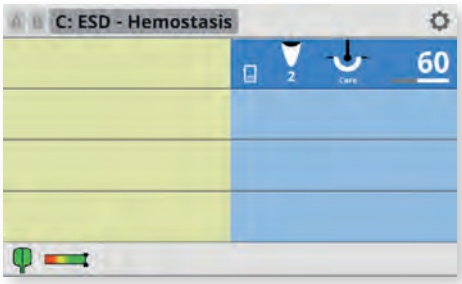


2. SWAP®-Program

B

3. SWAP®-Program

C



Up to 5 programs can be combined!

Fields of application – The smart choice for every OR

General and visceral surgery

Gynecology

Urology

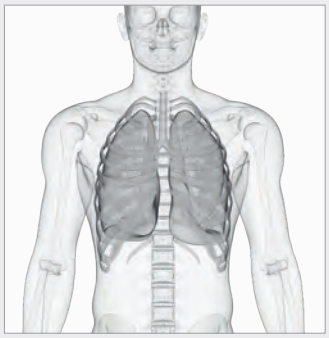
Gastroenterology

ENT

Orthopedics and traumatology

Neurosurgery

Cardiac and vascular surgery



Thoracic surgery

Current types

		Software option					
Current type	**Basic configuration**	**GI**	**SealSafe® IQ**	**Duo currents**	**Bipol TUR**	**Neptun**	**Channel**
PURE CUT	x						monopolar
SOFT CUT	x						monopolar
URO PURE CUT	x						monopolar
URO BLEND CUT	x						monopolar
ARGON CUT	x						monopolar
SUPER BLEND	x						monopolar
BLEND CUT PLUS	x						monopolar
FORCED CLAMP	x						monopolar
FORCED PREP PLUS	x						monopolar
COAG DISSECT	x						monopolar
SPRAY	x						monopolar
CONTACT COAG	x						monopolar
CARE COAG	x						monopolar
FORCED COAG	x						monopolar
URO COAG	x						monopolar
ARGON BEAM	x						monopolar
BIPOLAR PURE CUT	x						bipolar
FORFEX	x						bipolar
BIPOLAR BLEND CUT	x						bipolar
BIPOLAR COAG	x						bipolar
POLYP		x					monopolar
PAPILLA		x					monopolar
MUCOSECT		x					monopolar
ENDO SPRAY		x					monopolar
SEAL SAFE			x				bipolar
BIPOLATE			x				bipolar
DUO PREP PLUS				x			monopolar
DUO SPRAY				x			monopolar
URO BIPOLAR BLEND CUT					x		bipolar
URO BIPOLAR PURE CUT					x		bipolar
URO BIPOLAR COAG					x		bipolar
NEPTUN						x	bipolar

= coagulation

= cutting

The **smartLine** workstation

The accessories for **maXium®** smart Q and **maXium®** smart E

Ordering information

Article	Article number	Description
Single pedal footswitch	80-830-02-04	With 5 m cable. Must be ordered separately
Footswitch, dual pedal	80-830-20-04	With 5 m cable. Must be ordered separately
Dual pedal footswitch with SWAP® button	80-830-21-04	With folding bracket and 5m cable. Must be ordered separately
Dual pedal footswitch with SWAP® button and receiver	80-830-24-04	Wireless, including power supply unit and receiver. Must be ordered separately
maXium® smart Beam	80-043-10-04	Must be ordered separately. Including connecting cable to unit
maXium® smart Beam, v2	80-043-15-04	Must be ordered separately. Including connecting cable to unit
maXium® smart Cart	80-048-00-04	Must be ordered separately
HF trolley	80-070-00-04	Must be ordered separately
Standard rail for maXium® smart Cart	80-048-01-04	Must be ordered separately
Separating transformer for maXium® smart Cart	80-048-02-04	Must be ordered separately
Device holder for maxium® smart devices	80-048-03-04	Must be ordered separately
Gas bottle holder for maXium® smart Cart	80-048-05-04	Must be ordered separately
Mounting kit for maXium® smart Vac	80-048-06-04	Must be ordered separately
Power cord in country specification	08-024-00-23	Type E/F (power cord length 3.0 m)
	08-024-00-28	Type J (power cord length 3.0 m)
	08-024-00-29	Type B (power cord length 2.0 m)
	08-024-00-30	Type L (power cord length 2.5 m)
	08-024-00-40	Type G (power cord length 1.8 m)
	08-024-00-41	Type I (power cord length 2.5 m)
	08-024-00-43	Type N (power cord length 2.5 m)
	08-024-00-83	Type G (power cord length 5.0 m)
	08-024-00-85	Type B (power cord length 5.0 m)
	08-024-00-86	Type E/F (power cord length 2.5 m)
	08-024-00-87	Type B (power cord length 2.5 m)
	08-169-02-04	Type E/F (power cord length 5.0 m)

