
Instructions for Use

TherMedico NK 1

REF 503719

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1 General

These instructions describe the areas of application and the mode of operation of the **TherMedico NK 1**. Please refer to the service manual for information about the **TherMedico NK 1** maintenance and repairs.

1.1 Intended Use

The **TherMedico NK 1** is used in the field of human pain therapy and works by means of temperature-controlled nerve lesion using high-frequency energy, as well as high-frequency therapy without nerve lesion. Using electrodes and needles, the device is designed for

- percutaneous coagulation of soft tissue using radio frequency,
- percutaneous application of pulsed radio frequency.

Both methods are used in the area of pain therapy for the reduction or the elimination of pain.

1.2 Classification

In line with the guideline for medical products 93/42/EWG Appendix IX and in accordance with rule 9, the **TherMedico NK 1** is classed as a category **IIB** product.

1.3 Safety Precautions

You must follow the instructions for use when using the **TherMedico NK 1**.

The device may **only** be operated by qualified medical persons who are specifically trained to do so.

Adaptors or extension leads may not be used, as this could result in increased emissions or render the **TherMedico NK 1** more susceptible to interference.

Damaged leads or plugs must be replaced immediately.

If the device is damaged it must be returned to the manufacturer immediately for checking.

Before cleaning or servicing the device, the power plug and any other connecting cables must be pulled.

The device may **only** be serviced or checked by skilled persons with training in the use of the device. Checks and maintenance must be carried out following the service manual, using tests with valid calibration.

Do not operate in proximity of flammable anaesthetic agents or gases. Danger of explosion!

Keep the device far from containers with a liquid content. Liquids must be prevented from getting into the device. If liquid has penetrated the **TherMedico NK 1** despite precautions, the device must be dried and technical tests carried out before it is used again.

Always replace a fuse with one of the same type that has the same parameters.

Before connecting the device to the power supply, ensure that the mains voltage and frequency corresponds to the one displayed on the device label.

The operator is fully responsible to take these safety precautions.

1.4 Safety Notes

All the items that are listed under accessories may be used in conjunction with the **TherMedico NK 1**.

Using the **TherMedico NK 1** close to (e.g. 1m) a therapy device using short waves or microwaves may cause the base values of the **TherMedico NK 1** to fluctuate.

In order to prevent unwanted burning, the following points should be observed:

- The surface area of the neutral electrode must have total contact with the patient's body and be fixed securely and as close to the area of operation as possible.
- The patient's body must not touch any metal items that are earthed or have significant earthing potential, e.g. operating table brackets etc. The use of antistatic cloth is recommended for this purpose.
- Skin-to-skin contact, for example between the patient's arms and body, should be avoided. For this purpose, dry gauze may be placed between potential contact areas.
- When the **TherMedico NK 1** is used simultaneously with other physiological monitoring equipment, all the monitoring electrodes should be fixed to the patient's body as far away as possible from the active or neutral electrode. We do not recommend the use of needle electrodes for monitoring. We do recommend the use of monitoring systems, which are equipped to limit high frequency currents.
- The electrode leads should not touch either the patient or any of the other leads. Electrodes that are not being used temporarily should be put away and not touch the patient.
- The output power should be set at the lowest possible level suited to the intended use.
- If the output value is apparently too low, or if, during standard procedures, the **TherMedico NK 1** displays intermittent functional deficiency, this may be due to either faulty contact between the neutral electrode and the patient's body or faulty contacts in the leads. Check the position of the neutral electrode and the check the leads before increasing the output power.
- Patients with pacemakers or other active implants could be at risk in so far as the pacemaker could be affected or damaged. In case of doubt, please seek professional advice.
- When the **TherMedico NK 1** is switched on, its interferences may affect other electronic equipment working. Portable or mobile high frequency communication equipment can interfere with electric medical instruments. Please read the notes about putting the system into operation as well as the accompanying manufacturer's notes.
- The operator must check the accessories regularly, paying particular attention to potential damage of the insulation of the electrode leads.

- Failure of the **TherMedico NK 1** may result in an undesirable increase of the output power.
- The **START/STOP** button is **not** suitable for emergency use. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK1**.

2 Description

2.1 Used Symbols

2.1.1 Front of the device



Connection thermo-probe



Connection neutral electrode



Neutral electrode is insulated against earth for high frequency.



Attention, read accompanying literature.

2.1.2 Label

Pierenkemper GmbH

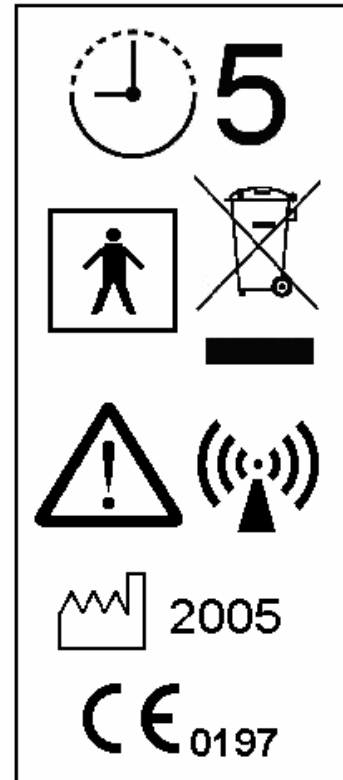
Hörnshheimer Eck 19 D-35578 Wetzlar

TherMedico NK 1

REF 503710 SN 000001 A

230 V ~ 50/60 Hz 0,3 A

⊙→ 25 W (100 Ω) 485 kHz





SN Device serial number

REF Article or order number

⊙→ Device output power


 **5** Short term use 5 min

 Attention, read accompanying literature.


