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Direct cortical stimulation

C2 Xplore

One step ahead in IONM

C2Xplore

APPLICATION FIELD
Neurosurgery

A wide range of application possibilities

› Direct cortical stimulation
› Speech mapping
› Motor mapping
› Mapping of the cranial nerves

Features

- Specially developed software for cortical mapping
- Easy and intuitive procedure in accordance with the proven C2 software concept
- Stimulation parameter for all types of cortical stimulation – biphasic pulse form and train stimulation are possible
- Clear view of EMG signals
- Continuous and automated impedance monitoring for the measuring electrodes
- 2D LED scanner for patient data
- Integrated database
- Thanks to the intuitive comment function of the C2 software, all relevant events can be controlled at any time, also retrospectively

C2Xplore

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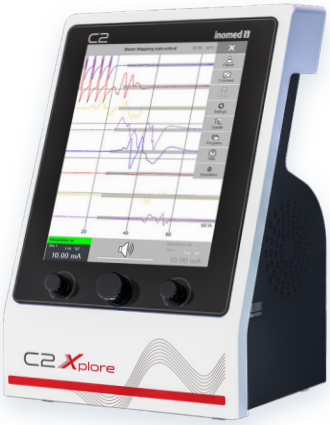
Advanced Brain Mapping for safe tumor resection

Preventing neurological deficits by Intraoperative neuromonitoring

Localisation of functional areas – known as mapping – plays an extremely important role in the surgical resection of brain tumors. Mapping helps the surgeon locate language-relevant and motor regions and then gently perform the tumor removal with continuous monitoring of this region.

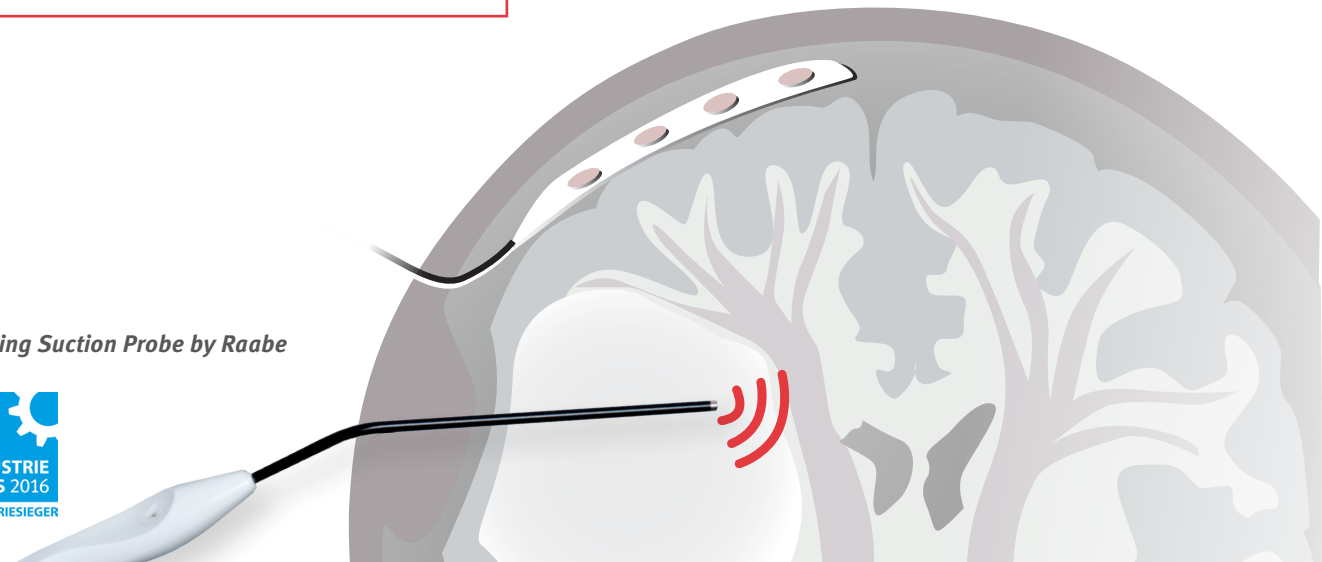


INTRAOPERATIVE NEUROMONITORING (IONM) plays an important role

Using IONM, eloquent functions of the nervous system are continuously monitored during a neurosurgical operation, reducing the patient's risk of postoperative impairment. Simultaneously, neuromonitoring allows the function-controlled resection of tumors during surgical procedures, making it possible to preserve the function of brain areas and connected nerve pathways, the spinal cord and peripheral nerve structures.