Technical data maXium® smart Q

Power connection	
Power connection	100 V – 240 V ± 10%
Rated current max.	8 A
Power fuse	8 A
Nominal frequencies	50 Hz / 60 Hz
Power input without HF output	60 VA
Power consumption at max. power rating	650 VA

Output power	
Cutting performance	max. 400 watts
Coagulation performance	max. 200 watts

Weight and dimensions	
Weight	11.5kg
Width x height x depth	390 x 172 x 442mm

Standards	
Classification	II b
Protection Class	I
Degree of protection against the ingress of solid matter	IP2X
Type applied part	CF; defibrillation-proof
Mark of conformity	CE 0482
Operating mode	Intermittent INT 10 s / 30 s corresponds to 25 % ED
Device fuse	2 x T 8 AH, 250 V, Type G 5 x 20 mm
Signal level	HF display: 55 dB(A); adjustable 45–60 dB(A) alarm: 65 dB(A)
Leakage currents NF and HF	according to EN 60601-1 and EN 60601-2-2
Interference suppression	The requirements according to EN 60601-1-2 are also met by the maXium® smart Q in conjunction with the maXium® smart Beam, however with the restrictions according to EN 60601-2-2 Section 202.6.1 only when ready for operation.

Environmental conditions for transport and storage	
Ambient temperature	–25 °C to +70 °C
Relative humidity	10 – 90 %
Atmospheric pressure	500 – 1,060 hPa

Ambient conditions during operation	
Ambient temperature	+10°C to +40°C
Relative humidity	30 – 75 %
Atmospheric pressure	700 – 1,060 hPa

Technical data maXium® smart E

Power connection	
Power connection	100 V – 240 V ± 10%
Rated current max.	8 A
Power fuse	8 A
Nominal frequencies	50 Hz / 60 Hz
Power input without HF output	60 VA
Power consumption at max. power rating	650 VA

Output power	
Cutting performance	max. 400 watts
Coagulation performance	max. 200 watts

Weight and dimensions	
Weight	11.5kg
Width x height x depth	390 x 160 x 442mm

Standards	
Classification	II b
Protection Class	I
Degree of protection against the ingress of solid matter	IP2X
Type applied part	CF; defibrillation-proof
Mark of conformity	CE 0482
Operating mode	Intermittent INT 10 s / 30 s corresponds to 25 % ED
Device fuse	2 x T 8 AH, 250 V, Type G 5 x 20 mm
Signal level	HF display: 55 dB(A); adjustable 45–60 dB(A) alarm: 65 dB(A)
Leakage currents NF and HF	according to EN 60601-1 and EN 60601-2-2
Interference suppression	The requirements according to EN 60601-1-2 are also met by the maXium® smart E in conjunction with the maXium® smart Beam, however with the restrictions according to EN 60601-2-2 Section 202.6.1 only when ready for operation.

Environmental conditions for transport and storage	
Ambient temperature	–25 °C to +70 °C
Relative humidity	10 – 90 %
Atmospheric pressure	500 – 1,060 hPa

Ambient conditions during operation	
Ambient temperature	+10°C to +40°C
Relative humidity	30 – 75 %
Atmospheric pressure	700 – 1,060 hPa

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Please download the web-based KLS Martin „Energy Devices“ App. This provides you with an overview of our high-frequency surgical devices and instruments as well as our surgical laser systems.

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