

## C2 NerveMonitor

APPLICATION FIELD

Spinal Column Surgery

- » Posterior cervical interbody fusions
- » Posterior lumbar interbody fusions and lateral approaches



# Spinal Neuromonitoring



# C2 Spine Software

## Neuromonitoring in Spinal Column Surgery

### USER-FRIENDLY MEETS HIGH SIGNAL QUALITY

With its special C2 Spine Software, colour-coded accessories and needle positioning instructions, the C2 NerveMonitor helps to ensure efficient neuromonitoring during spinal column surgery in posterior cervical and lumbar interbody fusions and lateral approaches.

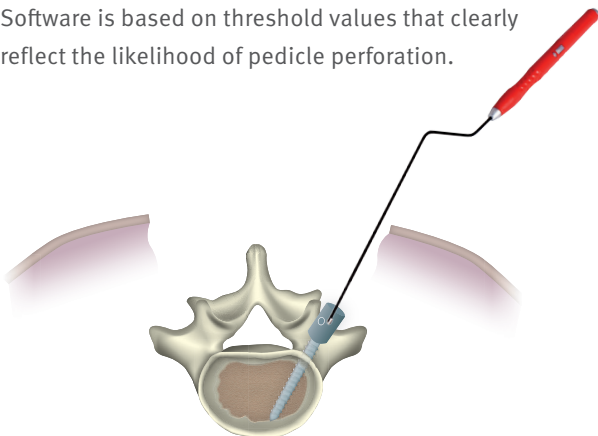
Due to its high signal quality and user-friendly operation, the C2 NerveMonitor is already being used in a large number of surgical disciplines. Whether open or minimally invasive procedures, with the C2 Spine System, surgical preparations are quick and easy. The wizard-based Spine Software provides intuitive user guidance.

### CARACTERISTICAS

- » Easy-to-use
- » Clear view of EMG signals
- » Specially developed C2 Spine Software
- » Automated relaxation control
- » Continuous and automated impedance monitoring for the measuring electrodes
- » Barcode scanner for patient data
- » Integrated database
- » Colour-coded accessories

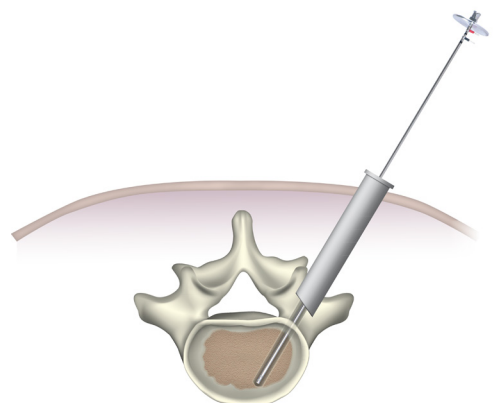
## Pedicle screw placement

Positioning of pedicle screws can lead to perforation of the pedicle wall, which jeopardises the integrity of the surrounding spinal nerves. Therefore the C2 Spine Software is based on threshold values that clearly reflect the likelihood of pedicle perforation.



**Open approach:** Stimulation either directly in the drill hole or by electrification of the pedicle screw in order to monitor the integrity of the pedicle. A hand-held stimulation probe is used for stimulation.

The Spine Software has been specially designed for the monitoring of spinal nerves during the positioning of pedicle screws.



**Minimally invasive approach:** The pedicle stimulation probe is inserted directly via the Kirschner wire. Stimulation takes place directly in the drill hole or by electrification of the pedicle screw in order to monitor the integrity of the pedicle.

# Spine Software application

## Wizard structure

The user is guided through the intraoperative monitoring process step by step, beginning with entering the patient's data:

1

### Entry of patient data

Spine 10.2

**Warning:** Muscle relaxants or paralytics should not be in effect during the use of C2 NerveMonitor as they might interfere with the electromyography readings. Contraindications: Heart, brain or vascular implants.

