



# spectrum

electrosurgical system



# spectrum of use in electrosurgery

## result oriented performance

**Spectrum** is a state-of-the-art electrosurgical system that automatically adapts to the user's needs.

Our goal was to create an electrosurgical unit that requires no complicated set-up prior to surgery and is ready for operation immediately after instrument connection.

Owing to the solutions used in **spectrum**, the user does not need to control power settings. The **spectrum** system itself ensures that the output settings are maintained so as to obtain the desired result, regardless of the surgical conditions - **result oriented performance**.

For more than 20 years we have specialised in the production of the highest quality electrosurgical diathermies. Our experience and continually evolving technology have enabled us to set new trends in electrosurgery. Through active cooperation with our Customers we have created **spectrum** - the first electrosurgical system which adapts to different surgical procedures so that each surgical intervention is as effective as possible.

**Spectrum** of opportunities and a single goal, which is full support of the surgeon in the operating room.



To facilitate the work with an electrosurgical system to the greatest extent possible, we have equipped spectrum with a number of functions to support the surgeon during the procedure.

- the **SmartDevice System** detects and identifies the connected instrument. It automatically adjusts the appropriate operating modes and output parameters to the connected instrument,
- the **SpectrumResult** solution maintains the output settings so as to obtain the desired effect of diathermy, regardless of the surgical conditions,
- 10-inch **InTouch Screen** has integrated brightness adjustment and a choice of graphics versions of the screen (light and dark skins),
- **universal SDS outputs** allow the use of monopolar and bipolar instruments in the same output,
- new **specialist modes** are adapted to specific applications in urology, arthroscopy and endoscopy,
- simple **software updates** via USB,
- communication with the user in different languages, **Voice Communication** commands inform about the operating status,
- **Spectrum Trolley** provides ergonomic work in the operating room.



# easy and safe operation

confidence through technology

## SmartDevice System

Never before has it been so easy to prepare an electrosurgical system for operation.

Just connect the instrument and start working.

The **SmartDevice System** detects and identifies the connected instrument. It automatically adjusts the operating mode and output settings to the instrument, thus improving the operator's working comfort.

The user does not have to wonder which mode and which setting to use for a specific instrument. The **SmartDevice System** identifies the instrument connected to spectrum. It automatically selects the modes in which it can be used and sets the suggested operating parameters for the identified instrument. In this way, it increases instrument life and safety of work.

The spectrum system remembers the settings selected for each instrument, and when it is connected again, it recalls the stored parameters.

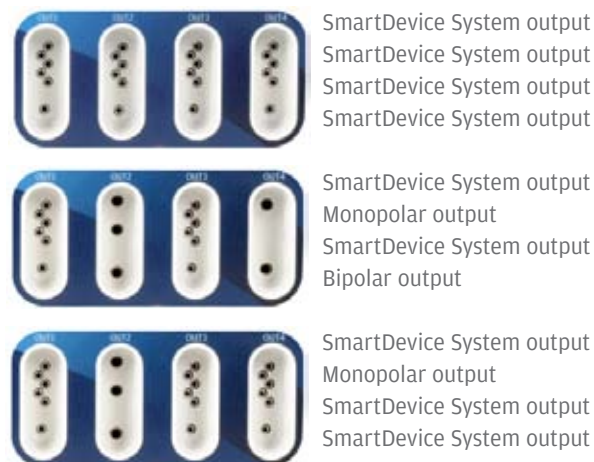
The assignment of the selected settings to a specific instrument facilitates the operation, and significantly reduces the time of preparation for surgery.



## Universal SDS outputs

The outputs of spectrum use the new SDS standard. They are intended for both monopolar and bipolar instruments. They feature the SmartDevice instrument recognition system. Spectrum will automatically recognize the type of the connected instrument and recall the modes and settings appropriate for that instrument. To take all advantages of the SDS system, it is necessary to use special SpectrumLine instruments. These accessories are encoded with information concerning their properties.

The spectrum system allows a different configuration of outputs, depending on the user's needs.



## Communication with the user

Spectrum can communicate with the user in different languages.

Voice communication is a novel solution in electrosurgical systems. The human voice simulator used in spectrum signals the potential problems and will guide the user. The user selects the volume level.

The system is equipped with modern software, which allows to access and update the system with language versions to suit the user's individual needs.



## InTouch Screen

The spectrum electrosurgical system is controlled with a touch screen which is designed to provide the user with easy access to all diathermy functions. The settings or modes of operation are changed by touching icons on the screen. To ensure maximum ease of operation there are no extra buttons or knobs.

