

IGSonic SETUP

Software Versions: Cranial/ENT 3.x



IGSonic WITH BK MEDICAL COMPONENTS

- ① BK 8862 or 8863 probe
- ② IGSonic adapter for BK Medical
- ③ IGSonic Tracking Array
- ④ Network cables (short ④ and long ⑤)
- ⑥ Network isolator
- ⑦ Ultrasound Registration Phantom
- ⑧ Ultrasound system



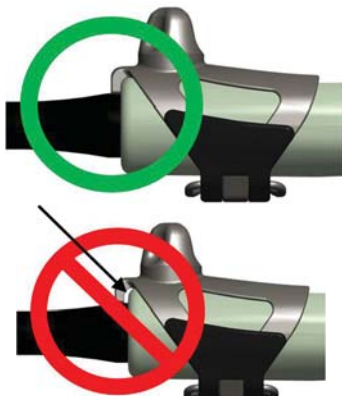
CONNECTING TO KICK OR CURVE

- Using the short network cable, connect the network isolator to the BK Medical ultrasound system.
- Using the long network cable, connect the other side of the network isolator to the **Kick or Curve Intraoperative Data** port (see image).



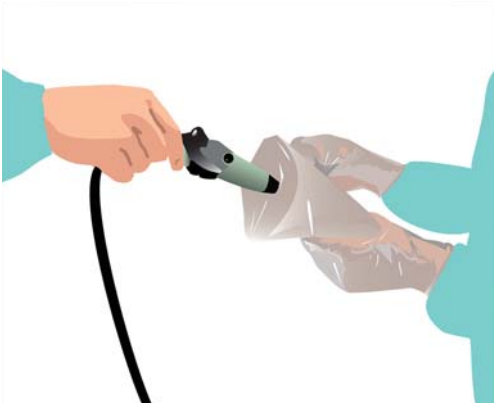
CONNECTING TO CURVE CEILING-MOUNTED

- Using the short network cable, connect the network isolator to the BK Medical ultrasound system.
- Using the long network cable, connect the other side of the network isolator to the **Curve ceiling-mounted** connection unit (see image).



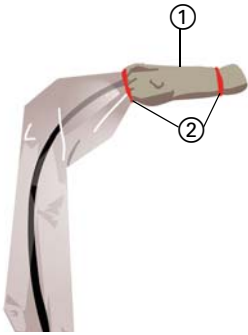
PREPARING THE PROBE

- Slide the **IGSonic** adapter from the back side (where the cable is) onto the probe.
- Push the adapter until it is completely flush (see image). There should be no gap between the adapter and the probe.
- Fasten the latch on the adapter.



DRAPING THE PROBE - UNSTERILE PART

- Put coupling gel onto the probe tip.
- Put coupling gel into the tip of the drape, not filling the tip completely.
- Insert the probe into the tip of the drape, which is held by the sterile person.
- Grasp the tabs on each side of the drape and slide the drape over the entire probe cable.

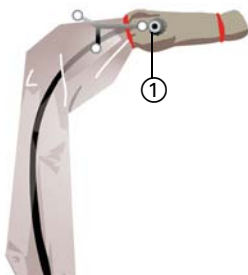


DRAPING THE PROBE - STERILE PART

- Slide the rubber part of the drape ① over the probe and adapter until the drape tip tightly covers the front of the probe.
- Use two rubber bands ② to keep the gel in the drape tip.

MOUNTING THE IGSONIC TRACKING ARRAY

- Attach the sterile **IGSonic** tracking array to the draped **IGSonic** adapter base.
- Securely tighten the cap nut ①.



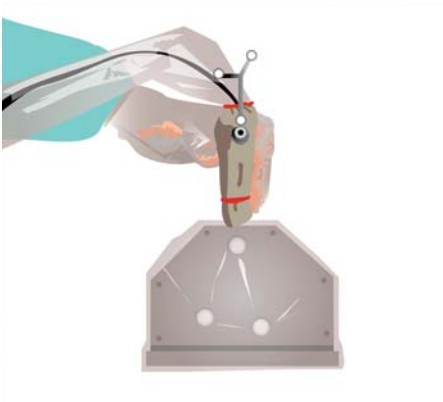
DRAPING THE PHANTOM

- The unsterile person puts coupling gel onto the top of the **Ultrasound Registration Phantom**.
- The unsterile person slowly lowers the phantom upside down into the drape held by the sterile person. As the phantom is heavy, the sterile person should support it with one hand from underneath.
- The unsterile person secures strips 1 and 2 to the phantom, the sterile person closes the drape with strip 3.
- The sterile person screws reflective marker spheres onto the phantom from outside the drape.