 The device may not be disposed of in the normal way.
 The device was put in circulation after 13.08.2005.

 Application part type BF

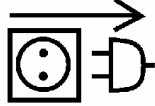
A Non-ionising electromagnetic radiation

 Year of construction of device

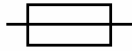
JJJJ Year of manufacture

0197 This product conforms to the guideline for medical products (93/42/EWG).

2.1.3 Mains supply



Before opening the device, pull power plug!



Mains fuse

2x T 500 mA H 250 V

2.2 Control panel

The displays and buttons on the control panel are in order of use:

- Impedance
- Stimulation
- HF-lesion
- Mode

The following illustration shows the control panel (without activated 7-segment displays or text displays):

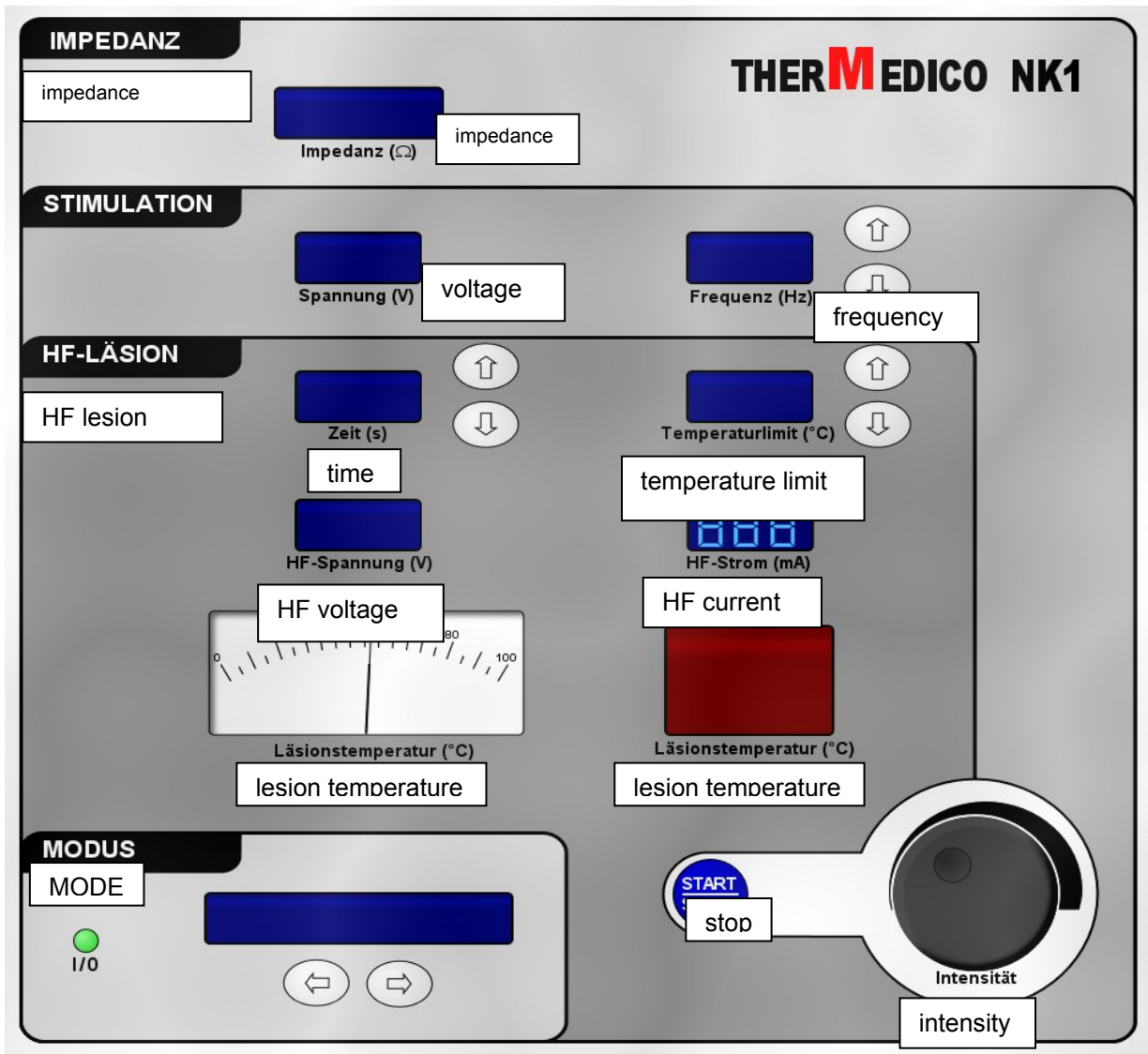


Illustration No. 1: Control panel

2.2.1 7-segment displays (LED)

The **TherMedico NK 1** is equipped with LEDs showing the various parameters. You should watch these displays carefully when the **TherMedico NK 1** is in use.

Impedance

4-digit display showing the impedance value in Ω (Ohm).

Stimulation voltage

3-digit display showing the stimulation voltage in V (Volt).

Stimulation frequency

3-digit display showing the stimulation frequency in Hz (Hertz).

HF-lesion - Time

3-digit display showing the lesion time in s (seconds).

HF-lesion – Temperature limit

3-digit display showing the different temperature limits in °C (degrees Celsius).

HF-lesion - Voltage

3-digit display showing the HF voltage in V (Volt).

HF-lesion - Current

3-digit display showing the HF current in mA (Milli-ampère).