Measurement mode

Tumors, abscesses or haemorrhages can shift the normal anatomy. On the one hand, this makes orientation more difficult for the surgeon, and causes functional areas to become undetectable. During surgery, functionally important areas of the brain are located using hand-held stimulation probes or strip electrodes, and their integrity is monitored throughout the entire operation. Standard programs are available for this purpose. If required, own programs can be created at any time.



Mapping Suction Probe by Raabe

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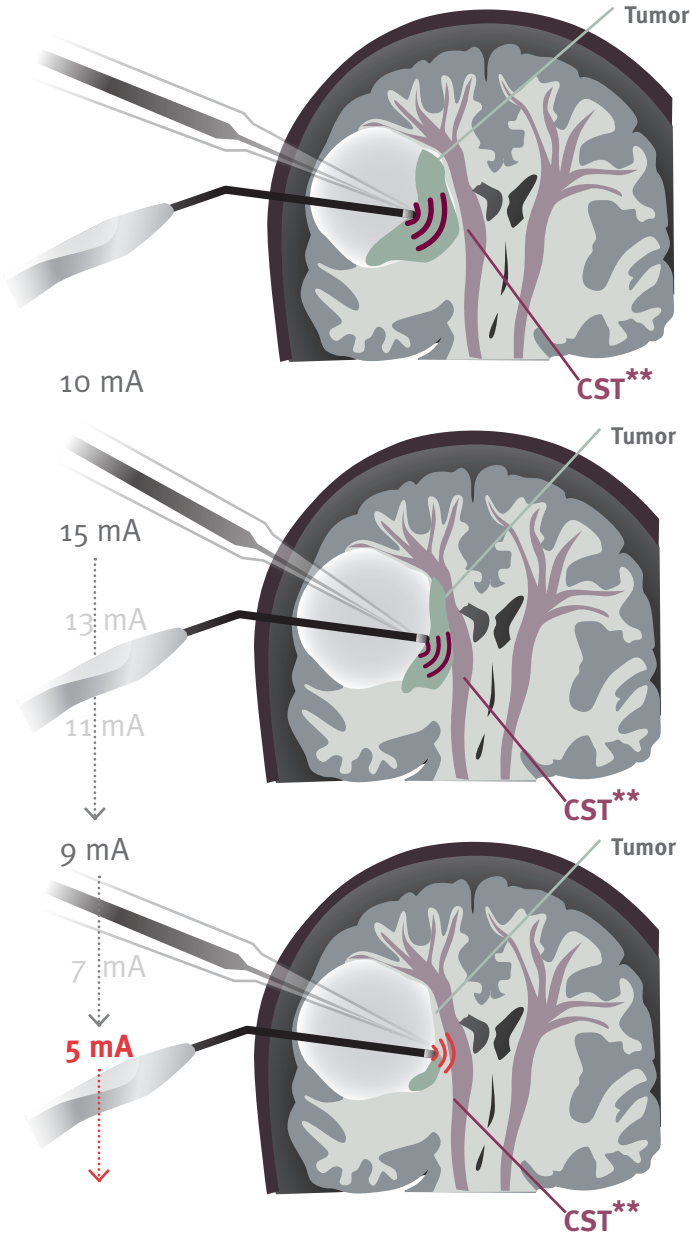
KATEGORIESIEGER

Motor mapping

Protection of corticospinal tracts and motor cortex



Dynamic continuous subcortical mapping by Raabe simplifies a safe tumor resection.