Owing to a larger 10-inch display with a resolution of 800 × 600 pixels and a movable panel, spectrum may be suspended and positioned at various heights, to adjust the visibility for the users' needs and preferences.



Spectrum meets the requirements of every operating room.

With built-in brightness and colour adjustment options and an option to change the colour of the control panel, it can be used both in a “dark” endoscopy room, and in “light” open surgery.

Depending on the user's needs three different graphical versions of the user interface can be selected.



### SpectrumResult

The idea of spectrum is to set all parameters by default, and once selected, the settings will not require subsequent adjustments.

With the solution used in spectrum, the user does not need to control power settings. The electrosurgical system itself ensures that the output settings are maintained so as to obtain the desired effect of work, regardless of the surgical conditions.

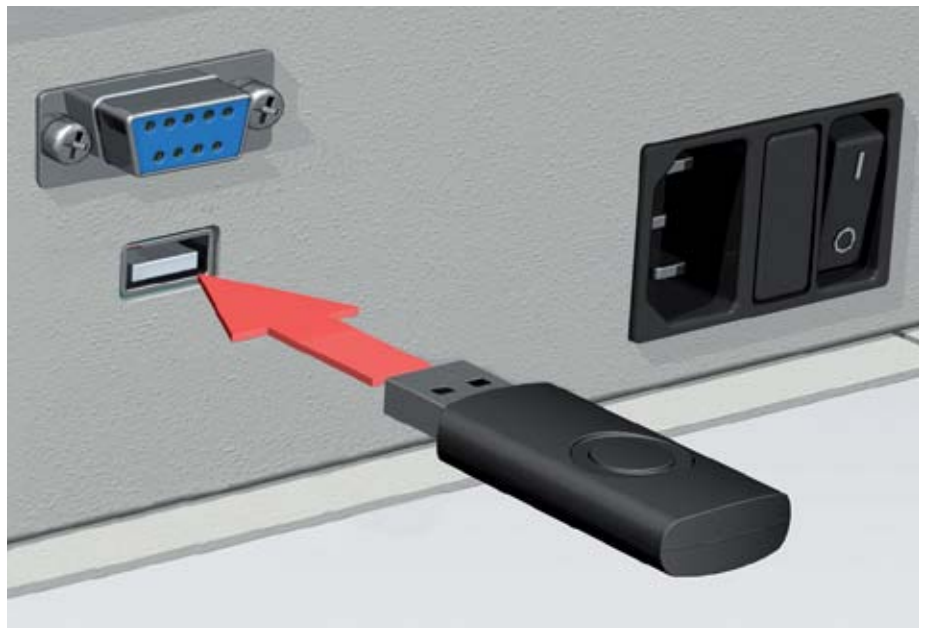
The doctor no longer has to focus on adjustment of the settings during the procedure.

SpectrumResult performs real-time monitoring of all operating parameters of the system: actual power, current intensity and voltage. Constant monitoring of all parameters always ensures the best result.

By using the benefits offered by a modern generator, spectrum increases the efficiency of cutting. It allows the development of new modes of operation, together with the changing needs of customers and standards in surgery.

### Software upgrade

Spectrum is equipped with a modern operation system that allows for very fast and easy update with the development of new features and operating modes. Software upgrade is performed automatically after connecting the USB memory to the device. At the same time, miniaturisation of the processor in spectrum increases its reliability.





# operating modes

## setting performance goals

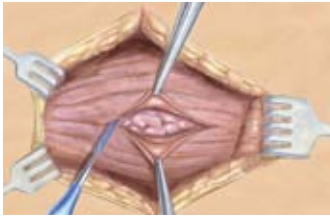
A modern operating room is focused on effects rather than power settings. Spectrum allows to set the desired effect. The effect determines the intensity of diathermy work. The operator chooses the desired coagulation or cutting effect. It is not necessary to focus on analysing and selecting the appropriate power level, which would allow to achieve the required effect.

Spectrum allows to work using standard cutting and coagulation modes. It also offers the opportunity to work in highly specialised modes such as bipolar cutting in the fluid environment, argon coagulation and big blood vessels sealing system - ThermoStapler®.

Spectrum has been enhanced with new universal modes and specialised modes. The names of all the modes have been systematised to facilitate the work with unit and eliminate the possibility of mistakes in selecting the operating mode.