**OPERATION DATA**

Surgeon: \_\_\_\_\_  
Anaesthetist: \_\_\_\_\_  
Comment: \_\_\_\_\_

**PATIENT DATA**

Patient ID\*: \_\_\_\_\_  
Barcode or Keyboard input

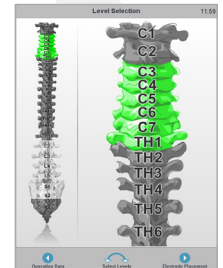
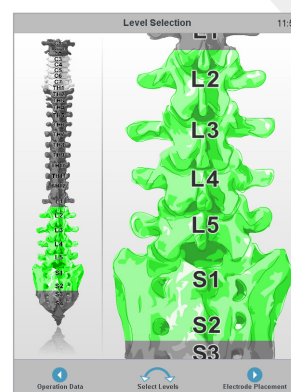
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Date of birth: \_\_\_\_\_ Gender: \_\_\_\_\_

\*Mandatory Fields

Buttons: Patient, C1, C2, Level Selection

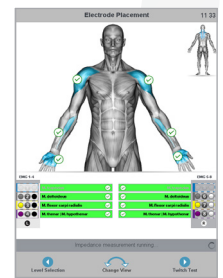
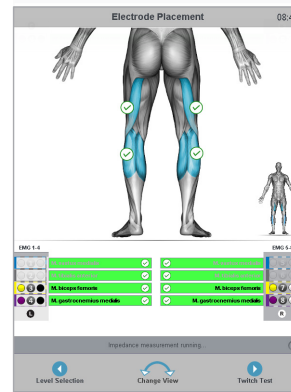
2

### Level selection



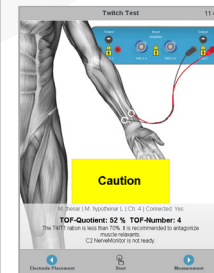
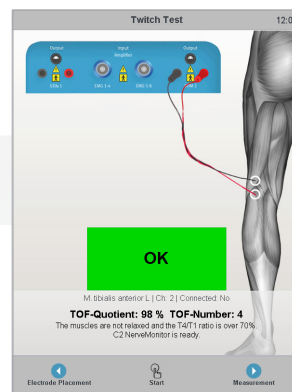
3

### Electrode placement



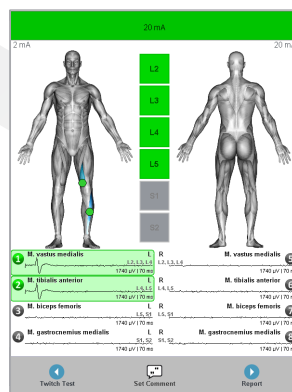
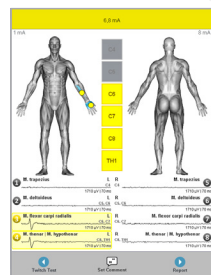
4

### Relaxation control (TOF test)



5

### Testing



### Report

Spine 11:59

**Warning:** Muscle relaxants or paralytics should not be in effect during the use of C2 NerveMonitor as they might interfere with the electromyography readings. Contraindications: Heart, brain or vascular implants.

**OPERATION DATA**

Surgeon: \_\_\_\_\_  
Anaesthetist: \_\_\_\_\_  
Comment: \_\_\_\_\_

**PATIENT DATA**

Patient ID\*: 12234455  
Barcode or Keyboard input

Last name\*: \_\_\_\_\_ First name: \_\_\_\_\_  
Date of birth: \_\_\_\_\_ Gender: \_\_\_\_\_

