NAV1®
The KARL STORZ navigation family
KARL STORZ offers you the entire range of modern navigation – from both optical and electromagnetic systems to a stand-alone solution through to seamless integration into your video tower or the OR.

**All KARL STORZ navigation systems share the following special features:**

- Simple control concept with few interaction steps
- Automatic and reliable documentation of the navigated procedure including video documentation
- Automatic CT-MRI fusion with infinitely variable crossfade for enhanced information content
- Planning and monitoring of risk structures with intraoperative distance control
- Intraoperative re-registration for maximum precision
- Interactive integration of the endoscopic video image
- Display of real-time instrument geometry in radiological patient image data
- Less space required in the OR thanks to seamless integration into equipment carts
- Wide range of navigated instruments
- Straightforward and integrated PACS connection
The individual systems have the following special features:

**NAV1® ELECTROMAGNETIC – Navigation system with advanced tracking technology**

- Low follow-up costs thanks to reusable EM instruments in proven KARL STORZ quality*
- High precision thanks to sensors in the instrument tips
- Possible to update the NAV1® SINUSTRACKER™ planning software, the navigated endoscope tracker and the navigated shaver tracker
- Augmented endoscopy - the NAV1® SINUSTRACKER™ planning software makes it possible to display the planned access paths in the endoscopic image
- Intraoperative re-registration enables manual correction of any inaccuracies, particularly in deeper regions
- Compact design for easy integration into the OR
- Customized enhancement possible thanks to optical measurement technology
- User-friendly control concept with few interaction steps
- Planning and monitoring of risk structures with intraoperative distance control
- Automatic and reliable documentation of the navigated procedure

**NAV1® OPTICAL – Navigation system without follow-up costs**

- Very economic thanks to patented autoclavable and thus reusable glass spheres and instruments
- NAV1® ELECTROMAGNETIC module enables customized enhancement thanks to optical measurement technology
- Seamless integration as the basic unit can be attached to a ceiling supply unit or equipment cart
- User-friendly interface – short learning curve thanks to clearly defined control elements and menu navigation
- Wide range of conventional as well as motor-driven navigation instruments in the proven KARL STORZ quality

* Up to 30 applications guaranteed
NAV1® Module

NaviCart NAV1® modular
NAV1® ELECTROMAGNETIC
and OPTICAL

Mobile TROLL-E
NAV1® ELECTROMAGNETIC
KARL STORZ NAV1® ELECTROMAGNETIC

KARL STORZ Navigation System with Advanced Tracking Technology

The KARL STORZ navigation system, NAV1® ELECTROMAGNETIC provides support to surgeons in the fields of otorhinolaryngology and skull base surgery. The system uses a sophisticated electromagnetic tracking system. Tiny, high-sensitivity sensors are integrated directly in the instrument tip. The tracking system identifies the position and orientation of these sensors within the magnetic field with utmost precision. The sensors do not require a line of sight to the tracking system and tracking is not affected by the presence of titanium or most other medical-grade metals.

Let yourself be impressed with the excellent quality and precision of the NAV1® ELECTROMAGNETIC navigation system from KARL STORZ.

NaviCart NAV1® ELECTROMAGNETIC

The perfect complete solution for your OR

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>40820001</td>
<td>NAV1® ELECTROMAGNETIC including:</td>
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<tr>
<td></td>
<td>NAV1® Module</td>
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<tr>
<td></td>
<td>NAV1® ELECTROMAGNETIC Module</td>
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<tr>
<td></td>
<td>NAV1® ELECTROMAGNETIC Field Generator</td>
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<td></td>
<td>Headband, for navigation, for single use</td>
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<td></td>
<td>EM Patient Tracker</td>
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<td>EM Navigation Probe</td>
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<td></td>
<td>Mains Cord, length 300 cm</td>
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<td></td>
<td>Module Connecting Cable, length 250 cm</td>
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<td></td>
<td>Optical Mouse</td>
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<tr>
<td>9627 NB</td>
<td>27&quot; FULL HD Monitor, color systems PAL/NTSC, max. screen resolution 1920 x 1080, image format 16:9, Interface: RS 232, power supply 85-264 VAC, 50/60 Hz, wall mount with VESA 100 adaptor including: External 24 VDC Power Supply Mains Cord</td>
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<td>20161401-1</td>
<td>Cold Light Fountain Power LED 175 SCB</td>
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</tbody>
</table>
TC 200EN  IMAGE1 S CONNECT™, connect module, for use with up to 3 link modules, resolution 1920 x 1080 pixels, with integrated KARL STORZ-SCB and digital Image Processing Module, power supply 100-120 VAC/200-240 VAC, 50/60 Hz