HF-lesion - Temperature

2-digit display showing the current temperature in °C (degrees Celsius).

When working with the TherMedico NK 1, the operator must continuously compare the temperatures shown on the needle display with the lesion temperature on the 7-segment display. If there is a significant difference between the temperatures, the device is not working properly.

2.2.2 Text display (VFD)

The **text display** shows the various operating modes and it also conveys important information to the operator, for instance cases of faulty operation or functional interference. The operator should observe the **text display** carefully when working with the **TherMedico NK 1**.

2.2.3 Needle display

The **needle display** shows the dynamics of temperature measured in the thermo-probe. The temperature test circuit directly controls the needle display. The needle display should be observed carefully when the **TherMedico NK 1** is in operation.

When working with the TherMedico NK 1, the operator must continuously compare the temperatures on the needle display with the lesion temperature on the 7-segment display. If there is a significant difference between the temperatures, the device is not working properly.

The needle display is always illuminated.

2.2.3 Buttons**START/STOP button**

You can stop stimulation and HF-lesion by pushing the **START/STOP button** and you can also start manual lesion with it.

The **START/STOP button** is not suitable for emergency use. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**.

Mode buttons

The two **mode buttons** allow you to select the desired operating mode of the **TherMedico NK 1**.

Modification buttons

The **modification buttons** are used to change the parameters on their left. Some operating modes, however, do not allow the changing of the displayed parameter. If a modification button is pressed for longer than a second, the display will change more quickly.

The **modification buttons** are:

- Stimulation frequency
- HF-lesion time
- HF-lesion temperature limit

2.2.4 Turning knob

You can change certain parameters using the **turning knob**:

- Stimulation intensity (operating mode stimulation)
- Manual temperature limit (operating mode HF-lesion)
- HF-voltage (operating mode HF-lesion pulsed)

2.3 Signaller

The **TherMedico NK 1** is equipped with an integrated signaller. This signaller emits system-specific audio signals.

3 Installation and putting into operation

The following describes how to install the **TherMedico NK 1** and how to put it into operation:

1. Installation

The device should be positioned on an even surface. To enable heat to dissipate as required, you must ensure that the aeration holes on the bottom of the device are not blocked.

2. To avoid mutual interference, please do not place the **TherMedico NK 1** directly next to, on top of or underneath any other equipment. If this is not possible, you must watch each device when it is operating, to ensure it is working normally.

3. Connection to the mains

The socket for the mains lead is on the back of the device. Having checked that the mains voltage and frequency corresponds to the one displayed on the device label, plug the device into a safety socket that has been installed according to regulations, using the mains lead that came with the device.

4. Switching the device on by using the mains switch

The mains switch is on the back of the device.

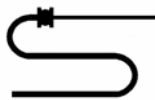
When the device has been switched on, the green indicator lamp „I / 0“ should be on.

5. The device will run a **display test** (please refer to section on display test).

The display test allows you to check that the displays and the signaller are working. Following this, the device will be on **Standby**.

6. Connecting the thermo-probe

Connect the thermo-probe to the connector showing this symbol:



The markings on the plug and the socket must be lined up.

To pull the thermo-probe out of the socket, make sure you **only** pull it by the plug casing, to open the automatic lock of the connector. **Do not pull the lead!** Pulling the lead may damage or break the thermo-probe.

7. Connecting the neutral electrode

Connect the plug of the neutral electrode lead into the socket with this symbol:



8. Thermo-probe test

Before using the device, you should run a thermo-probe test. For this purpose, the device must be in the thermo-probe test operating mode and the temperature in the probe tip increased (please refer to the probe test section).

9. The device is now ready for use and you can select the desired operating mode.

Attention

The length of the needle and the thermo-probe must correspond to work safely and effectively!

4 Operating

The **TherMedico NK 1** has several operating modes. These may be selected using the mode buttons or the device activates or deactivates them automatically.

The operating modes are as follows:

- Display test
- Standby
- Probe test
- Stimulation 1
- Stimulation 2
- HF-lesion 1
- (HF-lesion 2)
- (HF-lesion 3)
- (HF-lesion 4)
- HF-lesion pulsed

The number of operating modes for HF-lesion may be changed using the settings.

The following operating modes can only be accessed using special combinations of buttons:

- Basic settings
 - Language
 - Temperature threshold
 - RF lesion check time
 - RF lesion number
- Advanced settings and adjustment functions
 - Serial data transfer
 - Calling up factory settings
 - Adjustment functions

4.1 Menu options

The **TherMedico NK 1** possesses the following menu sequence:

