

spryTrack 180



- Compact & Mobile** slightly longer than a pencil
- Sub-millimetric precision** 190 μm RMS up to 1.4 m
- Bluetooth** wireless access to pose geometry (6D)
- USB Type-C** easy data and power
- Battery pack (optional)** for fully wireless configuration
- Active and passive** markers tracked simultaneously

The spryTrack 180 is a compact and mobile optical pose tracking system at the edge of the technology with no compromises on speed nor precision.

The extremely compact spryTrack is composed of two cameras designed to detect and track fiducials (reflective spheres, disks and/or IR-LEDs) with high precision in real time video streams. Triangulation enables retrieving 3D position of each fiducial with sub-millimetric accuracy. When several fiducials are affixed to a marker, its pose (orientation and position) is calculated with 6 degrees of freedom $(x,y,z,\alpha,\beta,\gamma)$. The spryTrack has the ability to provide 3D positions of the fiducials, and/or poses of the markers.

The spryTrack offers both a USB Type-C (for power and/or data) as well as a Bluetooth connection (for data only) allowing a wireless access to pose geometry (6D). An optional battery pack enables complete mobility.

Bluetooth communication and the battery pack are currently provided as engineering samples for evaluation purposes, enabling OEMs to explore cable-free operation and provide feedback to help tailor further development to their system requirements.

The SDK allows access to data at different stages of processing, starting from raw images, individual 3D positions of fiducials, and up to the pose of markers. The SDK also provides multi-level fault checking. This makes it possible to access error information in real-time at any processing stage: fiducial occlusion level, stereo de-calibration, marker registration error and more. The Bluetooth interface is supported through a dedicated SDK currently provided in beta, fully functional for evaluation and development, but not yet certified.



Active markers



Passive markers

About us Optical Measurement Solutions since 2004.

Atracsys designs, develops, certifies and industrializes real-time image processing systems for embedded applications and optical metrological systems according to the ISO 13485 medical quality system. Atracsys aims at continuously contributing to the improvements in healthcare all around the world, guiding surgical instruments with sub-millimetric precision.

Benefits

No wires required - The spyTrack works with an optional battery pack. Marker tracking became totally wireless.

Sub-millimetric accuracy - Embedding the latest state-of-the-art technology, the spyTrack combines compactness with accuracy.

Enables new types of applications - The spyTrack is extremely compact and mobile, thus accessible by any physician practice all around the world.

Passive and active markers

Atracsys proposes a vast choice of passive and active markers designed and manufactured using the best available materials.

Superior manufacturing ensures higher tip precision for the instrument, probe or tool. Multiple fixing points, clamps and other accessories make it easy to fix the markers to specific tools or instruments.

The geometry of our markers is pre-integrated into the provided SDK, so no configuration is required to use them.

1. Passive Technologies

Tindax - markers with disposable reflective spheres : 5 different high-quality titanium markers with unique geometries.

Navex - patented technology with disposable reflective disks: 5 different high-quality carbon fiber markers with unique geometries and 1 pointer.

2. Active Technologies

Active autoclavable wireless markers can be customized according to your specific needs.

For development purpose we propose non-autoclavable wireless active markers. For example, the development kit enables custom built wireless active markers that perfectly fit your requirements.

Technical specifications

Hybrid tracking	Reflective spheres / disks; Active wired and wireless.
Acquisition	Parallel (all fiducials at the same time)
Max. simultaneous markers ⁽¹⁾	Almost unlimited
Max. fiducials per marker	5
Interface	USB Type-C: - Power - USB PD (Power Delivery) - Data - SuperSpeed USB 5 Gps (USB Type-A interface for PC is accessible via the optional Power Injector). Bluetooth Low Energy (BLE) 5.1
SDK	C (DLL), C++, Python
Operating systems	Windows >= 8.1 (64 bits) / Linux (64 bits)
Mounting	M3 screws
Power requirements	USB Power Delivery (15W): 5 V,3 A; 9 V,1.67 A; 12 V,1.25 A
Operating temperature	15-30°C
Battery pack ⁽²⁾	up to 8 hours of autonomy
Approvals	Electrical safety IEC 60601-1:2005+A2:2020, Ed 3.2 - Electromagnetic disturbances: IEC 60601-1-2:2014+A1:2020, Ed 4.1 - Photobiological safety of lamps: IEC 62471:2006, Ed 1.0 - Safety of laser products: IEC 60825-1:2014, Ed 3.0 - Medical device software: IEC 62304:2006+A1:2015, Ed 1.1

Hardware

Swiss-made quality guarantee - The spyTrack is entirely designed, engineered, manufactured and verified by Atracsys in Switzerland according to the ISO 13485.

Atracsys tracking systems have already been integrated into demanding surgical and industrial applications for over 10 years.

Model specifications

	spyTrack 180
Size	236.3 mm x 60.3 mm x 50.5 mm
Weight	692g
Accuracy ⁽³⁾	0.19 mm RMS up to 1.4 m (0.5 m ³) 0.29 mm RMS up to 1.8 m (1.1 m ³) 0.36 mm 95% CI up to 1.4 m (0.5 m ³) 0.58 mm 95% CI up to 1.8 m (1.1 m ³)
Tracking volume	Starts at 300 mm
Measurement rate	54 Hz
Latency ⁽⁴⁾	~< 25 ms

(1) Full speed tested with 4 markers (4 fiducials).

(2) Optional.

(3) Based on a single fiducial stepped more than 1500 points throughout the measurement volume at 20°C. Average results on 7 devices.

(4) Tested with a USB connection and in the case of typical IR images with 4 markers including 4 fiducials in the center of the Working Volume and without interference.

Due to continuous improvements, Atracsys reserves the right to modify information or specifications without prior notice.

Working Volume