TC 300  IMAGE1 S™ H3-LINK, link module, for use with IMAGE1 FULL HD three-chip camera heads, power supply 100-120 VAC/200-240 VAC, 50/60 Hz, for use with IMAGE1 S CONNECT™ TC 200EN

40701620-1 UNIDRIVE® S III ENT SCB, motor control unit with color display, touch screen, two motor outputs, integrated irrigation pump and integrated SCB module, power supply 100-240 VAC, 50/60 Hz

WD 200-EN  AIDA™, documentation system, for recording still images and videos, dual channel up to FULL HD, 2D/3D, power supply 100-240 VAC, 50/60 Hz including:  
- AIDA™ Appliance  
- Manual  
- Mains Cord  
- License Microsoft WES7 (WS7P)  
- License DICOM  
- USB Silicone Keyboard, with touchpad, US*  
- 2x ACC Connecting Cable  
- 3x DVI-D Connecting Cable  
- HDMI to DVI Cable

UG 120  Equipment Cart, narrow, high, rides on 4 antistatic dual wheels equipped with locking brakes, mains switch on cover, central beam with integrated electrical subdistributors with 12 sockets, grounding plugs.  
Dimensions in mm (w x h x d): Equipment cart: 660 x 1474 x 730 mm (w x h x d), Shelf: 450 x 25 x 510 mm (w x h x d), Caster diameter: 150 mm

UG 540  Monitor Swivel Arm, height and side adjustable, can be mounted on the left or on the right side, swivel range 180°, reach 780 mm, from center 1170 mm, loading capacity max. 15 kg, with monitor mount VESA 75/100, for use with Equipment Carts UGxxx

UG 510  Monitor Holding Arm, height and side adjustable, tilting, can be mounted either on the left or on the right side, swivel range up to 320°, reach 530 mm, loading capacity max. 15 kg, with monitor holder VESA 75/100, for Equipment Carts UG xxx

UG 310  Isolation Transformer, 200-240 V, 2000 VA, with 3 special mains sockets, automatic cutout, 3 grounding plugs, dimensions in mm (w x h x d): 330 x 90 x 495 mm, for use with Equipment Carts UGxxx

UG 410  Earth Leakage Monitor, 200-240 V, for mounting to equipment carts, control panel dimensions: 44 x 80 x 29 mm (w x h x d), for use with Isolation Transformer UG 310

* Also available in the following languages: DE, ES, FR, IT, PT, RU
Electromagnetic navigation made easy

- Large selection of navigated FESS standard instruments
- Simple control concept with few interaction steps
- High precision thanks to sensors in instrument tips
- Proven KARL STORZ quality allows instruments to be autoclaved 30x
- Less space required in the OR thanks to integration of the field generator in the OR table
- Automatic and reliable documentation of the navigated procedure
- Planning and monitoring of risk structures with intraoperative Distance Control
- Automatic instrument check during registration
- Update with navigated EM Shaver Tracker
- Intraoperative manual re-registration
- Automatic fault detection
- Automatic CT-MRI fusion with infinitely variable crossfade
- Augmented endoscopy
What are the advantages of KARL STORZ NAV1® ELECTROMAGNETIC?

- **Autoclavable, navigable instruments**
  Instruments can be reprocessed by autoclaving (up to 30 autoclave cycles guaranteed!). This high instrument quality eliminates the costs of single-use components or instruments that can only be reprocessed a few times.

- **High precision thanks to sensor location in the instrument tip**
  The instrument position is tracked at its tip. This means that the precision is greatest where it is most important. Even flexible instruments deliver maximum precision for the instrument tip.

- **Augmented endoscopy**
  The NAV1® SINUSTRACKER™ planning software enables planned destination routes to be directly displayed in the endoscopic image.

- **Intraoperative manual re-registration**
  Enables correction of deviations – particularly in deeper regions – without interrupting navigation.