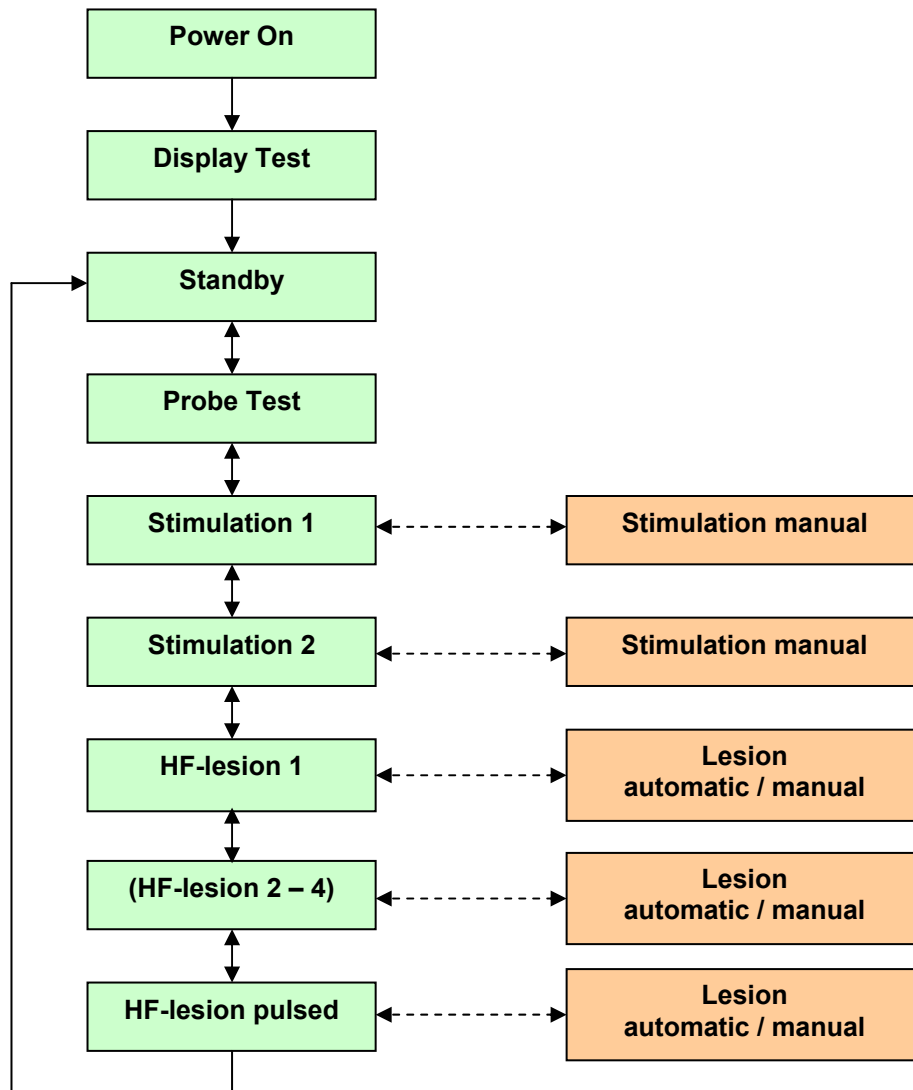


Illustration No. 22: Menu options

If the device has been not been used for lesion or stimulation and if no button has been pressed for a period of **20 min**, the **TherMedico NK 1** reverts to **Standby** mode.

4.2 Display test

TherMedico NK 1
Version 1.0

During the display test, all the **TherMedico NK 1** display segments are switched on in sequence. The signaller signals the switch from one display to the next, allowing the operator to check that the displays and the signaller are working.

At the same time the text display shows the current version of the software of the device.

4.3 Standby

```
Standby
```

Once the device has been switched on and the display test has run the **TherMedico NK 1** goes into Standby mode.

4.4 Probe test

Before every use of the **TherMedico NK 1**, the operator must run a probe test!

```
Probe test  
-> Test probe
```

The operator must heat up the tip of the thermo-probe without compromising its sterility. If the temperature is increased by 3 °C within a period of 5 seconds, the display shows „Probe OK“.

```
Probe test  
-> Probe OK
```

Furthermore, the **TherMedico NK 1** runs a plausibility test. If the registered temperature is not between 10 °C and 40 °C, this is shown accordingly.

The temperatures shown on needle display and the 7-segment display „Lesion temperature“ (room temperature) should be about the same.

4.5 Stimulation

There are two operating modes for stimulation:

- Stimulation 1
- Stimulation 2

The difference between these two modes is a different stimulation frequency. The stimulation frequency can be modified using the appropriate modification buttons.

Value range: 2 Hz – 100 Hz

Since stimulation 1 and stimulation 2 work in identical ways, the following description of stimulation 1 is valid for both operating modes:

```
Stimulation 1  
-> Impedance  
measurement
```

Whilst stimulation is not active, impedance is measured continuously via the patient circuit. The impedance measurement display shows the impedance value that is being measured. If the impedance value is greater than **3000 Ω**, the patient circuit is recognized as not closed, an audio signal sounds and the text display shows:


```
Stimulation 1  
-> Check connection
```

It is not possible to start stimulation.

When the impedance value is smaller than **3000 Ω**, you can start stimulation by turning the **turning knob** clockwise. The text display shows:

```
Stimulation 1  
-> Active
```

At this point the 7-segment display shows the **Stimulation Voltage**, which may be adjusted using the turning knob. **TherMedico NK 1** now produces the desired stimulation voltage.

You can stop stimulation at any time, using the **START/STOP** button. The **START/STOP** button is **not** suitable for use in an emergency. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**. Stimulation may also be halted by re-setting the stimulation voltage to 0,0 V.

4.6 HF-lesion

There are up to four operating modes for HF-lesion:

- HF-lesion 1
- HF-lesion 2
- HF-lesion 3
- HF-lesion 4

You can select the number of existing HF-lesion operating modes using the settings.

The difference between the operating modes lies in the different times for the lesion timer as well as the temperature limits. You can adjust these values using the relevant modification buttons.

Since HF-lesions 1, 2, 3 and 4 work in identical ways, the following description of **HF-lesion 1** is valid for all of the four operating modes:

```
HF-lesion 1  
-> Impedance  
measurement
```

The 7-segment display **Time** shows the current setting for the **Lesion time**. It can be adjusted using the appropriate modification buttons.

