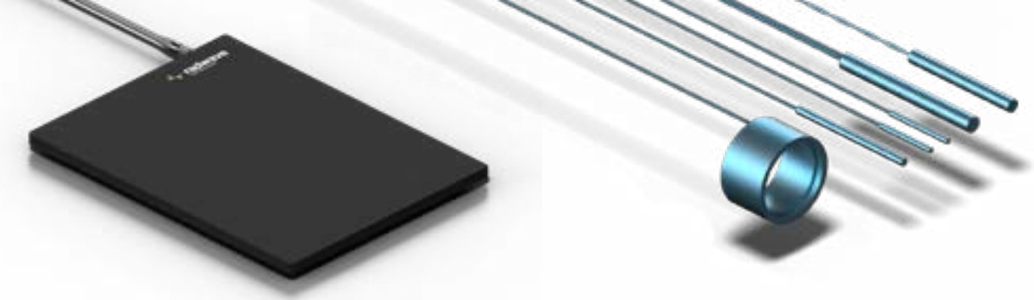
TT Electronics | radwave TECHNOLOGIES

ELECTROMAGNETIC TRACKING FOR SURGICAL NAVIGATION

EM TRACKING PLATFORM



WHY ELECTROMAGNETIC TRACKING?

- Real-time motion tracking when there's no line of sight
- No radiation
- Accurate, reliable, and low cost
- Easily integrates with new and existing medical devices and platforms

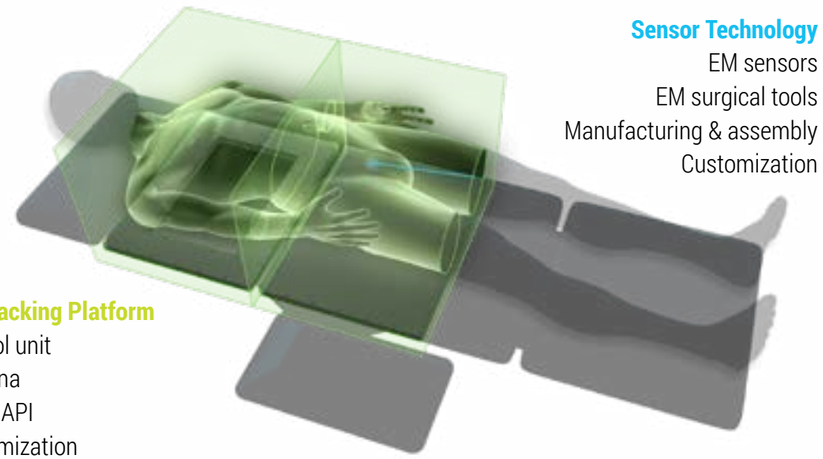
New Radwave® EM Tracking Platform for Advanced Surgical Procedures

Designed from the ground up to meet the needs of advanced minimally-invasive surgical (MIS) procedures. Accurate, reliable, and customisable to meet all your procedural needs.

Top Features:

- Seamless integration into MIS and robotic procedures
- Accurate and reliable with high sampling rates
- Translucent antenna during fluoroscopy with uncompromised image quality that reduces the X-ray dose
- Able to track many different sizes and types of sensors
- Customisable sensing volume that can grow or shrink to match the procedure's needs
- Rapid integration using encrypted, modern API with open-source SDK

COMPLETE ELECTROMAGNETIC TRACKING SOLUTION FOR SURGICAL NAVIGATION



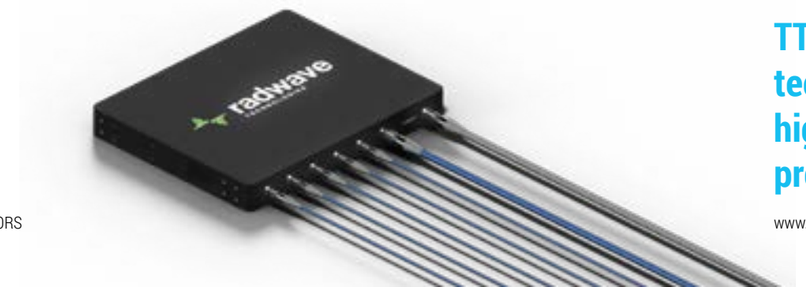
Sensor Technology
EM sensors
EM surgical tools
Manufacturing & assembly
Customization

EM Tracking Platform
Control unit
Antenna
SDK / API
Customization

HEALTHCARE MARKETS

Cardiology & Electrophysiology | Ear, Nose & Throat | Endoscopy | Imaging, Navigation, Monitoring | Neurosurgery | Robotic Assisted Surgery | Spine & Orthopedics

Radwave® EM Tracking Platform has a modern design that is: easy to integrate, easy to setup, and easy to use.

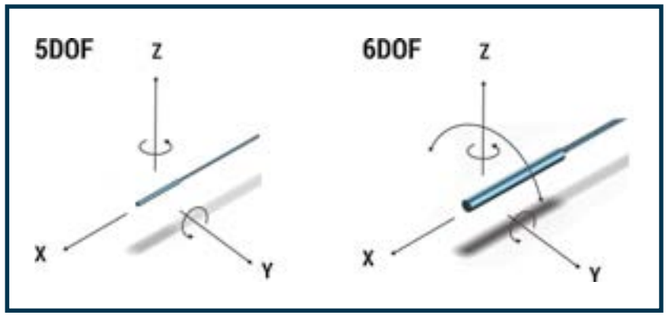


SURGICAL NAVIGATION | RADWAVE EM TRACKING PLATFORM WITH TT's SENSORS

SENSOR TECHNOLOGY

TT's sensor technologies deliver the highest degree of accuracy and precision, even in challenging settings where other EM systems have been limited by interference or sensing volume constraints. We have sensors in both 5 degrees of freedom and 6 degrees of freedom configurations. TT's sensor technologies are easily integrated into a variety of interventional and minimally invasive devices.