- **Many simultaneously trackable instruments**
  In addition to the Patient Tracker, three navigable instruments can be used simultaneously in the workspace.

- **Display of complete instrument geometry in the patient’s radiology data**
  Thanks to high-precision manufacture of the rigid instruments, they can be virtually displayed if desired. This can facilitate orientation in the surgical site.

- **Planning and monitoring of high-risk structures with intraoperative distance control**
  The distance to the nearest high-risk structure is continuously monitored. The system warns surgeons if they fail to maintain a critical distance.

- **Automatic and reliable documentation of the navigated procedure**
  Essential steps of the procedure can be automatically documented in the form of image data, planning data, or screenshots and then conveniently exported to a CD, USB stick, network drive, or PACS server.

- **Infinitely adjustable CT-MRI fusion**
  Fusion of CT and MRI datasets allows infinitely variable crossfading between the two modalities at any time during surgery.

- **Bidirectional connection to PACS server**
  Patient data can be conveniently exported to the PACS server or directly sent from the PACS server to the device.

- **Import of patient data**
  Fast and easy import of patient data via USB, CD, or PACS.
• **Integration of the field generator in the OR table**

The field generator is located in a headrest and is compatible with standard OR tables. This is a distinct advantage in terms of unrestricted patient positioning, optimal utilization of the workspace, and reduced space requirement at the OR table.

• **Optional integration into the OR1™ integrated operating room**

The navigation system offers comprehensive options for integration into the integrated operating room as well as DVI, input/output, and PACS connections.

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**Mobile TROLL-E**

**NAV1® ELECTROMAGNETIC**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
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<td>40820001</td>
<td>NAV1® ELECTROMAGNETIC including:</td>
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<tr>
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<td>NAV1® Module</td>
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<tr>
<td></td>
<td>NAV1® ELECTROMAGNETIC Module</td>
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<td>NAV1® ELECTROMAGNETIC Field Generator</td>
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<td></td>
<td>Headband, for navigation, for single use</td>
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<td>EM Navigation Probe</td>
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<td>Mains Cord, length 300 cm</td>
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<tr>
<td>9627 NB</td>
<td>27&quot; FULL HD Monitor, color systems</td>
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<tr>
<td></td>
<td>Mains Cord</td>
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<td>20020081</td>
<td>TROLL-E Mobile Stand, rides on 4 antistatic dual wheels, 2 equipped with</td>
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<tr>
<td></td>
<td>locking brakes, for mounting monitors with VESA 75/100 connection, integrated</td>
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<td></td>
<td>cable conduit in vertical beam, 1 shelf and cable manager, load capacity</td>
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<td></td>
<td>for monitor: max. 15 kg, Dimensions:</td>
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<td></td>
<td>Mobile stand: 670 x 1660 x 670 mm (w x h x d), Shelf: 455 x 350 mm (w x d),</td>
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<td>Caster diameter: 100 mm</td>
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Example applications of NAV1® ELECTROMAGNETIC

Use of the navigated ostium seeker in the visualization of the frontal sinus access ventral to the ethmoid bulla following resection of the uncinate process.

Visualization of the navigated curved suction after entry into the left maxillary sinus via the natural maxillary sinus ostium.
Visualization of the navigated frontal sinus curette in the exposure of the frontal sinus access.

Visualization of the 0° curette at the anterior skull base in the context of median frontal sinus drainage.
Components of NAV1® ELECTROMAGNETIC

The NAV1® ELECTROMAGNETIC navigation system consists of the NAV1® navigation platform module, the NAV1® ELECTROMAGNETIC module and the NAV1® ELECTROMAGNETIC field generator. It is completed by the electromagnetically navigable instruments.

