

# spryTrack 180



Compact & Mobile slightly longer than a pencil  
 Sub-millimetric precision 130  $\mu$ m RMS up to 1 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. Since 2004, we aim at continuously contributing to the improvements in healthcare all around the world, guiding the surgical instruments with sub-millimetric precision. Atracsys solutions are used whenever measurement accuracy, speed and reliability are required.

## Benefits

**No PC required** - The spryTrack 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 spryTrack combines compactness with accuracy.

**Enables new types of applications** - The spryTrack 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 spryTrack 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 spryTrack 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 SuperSpeed Bluetooth 4.1 Smart Ready
SDK	C (DLL)
Operating systems	Windows / Linux / iOS / Android
Mounting	M3 screws
Power requirements	USB power delivery 12V 1.7A 20.4W
Operating temperature	15-25°C
Shock sensor <sup>(2)</sup>	Shock sensor and RTC monitoring device even when not connected
Battery pack <sup>(2)</sup>	up to 2 hours of autonomy
Lasers <sup>(2)</sup>	2 lasers for device positioning
Approvals	Electrical safety IEC 60601-1 ed3.1 (2012-08-20) 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 50 MB (Windows) or 30 MB (Unix/Linux) disc space Window 8.1 (32 and 64 bits supported) Linux (32 and 64 bits supported), gcc 5.4 or clang 3.8

## Model specifications

	spryTrack 180
Size	233 mm x 57 mm x 47 mm
Weight	670 g
Accuracy <sup>(3)</sup>	0.13 mm RMS up to 1 m 0.24 mm RMS up to 1.4 m 0.49 mm RMS up to 2 m  0.26 mm 95% CI up to 1 m 0.47 mm 95% CI up to 1.4 m 0.99 mm 95% CI up to 2 m
Tracking volume	Starts at 200 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 2000 points throughout the measurement volume at 20°C.

(4) 24ms image acquisition + ~1ms processing time & data transmission

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

