

# spryTrack 180



- Compact & Mobile** slightly longer than a pencil
- Sub-millimetric precision** 190  $\mu\text{m}$  RMS up to 1.4 m
- Bluetooth** direct link to a tablet (iOS, Win, Android)
- USB 3.0 type C** complete access to images and data
- 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 3.0 Type C (for power and/or data) as well as a Bluetooth connection (for data only) allowing a wireless link to a tablet on which the navigation application runs. A PC is no more needed. An optional battery pack enables complete mobility.

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.



Active markers



Navex - 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 PC required - The spyTrack works without a work-station with an optional battery pack. Marker poses are directly sent to a tablet thanks to its embedded Bluetooth connection.

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.

Passive and active markers are available both disposable and reusable. Passive markers are available in carbon and titanium. Selected models can be sterilized in an autoclave, are medically certified and bio-compatible. Active markers are either available in a wireless version (polymer, stainless steel) or wired version (medically compatible polymer).

Passive markers with reflective spheres - Atracsys proposes 5 different high-quality markers with unique geometries, a calibration marker, and several accessories (clamps, probe, sterilization basket). The geometry of our markers is pre-integrated into the provided SDK, so no configuration is required to use them.

Passive markers with reflective disks - Thanks to Atracsys Navex patented technology, build your own passive markers with disposable reflectives disks. It takes just minutes to integrate them into your application using the SDK marker calibration application.

Active wireless/wired markers with IR-LEDs - With no additional hardware, the device can track wireless or wired active markers. The wireless marker development kits enable custom built wireless active markers that perfectly fit your requirements.

## 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.

Highly customizable - Our technology can be customized to fit your requirements (i.e., precision level, acquisition speed, working volume, extensions). The spyTrack is compatible with existing image-guided surgical tools that are widely used in the medical field.

## Technical specifications

Hybrid tracking	Reflective spheres / disks, Active wired and wireless
Acquisition	Parallel (all fiducials at the same time)
Resolution	1.2 Mp
Max. simultaneous markers <sup>(1)</sup>	Almost unlimited
Max. fiducials per marker	5
Interface	USB 3.0 Type-C for direct power delivery or USB 3.0 Type-A via optional Power Injector. Data transfer : USB 3.0 or Bluetooth Low Energy (BLE) 5.1
SDK	C (DLL), C++, Python
Operating systems	Windows / Linux / iOS / Android
Mounting	M3 screws
Power requirements	USB power delivery 5V 3A 15W
Operating temperature	18-25°C
Battery pack <sup>(2)</sup>	up to 5 hours of autonomy
Approvals	Electrical safety IEC 60601-1 ed 3.2 (2020-08-20) Electromagnetic compatibility IEC 60601-1-2 ed 4.0 (2014-02-25)
Hardware requirements	Minimum host PC requirements: Intel(R) Core(TM) i3-6100U CPU @ 2.30GHz 4 GB DDR3 RAM 120 MB disc space Compiler with full C++ 11 support Windows >= 8.1 64 bits Linux 64 bits

Working Volume

## Model specifications

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

(1) 16 max recommended to preserve full speed

(2) Optional

(3) Based on a single fiducial stepped more than 1500 points throughout the measurement volume at 20°C. Average result 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 1 Working Volume and without interference