## OPEN SURGERY



**MONO CUT**  
Monopolar cutting  
with different levels  
of haemostasis.



**PRECISE CUT**  
Monopolar delicate  
cutting for small and  
precise structures.



**MIXED CUT**  
Monopolar cutting  
with desiccation.



**BI-CUT**  
Bipolar cutting with different  
levels of haemostasis.



**SOFT COAG**  
Monopolar contact  
coagulation with low  
voltage.



**HYBRID COAG**  
Monopolar coagulation  
for contact and  
non-contact use.



**FORCED COAG**  
Monopolar contact  
coagulation.



**SOFT BI-COAG**  
Bipolar coagulation  
with low voltage.



**SPRAY COAG**  
Monopolar non-contact  
coagulation with high  
voltage.



**FORCED BI-COAG**  
Bipolar coagulation  
with high voltage.



**ARGON CUT**  
Monopolar argon  
enhanced cutting.



**STANDARD ARGON**  
Monopolar argon plasma  
coagulation.



**ThermoStapler®**  
Bipolar mode for sealing  
big blood vessels and  
bundles of tissue.



**LAPAROSCOPY**  
Bipolar mode for sealing  
blood vessels and bundles  
of tissue.

## GYNAECOLOGY



**ThermoStapler®**  
Bipolar mode for sealing  
big blood vessels and  
bundles of tissue.



**LAPAROSCOPY**  
Bipolar mode for sealing  
blood vessels and bundles  
of tissue.

## ENDOSCOPY



**POLIPO CUT**  
Endoscopic monopolar cutting for polypectomy procedures.



**ENDO ARGON**  
Monopolar delicate argon coagulation for endoscopic procedures.



**PAPILLO CUT**  
Endoscopic monopolar cutting for papillotomy procedures.



**PULSE ARGON**  
Monopolar pulse argon coagulation for endoscopic procedures.



**MUCO CUT**  
Endoscopic monopolar cutting for mucosectomy procedures.



**ENDO SPRAY**  
Delicate endoscopic spray coagulation for non-contact operation.

## UROLOGY



**URO CUT**  
Monopolar cutting in liquid for urological procedures.



**URO COAG**  
Monopolar coagulation in liquid for urological procedures.



**URO BI-VAPOR**  
Bipolar vaporization in liquid for urological procedures.



**URO BI-CUT**  
Bipolar cutting in liquid for urological procedures.



**URO BI-COAG**  
Bipolar coagulation in liquid for urological procedures.

## ARTHROSCOPY



**ARTRO CUT**  
Monopolar cutting in liquid for arthroscopic procedures.



**ARTRO COAG**  
Monopolar coagulation in liquid for arthroscopic procedures.



**ARTRO BI-CUT**  
Bipolar cutting in liquid for arthroscopic procedures.



**ARTRO BI-COAG**  
Bipolar coagulation in liquid for arthroscopic procedures.

## HYSTEROSCOPY



**HYSTERO CUT**  
Monopolar cutting in liquid for gynaecological procedures.



**HYSTERO COAG**  
Monopolar coagulation in liquid for gynaecological procedures.



**HYSTERO BI-CUT**  
Bipolar cutting for gynaecological procedures (hysteroscopy) in conductive liquid.



**HYSTERO BI-COAG**  
Bipolar coagulation for gynaecological procedures (hysteroscopy) in conductive liquid.

# confidence through safety

|                     |   |
|---------------------|---|
| AutoTest            | After power-up the system performs an internal test of the correct operation of diathermy, including all components of the system as well as the connected accessories.   |
| NEM system          | The NEM system controls the quality of neutral electrode adhesion during procedures in a continuous mode. If the electrode application is not complete, the system withholds operation. User has ability to choose between two split disposable Emed Safe electrodes - for adults and for children. An expandable screen shows the quality of connection of a splitted electrode and its application during surgery. When using reusable silicon electrodes, the correct connection of an electrode to the electrosurgical system is monitored. |
| PowerStart          | Spectrum automatically adjusts the power depending on the needs. When necessary, the control system allows a temporary increase in power (in the range selected by the user) to help start the cutting process.   |
| EndoDetect          | A fully controlled cutting process during polypectomy procedures. The loop closing detection system available in spectrum does not allow to activate the instrument when the area of contact with the tissue is too small. By preventing accidental activation of current flow, the EndoDetect System minimises the risk of perforation, ensuring the safety of the performed procedures.   |
| Overload Protection | Temperature monitoring of all critical components of the system allows to avoid damage even with intensive use.   |
| Defibrillator Proof | The EMED systems are Class I CF units with the protection against the defibrillation impulse.   |
| Service messages    | In spectrum, all messages are displayed on the screen in graphical form, with a detailed description of the problem. It gives also clear information what should be checked and how to proceed.   |

# SpectrumLine accessories

## setting the stage

### SpectrumLine Trolley

A modern trolley for electrosurgical unit designed to form an integral part of the system. The trolley has stabilizing pins to prevent accidental dropping of diathermy. It is adapted for large 10-litre argon cylinders, with access from the front of the trolley. An additional shelf for accessories, and places for smoke suction and an irrigation pump are situated so that all equipment is directed towards the user. Cable holder and basket for accessories also facilitate the work in the operating room.