40820001 NAV1® ELECTROMAGNETIC
including:
NAV1® Module
NAV1® ELECTROMAGNETIC Module
NAV1® ELECTROMAGNETIC Field Generator*
Headband for Navigation, for single use
EM Patient Tracker
EM Navigation Probe
Mains Cord, length 300 cm
Module Connecting Cable, length 250 cm
Optical Mouse

* A headrest with integrated EM field generator is included in delivery.
Electromagnetic Navigated Instruments for FESS Surgery

40820105  EM Probe, with atraumatic tip, bayonet-shaped, for patient registration, working length 10.5 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820110  EM Probe, with atraumatic tip, malleable, straight, working length 8.5 cm, tip diameter 1.7 mm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820112  EM Probe, with atraumatic tip, malleable, curved 63°, working length 8.5 cm, tip diameter 1.7 mm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820111  EM Frontal Sinus Probe, with atraumatic tip, curved 77°, working length 7 cm, tip diameter 1.2 mm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820145  EM Suction Tube, straight, with cut-off hole, Luer, outer diameter 3.5 mm, working length 10 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820165  EM Suction Tube, curved 60°, with cut-off hole, Luer, outer diameter 3.5 mm, working length 10 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820131  EM Antrum Curette, oblong, small, length 19 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820132  EM Frontal Sinus Curette, curved 55°, oval, forward cutting, length 18 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

40820130  EM Frontal Sinus Curette, curved 90°, oval, forward cutting, length 18 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC
**EM Shaver Tracker**

The new EM Shaver Tracker 40820123 allows the electromagnetic navigation of motorized Shaver Blades (41201 KK, 41204 KKB) and Sinus Burrs (41305 D, 41305 DW and 41303 DT) as of software version 6.1.1.

**Benefits of EM-navigated shaver blades and sinus burrs**

- Customary handling of the shaver blades and sinus burrs by attaching the Shaver Tracker to the rotary wheel of the blade or burr
- Reusable tracker (up to 30 applications guaranteed)
- Automatic detection of rotation
- Visualized geometry and ablation radius of the shaver attachments

**EM-navigated Shaver Blade 41204 KKB and EM-navigated Sinus Burr 41305 DW**
Electromagnetic Navigated Instruments for Ear Surgery

**40800100**  Bone Anchor, for KARL STORZ navigation, autoclavable, for use with Patient Tracker, Patient Tracker II, Patient Tracker III or EM Patient Tracker

**40820086**  EM Patient Tracker, with verification adaptor and fixation screw, dimensions 55 x 30 x 8 mm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

**40820105**  EM Probe, with atraumatic tip, bayonet-shaped, for patient registration, working length 10.5 cm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC

**40820112**  EM Probe, with atraumatic tip, malleable, curved 63°, working length 8.5 cm, tip diameter 1.7 mm, cable length 250 cm, autoclavable, for use with NAV1® ELECTROMAGNETIC
Accessories for Electromagnetic Navigation

39556 A  **Wire Tray**, provides safe storage of up to 4 EM navigation instruments (408201 xx) and one EM Patient Tracker during cleaning and sterilization, external dimensions (w x d x h): 460 x 150 x 80 mm

39557 A  **Wire Tray**, provides safe storage for cleaning and sterilization of one EM navigation instrument (408201 xx) and one EM Patient Tracker, external dimensions (w x d x h): 350 x 125 x 50 mm

40820084  **Adhesive Pad**, sterile, for single use, package of 20, for use with EM Patient Tracker 40820086 or with headband

40800083  **Headband for Navigation**, with plastic holder, for single use, for use with NAV1® PICO, NAV1® OPTICAL and NAV1® ELECTROMAGNETIC

40800200  **Headband Set for Navigation**, with plastic holder and headband, for single use, package of 10, for use with NAV1® PICO, NAV1® OPTICAL and NAV1® ELECTROMAGNETIC

40800084  **Headband Set for Navigation**, autoclavable, reusable, for use with NAV1® PICO, NAV1® OPTICAL and NAV1® ELECTROMAGNETIC
NAV1® SinusTracker™

The innovative planning software for new routes in FESS surgery

The NAV1® SINUSTRACKER™ planning software enhances the KARL STORZ NAV1® ELECTROMAGNETIC system with the automatic planning of access paths in paranasal sinus and skull base surgery. On the basis of a preoperatively set starting and destination point in the patient’s radiological data, the software allows the surgeon to determine a precise access path that is specially adapted to the individual anatomic structures of the patient. The physician then reviews and modifies the suggested access path at their discretion. Intraoperatively, the selected route is visualized on the navigation screen so that the actual position in the site is under constant control.

