3D Guidance® Training Needle

Enhance procedure skills development of future clinicians by adding needle-tip tracking and deflection visualization capabilities to OEM medical simulators and trainers.

The 3D Guidance Training Needle is an 18-gauge, 110 mm length reusable titanium needle with a micro electromagnetic sensor embedded at its tip, which enables needle-tip tracking and deflection visualization from inside the phantom. These capabilities support the training of needle targeting and trajectory planning during simulated renal biopsies, TAP blocks, cordocentesis, and other procedures. Needle flexion and tracking performance that is comparable to image-guided surgery systems further mirror a realistic clinical experience.

NDI

3D Guidance® Training Needle

The 3D Guidance Training Needle is used with the 3D Guidance electromagnetic tracking solution to provide realistic and effective needle-guidance training.

Exceptional Needle-Tip Tracking

The 3D Guidance Training Needle tracks the needle tip's actual position in relation to a virtualized treatment site; there's no need to calculate the tip offset. The needle's depth and trajectory are continually visualized—even if the needle flexes—supporting accurate needle targeting and trajectory planning during simulated procedures.

- Tip tracking achieved via an embedded micro sensor – the same used in OEM clinical procedures.
- Exceptional tracking accuracy allows for targeting of small treatment areas.

Deflection Visualization

The 3D Guidance Training Needle enables the needle's angle of deflection to be visualized from inside the phantom. Deflection visualization shows the trainee if the needle has deviated from its insertion path and is now off-target, and to course-correct accordingly. It can also provide visual cues for determining the force required during puncture.

- The degree of needle flexion during puncture can be visualized as an actual number.
- Deflection visualization is calculated by using two sensors: one at the needle's tip and another at the proximal end.

Durable Design

The 3D Guidance Training Needle consists of a micro sensor embedded inside a titanium shaft. This shaft is inserted into a replaceable surgical steel cannula and secured by Luer lock. The cannula is open, supporting syringe use. Trainees can reuse the same needle repeatedly during a training session, eliminating high replacement costs.

- Designed with resilient materials that allow for moderate needle flexion.
- Tested to perform up to 400 needle punctures on soft phantom material.

Simplified Integration

The 3D Guidance Training Needle—like the entire 3D Guidance tracking solution—is designed for ease and speed of integration into OEM medical simulators and trainers. The needle's size is common to many clinical procedures offering immediate (and realistic) use in equivalent training applications. Minimal configuration is required; the needle comes ready to use.

- Factory-calibrated – no user calibration or re-calibration necessary.
- Customized needles are available.
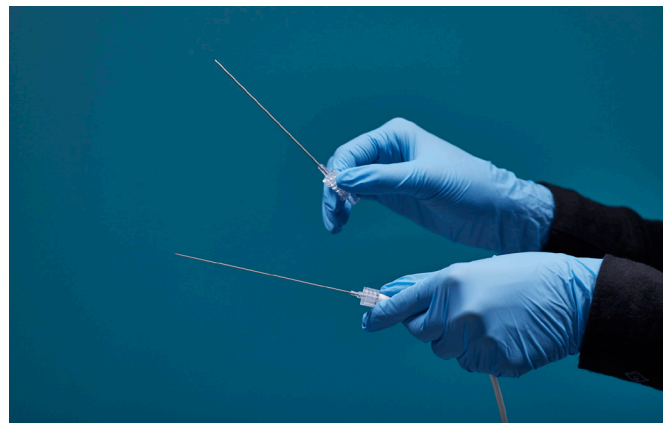
Technical Specifications

Sensor Model and Size	Model 55; ø0.56 mm x 12 mm
Needle Size	18 Gauge; 110 mm Length
Tracking Volume [1]	X: 160 mm to 320 mm Y: -100 mm to 100 mm Z: -100 mm to 100 mm
Positional Accuracy [2]	1.4 mm RMS
Orientation (Roll) Accuracy [3]	0.5° RMS
Number of Needle Punctures [4]	Up to 400 punctures of soft phantom material
Cannula Replacements	Available in a package of 10
System Requirement	3D Guidance solution *(including trakSTAR™ or driveBAY™ Electronics Unit and Transmitter)*
Materials Compliance	REACH, RoHS-3

Measurement Volume

200 mm

160 mm

200 mm

160 mm
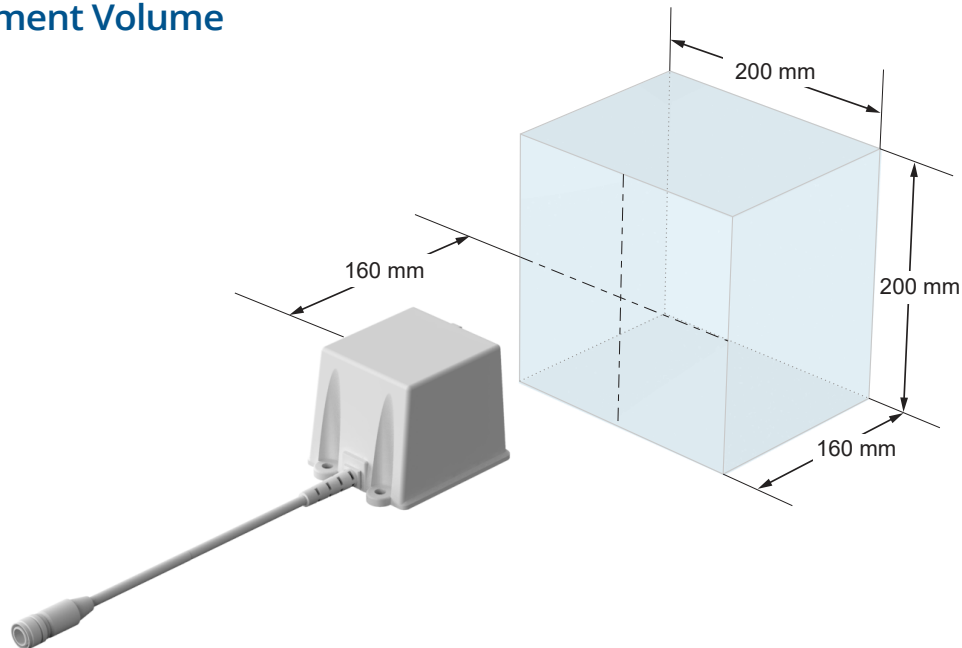
Head Office
Waterloo, ON Canada
☎ +1 (877) 634-6340
✉ info@ndigital.com
🔗 www.ndigital.com

Shelburne, VT USA
☎ +1 (802) 985-1114
✉ info@ndigital.com
🔗 www.ndigital.com

Radolfzell, Germany
☎ +49 7732 8234 0
✉ info@ndieurope.com
🔗 www.ndieurope.com

Hong Kong, China
☎ + (852) 2802-2205
✉ apinfo@ndigital.com
🔗 www.ndigital.cn