

How Electromagnetic Tracking Works

The Aurora[®] electromagnetic (EM) tracking solution work by generating a defined EM field in which EM micro-sensors are tracked. The small size of these sensors, and how they can be integrated into minimally invasive approaches, have helped medical device OEMs transform image-guided surgery and interventional procedures over the past decade.

1. Sensors can be embedded into an OEM medical instrument, where they serve as localization points for the instrument in 3D space.



2. The Field Generator emits a low-intensity, varying EM field that establishes the measurement volume.



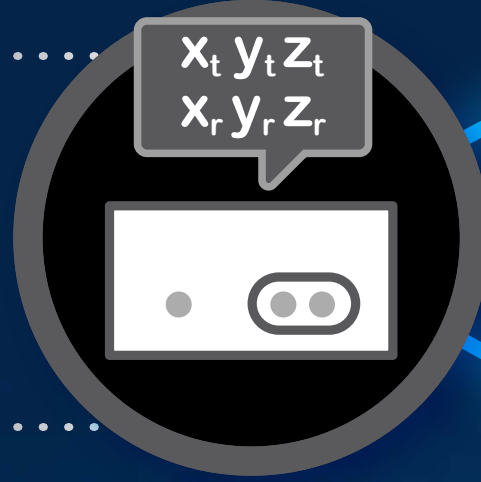
3. Small currents are induced inside the sensors when they enter the EM field.



4. These currents are relayed to the Sensor Interface Unit (SIU), where they're amplified and digitized as signals.



5. The signals are transmitted to the System Control Unit (SCU), which calculates each sensor's position and orientation as a transformation.



6. Tracking data are communicated to the OEM host application interface for real-time navigation of instruments relative to patient image sets.

