![Fraunhofer IPM logo]

Track & Trace Fingerprint Flex

Marker-free component traceability – flexible, mobile, reliable

The compact, battery-powered Track & Trace Fingerprint Flex reader enables mobile, marker-free component authentication.

To optimize complex manufacturing processes, flexible systems are needed that reliably identify components anywhere and at any time. Track & Trace Fingerprint by Fraunhofer IPM relies on a component's individual surface microstructure for marker-free component authentication and tracing. Track & Trace Fingerprint Flex is a cordless, portable system for mobile use.

![Track & Trace Fingerprint Flex logo]

Established in the production line

Reliable traceability of components usually requires individual component marking. Applying markers such as data matrix codes to a component, however, often incurs high costs and in some cases, it simply is technically unfeasible. Track & Trace Fingerprint by Fraunhofer IPM makes it possible to identify components solely by their individual surface microstructure, without the need for additional markers. The camera system records a high-resolution image of the component's surface and converts it into a digital fingerprint, which is then linked to an individual object ID. Subsequently, the downstream fingerprint algorithm can identify an individual component among millions of identical components in a matter of seconds.

The Track & Trace Fingerprint Inline camera system is permanently installed in the production line, where it captures automatically positioned components. The system is designed for inline application in industrial production. Track & Trace Fingerprint Flex, in contrast, can be used for mobile, flexible component authentication outside of fully automized manufacturing lines.
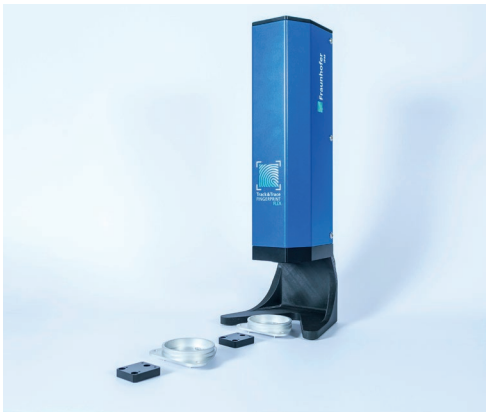
Nearline application

Track & Trace Fingerprint Flex is designed as a hand-held or robot-assisted system. Mounted on a moving robot or a robot arm, Track & Trace Fingerprint Flex identifies components at varying positions along the production process. As a portable, cordless device, Track & Trace Fingerprint Flex can be used for

Advantages at a glance

- Traceability without the need for markers
- For assembly, logistics and quality assurance
- Suitable for a broad variety of component geometries and materials
- Control and data transfer via WLAN using a laptop, tablet or PC
- Total weight 2.5 kg