›› Mapping starts with 10 mA (approx. 10 mm distance to the corticospinal tract)

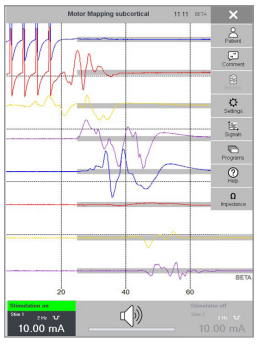
›› Current intensity is proportional to the distance of the corticospinal tract (Rule of thumb: 1mm ≈ 1 mA)

›› If a motor response is triggered, the current should be reduced in 2 mA steps until 5 mA is reached.

›› As soon as a motor response is triggered, the resection should continue on a more distant position to the corticospinal tract.

›› The suction tip is placed at the same place where the resection is performed all the time and enables continuous mapping.

›› The tumor resection should be terminated by the surgeon considering the progress of the operation and appropriate current intensity of the cortical MEPs.



›› Additionally, a strip electrode can be placed on the motor cortex for continuous monitoring of the corticospinal tracts during mapping.

Raabe A, Beck J, Schucht P, Seidel K: „Continuous dynamic mapping of the corticospinal tract during surgery of motor eloquent brain tumors: evaluation of a new method“ in Journal of Neurosurgery 03/2014. (**) corticospinal tract

APPLICATION FIELD
Neurosurgery

Speech mapping

Penfield technique

Speech mapping is performed in awake craniotomies in Broca's and Wemicke's areas to evaluate language function.
The purpose of the IONM is to minimise postoperative speech deficits by identifying the cortical regions for language, so that surgeons can adapt their surgical strategy if necessary.

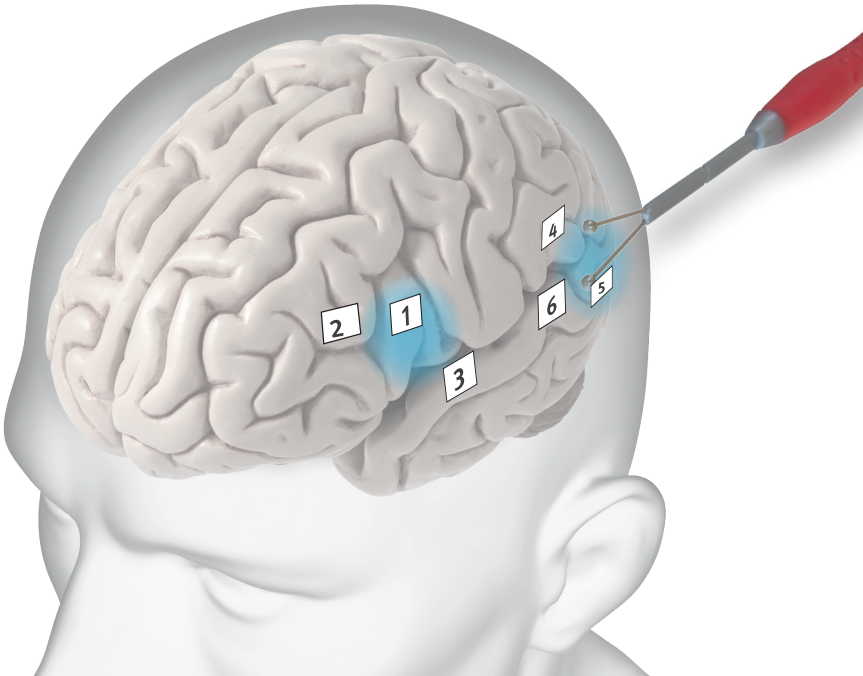
The C2 Xplore has a special stimulation program for speech mapping. It meets all the requirements of a standalone stimulator. Biphasic stimulation and the **Penfield technique** (50 Hz or 60 Hz) are possible.

In addition, the program has two standard stimulation configurations:

- **Speech Mapping:** continuous stimulation, biphasic pulse, 50 or 60 Hz
- **Speech Mapping 4s:** time-limited stimulation of 4 seconds, biphasic pulse, 50 or 60 Hz

The set stimulation pulse with all its settings, and the visual and acoustic stimulation confirmation are available at any time including during brain mapping.