Benefits of the NAV1® SinusTracker™

• Multiple Path Planning enables the preoperative planning and naming of up to 8 different access paths and alternatives
• Intraoperative visualization and control of access paths
• Less preoperative planning required thanks to automatic preplanning
• Flexible, pre- and intraoperative adaptation of the access path possible

40810600 SINUSTRACKER™, additional software module for the NAV1® family, compatible with software version 6.0.0 or higher
**NAV1® Endoscope Tracker**

**Augmented FESS endoscopy with the new electromagnetic navigated endoscope adaptor**

Using augmented endoscopy, which was specially developed for the NAV1® SINUSTRACKER™, the real-time endoscopic image can be enhanced with information obtained from the preoperative virtual planning of the access route. Adaptor 40 8201 50 is used in conjunction with KARL STORZ HOPKINS® telescopes with 0° (7230 AA), 30° (7230 BA) or 45° (7230 FA) directions of view for augmentation. The position and direction of view of the employed telescope is displayed in the radiology images in such a way that the endoscopic image can be precisely assigned to the exact location in-situ.

**Benefits of augmented endoscopy**

- Possible to display planning elements in the standard endoscopic image
- Visual navigation of non-navigated instruments along the preoperatively planned route
- Spatial mapping of the direction of view and the position of the telescope in the site

40 8201 50  **EM Endoscope Tracker**, universal, cable length 250 cm, for use with NAV1® ELECTROMAGNETIC, HOPKINS® Telescope 0°, 4 mm, 18 cm 7230 AA, HOPKINS® Telescope 30°, 4 mm, 18 cm 7230 BA, HOPKINS® Telescope 45°, 4 mm, 18 cm 7230 FA

(The telescope displayed here is not included in delivery)
KARL STORZ NAV1® OPTICAL

NAV1® OPTICAL enables you to benefit from a seamlessly integrated high-performance navigation solution. The basic unit can easily be attached to a ceiling supply unit or an equipment cart.

Mounted on a ceiling or holding arm, the navigation camera allows an easy setup and optimal visualization of the surgical site combined with high flexibility. This results in a “zero footprint” navigation solution.

Benefits of NAV1® OPTICAL:

- **High economic efficiency thanks to cost reduction**
  NAV1® OPTICAL does not require consumables as all navigated instruments, including accessories, are reusable.

- **User-friendly interface**
  Clearly defined control elements and menu guidance achieves a short learning curve.

- **Wide range of both conventional navigated and motor-driven navigated instruments,**
Integration into the OR

40810001  NAV1® OPTICAL
including:
NAV1® Module
Navigation Camera
Stand, mobile
Module Connecting Cable, length 750 cm
Headband for Navigation, for single use
Patient Tracker III
Navigation Probe
Mains Cord
Optical Mouse

40800320  Mounting Adaptor, for direct fixation of navigation camera or VESA 100 docking adaptor mount, for use with NAV1® PICO or NAV1® OPTICAL

40800300  VESA 100 Adaptor, for direct fixation of navigation camera or VESA 100 docking adaptor mount, for use with NAV1® PICO or NAV1® OPTICAL

40800078  Camera Installation Cable, length 15 m, for use with NAV1® PICO or NAV1® OPTICAL
NaviCart NAV1® OPTICAL
The perfect “all-in-one” equipment for everyday use in the OR

40810001 NAV1® OPTICAL

9627 NB 27” FULL HD Monitor, color systems PAL/NTSC, max. screen resolution 1920 x 1080, image format 16:9, Interface: RS 232, power supply 85-264 VAC, 50/60 Hz, wall mount with VESA 100 adaptor including:

External 24 VDC Power Supply
Mains Cord

9619 NB 19” HD Monitor, color systems PAL/NTSC, max. screen resolution 1280 x 1024, image format 4:3, power supply 100-240 VAC, 50/60 Hz, wall mount with VESA 100 adaptor including:

External 24 VDC Power Supply
Mains Cord

20161401-1 Cold Light Fountain Power LED 175 SCB
TC 200EN  **IMAGE1 S CONNECT™**, connect module, for use with up to 3 link modules, resolution 1920 x 1080 pixels, with integrated KARL STORZ-SCB and digital Image Processing Module, power supply 100-120 VAC/200-240 VAC, 50/60 Hz

