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 type-C easy data and power
Active and passive markers tracked simultaneously

The 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 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 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).

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

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.

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SWISS MADE

version 2

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.

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

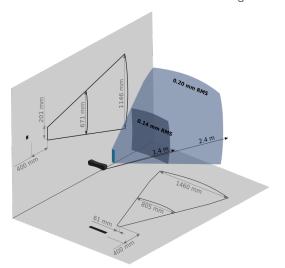|	
Acquisition modes	Fiducial tracking up to 54 Hz. Dense 3D reconstruction up to 54 Hz. Visible RGB streaming up to 54 Hz (RGB version only). Custom alternation of acquisition modes customizable by the user.
Hybrid tracking	Reflective spheres / disks; Active wired and wireless.
Resolution	1.2 Mp
Max. 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 >=10 (64 bits) / Linux (64 bits)
Mounting	M3 screws
Power requirements	UBS Power Delivery (15W): 5 V,3 A; 9 V,1.67 A; 12 V,1.25 A
Operating temperature	15-30°C
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 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.

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

(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