atracsys
MEASUREMENT SOLUTIONS

spryTrack 300

Compact & Mobile, data transmission via Bluetooth
Sub-millimetric precision 140 µm RMS up to 1.4 m
Structured Light for dense 3D reconstruction
USB 3.0 type C complete access to images and data
Active and passive markers tracked simultaneously

The compact spryTrack 300 is composed of two cameras designed to acquire infrared camera images, as well as, to detect and track fiducials (reflective spheres, disks and/or IR-LEDs) with high precision.

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.

The spryTrack 300 has the ability to provide 3D positions of fiducials and/or pose of markers, as well as retrieve structured-light images for dense 3D reconstruction.

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 spryTrack offers a USB 3.0 Type C connection for power and data.

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 to continuously contribute 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.

SWISS MADE

version 1

Benefits

Dense 3D reconstruction - on top of conventional tracking data, retrieve depth information and use it in deep learning applications.

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

Enables new types of applications - The spryTrack is 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.
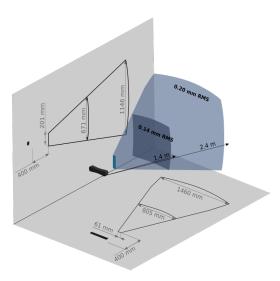
Hardware

Swiss-made quality guarantee - The spryTrack 300 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.

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

Aquisition modes	Fiducial tracking at 54 Hz orDense 3D reconstruction up to 54 Hz or
	Alternance of both modes defined by user.
Fiducials tracking types	Reflective spheres / disks,
	Active wired and wireless
Image resolution	1.2 Mp
Max. simultaneous markers [1]	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	15-30°C
Approvals	Electrical safety IEC 60601-1 ed 3.2 Electromagnetic compatibility IEC 60601-1-2 ed 4.1
Hardware Requirements	Minimum host PC requirements: Intel(R) Core(TM) i3-6100U CPU @ 2.30GHz 4 GB DDR3 RAM 200 MB disc space Compiler with full C++ 11 support Windows >= 10 64 bits Linux 64 bits

Model specifications

	spryTrack 300
Size	356.5 mm x 60.5 mm x 55mm
Weight	1073 g
Accuracy [3]	0.14 mm RMS up to 1.4m (0.3 m³) 0.20 mm RMS up to 2.4m (1.4 m³) 0.27 mm 95% CI up to 1.4m (0.3 m³) 0.41 mm 95% CI up to 2.4m (1.4 m³)
Tracking volume	Starts at 400 mm
Measurement rate	54 Hz
Latency [4]	< 25 ms

(1) 16 max recommended to preserve full speed
(2) Based on a single fiducial stepped uniformly throughout the measurement volume at 20°C.
(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

Working Volume

version 1