TC 300  **IMAGE1 S™ H3-LINK**, link module, for use with IMAGE1 FULL HD three-chip camera heads, power supply 100-120 VAC/200-240 VAC, 50/60 Hz, for use with **IMAGE1 S CONNECT™ TC 200EN**

40701620-1  **UNIDRIVE® S III ENT SCB**, motor control unit with color display, touch screen, two motor outputs, integrated irrigation pump and integrated SCB module, power supply 100-240 VAC, 50/60 Hz

WD 200-EN  **AIDA™**, documentation system, for recording still images and videos, dual channel up to FULL HD, 2D/3D, power supply 100-240 VAC, 50/60 Hz including:
- AIDA™ Appliance
- Manual
- Mains Cord
- License Microsoft WES7 (WS7P)
- License DICOM
- USB Silicone Keyboard, with touchpad, US*
- 2x ACC Connecting Cable
- 3x DVI-D Connecting Cable
- HDMI to DVI Cable

UG 120  **Equipment Cart**, narrow, high, rides on 4 antistatic dual wheels equipped with locking brakes, mains switch on cover, central beam with integrated electrical subdistributors with 12 sockets, grounding plugs, Dimensions in mm (w x h x d):
- Equipment cart: 660 x 1474 x 730 mm (w x h x d),
- Shelf: 450 x 25 x 510 mm (w x h x d),
- Caster diameter: 150 mm

UG 500  **Monitor Holder**, height adjustable, swiveling and tilting, central mount, swivel range approx. 360°, loading capacity max. 18 kg, with monitor mount VESA 75/100, for use with Equipment Carts UGxxx

UG 510  **Monitor Holding Arm**, height and side adjustable, tilting, can be mounted either on the left or on the right side, swivel range up to 320°, reach 530 mm, loading capacity max. 15 kg, with monitor holder VESA 75/100, for Equipment Carts UGxxx

UG 530  **Swivel Arm**, for navigation camera, height and side adjustable, can be mounted on the left or on the right side, swivel range 180°, reach 880 mm, from center 1270 mm, loading capacity max. 1.5 kg, for use with Equipment Carts UGxxx and navigation camera

UG 310  **Isolation Transformer**, 200-240 V, 2000 VA, with 3 special mains sockets, automatic cutout, 3 grounding plugs, dimensions in mm (w x h x d): 330 x 90 x 495 mm, for use with Equipment Carts UGxxx

UG 410  **Earth Leakage Monitor**, 200-240 V, for mounting to equipment carts, control panel dimensions: 44 x 80 x 29 mm (w x h x d), for use with Isolation Transformer UG 310

* Also available in the following languages: DE, ES, FR, IT, PT, RU
Optical Navigated Instruments for FESS Surgery

40800088  **Patient Tracker III,**
with verification adaptor, 3 incorporated glass marker spheres and fixation screw, **autoclavable,**
dimensions: 80 x 60 x 12 mm, for use with NAV1® PICO and NAV1® OPTICAL

40800110  **Navigation Probe,**
with 3 fixed glass marker spheres, **autoclavable,**
dimensions: 295 x 15 x 30 mm, for use with NAV1® PICO and NAV1® OPTICAL

40800111  **Optical Navigated Frontal Sinus Probe,**
for use with NAV1® PICO, NAV1® OPTICAL and Tool Tracker 40800120

40800140 R  **Optical Navigated Suction Tube,** straight,
for right-handed use, with cut-off hole, 9 Fr.,
working length 9 cm, total length 16 cm,
for use with NAV1® PICO and NAV1® OPTICAL

40800140 L  **Optical Navigated Suction Tube,** straight,
for left-handed use, with cut-off hole, 9 Fr.,
working length 9 cm, total length 16 cm,
for use with NAV1® PICO and NAV1® OPTICAL
40 8001 51  **Optical Navigated Suction Tube**, curved upwards, for left and right-handed use, with cut-off hole, outer diameter 3 mm, length 16.5 cm, for use with NAV1® PICO and NAV1® OPTICAL

40 8001 60 LM  **Optical Navigated Suction Tube**, curved to left, for left and right-handed use, with cut-off hole, outer diameter 3 mm, length 16.5 cm, for use with NAV1® PICO and NAV1® OPTICAL