Value range: 1 s – 300 s

The 7-segment display **Temperature limit** shows the current setting for the **Temperature limit**. This can be adjusted using the appropriate modification buttons.

Value range: 20 °C – 95 °C

Whilst stimulation is not active, impedance is measured continuously via the patient circuit. The impedance measurement display shows the impedance value that is currently being registered. If the impedance value is greater than **3000 Ω**,

the patient circuit is recognized as not closed, an audio signal sounds and the text display shows:

```
HF-lesion 1
-> Check connection
```

It is not possible to start HF-lesion.

There are two ways to start **HF-lesion** (impedance smaller than 3000 Ω):

- Automatic (START/STOP button)
- Manual (turning knob)

4.6.1 Automatic HF-lesion

```
HF-lesion 1
-> Active
```

Push the **START/STOP** button to activate **automatic HF-lesion**. The **temperature limit** that has been set and is indicated on the 7-segment display must be reached and then maintained and this determines and regulates the HF-performance. Both the 7-segment display **lesion temperature** and the needle display show the temperature that is currently being registered.

The **lesion timer** operates once the set temperature level has been reached or when the two **HF-lesion time** buttons are pressed at once. You can adjust the temperature level using the menu option **Settings**. HF-lesion finishes automatically when the timer stops.

Push the **START/STOP** button to halt the lesion process at any point. The **START/STOP** button is **not** suitable for use in an emergency. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**.

4.6.2 Manual HF-lesion

```
HF-lesion 1
-> Active manual
```

You can start **manual HF-lesion** by turning the **turning knob** clockwise. The 7-segment display now shows the **temperature limit**, which can be manually adjusted using the turning knob. A dot on the 7-segment display marks this value. The **temperature limit** that has been set and is indicated on the 7-segment display must be reached and then maintained and this determines and regulates the HF-performance.

Both the 7-segment display **lesion temperature** and the needle display show the temperature that is being registered. **HF-voltage** and **HF-current** on the 7-segment display show the set HF-voltage and HF-current.

The **lesion** operates once the set temperature level has been reached or when the two **HF-lesion time** buttons are pressed at once. HF-lesion finishes automatically when the timer stops. You can adjust the temperature level using the menu option **Settings**.

Push the **START/STOP** button to halt the lesion process at any point. The **START/STOP** button is **not** suitable for use in an emergency. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**.

4.7 HF-lesion pulsed

When the operating mode is in HF-lesion pulsed, the HF signal is emitted pulsed.

The **temperature limit** is fixed at **42 °C**.

```
HF-lesion pulsed
-> Impedance
measurement
```

The 7-segment display **Time** shows the current setting for the **Lesion time**. It can be adjusted using the appropriate modification buttons.

Value range: 1 s – 300 s

Whilst stimulation is not active, impedance is measured continuously via the patient circuit. The impedance measurement display shows the impedance value that is being measured. If the impedance value is greater than **3000 Ω**, the patient circuit is recognized as not closed, an audio signal sounds and the text display shows:

```
HF-lesion pulsed
-> Check connection
```

It is not possible to start HF-lesion.

There are two ways to start **HF-lesion pulsed** (impedance smaller than 3000 Ω):

- Automatic (START/STOP button)
- Manual (turning knob)

4.7.1 Automatic HF-lesion pulsed

```
HF-lesion pulsed
-> Active
```

Push the **START/STOP** button to start **automatic HF-lesion**. HF-performance is determined and regulated by reaching and maintaining a temperature (temperature limit) of **42 °C**.

The lesion timer starts immediately. **Automatic HF-lesion** finishes automatically when the timer stops.

Push the **START/STOP** button to halt the lesion process at any point. The **START/STOP** button is **not** suitable for use in an emergency. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**.

4.7.2 Manual HF-lesion pulsed

```
HF-lesion pulsed
-> Active manual
```

For this operating mode the required HF voltage is set directly, not the desired temperature.

Start **manual HF-lesion pulsed** by turning the **turning knob** clockwise. The 7-segment display now shows the **HF-voltage**, which can be adjusted using the turning knob. A dot on the 7-segment display marks this value.

The 7-segment display **temperature limit** is switched off because this operating mode does not use a temperature limit. The operator is responsible for regulating the temperature.

Both the 7-segment display **lesion temperature** and the needle display show the temperature that is being registered. **HF-current** on the 7-segment display shows the HF-current that is being measured.

The lesion starts immediately. **Manual HF-lesion** finishes automatically when the timer stops.

Push the **START/STOP** button to halt the lesion process at any point. The **START/STOP** button is **not** suitable for use in an emergency. In case of an emergency, pull the thermo-probe plug from the **TherMedico NK 1**.

4.8 Temperature displays

The **TherMedico NK 1** has two temperature displays for the temperature that is being measured:

- Needle display lesion temperature
- 7-segment display lesion temperature

The control unit (micro controller) of the **TherMedico NK 1** controls the 7-segment display. The temperature shown on the needle display, on the other hand, is derived directly from the temperature measurement control. This makes a plausibility test using both displays possible. Different values on the displays indicate a malfunctioning. You should immediately stop any running HF-lesion. If the **TherMedico NK 1** does not respond to any button being pushed, you can pull either the thermo-probe plug or the neutral electrode plug from the device (emergency stop).

5 Troubleshooting

Faults may occur when the **TherMedico NK 1** is running. They are shown on the text display or an audio signal is given.