\*Mandatory Fields

Buttons: Patient, C1, C2, Level Selection

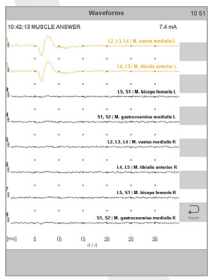
Print Preview 09:05

Spine 10.2

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### Documentation



Report 15:49

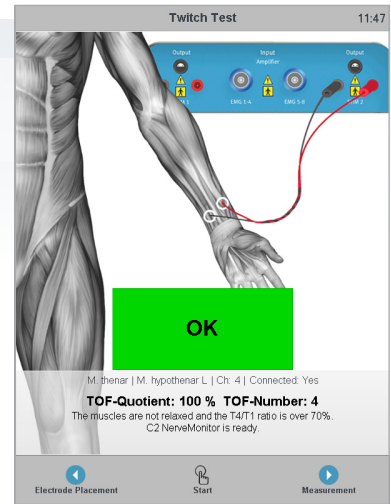
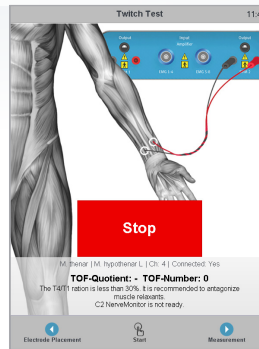
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Time	Activity	Comment	Result
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13:06	MUSCLE ANSWER Channel 7 - M. biceps femoris R		7.4 mA
13:07	MUSCLE ANSWER Channel 7 - M. biceps femoris R		7.4 mA
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13:11	MUSCLE ANSWER Channel 7 - M. biceps femoris R		14.0 mA
13:14	MUSCLE ANSWER Channel 7 - M. biceps femoris R		14.0 mA
13:17	MUSCLE ANSWER Channel 4 - M. gastrocnemius medialis		9.2 mA
13:20	MUSCLE ANSWER Channel 4 - M. gastrocnemius medialis		9.2 mA
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13:24	MUSCLE ANSWER Channel 7 - M. biceps femoris R		14.4 mA
13:28	MUSCLE ANSWER Channel 1 - M. vastus medialis L		7.4 mA
13:29	MUSCLE ANSWER Channel 1 - M. vastus medialis L		7.4 mA
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13:31	MUSCLE ANSWER Channel 4 - M. gastrocnemius medialis		18.2 mA
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14:59	MUSCLE ANSWER Channel 7 - M. biceps femoris R		7.4 mA
15:00	MUSCLE ANSWER Channel 7 - M. biceps femoris R		7.4 mA

Buttons: Patient, Set Comment, Print Preview

# Relaxation control

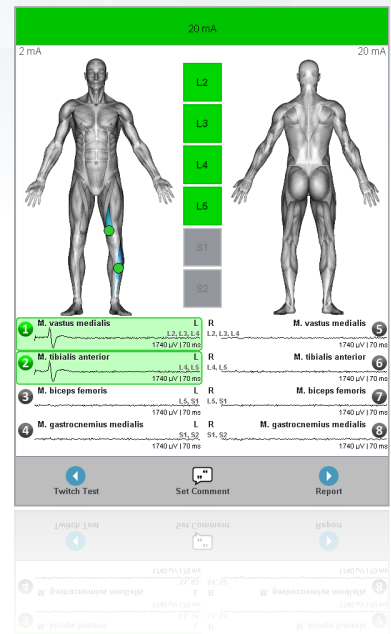
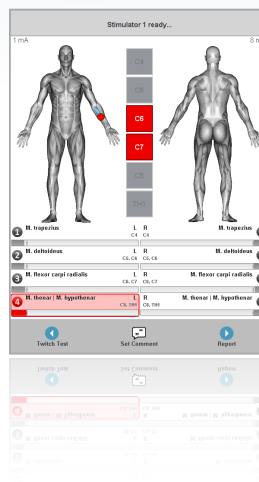
To check the pharmacological relaxation status of the patient's muscles an **integrated Twitch Test (TOF test)** is applied. This is crucial for ensuring the perfect recording of signals during spinal surgery.



# Measurement mode

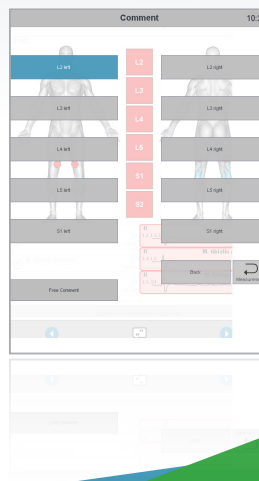
While the software is in measurement mode, the patient's muscles are **continuously monitored for activity**.

If a relevant activity occurs, such as through direct mechanical manipulation of a nerve, the surgeon is immediately notified visually and acoustically. In addition, pedicle screw stimulation allows for **automatic detection** of the respective stimulation threshold value, thereby providing **information on the integrity of the pedicle**. This crucial information for spinal column surgery is provided and visualised quickly and easily.