Fork probe straight, ball tip



A. Szelényi u. a., „Intraoperative electrical stimulation in awake craniotomy: methodological aspects of current practice“, Neurosurgical focus, Bd. 28, Nr. 2, S. E7, 2010.

W. Eisner, H.-J. Reulen, J. Ilmberger, U. Swozil, and K. Bise, „Intraoperative mapping of eloquent brain areas“, Front Radiat Ther Oncol., Bd. 33, S. 28–36, 1999.

DIRECT CORTICAL STIMULATION

Accessories

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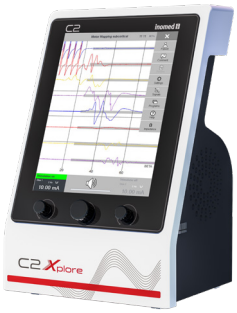
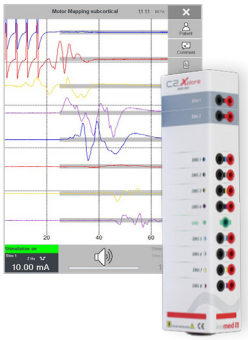
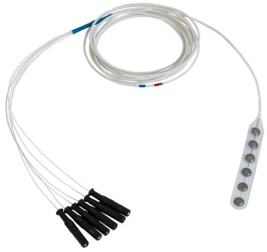


Art. No. 508 288
C2 Xplore
for intraoperative nerve monitoring. Easy to use Neuromonitor with two integrated stimulation channels, loudspeaker, footswitch and mains lead



Art.-No. 508 545
Application package Cortical
consisting of software license "Cortical", Body Box and license for 8-channel recording

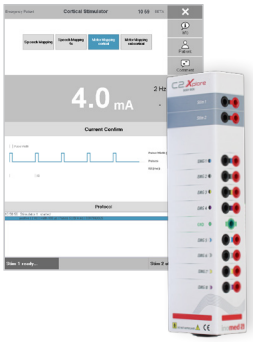


Cortex Strip Electrode
for cortical recording and stimulation, with connection cable, 4 x 1.5 mm Touchproof connectors, cable length 1.8 m, contact material stainless steel, contact diameter 4.0 mm, contact distance 10 mm
› single use
› EO sterilized

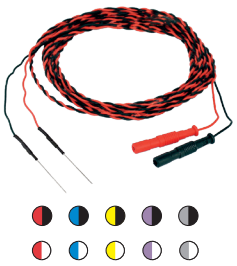
Art. No. 611 014
4 contact – 1 strip with cable

Art. No. 611 016
6 contact – 1 strip with cable

Art. No. 611 018
8 contact – 1 strip with cable



Art.-No. 508 540
Application package Cortical Stimulator
consisting of software license "Cortical stimulator and Body Box
›› Stimulation only (e.g. Speech mapping)



SDN electrodes 15/2000, stainless steel
1.5 mm touchproof connector, pair of electrodes red/black, red/white, blue/black, blue/white, yellow/black, yellow/white, violet/black, violet/white, grey/black, grey/white, diameter 0.45 mm, cable length 2000 mm,
› single use
› EO sterilized

Art. No. 533 646 Needle length 15 mm

Art. No. 533 666 Needle length 20 mm

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Art. No. 525 650
Mapping suction probe 120 mm by Raabe, monopolar
For dynamic mapping;
Work length: L = 120 mm, total length: L = 200 mm, isolated, 2 mm blank tip, with connecting cable and neutral electrode, wire length: L = 3000 mm
› single use
› EO sterilized

Art. No. 533 651
SDN electrode GN 20/1500, stainless steel
1.5 mm touchproof connector, 1 electrode green (Ground), needle length 20 mm, diameter 0.45 mm, cable length 1500 mm,
› single use
› EO sterilized

Art. No. 522 624
Fork probe straight, ball tip
1.5 mm touchproof connector, straight, ball diameter 2 mm, fork distance 8 mm, fork length 15 mm, working length 45 mm, Total length with handle 155 mm, cable length 3000 mm
› single use
› EO sterilized

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Competence in neuro

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