You may come across the following faults:

Fault message	Description	Possible cause, solution
„No probe “	Probe is not connected or probe lead is damaged. Consequence: Running stimulation or HF-lesion is suddenly cut off. Stimulation or lesion cannot be restarted whilst the problem persists. Device switches to operating mode „Probe test“.	Check thermo-probe and connect or replace.
„Check connection “	Circuit thermo-probe – neutral electrode not closed. Consequence: Stimulation or lesion cannot be started whilst the problem persists.	Check circuit, check plug and socket connection, check neutral electrode lead. Check contact neutral electrode and patient.
Audio signal and no displays	Display module disconnected. Consequence: Stimulation or lesion cannot be started whilst the problem persists.	The device must be repaired.
„E 10“	In stimulation mode: Faulty generation of stimulation pulse. Consequence: Stimulation or lesion cannot be started whilst the problem persists.	The device must be repaired.
„E 20“	In probe-test mode: Measured temperature is not room temperature range of 10 – 40 °C.	Faulty thermo-probe, replace.
„E 30“	In lesion mode: Once the desired set temperature is reached, the control value for HF is controlled. If it does not change within a certain set (check time) time span, lesion is stopped and this fault message appears.	Possibly no contact between thermo-probe and tissue. Check combination needle, thermo-probe length. Otherwise, the device must be repaired.
„E 31“	In lesion mode: After starting lesion, the temperature is controlled for a certain set (check time) time span. If it does not change, lesion is stopped and this fault message appears.	
„E 32“	In lesion mode: After starting lesion, the temperature is controlled for a certain set (check time) time span. If it does not increase by at least +5 °C, lesion is stopped and this fault message appears.	

6 Settings

The **TherMedico NK 1** has several possible basic settings. They are programmed according to the client's requirements at the time of delivery. The available setting options and the selected settings are described or documented in the **service manual**.

7 Technical data

1 General

1.1	Nominal voltage	230 VAC
1.2	Nominal current	300 mA
1.3	Operating frequency	50 / 60 Hz
1.4	Mains fuses	2 x T 500 mA H 250 V (IEC 127)
1.5	Protection class	I
1.6	Application part	Type BF (1 active and 1 neutral electrode)
1.7	Mode of operation	Short term operation 5 min
1.8	Dimensions	350 x 380 x 170 mm (W x H x D)
1.9	Weight	ca. 8 kg (without accessories)

2 Impedance measurement

2.1	Range (digital display)	0 - 3000 Ω (precision \pm 20 %)
2.2	Frequency	54 kHz \pm 0,5 kHz sinus
2.3	Internal test resistance	500 Ω \pm 25 Ω

3 Stimulation

3.1	General	Voltage adjustable by units of 0,1 V
3.2	Number of programmes	2
3.3	Voltage range	0 – 3,0 V (\pm 10 %)
3.4	Frequency range	2 – 100 Hz (\pm 1 %)
3.5	Wave form	Bi-phase rectangle, 1 msec. negative, 1 msec. positive

4 Temperature measurement

4.1	Thermo element	Type K
4.2	Measurement range	0 - 100 °C (\pm 2 °C)

5 HF-lesion

5.1	General	Desired temperature adjustable by units of 1 °C automatic performance regulation 1 application circuit, floating
5.2	Number of programmes	max. 4
5.3	Modes of operation	automatic / manual
5.4	Output power	0 – 25 W on 100 Ω
5.5	Frequency Modulation type	485 kHz \pm 0,5 kHz amplitude-modulated, modulation grade maximum 100%
5.6	Max. lesion time	300 s
5.7	Max. lesion temperature	95 °C
5.8	Timer	1 – 300 s (\pm 1 %)

6 HF-lesion pulsed

6.1	General	Desired temperature adjustable by units of 1 °C automatic performance regulation 1 application circuit, floating
6.2	Number of programmes	1
6.3	Modes of operation	automatic manual (set HF voltage)
6.4	Output power	0 – 1 W on 100 Ω (equivalent to 25 W pulsed)
6.5	Pulse frequency	2 Hz
6.6	Pulse impulse breadth	20 msec.
6.7	Max. lesion temperature pulsed	42 °C

Output signals

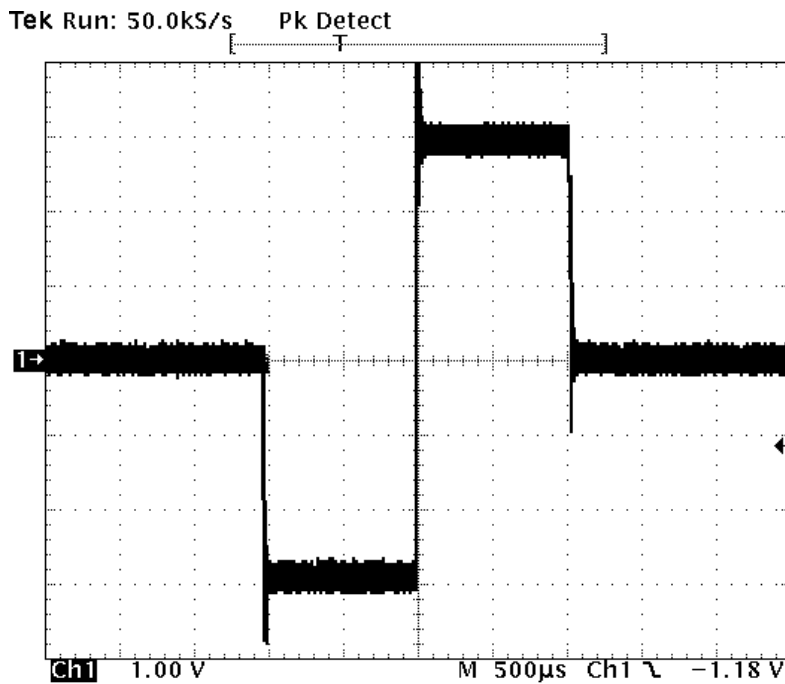


Illustration No.1: Stimulation impulse (on 500 Ω real)