	RANGE
Sensor OD (mm)	≥ 0.33 mm →
Length (mm)	≥ 3.8 mm →
Strength	Small → Large
DOF	5 DOF or 6 DOF
Core	Air / Solid
Winding Orientation	Straight / Angled



TT Electronics is ISO 13485 certified and offers FDA registered and clean room manufacturing facilities. Our clean room facilities are flexible and expandable. They can be configured to meet the specific needs of each unique project with maximum efficiency.

TT Electronics' sensor technologies deliver the highest degree of accuracy and precision.

www.ttelectronics.com | www.radwavetech.com

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TT Electronics Sensor Technology

5DOF Solid Core Sensors

Part Number (Configuration: Flying Leads)	019-9388-00R	019-9388-01R	019-9388-02R	019-9388-04R	019-9352-00R
Part Number (Configuration: Header & RWMEM)	019-9388-00R-A	019-9388-01R-A	019-9388-02R-A	019-9388-04R-A	019-9352-00R-A (RWSEN2001)
Sensor Max OD (mm)	0.49	0.37	0.34	0.32	0.41
Sensor Max Length (mm)	5.07	4.50	3.94	2.65	4.00
Integration Capability	Yes	Yes	Yes	Yes	Yes

5DOF Air Core Sensors

Part Number (Configuration: Flying Leads)	019-9505-00R	019-9507-00R	019-9509-00R	019-9510-00R	019-9512-00R
Part Number (Configuration: Header & RWMEM)	019-9505-00R-A	019-9507-00R-A	019-9509-00R-A	019-9510-00R-A	019-9512-00R-A
Sensor Max OD (mm)	2.37	2.76	3.35	3.8	4.53
Sensor Max Length (mm)	9.19	6.54	3.86	3.43	2.27
Sensor Min ID (mm)	1.68	2.31	3.02	3.35	4.00
Integration Capability	Yes	Yes	Yes	Yes	Yes

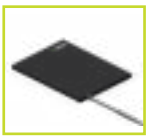
6DOF Solid Core Sensors

Part Number (Configuration: Flying Leads)	019-9391-00R	019-9354-00R
Part Number (Configuration: Header & RWMEM)	019-9391-00R-A	019-9354-00R-A (RWSEN2004)
Sensor Max OD (mm)	0.82	1.25
Sensor Max Length (mm)	9.79	3.00
Integration Capability	Yes	Yes

Radwave® EM Tracking Platform

Field Generator / Antenna

Thin, light, radiotranslucent polycarbonate antenna designed for intraoperative fluoroscopy or CT scan.



RWAP1-01
Table Antenna: made of radiolucent polycarbonate board with minimal artifacts on intraoperative fluoro or CT scan
Dimension: 45.8cm x 61.0cm x 2.2cm (width, length, height)
Tracking Volume: 46 cm x 61 cm x 55 cm (W x L x H)
Weight Limit: 181 kg (400 lbs)
Sensor Distance: 2.5 cm
Weight: 5.2 kg

RWAP2-01
Compact Antenna
Dimension: 13.6 cm x 22.0 cm x 2.2 cm (width, length, height)
Tracking Volume: 20 cm x 23 cm x 30 cm (W x L x H)
Weight Limit: 68 kg (150 Lbs)
Sensor Distance: 0.5 cm
Weight: 1.4 kg

RWAP3-01
Standard Antenna
Dimension: 25.2 cm x 37.5 cm x 2.2 cm (width, length, height)
Tracking Volume: 40 cm x 44 cm x 50 cm (W x L x H)
Weight Limit: 68 kg (150 Lbs)
Sensor Distance: 1.0 cm
Weight: 2.2kg

Control Unit

Ethernet interface with modern & encrypted TCP/IP with A/C power featuring 100 Hz sampling rate and multiple port connectors. Size: 1U rack mountable unit (4.5cm x 33.0cm x 41cm) with optional mounting brackets. Weight is 3.3 kg.

RWCU-01
5x three-coil sensor port connectors
1x nine-coil sensor port connector
1x antenna pad connector
Weight: 3.20 kg

RWCU-01-4P
4x three-coil sensor port connectors
1x antenna pad connector
Weight: 3.20 kg

RWCU-01-2P
2x three-coil sensor port connectors
1x antenna pad connector
Weight: 3.20 kg

About TT Electronics plc

TT Electronics is a global provider of engineered electronics for performance critical applications. TT benefits from enduring megatrends in structurally high-growth markets including healthcare, aerospace, defence, electrification and automation. TT invests in R&D to create designed-in products where reliability is mission critical. TT has design and manufacturing facilities in the Europe, North America, and Asia.

For more information about TT Electronics, visit www.ttelectronics.com.

About Radwave Technologies Inc.

Radwave Technologies Inc. is a technology company that develops and manufactures electromagnetic-based tracking platforms for use in biomedical and other applications. The company's patented modular platform is accurate, precise, and can be easily customized to meet customer's exact specifications.
The company was founded in 2018, and is based in St. Paul, MN.

For more information, visit www.radwavetech.com