IGSonic VERIFICATION

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SETTING UP THE PROBE VERIFICATION

- Put sterile coupling gel or water onto the draped **Ultrasound Registration Phantom**.
- Hold the activated **IGSonic** probe to the phantom.
- Hold the probe perpendicular to the phantom and centered on the rubber rectangle.



VERIFYING THE PROBE

- Verify the accuracy of the probe using the displayed calibration points.
- Move the probe and make sure the yellow crosses correlate to and follow the white spots.
- If the accuracy is acceptable, press **Accept** and remove the **Ultrasound Registration Phantom**.
- If the accuracy is not acceptable, recalibrate the probe as described on page 11.

BASIC IGsonic FEATURES

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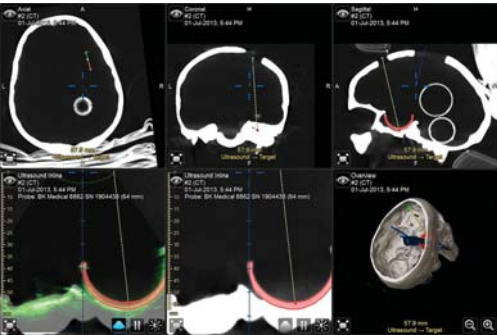
SUGGESTED VIEW LAYOUT

Upper row, from left to right:

- Axial image
- Coronal image
- Sagittal image

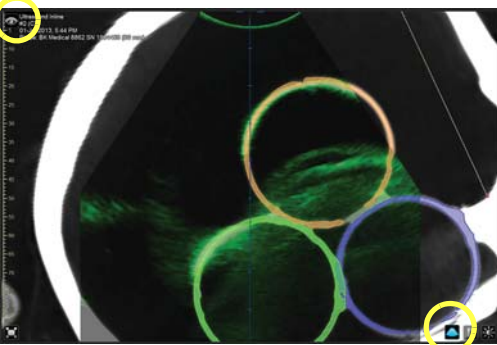
Lower row, from left to right:

- **Ultrasound Inline** view with overlay
- **Ultrasound Inline** view without overlay
- 3D overview



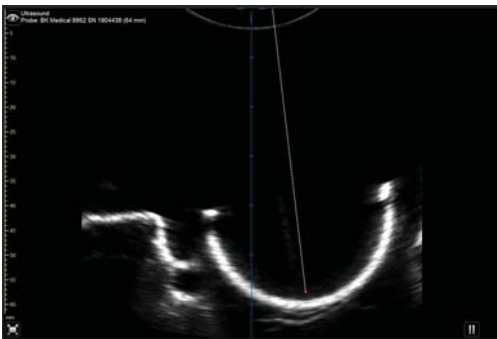
ULTRASOUND INLINE VIEW

- In the **Other Views** tab (accessible via the eye icon in the navigation screen), select the **Ultrasound Inline** view to display any image set cut along the ultrasound plane.
- Pressing the **Overlay** button overlays the current view with the ultrasound image.
- In the **Overlay** tab, which is accessible via the **Image Settings** button, the overlay can be modified.



ULTRASOUND VIEW

- In the **Other Views** tab, select **Ultrasound View** to display an ultrasound image.
- The displayed image can be adjusted by pressing the **Image Settings** button in the **Ultrasound** dialog.



ULTRASOUND LANDMARKS DEFINITION

- In the **Ultrasound** dialog, press **Ultrasound Landmarks**.
- Center the region of interest in the view, then press the pause button (see image).
- Press **Add** to set the landmark(s) and position them as required using the cross hairs.
- Press the pause button again and repeat the previous steps using a different image as necessary.

NOTE: To manage landmarks, press **Points** in the **Data** dialog.



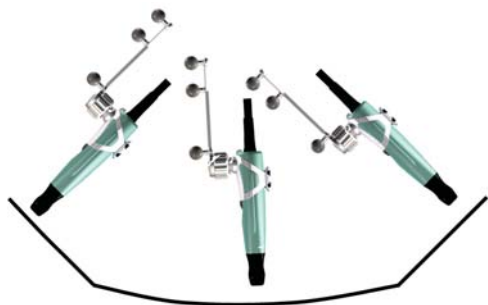


OBJECT SHIFT

- In the **Ultrasound** dialog, press **Object Shift** and select an object.
- Make sure the object is visible in the ultrasound image, then press the pause button in the first window.
- Rotate the probe at least 20°, then press the pause button in the second window.
- Adjust the object using the arrows.