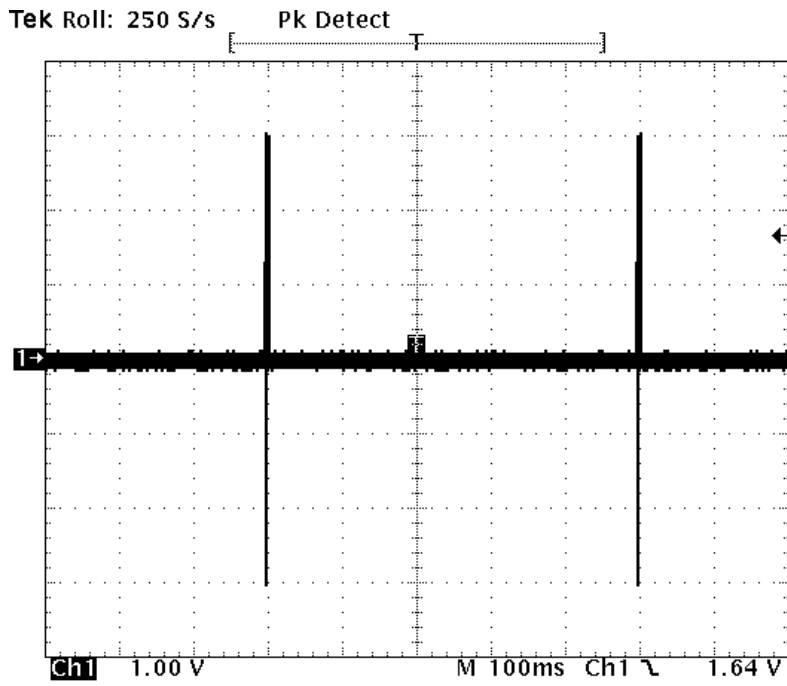


Illustration No.2: Stimulation impulses 2 Hz (on 500 Ω real)

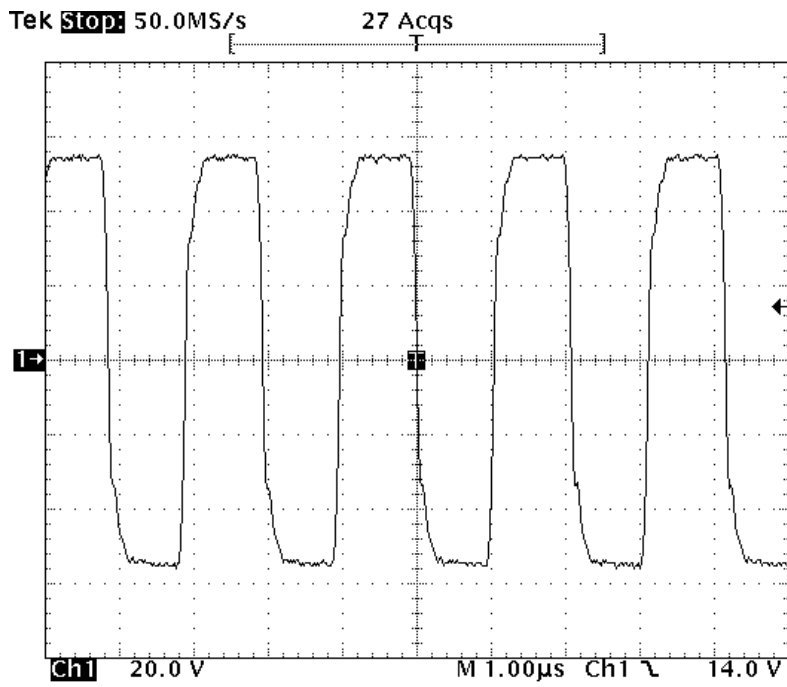


Illustration No.5: HF impulse (on 100 Ω real)

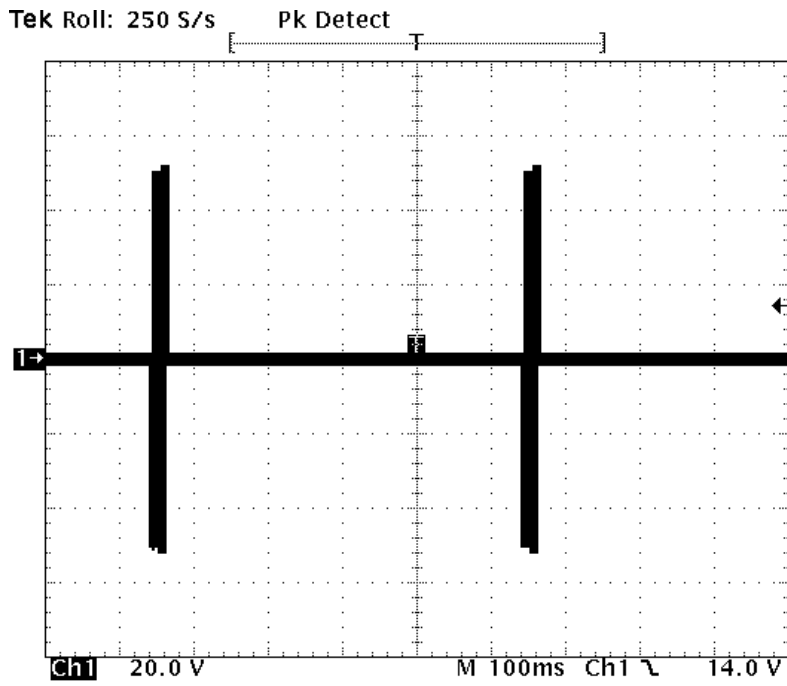


Illustration No.6: HF impulse pulsed (on 100 Ω real)