40 8001 60 RM  **Optical Navigated Suction Tube**, curved to right, for left and right-handed use, with cut-off hole, outer diameter 3 mm, length 16.5 cm, for use with NAV1® PICO and NAV1® OPTICAL

40 8001 60  **Optical Navigated Suction Tube**, curved downwards, for right-handed use, with cut-off hole, outer diameter 3 mm, length 16.5 cm, for use with NAV1® PICO and NAV1® OPTICAL
Optical Navigated Instruments for Ear Surgery

40800100  **Bone Anchor**, for KARL STORZ navigation, **autoclavable**, for use with Patient Tracker, Patient Tracker II, Patient Tracker III or EM Patient Tracker

40800088  **Patient Tracker III**, with verification adaptor, 3 incorporated glass marker spheres and fixation screw, **autoclavable**, dimensions: 80 x 60 x 12 mm, for use with NAV1® PICO and NAV1® OPTICAL

40800115  **Optical Microscope Probe**, with 3 fixed glass marker spheres, **autoclavable**, for use with NAV1® PICO and NAV1® OPTICAL
Accessories for Optical Navigation

39502 NAV2  **Wire Tray for Cleaning, Sterilization and Storage** of three suction tubes and three instrument trackers, with silicone knob mat and small parts basket, stackable, external dimensions (w x d x h): 240 x 250 x 70 mm

39502 NAV1  **Wire Tray for Cleaning, Sterilization and Storage** of one navigation probe and one Patient Tracker, with silicone knob mat, fixation system and lid, stackable, external dimensions (w x d x h): 79 x 460 x 52 mm

40 8000 83  **Headband for Navigation**, with plastic holder, for single use

40 8002 00  **Headband Set for Navigation**, for single use, package of 10, for use with KARL STORZ navigation systems

40 8000 84  **Headband for Navigation**, autoclavable, reusable, for use with NAV1® PICO, NAV1® OPTICAL and NAV1® ELECTROMAGNETIC
DrillCut-X® II N Shaver Handpiece and Shaver Tracker
for optical navigation

Special Features:

- Powerful motor
- Absolutely silent running
- Enhanced ergonomics
- Reduced-weight design
- Oscillation mode for shaver blades, max. 10,000 rpm
- Rotation mode for sinus shavers, max. 12,000 rpm
- Straight suction channel and integrated irrigation
- Variable handle allows connection with various handpieces and enables more comfortable work
- Easy hygienic processing, suitable for use in washer and autoclavable at 134° C
- Quick coupling mechanism facilitates more rapid exchange of working inserts
- Proven DRILLCUT-X® blade portfolios can be used
- Adaptation possibilities for Shaver Tracker 408001 22

40712055 DRILLCUT-X® II N Shaver Handpiece,
with adaptation possibilities for Shaver Tracker 408001 22,
for use with UNIDRIVE® S III ECO/ENT/NEURO

40712090 Handle, adjustable, for use with DRILLCUT-X® II N shaver handpiece

40800122 Optical Shaver Tracker, autoclavable, with glass marker spheres incorporated, for use with DRILLCUT-X® II N Shaver Handpiece 40712055 and the NAV1® PICO and NAV1® OPTICAL navigation systems

39555 A Wire Tray, for safe storage of DRILLCUT-X® II N and navigation accessories during cleaning and sterilization for the storage of:
- 1 DRILLCUT-X® II N
- 1 Optical Shaver Tracker
- 2 Shaver Blades
- 1 Handle for DRILLCUT-X® II N
Navigation Camera Assistant (NCA)
The intelligent positioning unit for optical navigation

40812001  
**Navigation Camera Assistant NCA**, navigation camera drive system, for use with NAV1® PICO and NAV1® OPTICAL including:
- NCA Module
- NCA Adaptor
- NCA Screw Set with Allen wrench
- NCA Articulated Arm
- NCA Camera Cable
Navigation Camera Assistant (NCA)

Camera positioning is always optimal

The NAVIGATION CAMERA ASSISTANT is an intelligent unit that can independently identify the optimal position relative to the patient and instrument and then move to that position. For this purpose, the camera is equipped with a drive system that moves the camera along 2 axes. The camera then follows the patient’s movements. In clinical practice, this can achieve an almost 30% reduction in line-of-sight interruptions. Instrument navigation allows the surgeon to work with far less interruptions and is more precise than systems with a rigid camera system.