ACQUIRING 3D ULTRASOUND

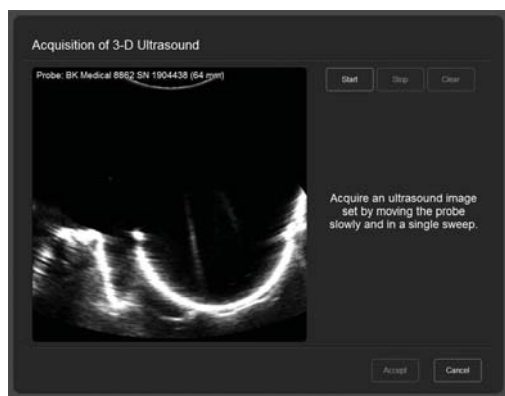
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TIPS FOR ACQUIRING 3D ULTRASOUND

- Move transducer in one long, slow, steady sweep (approximately 10 seconds).
- The tracking array should face the camera.
- Do not move transducer over the same area twice.
- Keep adapter roughly perpendicular. Only slight tilting is acceptable.
- Focus ultrasound device on the region of interest.

NOTE: With **Curve ceiling-mounted**, set the ultrasound zoom to 75%.



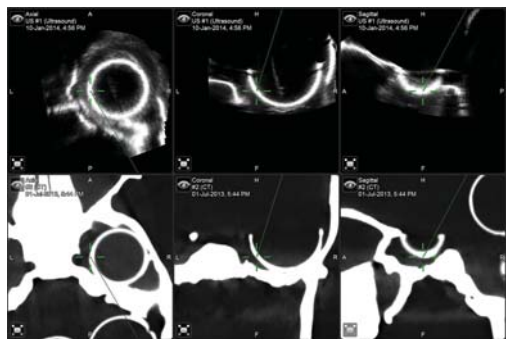
3D ULTRASOUND ACQUISITION

- Open **Tools > Ultrasound** and press **3D Ultrasound Acquisition**.
- Perform a practice scan of the specific region of interest.
- Press **Start**.
- Acquire region of interest.
- Press **Stop**.
- Press **Accept**.

NAVIGATING 3D ULTRASOUND

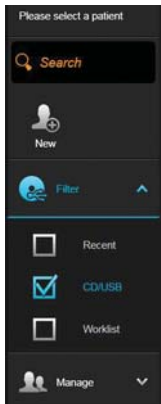
- Press the **Display** button.
- Select the **2x3** option.
- Select the intraoperative 3D ultrasound data set.
- Select the pre-operative MR or CT data set.

NOTE: You may want to zoom into the images for better visibility.



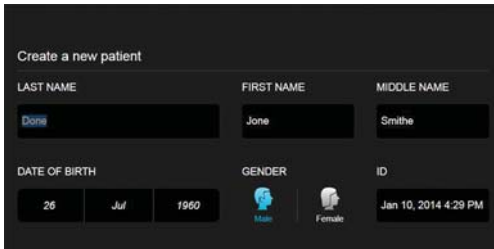
ULTRASOUND STANDALONE MODE

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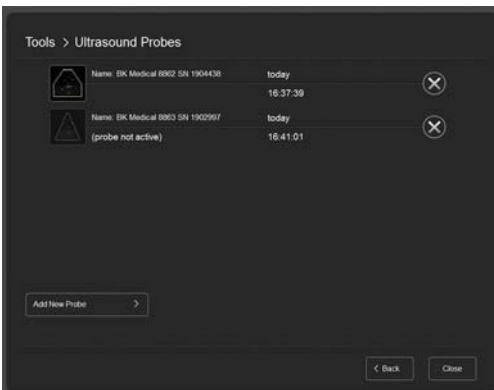
CREATING A PATIENT

- Press **Select Patient** in the upper corner of the screen.
- Press **New** to create a new patient.



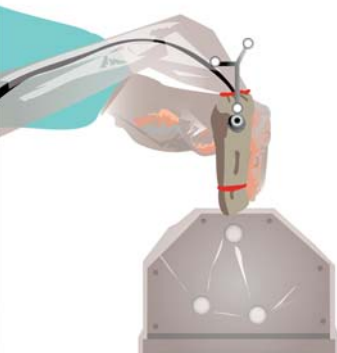
ADDING PATIENT DATA

- Add the patient's name and ID as well as the gender and the date of birth.
- Press **Done**.