### SpectrumLine Smoke Evacuator

Spectrum system is adapted to operate with EMED Smoke Evacuator that effectively traps odor, smoke, dust and other potentially hazardous by-products generated during electro-surgical procedures. Minimizes the level of smoke in the operating room. It also improves the visibility of the operation area during electrosurgical interventions. SpectrumLine Smoke Evacuator ensures the safety of doctors and patients.



### SpectrumLine accessories and instruments

Spectrum system was equipped with a dedicated line of accessories. It can also work with other standard accessories and instruments that work with every unit produced by EMED. Full range of our surgical instruments and accessories is available in „Accessories for electrosurgery,” or on our website [www.emed.pl](http://www.emed.pl)





# spectrum

electrosurgical system

## SpectrumLine accessories



electrode handles · monopolar and bipolar cables for laparoscopic  
· monopolar cables for endoscopic · monopolar and bipolar cables  
for electroresectoscope · other bipolar cables

# electrosurgical system spectrum

100-013

Electrosurgical Unit spectrum



080-100

SpectrumLine trolley for EMED ESU, with case for argon cylinders (2x 5L/10L), basket








100-313

MultiSwitch, two-pedal footswitch, wireless


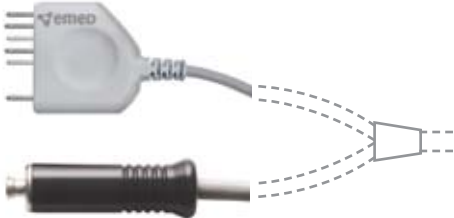


















# electrode handles

|   |   |                           |                    |  |
|---|---|---------------------------|--------------------|--|
| <div>SDS plug<br/>wtyk SDS</div>  | Ref. No.<br>Kod   | cable length<br>dł. kabla | Ø dia.<br>średnica | <div></div> |
|   | 322-14S   | 4 m                       | 4 mm               | Electrode handle, large, 2 switches<br>Uchwyt elektrody, szeroki, 2 przyciski                  |
|   | 327-14S   | 4 m                       | 2.4 mm             | Electrode handle, large, 2 switches<br>Uchwyt elektrody, szeroki, 2 przyciski                  |
|   | <div><div>Ø dia.<br/>średnica</div></div>   |                           |                    |  |
|   | 215-23S   | 3 m                       | 4 mm               | Electrode handle, small, 2 switches<br>Uchwyt elektrody, wąski, 2 przyciski                    |
|   | 215-25S   | 5 m                       | 4 mm               | Electrode handle, small, 2 switches<br>Uchwyt elektrody, wąski, 2 przyciski                    |
|   | <div><div>Ø dia.<br/>średnica</div></div> |                           |                    |  |
|   | 218-23S   | 3 m                       | 2.4 mm             | Electrode handle, small, 2 switches<br>Uchwyt elektrody, wąski, 2 przyciski                    |
|   | 218-25S   | 5 m                       | 2.4 mm             | Electrode handle, small, 2 switches<br>Uchwyt elektrody, wąski, 2 przyciski                    |
|   | <div><div>Ø dia.<br/>średnica</div></div> |                           |                    |  |











# argon electrode handles

|  |  |              |  |
|--|--|--------------|--|
| SDS/LuerLock plug  | Ref. No.   | cable length | CE  |
|  | 932-14S  | 3.5 m        | Argon electrode handle, large, 2 switches  |
|  |    |              |  |
|  | 432-46S  | 3.5 m        | Monopolar cable for argon flexible electrode, flat connector                           |
|  |     |              |  |
|  | 432-45S  | 3.5 m        | Monopolar cable for argon flexible electrode, round connector                          |
|  |   |              |  |


# monopolar cables

|   |   |              |                  |  |
|---|---|--------------|------------------|--|
| SDS plug  | Ref. No.  | cable length |                  | CE  |
|  | 280-03S<br>280-05S  | 3 m<br>5 m   | 4mm female       | Monopolar laparoscopic cable   |
|   |  Ø 4 mm  |              |                  |  |
|   | 281-03S   | 3 m          | 3mm female       | Monopolar endoscopic cable   |
|   |  Ø 3 mm  |              |                  |  |
|   | 405-04S   | 4.5 m        | 2mm male         | Monopolar cable for TONTARRA resectoscope  |
|   |  Ø 2 mm  |              |                  |  |
|   | 408-14S   | 4.5 m        | angled connector | Monopolar cable for STORZ resectoscope   |
|   |    |              |                  |  |
|   | 409-04S   | 4.5 m        | 3 mm male        | Monopolar cable for OLYMPUS resectoscope   |
|   |           |              |                  |  |