# Documentation

The C2 Spine Software **automatically stores all events**, commenting and listing them in the report. Users can therefore review each individual stimulation response at any time.





## Spine Accessories



Art. No. **508 280**

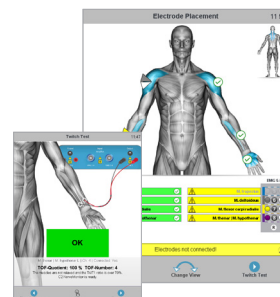
### **C2 NerveMonitor 8-channel system**

for intraoperative nerve monitoring.  
Easy to use EMG monitor with two integrated stimulation channels, including loudspeaker, footswitch and mains lead

Art. No. **508 512**

### **Spine Software-Modul for C2**

provides automated functions for EMG monitoring and direct nerve stimulation in spine surgery, applicable for C2 software version 3.0



Art. No. **540 730**

### **EMG adapter for colour-coded accessories**

for maximal 8 colour-coded channels, differential, cable length 5 m

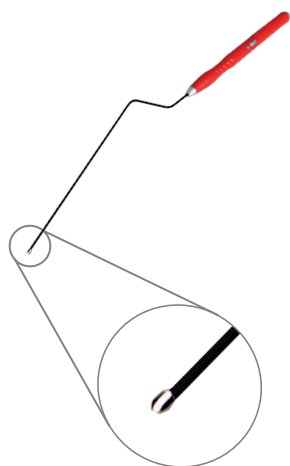
- › Delivered non-sterile
- › Non-autoclavable

Art. No. **535 640**

### **Spine Surgery Set for EMG Recording, posterior approach**

colour-coded needle electrode set, 1.5 mm touchproof connector, 1x pair of electrodes coloured/black and 1x coloured/white, green ground electrode

- › Single use
- › ETO sterilised



Art. No. **525 615**

### **Stimulation probe 130 mm monopolar, bayonet, ball tip**

1.5 mm touchproof connector, bayonet, ball diameter 2.5 mm, work element length 130 mm, with counter electrode black, cable length 3 m

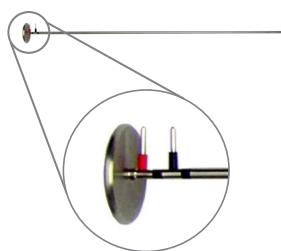
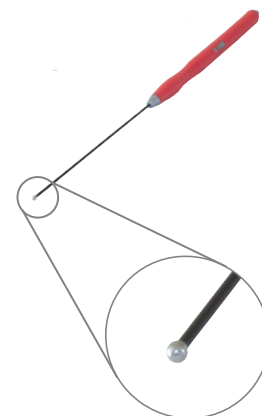
- › Single use
- › ETO sterilised

Art. No. **525 616**

### **Stimulation probe 85 mm monopolar, straight, ball tip**

1.5 mm touchproof connector, straight, ball diameter 2.3 mm, work element length 85 mm, with counter electrode black, cable length 3 m

- › Single use
- › ETO sterilised



Art. No. **522 130**

### **Bipolar pedicle simulation probe**

work element length 30 cm with 1.5 mm connectors red and black, inner diameter 1.67 mm (compatible with Kirschner wire up to 1.6 mm diameter)

- › Delivered non-sterile
- › Autoclavable
- › Applicable with Art. No. 520 070 and 520 027

Art. No. **510 025**

### **Mute sensor**

to suppress HR interference signals, cable length 5 m

- › Delivered non-sterile
- › Disinfectable



## Colour coding



The software and accessories have **consistent colour coding** as well as **information for the positioning** of the measuring electrodes; this allows easier needle positioning and wiring. Thanks to this needle positioning and wiring assistance, neuromonitoring is becoming a simple standard procedure in spinal column surgery.



- >> Partnership
- >> Precision
- >> Innovation

**Intraoperative Neuromonitoring**  
Functional Neurosurgery  
Pain Treatment  
Neurological Diagnostics

Pioneer and partner in  
neuromonitoring

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