

spryTrack 180



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,α,β,γ). 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.

- Compact & Mobile** slightly longer than a pencil
- Sub-millimetric precision** 0.19 mm RMS up to 1.4 m
- Bluetooth** wireless access to pose geometry (6D) ⁽¹⁾
- USB Type-C** easy data and power
- Battery pack (optional)** for fully wireless configuration ⁽¹⁾
- Active and passive** markers tracked simultaneously



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

Accuracy in a compact format

The sTk 180 delivers submillimeter tracking accuracy in a compact optical tracking camera.

Compact and mobile

Its compact, lightweight design facilitates integration into mobile systems and space-constrained environments.

Greater freedom of movement

With its optional battery pack, the sTk 180 can be positioned with fewer cabling constraints.

Passive and active markers

Atracsys offers a wide range of passive and active markers designed for precise and flexible instrument tracking. Multiple fixing points and accessories facilitate integration, while pre-integrated geometries in the SDK allow immediate use without additional configuration.

1. Passive technologies

Tindax: Five titanium marker geometries using disposable reflective spheres.

Navex: Four patented carbon-fiber marker geometries and one pointer using disposable reflective disks.

2. Active technologies

Available on request, our active wireless markers are developed as a custom service to meet application-specific requirements.

Technical specifications

Hybrid tracking	Reflective spheres / disks; Active wired and wireless.
Acquisition	Parallel (all fiducials at the same time)
Max. simultaneous markers ⁽²⁾	16 markers in USB, 4 markers in BTLE
Max. fiducials per marker	6
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 ⁽³⁾	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 15 years.

Model specifications

	spyTrack 180
Size	236.3 mm x 60.3 mm x 50.5 mm
Weight	692g
Accuracy ⁽⁴⁾	0.19 mm RMS up to 1.4 m (0.5 m³) 0.29 mm RMS up to 1.8 m (1.1 m³) 0.36 mm 95% CI up to 1.4 m (0.5 m³) 0.58 mm 95% CI up to 1.8 m (1.1 m³)
Tracking volume	Starts at 300 mm
Measurement rate	54 Hz
Latency ⁽⁵⁾	~25 ms

(1) The battery pack is available as an engineering sample and the Bluetooth SDK in beta. Neither has undergone full certification. Both are offered to OEMs to evaluate cable-free operation and help align ongoing development.

(2) Full speed is preserved for 4 markers of 4 fiducials. (i.e. 16 fiducials).

(3) Optional and engineering sample development status.

(4) Based on a single fiducial stepped uniformly throughout the measurement working volume at 20 °C.

(5) 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