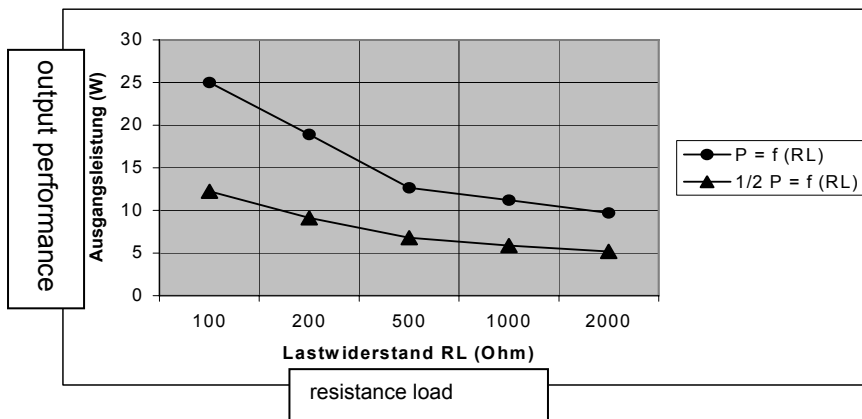


Illustration No.7: Total performance and half performance depending on load resistance

8 Maintenance and safety-related checks

Every 12months, staff must run safety checks on the **TherMedico NK 1** and all its accessories.

Please refer to the **service manual** for a detailed description of all the required checks.

9 Sterilisation, cleaning and care

- You should clean the **TherMedico NK 1** regularly. You will need a soft, lint-free cloth and a little mild detergent or isopropanol. Do not use any abrasive cleaning materials. When cleaning, do make sure that the inside of the device does not get wet. Flammable cleaning agents must have fully evaporated before the device is used again.
- The **needles** are sterile when they are delivered and are intended for single use only.
- The **thermo-probes** are not sterile when delivered and must be sterilized before each use. Please refer to the instructions accompanying the thermo-probe that is used.
- The **neutral electrodes** are not sterile intended for single use only.

10 Guarantee

The **TherMedico NK 1** is guaranteed for 2 years from the purchase date. This guarantee does not cover thermo-probes, leads, cables and electrodes.

- The product is guaranteed to operate without defects for two years from the purchase date, provided it is used as intended. For products whose labelling indicates a shorter life than two years, the guarantee ends on the expiry date as shown on the packaging or on the instructions for use.
- The guarantee is not valid:
 - if the instructions for use are not followed,
 - if operating errors are made,
 - if the device is improperly operated or handled,
 - if unauthorized persons attempt repairs,
 - in cases of acts-of-god, e.g. lightning strikes etc.,
 - if the product is sent back to the manufacturer and damaged during that transport because it was improperly packaged,
 - if maintenance or safety checks have not been carried out,
 - in cases of normal wear and tear.
This includes the following components, for example:
 - single use articles etc.
 - not using original spare parts or accessories.
- Pierenkemper GmbH is not liable for consequential harm caused by a defect, where this is due to intent or gross negligence, or in cases of slight negligence causing injury to life and limb.
- This policy does not affect your statutory rights.

11 Disposal

The manufacturer is obliged to take back the **TherMedico NK 1** and to dispose of it properly.

12 Scope of delivery

The **TherMedico NK 1** comes with:

Number	REF	Description
1	503710	TherMedico NK 1
1	106850	Neutral electrode cable
1	450810-0043	Mains cable
1	503719	Instructions for use
1	451710-0002	Service manual

13 Accessories

The **TherMedico NK 1** may be used in conjunction with the following accessories:

REF	Description	Type	Manufacturer
500882	Thermo-probe 50 mm	M/405-TC05	RDG
500883	Thermo-probe 100 mm	M/406-TC10	RDG
500884	Thermo-probe 150 mm	M/407-TC15	RDG
500887	Needle 50 mm 22 G 5 mm tip	Thermo lesion needle	Pierenkemper
500888	Needle 100 mm 22 G 5 mm tip	Thermo lesion needle	Pierenkemper
503713	Needle 100 mm 22 G 10 mm tip	Thermo lesion needle	Pierenkemper
500890	Needle 100 mm 22 G 15 mm tip	Thermo lesion needle	Pierenkemper
500889	Needle 150 mm 20 G 5 mm tip	Thermo lesion needle	Pierenkemper
503714	Needle 150 mm 20 G 10 mm tip	Thermo lesion needle	Pierenkemper
500991	Neutral electrode	Mono plate	Erbe

14 Addresses

14.1 Manufacturer's address

Pierenkemper GmbH
Hörnheimer Eck 19
D-35578 Wetzlar

Tel.: +49 (0) 6443-67923-0
Fax: +49 (0) 6443-67923-33

Internet: <http://www.pieren-tech.de>
Email: info@pieren-tech.de

0197 451600-0231

14.2 Dealer's address

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Abteilung für Spezialsysteme (Department for Special Systems)
Am Geiersberg 6
D-35630 Ehringshausen

Internet: <http://www.schwa-medico.com>

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