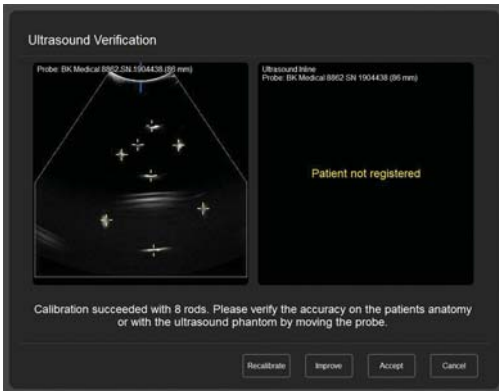
SELECTING THE ULTRASOUND PROBE

- Press **Tools**.
- Press **Ultrasound**.
- Select a probe.



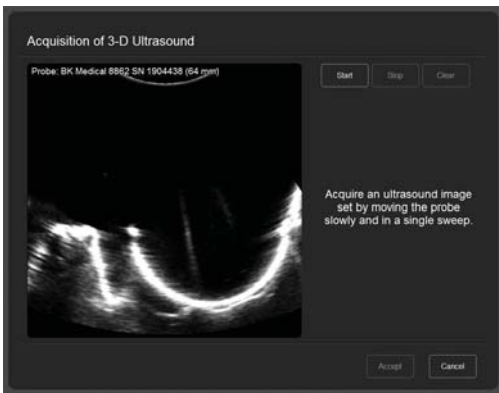
SETTING UP THE PROBE VERIFICATION

- Perform the steps described on page 3.



VERIFYING THE PROBE

- Perform the steps described on page 3.



ACQUIRING 3D SCAN

- Perform the steps described on page 7.



DEFINING IMAGE ORIENTATION

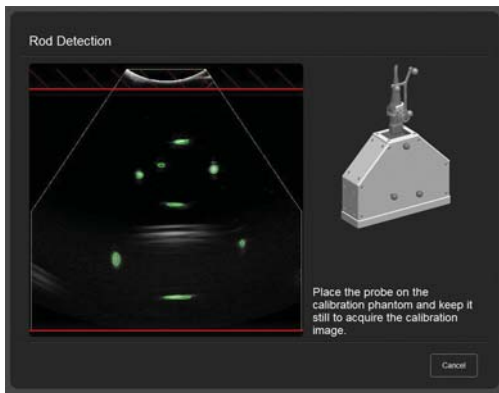
- Acquire the displayed landmarks to define the orientation of the data set.

IGSonic PROBE CALIBRATION

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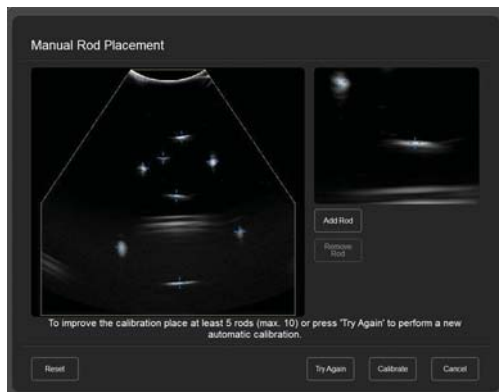
NOTE: The **IGSonic** probe calibration is usually performed by Brainlab support. However, if the calibration is inaccurate, you may calibrate yourself following the steps described below.



AUTOMATIC PROBE CALIBRATION

- In the **Ultrasound Verification** dialog, press **Recalibrate** to activate automatic probe calibration.
- Set the ultrasound device to the maximum depth (or up to maximum 10 cm) and modify settings to best visualize calibration points.
- Hold probe tip perpendicular to rubber surface of the **Ultrasound Registration Phantom** and hold it still. At least 8 rods should be calibrated by the software.

NOTE: If the automatic calibration fails, perform a manual calibration.



MANUAL PROBE CALIBRATION

To calibrate manually, either press **Improve** on the **Ultrasound Verification** dialog or continue from a failed automatic calibration:

- If you cannot see all 8 rods, press **Try Again** to restart the calibration process.
- Position the yellow crosses over each of the 8 rods and make sure there are no extra yellow crosses.
- Press **Calibrate** to perform a recalibration and verify the result.

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Document Revision: 1.0

Article Number: 60914-70EN

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