# bipolar cables

|   |          |                    |              |  |  |
|---|----------|--------------------|--------------|--|--|
|  | SDS plug |                    |              |  | CE  |
|   |          | Ref. No.           | cable length |  |  |
|   |          | 351-03S<br>351-05S | 3 m<br>5 m   | Bipolar cable, straight connector  |  |
|   |          |                    |              |     |     |
|   |          | 351-13S<br>351-15S | 3 m<br>5 m   | Bipolar cable, angled connector  |  |
|   |          |                    |              |    |    |
|   |          | 401-03S<br>401-05S | 3 m<br>5 m   | Bipolar cable 2x2.6mm, for ThermoStapler® clamps                                     |  |
|   |          |                    |              |   |  |
|   |          | 348-04S            | 4.5 m        | Bipolar cable for STORZ resectoscope   |  |
|   |          |                    |              |   |  |
|   |          | 354-04S            | 4.5 m        | Bipolar cable for TONTARRA, WOLF resectoscope  |  |
|   |          |                    |              |  |   |

# bipolar cables

|  |   |              |   |
|--|---|--------------|---|
| SDS plug   | Ref. No.  | cable length |  |
|  | 349-04S   | 4.5 m        | Bipolar cable for OLYMPUS resectoscope  |
|  |   |              |   |
|  | 359-03S<br>359-05S  | 3 m<br>5 m   | Bipolar cable for STORZ laparoscopy   |
|  |   |              |   |
|  | 352-03S   | 3 m          | Bipolar cable for WOLF laparoscopy  |
|  |  |              |   |
|  | 358-03S   | 3 m          | Bipolar cable for BiTech scissors   |
|  |  |              |   |

# other accessories

020-001

Smoke evacuator aria

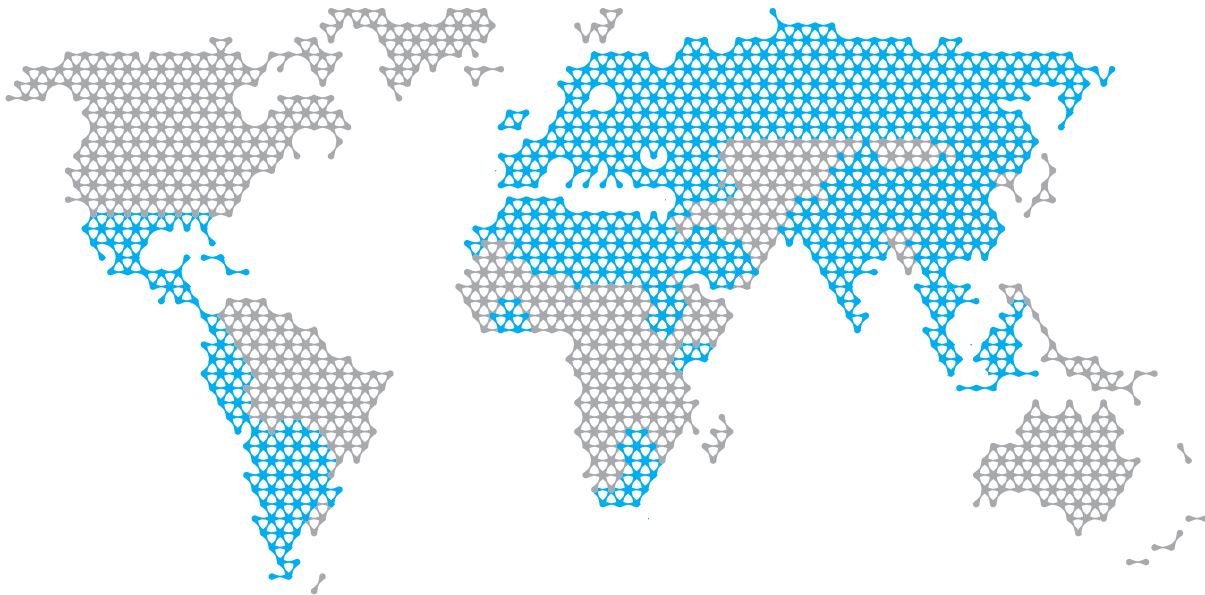


020-100

Waterfall, endoscopic irrigation pump, with drain set



# contact us



**For more information please contact your EMED representative.**

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For product information, including indications, contraindications, warnings, precautions, potential adverse effects and patient counselling information, see the Instructions For Use.



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