Easy assembly and retrofitting

The NAVIGATION CAMERA ASSISTANT is available as a retrofit for all optical KARL STORZ navigation systems. The existing navigation camera will continue to be used and can be retrofitted with the NCA add-on module.

Benefits:

- Easier and faster set-ups
- Greater flexibility for interoperative patient repositioning
- No need for manual readjustment of the navigation camera
- Increased working space

Motorization of the navigation camera improves and simplifies workflows in the OR. This means more working room for the surgeon and greater flexibility for navigated instruments.
Bone Anchor for Optical and Electromagnetic Navigation

The bone anchor enables flexible and secure positioning of the patient tracker if tracker fixation with a headband is not optimal. Use of the bone anchor is recommended for navigated interventions on the ear, lateral skull base and the skull.

The bone anchor is equipped with three narrow stands to ensure stability and can be easily attached to the cranium using three self-drilling and self-tapping screws.

Special Features:
- All parts made of titanium and are autoclavable
- All bone anchors are steam-sterilizable
- Secure fixation of the patient tracker in the sterile environment
- Flexible alignment of the patient tracker possible

Components of the bone anchor:
- 40800100 Bone Anchor, autoclavable, for KARL STORZ navigation, for use with all patient trackers from the KARL STORZ product family
- 40800101 T-platform
- 40800102 Vertical Joint
- 40800103 Horizontal Joint
- 40800104 Fastening Screw
- 40800105 Counter Nut
- 40800106 Patient Tracker Adaptor

For use with:
- 40800220 maxDrive® Screwdriver Handle
- 40800221 maxDrive® Screwdriver Bit
- 40800223 maxDrive® Bone Screw, sterile, package of 3, diameter 2 mm, length 7 mm
- 40800225 maxDrive® Bone Screw, non-sterile, package of 5, diameter 2 mm, length 7 mm
Software Features of the KARL STORZ Navigation Systems

The features of the following ENT Navigation Updates are compatible with all optical and electromagnetic navigation systems from KARL STORZ:

Additional Registration Method “Surface Matching”

For patient registration, surface matching can now be used as an alternative to the landmark registration system. The surgeon can choose individually the desired method at the beginning of the registration process. With the availability of a second registration method the surgeon has the opportunity to choose the appropriate method based on the quality of the CT scans according to individual needs.

Benefits of Surface Matching

- Intuitive, simple implementation and steep learning curve
- Landmark registration is not required
- Shorter pre-operative preparation time
Intraoperative manual registration refinement

Manual registration refinement following patient registration using landmarks or surface matching can be activated via the Manual Registration button. Navigation is thereby not interrupted and the instrument continues to be displayed. Following activation, an additional landmark can be set to adjust the registration accuracy. Manual registration refinement is confirmed via the Confirm button. Once manual registration refinement is completed, the navigated intervention can proceed.

Benefits of manual registration refinement

- Correction of inaccuracy – particularly depth inaccuracy
- Intraoperative setting and processing of landmarks without interrupting navigation
- Eliminates the need to set additional landmarks before surgery; these can be set intraoperatively at the position of the site where the inaccuracy is identified
- Possible to reject manual registration refinement at any time without interrupting navigation – navigation can continue with the initial patient registration

Before: Depth inaccuracy

After: Enhanced accuracy following manual registration refinement

It is recommended to check the suitability of the product for the intended procedure prior to use.
3D Printing of Patient-Specific Structures

The new 3D export module allows 3D models of patient-specific structures to be printed. The 3D files in STL format, which are generated from the DICOM patient data, can be saved on external media (CDs, network drives, PACS server, or USB flash drive). The 3D model can then be printed using a 3D printing service. The following model parameters can be selected:

- Scale (1:5 to 5:1)
- Number and thickness of slices
- Printing of the model in a stackable box

Advantages of 3D Modelling

- The surgeon can analyze difficult areas preoperatively using the printed 3D model, allowing precise simulation of the site and the possibility to plan the surgery details in advance
- Grafts can be tailored more precisely to meet the needs of individual patients
- The 3D model can be used to explain the surgical procedure more clearly to the patient
- Assistant doctors can use the model for the simulation of complex surgery
- The 3D model can be used for presentations and demonstrations at conventions and workshops